UNITED STATES SECURITIES AND EXCHANGE COMMISSION • WASHINGTON, D.C. 20549

FORM 10-K

☒ Annual Report Pursuant to Section 13 or 15(d) of The Securities Exchange Act of 1934

For the fiscal year ended December 31, 2017

or

☐ Transition Report Pursuant to Section 13 or 15(d) of The Securities Exchange Act of 1934

For the transition period from _______to ______

Commission file number 001-32887

VONAGE HOLDINGS CORP.

(Exact name of registrant as specified in its charter)

Delaware	11-3547680
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
23 Main Street, Holmdel, New Jersey	07733
(Address of principal executive offices)	*(Zip Code)*

Registrant's telephone number, including area code: (732) 528-2600

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	*Name of each exchange on which registered*
Common Stock, Par Value $0.001 Per Share	The New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulations S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer" and "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. Check one:

Large accelerated filer ☒ Accelerated filer ☐
Non-accelerated filer ☐ (Do not check if a smaller reporting company) Smaller reporting company ☐
Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.) ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant at June 30, 2017 was $1,330,553,575 based on the closing price of $6.54 per share.

The number of shares outstanding of the registrant's common stock as of January 31, 2018 was 231,153,342 .

Documents Incorporated By Reference
Selected portions of the Vonage Holdings Corp. definitive Proxy Statement, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2017 , are incorporated by reference in Part III of this Form 10-K.

VONAGE HOLDINGS CORP.

FORM 10-K
FOR THE FISCAL YEAR ENDED December 31, 2017

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains statements and other information which are deemed to be “forward-looking” within the meaning of the Private Securities Litigation Reform Act of 1995, or the Litigation Reform Act. These forward-looking statements and other information are based on our beliefs as well as assumptions made by us using information currently available.

The words "plan," “anticipate,” “believe,” “estimate,” “expect,” “intend,” “will,” “should” and similar expressions, as they relate to us, are intended to identify forward-looking statements. Such statements reflect our current views with respect to future events, are subject to certain risks, uncertainties, and assumptions, and are not a guarantee of future performance. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in such forward-looking statements or information. In light of the significant uncertainties in these forward-looking statements, you should not place undue reliance on these forward-looking statements. The forward-looking statements and information contained in this Annual Report on Form 10-K relate to events and state our beliefs and the assumptions made by us only as to the date of this Annual Report on Form 10-K. We do not intend to update these forward-looking statements, except as required by law.

In accordance with the provisions of the Litigation Reform Act, we are making investors aware that such forward-looking statements, because they relate to future events, are by their very nature subject to many important factors that could cause actual results to differ materially from those contemplated by the forward-looking statements contained in this Annual Report on Form 10-K, any exhibits to this Form 10-K and other public statements we make. the competition we face; the expansion of competition in the cloud communications market; our ability to adapt to rapid changes in the cloud communications market; the nascent state of the cloud communications for business market; our ability to retain customers and attract new customers cost-effectively; the risk associated with developing and maintaining effective internal sales teams and effective distribution channels; risks related to the acquisition or integration of businesses we have acquired; security breaches and other compromises of information security; risks associated with sales of our services to medium-sized and enterprise customers; our reliance on third party hardware and software; our dependence on third party facilities, equipment, systems and services; system disruptions or flaws in our technology and systems; our ability to scale our business and grow efficiently; our dependence on third party vendors; the impact of fluctuations in economic conditions, particularly on our small and medium business customers; our ability to comply with data privacy and related regulatory matters; our ability to obtain or maintain relevant intellectual property licenses or to protect our trademarks and internally developed software; fraudulent use of our name or services; intellectual property and other litigation that have been and may be brought against us; reliance on third parties for our 911 services; uncertainties relating to regulation of business services; risks associated with legislative, regulatory or judicial actions regarding our business products; risks associated with operating abroad; risks associated with the taxation of our business; governmental regulation and taxes in our international operations; liability under anti-corruption laws or from governmental export controls or economic sanctions; our dependence on our customers' unimpeded access to broadband connections; risks associated with a material weakness in our internal controls;restrictions in our debt agreements that may limit our operating flexibility; foreign currency exchange risk; our ability to obtain additional financing if required; any reinstatement of holdbacks by our credit card processors; our history of net losses and ability to achieve consistent profitability in the future; our ability to fully realize the benefits of our net operating loss carry-forwards if an ownership change occurs; certain provisions of our charter documents; and other factors that are set forth in the “Risk Factors” section and other sections of this Annual Report on Form 10-K, as well as in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

FINANCIAL INFORMATION PRESENTATION

For the financial information discussed in this Annual Report on Form 10-K, other than per share and per line amounts, dollar amounts are presented in thousands, except where noted. All trademarks are the property of their owners.

PART I

ITEM 1. Business

OVERVIEW AND STRATEGY

At Vonage, we are redefining business communications. True to our roots as a technology disruptor, we are embracing technology to transform how businesses communicate to create better business outcomes. Our cloud communications platform enables businesses of all sizes to collaborate more productively and engage their customers more efficiently across any device. Vonage customers can choose among two separate delivery models to suit their specific communication needs: They can purchase Vonage Business with a Software-as-a-Service, or SaaS, model for a complete and configured unified communications solution or they can purchase Nexmo, "the Vonage API Platform", with a Platform-as-a-Service, or PaaS, model and consume our cloud communication in programmable modules, delivered via application programming interfaces, or APIs. We also provide a robust suite of feature-rich residential communication solutions.

All of our cloud communications solutions are designed to allow businesses to be more productive by integrating communications with all their existing business productivity tools and our programmable solutions allow customers to engage with their customers via embedded voice, chat, or messaging to create seamless and contextual communications that makes doing business easier for end customers. The use cases for both within and between the SaaS and PaaS platforms continue to grow as businesses of all size continue to leverage cloud communications to improve employee productivity and customer experience. We also continue to provide a robust set of feature-rich residential communication solutions that allow consumers to connect their home phones and mobile phones on one number and we offer attractive international long distance rates that help create a loyal base of satisfied customers.

Our business is organized under two reportable segments, Business and Consumer. Additional discussion of our reportable segments is included in Note 16, *Industry Segment and Geographical Information* to the Consolidated Financial Statements.

Business

Our strategy is to use cloud communications to deliver better business outcomes for our customers, leveraging our unique combination of cloud-based Unified Communications as a Service, or UCaaS, solutions and Communications Platform as a Service, or CPaaS, offerings. Our innovative UCaaS solution is comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable Session Initiation Protocol, or SIP, based Voice over Internet Protocol, or VoIP, network. Our CPaaS, solutions are designed to enhance the way businesses communicate with their customers by embedding communications into apps, websites and business processes. In combination, our products and services permit our business customers to communicate with their customers and employees through any cloud-connected device, in any place, at any time without the costly investment required with on-site equipment. We have a robust set of product families tailored to serve the full range of the business value chain, from the small and medium business, or SMB, market, through mid-market and enterprise markets. We provide customers with multiple deployment options, designed to provide the reliability and quality of service they demand. We provide customers the ability to integrate our cloud communications platform with many cloud-based productivity and CRM solutions, including Google’s G Suite, Zendesk, Salesforce’s Sales Cloud, Oracle, and Clio. Additionally, we provide a variety of Contact Center as a Service, or CCaaS, offerings as customers continue to transform their contact and call centers with cloud communications. With our ability to integrate these cloud-based workplace tools, Vonage integrates the entire business communications value chain - from employee communications that maximize productivity to the direct engagement with customers that CPaaS provides. When combined with our Multiprotocol Label Switching, or MLPS, network, as well as voice services over customers' broadband networks via our SmartWan solution, we create a truly differentiated offering.

We support the full range of business customers, using three product families: Vonage Business Cloud, formerly Vonage Essentials, based on our proprietary call processing platform that is purpose-built for SMB and mid-market customers; Vonage Enterprise, formerly Vonage Premier, based on Broadsoft’s call processing platform in combination with other Vonage cloud based solutions, which serves mid-market businesses and large enterprises; and Nexmo, the Vonage API platform which provides customers with the ability to integrate communications into their business applications. We believe operating our product platforms at scale enables us to deliver the right products and solutions to address the needs of diverse customers while maximizing our subscriber economics, regardless of segment served. Revenues are generated primarily through the sale of subscriptions for our UCaaS services and usage-based sales through our CPaaS services allowing our customers to address their full communication needs. Our revenue generation efforts are focused on customer acquisition and retention as well as providing additional services to existing customers as they grow and scale.

Our diverse customer base spans a wide variety of industries, including retail, manufacturing, automotive, legal, information technology, financial services, construction, real estate, engineering, healthcare, and non-profit.

Vonage Business Cloud

Vonage Business Cloud customers subscribe to our cloud-based communication services, delivered through our proprietary platform that is purpose-built for SMB and mid-market customers. Vonage Business Cloud provides a cost-effective, scalable, feature-rich solution, delivered over-the-top of a customer's broadband, typically month-to-month without a commitment. Vonage Business Cloud is sold primarily through our direct telesales and online channels, and is increasingly sold through our channel partners and field sales teams. We believe the strength of the Vonage brand directly contributes to a lower-cost customer acquisition model and provides attractive subscriber economics.

Vonage Enterprise

Our Vonage Enterprise offerings are tailor-made for the large mid-market and enterprise segments. Vonage Enterprise is a feature-rich and fully managed solution that utilizes Broadsoft's enterprise-grade call processing platform, in combination with other cloud services like advanced contact center, video conferencing and speak2dial, and can be provided with high-level quality of service, or QoS, which is generally delivered over our national MPLS network, with 21 network Points of Presence, or POPs, across the country. Vonage can also provide QoS-level quality over-the-top of the customer's broadband through our SmartWan router solution. Customers value our proprietary provisioning and feature-management tool which enables the rapid deployment of solutions directly by Vonage while giving full visibility to our channel partners and our customers. Further differentiating Vonage is our robust service delivery team comprised of team members specializing in project management, voice and data provisioning, and line number porting. This team is intensely focused on providing an outstanding customer experience, and is rapidly becoming a competitive differentiator.

Our Vonage Enterprise offering is sold primarily through our channel partners, and our field and enterprise sales teams, and generally requires a three-year contract. We are a preferred provider for many of the largest master agents in the country, harnessing a network of over 20,000 sub agents selling both Vonage Enterprise and Vonage Business Cloud. We believe we have one of the largest multi-channel distribution sales platforms in our industry to serve the full range of business customers. We plan to capitalize on the growing adoption of cloud-based communications and collaboration solutions by continuing to expand our salesforce, expand into new markets, and enhance our relationships with existing customers to provide additional functionality and overall business value that can be achieved with our UCaaS platform.

Nexmo, the Vonage API Platform

We are a global leader in the CPaaS segment of the cloud communications market, providing innovative communication APIs allowing developers and enterprises to embed contextual communications into mobile apps, websites and business workflows via text, social media, chat apps and voice. With just few lines of code, developers can embed programmable contextual communications into their applications and workflows to create innovative and engaging customer experiences for their customers. Nexmo, the Vonage API Platform can scale from one API call to billions. The platform makes it easy for our over 430,000 developers to access communication services via software and APIs. Through Nexmo we have a global network of interconnected carriers delivering our API-based communications platform, enabling businesses to communicate with their customers reliably and with ease, no matter where in the world they are located.

Consumer

For our Consumer customers, we enable users to access and utilize our services and features, via a single "identity," either a number or user name, regardless of how they are connected to the Internet, including over 3G/4G, LTE, Cable, or DSL broadband networks. This technology enables us to offer our Consumer customers attractively priced voice and messaging services and other features around the world on a variety of devices.

Our Consumer marketing and distribution strategy is focused on the continued penetration of our core North American markets, where we will continue to provide value in international long distance and target under-served segments. The markets for international long distance allow us to leverage our VoIP network by providing customers a low-cost and feature-rich alternative to services offered by telecom, cable, and international calling card providers.

We generate revenue through the acquisition and retention of Consumer customers. As part of our overall strategy, we are focused on optimizing the Consumer business for profitability to improve the strong cash flows of the business. During 2017, we continued our disciplined focus on marketing efficiency by shifting customer acquisition spend to our higher performing channels, improving the quality of customers we acquire and driving lower churn, all of which drive higher customer life-time value. This focus has led to a reallocation of marketing spend to our Business segment.

The result of these initiatives has been to create a strong cash flow business which provides financial stability, as well as cost synergies and structural advantages to our Business segment.

SERVICE OFFERINGS

Business

We provide a robust feature-rich range of communication services enabling businesses to interact with their customers, prospects and partners in a more efficient and effective manner. We provide services ranging from basic dial tone to services such as call queue, conferencing, call groups, mobile functionality, CRM integration, and detailed analytics - allowing our customers a high level of visibility into their business at prices that are often significantly lower than that of traditional on premises solutions. These services can be delivered over-the-top of the customers' existing connectivity or bundled through our private MPLS connectivity service. Today more than 727 thousand business seats rely on Vonage to meet their communication needs, putting Vonage in a leading position within the UCaaS space. Our services are delivered through either proprietary networks or through trusted third parties to ensure our offerings provide all of the critical functions business needed for one of their most important business tools. During the year, we have continued to innovate and invest in both our Vonage Business Cloud and Vonage Enterprise platforms. These initiatives have enables us to increase scalability and enhance the user experience providing improved customer satisfaction.

Vonage Business Cloud

Vonage Business Cloud utilizes our proprietary technology platform to deliver seamless, integrated cloud-based communication services. It provides a cost-effective, highly scalable, feature-rich solution, delivered over-the-top of a customer's broadband or our SmartWan solution, which provides elevated quality of service over a customer's network using SD-WAN, or software defined Wide Area Network, technology. All of our Vonage Business Cloud offerings allow free access to our mobile application. The mobile application allows users to choose WiFi, 3G and 4G and the extended features provide caller ID as if the user were calling from their office. Additional features include the ability to update account profiles, manage devices, and contact call logs directly from their mobile devices. We also offer virtual extensions, which connects employees to a business phone number through their mobile phones. A virtual extension is an additional dedicated direct dial number forwarded to the employee's mobile phone number, allowing employees to be reached from anywhere.

Vonage Business Cloud also integrates with other third-party software applications to improve workflow and enhance productivity. Our software uses a combination of open APIs and pre-built integrations to enhance functionality with data from other third-party enterprise applications including Saleforce, Microsoft Dynamics, NetSuite, Zendesk, Oracle Sales Cloud and Hubspot. Vonage Business Cloud also provides customers with a desktop and video sharing solution with Amazon Chime. The investments we have made has enabled scalability to allow Vonage Business Cloud to serve a broader customer base.

Vonage Enterprise

Vonage Enterprise is a purpose-built cloud based platform for mid-market and enterprise customers, providing a complete set of enhanced unified communication and collaboration services, including: voice, data, video, mobile and contact center services. We focus on customers for whom guaranteed quality of service and uniformity of services across all locations is critical. We deliver services to this customer base over our private, nationwide, fully redundant, secure IP MPLS network using 21 network POPs that allow us to deliver dedicated, secure and private bandwidth utilizing all forms of last mile technologies including EoC and Fiber and bandwidth ranging from 1.5Mbps to 1Gbps. Services we deliver include Wide Area Networking, or WAN, Internet Access, MPLS VPN, Managed Firewall, Hosted UCaaS, Hosted Video Conferencing, Web Collaboration, Secure Instant Messaging & Presence, Mobility and Fixed Mobile Convergence. Through our Hosted Contact Center we are able to provide a best in class cloud based contact center solution to allow business to engage with their customers in any manner in which they choose.

Vonage Enterprise services include advanced features such as Single Number Reach, which provides each user one number, available over numerous devices including desk phones, tablets and smartphones, Shared Line Appearance, Busy Lamp Field, Phone Paging, Outlook Integration, IM, Presence, and Video. Vonage also delivers SIP Trunking, over the same network, to customers using premises PBXs, with the ability to overlay UCaaS features where the premises PBX is deficient or for disaster recovery and business continuity requirements. This product also supports a hybrid deployment where some locations may be fully hosted and others may continue to use the premises PBX. Vonage Enterprise customers also have the ability to utilize our gUnify middleware layer to integrate communications with the core, SaaS-based business applications that companies use as part of their every-day workflow, such as Google for Work, Salesforce, Zendesk, and others.

Vonage Enterprise customers also receive access to a custom-built portal through which they can fully administer all services, online bill pay, manage trouble tickets, manage bandwidth and services, access detailed Call Analytics, and execute Moves, Adds and Changes.

Nexmo, The Vonage API Platform

The communications industry is undergoing a major transformation from dedicated communications applications and devices to communications embedded in other applications and devices where the communications happens within the context of those applications. For example, when calling or messaging a taxi driver, consumers can do this within the taxi app which has all the necessary context such as the pickup location and payment method, resulting in a better experience for both parties. Similarly, when contacting a company consumers can communicate within the context of the company's branded mobile app or website and agents within the context of their CRM desktop application, delivering a better experience for consumers and improving productivity for contact center agents. We call this type of communications "contextual" because it is context rich and delivers a better experience. This trend is enabled by a new category of cloud communications platforms that enable software developers to build communications capabilities such as messaging and voice calling within their applications without having to build or maintain communications infrastructure.

While innovative software companies were the early adopters of cloud communication platforms, over time virtually all companies will benefit from the new approach as part of their digital transformation journey. As more startups disrupt existing industries, established enterprises will innovate with communications APIs in order to more effectively compete with the new entrants and with their traditional competitors. Over time enterprises of all sizes will adopt contextual communications to deliver better business outcomes.

Nexmo, the Vonage API Platform, abstracts the complexities of the global communications networks and delivers voice, messaging, and authentication capabilities in the form of APIs that developers can easily embed into their applications with a low risk, pay as you go business model that fosters innovation. Developers adopt our APIs via a low friction, self service model on our website where they start with a free trial account and pay for additional usage with a credit card using prepaid accounts. Our customers include digital native companies who are looking to disrupt an existing industry, enterprises undergoing digital transformation, and enterprise SaaS companies looking to enhance their products with embedded communications capabilities.

Our platform includes the following products:

- *Voice API* : Our Voice API enables companies to deliver better and more flexible voice experiences when communicating with their customers within the context of their existing business workflow, backed by the quality, strength and reliability of the Vonage network in the United States and tier one carriers globally.
- *SIP Trunking* : Our SIP Trunking enables companies to rapidly connect their PBX to the global telecommunications networks using a pay as you go model and without having to negotiate lengthy carrier contracts.
- *SMS API* : Our SMS API enables companies to send and receive SMS messages within the context of their existing business workflows. Our direct to carrier approach and patented Adaptive Routing algorithm enables us to deliver messages reliably and with low latency, globally.
- *Verify* : Our Verify API enables companies to deploy two-factor-authentication for their applications to help them acquire genuine customers and to protect against fraud. With a single API call, Verify delivers messages via SMS and voice calls if required to ensure high conversion rates. In addition, customers pay only for successful authentications.
- *Number Insight* : Our Number Insight API enables companies to get real time intelligence on phone numbers anywhere in the world to ensure numbers are valid and reachable and to discover other insights such as carrier information, roaming status whether a landline or mobile, and caller name.
- *Virtual Phone Numbers* : We offer phone numbers that are local all over the world enabling our customers to have a local presence globally. We also offer toll free numbers and short codes in the United States and Canada. Our numbers can be provisioned and de-provisioned programmatically to enable maximum utilizations.

Our product offerings combined with the strength of our network enable us to partner closely with our customers to ensure that they are successful through a personalized account management experience, high quality support and consulting services. The Company's CPaaS products are supported through our close relationships with tier one carriers across the globe and offer local numbers in more countries along with our private MPLS network with 21 points of presence in the United States allowing us to offer high voice quality, lower costs and increased reliability. Additionally, Nexmo has office locations all over the world, including the United States, United Kingdom, France, Germany, Hong Kong, Singapore, Japan, Korea and China. Our extensive network of developers provides customers with the ability to foster rapid innovations, including extensive developer documentation, sample codes, tutorials, libraries and free online support.

Consumer

Our home telephone services are offered to customers through several service plans with different pricing structures. The service plans include basic features such as voicemail, call waiting, and call forwarding as well as unique features such as Simulring, Visual Voicemail and Extensions. We also charge for local and international calling outside of plan limits.

We have two primary Consumer offerings available in the United States: Vonage World and Vonage North America. For a flat monthly fee, Vonage World customer plans include unlimited domestic calling, which includes U.S., Canada, and Puerto Rico, and unlimited calling to landline phones in more than 60 countries, including India, Mexico, and China, and unlimited calling to mobile phones in certain of those countries. The Vonage North America plan includes unlimited calling across the U.S., Canada, Mexico and Puerto Rico. Each of our Consumer calling plans provides a number of basic features including call waiting, caller ID with name, call forwarding, and voicemail. Our plans also include unlimited Vonage Visual Voicemail, which is “readable voicemail” delivered via email or SMS text message, Vonage Extensions, which extends the plan, and in-bound calling, to additional phone numbers and devices, and selective call block, which allows users to block unwanted calls. We also offer, in some cases for additional fees, features such as area code selection, virtual phone number, and web-enabled voicemail. Additionally, we also provide similar product offerings to customers in both Canada and the United Kingdom.

Our mobile services include enhancements to our Consumer calling plans as well as mobile applications that can be initially downloaded for iPhone ® , iPad ® , iPod touch ® , and Android ® OS devices for free.

In order to access our consumer services, a customer need only connect a standard telephone to a broadband Internet connection through a small Vonage-enabled device. After connecting the device, our customers can use their telephone to make and receive calls. Vonage-enabled devices allow customers to use the Internet connection for their computer and telephones at the same time while ensuring a high quality calling experience. We also offer a cordless multi-phone system solution. Our plug-and-play Vonage-enabled devices permit portability as customers can take their Vonage device to different locations where broadband service is available. We generally have not charged new customers for the adapters permitting use of our service.

NETWORK OPERATIONS

The Vonage network uses our customer’s existing or Vonage procured high-speed broadband Internet service to allow calls over the Internet either from a standard telephone through a Vonage-enabled device or through soft phone software or mobile client applications. Our UCaaS services are not dependent on any specific type or provider of Internet service, and our customers are free to change their Internet service provider in response to a competitive alternative, or because they have moved to a different location. For many of our Vonage Enterprise customers, our UCaaS services are delivered over the Company's private, nationwide, fault tolerant, secure IP MPLS network under multi-year contracts to provide the high level of interconnection quality and the ability to offer service level agreements, or SLA, guaranteeing certain levels of voice service performance.

Our network is scalable and geographically distributed for robustness, high availability, and reliability across multiple call processing sites, using regional data interconnection points, where calls to non-Vonage customers are interconnected with the public switched telephone network. We periodically assess the locations of our regional data connection points in connection with efforts to improve the quality of and efficiency in delivering our service. Our interconnections with the public switched telephone network, or IP/SIP networks, are made pursuant to commercial agreements we have with several telecommunications providers. Under these agreements, we transfer calls originated by our customers to other carriers who connect the call to the called party or connect peer to peer. We have a varying degree of settlement arrangements with our carrier partners for indirect third party or direct termination of our calls. The calls are routed from our network to other carriers’ interconnected circuits at co-location facilities in which we lease space. This method of connecting to the public switched telephone or IP/SIP networks allows us to expand capacity quickly, as necessary to meet call volume, and to provide redundancy within our network.

Because Vonage’s system is standards based and not constrained to use any specific broadband service provider to connect to our customers, we can centrally manage and share resources across our customer base to minimize capital investment when entering new markets.

The following are also important in supporting our network operations:

- *Network Operations Center* . We currently maintain a network operations center at our headquarters with monitoring redundancies at several points within our network. The network operations center monitors and manages the status and health of our network elements, allowing us to manage our network in real time, respond to alert notifications, and re-route network traffic as needed. We pursue a multi-faceted approach to managing our network to ensure high call quality and reliable communications services to our customers. For Business customers, we have operational centers on-site to monitor and manage network access traffic. We may consolidate these network operations centers in the future if greater efficiencies can be obtained.

- *Back Office Systems* . In addition to our network management systems, we have developed a number of software systems that enable us to manage our network and service offerings more efficiently and effectively. Key aspects of these systems include:
    - *Network Quality Metrics* . We have implemented a suite of advanced Big Data analysis tools that allow us to monitor and troubleshoot the performance of our calling and data network, customer premises equipment, and other associated calling elements in near real-time. This suite is proprietary and was developed specifically to address the needs that Vonage has in monitoring, analyzing, understanding, troubleshooting, maintaining, and operating a world-class consumer VoIP platform.
    - *Web Portal* . We provide a fully functional customer Web portal that allows our customers to configure and manage almost all aspects of their service on the Internet without requiring intervention of a customer-care representative. The portal permits customers to add and change features and phone numbers, update billing information, and access call usage and billing details.
    - *Emergency Calling Service and Enhanced 911 Service* . We have deployed E-911 service to approximately 99.99% of our U.S. consumer and small and home office customer base that is comparable to the emergency calling services provided to customers of traditional wireline telephone companies in the same area. Our E-911 service does not support the calls of our soft phone software users. The emergency calls of our soft phone software users are supported by a national call center. Not all Vonage products require 911 service capabilities, such as our mobile client products but we are fully compliant with E911 requirements of the Federal Communications Commission, or FCC, for VOIP Interconnected providers. To enable us to effectively deploy and provide our E-911 service, we maintain an agreement with a provider that assists us in delivering emergency calls to an emergency service dispatcher at the public safety answering point, or PSAP, in the area of the customer’s registered location and terminating E-911 calls. We also contract for the national call center that operates 24 hours a day, seven days a week to receive certain emergency calls and for the maintenance of PSAP databases for the purpose of deploying and operating E-911 services. The databases include contact, technical infrastructure, boundary, and routing information for delivery of calls to a PSAP or emergency service providers in the United States.
    - *Local Number Portability* . Our system allows our telephone replacement customers to port telephone numbers, which allows new customers to retain their existing telephone numbers when subscribing to our services. We rely on agreements with two service providers to facilitate the transfer of customer telephone numbers. In addition, we have engaged a provider that performs the third party verification of pertinent local number portability information from our subscribers prior to porting a customer from a local telephone company to us.
    - *Security* . We have developed a service architecture and platform that uses industry-standard security techniques and allows us to remotely manage customer devices. Any Vonage-enabled device used by our customers can be securely managed by us, and these devices use authentication mechanisms to identify themselves to our service in order to place and receive calls. We regularly update our protocols and systems to protect against unauthorized access. As discussed in "Item 1A Risk Factors", security breaches and other cybersecurity or technological risks could compromise our information, systems and network and expose us to liability, which could have a material adverse effect on our business, financial condition, and operating results.

MARKETING

Our marketing objective is to help drive growth and revenue across our business and consumer markets. We employ an integrated multi-channel approach to marketing, whereby we evaluate and focus our efforts on efficient marketing vehicles to accomplish our goals with the greatest return on investment. To do this, we make use of both broad-reaching and highly-targeted media channels.

For our business customers, our primary source of lead acquisition is digital marketing in the form of search engine marketing, digital advertising, social media advertising, and affiliate programs. We also utilize database marketing and lead aggregators to source business leads. We use direct marketing and account-based marketing to help source leads and create interest in our solutions. We have a significant strategy of using third-party and proprietary events to source business leads and convert prospects. For our residential customers, we have highly optimized our acquisition approach and focus mainly on digital advertising channels.

We make use of marketing research to gain consumer insights into brand, product, and service performance, and utilize those learnings to improve our messaging and media plans. Market research is also leveraged in the areas of testing, retention marketing, and product marketing to ensure we bring compelling products and services to market for our customers.

We believe our brand is a meaningful factor for customers as they consider business services. We invest in our brand in order to retain and expand our customer base and to position Vonage as a technology leader that delivers innovative, unified communication services, serving the full range of businesses and enterprises. We expect these investments to continue as we further establish Vonage as a leading business services brand and pivot beyond our residential brand heritage.

SALES AND DISTRIBUTION

Enterprise Sales

In order to continue to expand in the enterprise sales channel, which we define as businesses larger than 1,000 seats, our enterprise sales organization is positioned to provide high quality business services for Enterprise, through our fully managed solution, which utilizes BroadSoft's enterprise-grade call processing platform, with a broad portfolio of products delivered over our own private, national MPLS network, with 21 Points-of-Presence, or POPs, across the country and our own team of service delivery project managers using our proprietary provisioning tool Zeus, or with SmartWan, as well as our industry leading CPaaS products. Additionally, Contact Center solutions are commonly integrated into Enterprise solutions

Field Sales and Inside Sales - SMB and Midmarket

We utilize our team of sales agents, primarily based in geographic territories comprising customers and prospects, which we refer to as our field sales team, to market and sell our business services. These field sales agents utilize a consistent, automated, highly-structured sales process to effectively educate prospective customers regarding our services. We have developed a scalable model applicable to both existing and new markets. We now have field sales presence in 20 markets within the United States and made significant expansion into new markets globally primarily supporting Nexmo. For customers in the SMB segment, we leverage an Inside Sales team to provide solutions across our cloud communications offerings.

Channel Sales

In addition to inside sales and our field sales team, we also have a dedicated team focused on channel sales who work with our channel partners to market and sell our business services, which helps to broaden our sales distribution. In 2017, we continued to develop and expand this channel program by adding new senior management, channel managers, and additional national master agents. We now have a broad and deep coverage of the U.S. market through a network of over 20,000 sub agents and resellers.

Self-Service

Customers can subscribe to our consumer services at our websites, http://www.vonage.com, http://www.vonage.ca, http://www.vonage.co.uk and several affiliate websites, or through multiple toll free numbers including 1-877-4VONAGE. Business customers can subscribe to our services at our websites, including https://business.vonage.com/, http://www.vonagebusiness.com, https://enterprise.vonage.com, and https://www.nexmo.com, or through toll free numbers including 1-877-862-2562 and 1- 855-593-7326. Additionally, Nexmo's API enablement and developer focus lends itself to a self-service model. Our developers can register, sign up and test, and scale their businesses easily and quickly without having to engage with anyone at Nexmo. This allows customers to self-provision their accounts with the aim of improving the customer experience while reducing customer acquisition costs.

Customer Support

Consumer. We offer our customers support 24 hours a day, seven days a week through both our comprehensive online account management website and via our support number, chat or email. Many customers use our self-service website when they have a question or problem with their service and are able to resolve their concerns online without needing to speak to a customer care representative. Our customers can manage almost all aspects of their accounts online. This capability empowers our customers through self-service and reduces our customer care expenses.

Customers who cannot or do not wish to resolve their questions through our website may contact a customer care representative through our support number, chat or email. We staff our customer care organization through a combination of our own employees and outsourced customer care representatives. All new customer care representatives are trained through an established program developed by Vonage. We also have a separate team that provides advanced technical support for resolving customers' complex issues. We use extensive monitoring of call quality and customer satisfaction scores to determine additional training or coaching requirements for individual associates and to drive continuous improvement in our processes, policies, and technology. We offer support in English, Spanish, Tagalog and French Canadian.

Small and Medium Businesses. We have specialized teams of customer care representatives to work with customers in every stage of their life cycle, including porting specialists to transfer or port existing phone numbers, an order entry team to help customers bring their new phone system online, as well as billing and product specialists. Customers can also utilize our extensive online support resources, complete with cataloged feature descriptions, how-to videos and other key resources to help them enable the many system features. Additionally, our representatives have ready access to a full support team - from technical support pros and billing specialists, to engineers and product experts.

Medium and Large Enterprise. Our larger business customers benefit from a robust service delivery team comprised of team members specializing in project management, voice and data provisioning, and line number porting.

INTELLECTUAL PROPERTY

We believe that our technological position depends primarily on the experience, technical expertise, and creative ability of our employees. We currently own over 185 issued U.S. patents as well as a number of foreign patents and have more than 60 pending U.S. patent applications along with a number of foreign patent applications. We routinely review our technological developments with our technology staff and business units to identify the aspects of our technology that provide us with a technological or commercial advantage and seek intellectual property and patent protection as appropriate to protect such key proprietary technology in the United States and internationally, based on our assessment in light of applicable law. Our company policies require our employees to assign intellectual property rights developed in the scope of or in relation to our business to us and to treat proprietary know-how and materials as our confidential information.

In addition to developing technology and intellectual property, from time to time we evaluate opportunities for potential licensing and acquisition of third-party technology and intellectual property that may provide us with a strategic or commercial advantage in exchange for royalties or other consideration. As a result of these efforts, we have acquired multiple U.S. and foreign patents, and obtained licenses to numerous other patents. From time to time we receive letters from third parties inviting us to obtain patent licenses that might be relevant to our business. We also have become involved in litigation alleging that our products or services infringe on third party patents or other intellectual property rights.

We are the owner of numerous United States and international trademarks and service marks and have applied for registration of our trademarks and service marks in the United States and abroad to establish and protect our brand names as part of our intellectual property strategy. Examples of our registered marks include Vonage®, Vonage Mobile®, Vonage Extensions®, and Nexmo ®.

We endeavor to protect our internally developed systems and technologies and maintain our trademarks and service marks. Typically, we enter into confidentiality agreements with our employees, consultants, partners, customers, and vendors in an effort to control access to and dissemination of our technology, software, business plans, documentation, and other proprietary information and trade secrets.

COMPETITION

We face continued strong competition from traditional telephone companies, cable companies, wireless companies, alternative communication providers, direct unified communications providers, legacy consumer VOIP businesses, large technology incumbents, and collaboration providers in the consumer, mobile, SMB and enterprise markets. Because most of our target customers are already purchasing communications services from one or more of these providers, our success is dependent upon our ability to attract these customers away from their existing providers. We believe that the principal competitive factors affecting our ability to attract and retain customers are price, call quality, brand awareness, customer service, network and system reliability, service features and capabilities, scalability, usability, simplicity, mobile integration and the unique ability to deliver CPaaS communications tools to business customers in addition to our UCaaS offerings.

There is a continuing trend toward consolidation of compeitive companies, including the acquisition of alternative communication providers by Internet product and software companies with significant resources. In addition, certain of our competitors have partnered and may in the future partner with other competitors to offer products and services, leveraging their collective competitive positions. We also are subject to the risk of future disruptive technologies, which could give rise to significant new competition.

Business

In connection with our cloud communications products, we face competition from the traditional telephone and cable companies as discussed above, as well as from vendors of premises-based solutions and/or hosted solutions including the following:

- Independent cloud services providers;
- Premises-based business communication equipment providers;
- Hosted communication services providers;

- Traditional technology companies; and
- Emerging competitors in technology companies.

As the cloud communications market evolves, and the convergence of voice, video, messaging, mobility and data networking technologies accelerates, we may face competition in the future from companies that do not currently compete in the market, including companies that currently compete in other sectors, companies that serve consumers rather than business customers, or companies which expand their market presence to include cloud communications.

Consumer

Traditional telephone and cable companies

The traditional telephone and cable companies are our primary competitors for our broadband telephone services. Traditional telephone companies in particular have historically dominated their regional markets. These traditional phone and cable company competitors are substantially larger and better capitalized than we are and have the advantage of a large existing customer base. Many of these competitors are continuing to make substantial investments in delivering broadband Internet access, VoIP phone service, and cable television to their customers and they often have larger product development and marketing budgets than us. Providing home phone, Internet access, and cable television to many of our existing and potential customers may enhance their image as trusted providers of services.

The traditional phone and cable companies own networks that include a “last mile” connection to substantially all of our existing and potential domestic customers as well as the places our customers call domestically. As a result, the vast majority of the calls placed by a Vonage customer are carried over the “last mile” by a traditional phone company, and we indirectly pay access charges to these competitors for each of these calls. In contrast, traditional wireline providers do not pay us when their customers call our customers.

Cable companies and, in many cases traditional phone companies, are also aggressively using their existing customer relationships to bundle services. For example, they bundle Internet access, cable television, and home phone service with an implied price for the phone service that may be significantly below ours. In addition, such competitors may in the future require new customers or existing customers making changes to their service to purchase voice services when purchasing high speed Internet access. Certain traditional phone companies are also able to bundle wireless telephone service. Many of these competitors are able to advertise on their local access channels with no significant out-of-pocket cost and through mailings in bills with little marginal cost. They also receive advertising time as part of their relationships with television networks and are able to use this time to promote their telephone service offerings.

Traditional phone and cable companies’ ownership of Internet connections to our customers could enable them to detect and interfere with the completion of our customers’ calls. While we are not aware of any such occurrence, it is unclear whether current regulations would permit these companies to degrade the quality of, give low priority to or block entirely the information packets and other data we transmit over their lines. In addition, these companies may attempt to charge their customers more for using our services.

Many traditional phone and cable companies routinely send technicians to customers’ premises to initiate service. Although this is expensive, it also can be more attractive to customers than installing their own router. In addition, these technicians may install an independent source of power, which can give customers assurance that their phone service will not be interrupted during power outages.

The traditional phone and cable companies have long-standing relationships with regulators, legislators, lobbyists, and the media. This can be an advantage for them because legislative, regulatory or judicial developments in our rapidly evolving industry could have a negative impact on us.

In many cases, we charge prices that are lower than prices charged by the traditional phone and cable companies. We believe that we also currently compete successfully with the traditional phone and cable companies on the basis of the features we offer that they may not, such as area code selection, portable service, virtual phone numbers, and readable voice mail. We offer many of these features at no extra charge.

Wireless telephone companies

We also compete with wireless phone companies for both our broadband telephone services, international long distance, and our mobile services. Some consumers use wireless phones, instead of VoIP phones, as a replacement for a wireline phone. Also, wireless phone companies increasingly are providing wireless broadband Internet access to their customers. As wireless providers offer more minutes at lower prices and other services that improve calling quality, their services have become more attractive to households as a competitive replacement for wireline service. In addition, wireless providers are also offering standalone wireless home services as well as the ability to link multiple devices for telephony service. Wireless telephone companies have a strong retail presence and have significant financial resources. We are developing next-generation services to meet the emerging needs of mobile and other connected device users by delivering easy-to-use applications that provide significant cost savings in large existing markets. We believe that our efforts will capitalize on favorable trends including the proliferation of low or no-cost Wi-Fi and other broadband around the world, accelerating smart phone adoption rates, and the growth of social communities.

Alternative communications providers

We also compete against alternative communication providers some of which are larger than us and have the ability to devote greater resources to their communications services. Some of these service providers, including Internet product and software companies, have chosen to sacrifice telephony revenue in order to gain market share or attract users to their platform and have offered their services at low prices or for free. While not all of these competitors currently offer the ability to call or be called by anyone not using their service, line portability, E-911 service, and customer service, in the future they may integrate such capabilities into their service offerings. As we continue the introduction of applications that integrate different forms of voice, video, messaging, and other services over multiple devices, we face competition from emerging competitors focused on similar integration, as well as from alternative communication providers.

FINANCIAL INFORMATION ABOUT GEOGRAPHIC AREAS

We currently have UCaaS and consumer operations in the United States, United Kingdom, and Canada and believe that our low-cost Internet based communications platform enables us to cost effectively deliver voice and messaging services to other locations throughout the world. Through Nexmo, we have operations in the United States, United Kingdom, Hong Kong, and Singapore providing our CPaaS solutions to customers located in many countries around the world.

We had approximately 2.2 million combined subscriber lines and business seats as of December 31, 2017 . Customers in the United States represented 85% of our consolidated revenues at December 31, 2017 , with the balance in Canada, the United Kingdom, and other countries.

For further information regarding the Company's revenues and long-lived assets attributable to our U.S. and foreign countries for the last three fiscal years see Note 16, *Industry Segment and Geographical Information* to the Company's Consolidated Financial Statements.

EMPLOYEES

As of December 31, 2017 , we had 1,780 employees. None of our employees are subject to a collective bargaining agreement.

AVAILABLE INFORMATION

We were incorporated in Delaware in May 2000 and changed our name to Vonage Holdings Corp. in February 2001. We maintain a website with the address www.vonage.com. References to our website are provided as a convenience, and the information contained on our website is not included as a part of, or incorporated by reference into, this Annual Report on Form 10-K. Other than an investor’s own Internet access charges, we make available free of charge through our website our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to these reports, as soon as reasonably practicable after we have electronically filed such material with, or furnished such material to, the U.S. Securities and Exchange Commission, or SEC. Copies are also available, without charge, by writing to Vonage’s Investor Relations Department at Vonage Holdings Corp., 23 Main Street, Holmdel, NJ 07733 or calling us at 732.365.1328 or sending an email through the Vonage Investor Relations website at http://ir.vonage.com/. Reports filed with the SEC may be viewed at www.sec.gov or obtained at the SEC Public Reference Room in Washington, D.C. Information regarding the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330.

ITEM 1A. Risk Factors

You should carefully consider the risks below, as well as all of the other information contained in this Annual Report on Form 10-K and our financial statements and the related notes included elsewhere in this Annual Report on Form 10-K, in evaluating our company and our business. Any of these risks could materially adversely affect our business, financial condition and results of operations and the trading price of our common stock.

For the financial information discussed in this Annual Report on Form 10-K, other than per share and per line amounts, dollar amounts are presented in thousands, except where noted.

If we are unable to compete successfully, we could lose market share and revenue.

The business cloud communications markets and consumer services market in which we participate are highly competitive. We face intense competition from a broad set of companies, including:

- software as a service companies and other alternative communication providers and other providers of cloud communications services; and
- traditional telephone, wireless service providers, cable companies and alternative communications providers with consumer offerings

Many of these providers are substantially larger and better capitalized than we are and have the advantage of greater name and brand name recognition and a large existing customer base. These service providers may have the ability to devote greater resources to their communications services and may be able to respond more quickly and effectively than we can to new or changing opportunities. Our competitors' financial resources may allow them to offer services at prices below cost or even for free in order to maintain and gain market share or otherwise improve their competitive positions. Some of our competitors also could use their greater financial resources to develop and market telephony and messaging services with more attractive features and more robust customer service. In addition, because of the other services our competitors provide, some of these service providers choose to offer cloud communications services as part of a bundle that includes other products, such as high speed Internet access and wireless telephone service. These bundled offers may enable our competitors to offer cloud communications services at prices with which we may not be able to compete or to offer functionality that integrates cloud communications services with their other offerings, both of which may be more desirable. As we continue the introduction of applications that integrate different forms of voice and messaging services over multiple devices, we face competition from emerging competitors focused on similar integration, as well as from established alternative communication providers. Any of these competitive factors could make it more difficult for us to attract and retain customers, reduce our market share and revenues, or cause us to lower our prices or offer additional features that may result in additional costs without commensurate price increases. In order to compete with such service providers, we may have to reduce our prices, which would impair our profitability, or offer additional features that may cause us to incur additional costs without commensurate price increases. To the extent that these or other companies strengthen their offerings, we may have to reduce our prices, increase promotions, or offer additional features, which may adversely impact our revenues and profitability.

In connection with our emphasis on the international long distance market for consumer customers, we face competition from low-cost international calling cards, digital calling cards and VoIP providers in addition to traditional telephone companies, cable companies, and wireless companies. To the extent that these providers target marketing to the same ethnic segments that we target or strengthen their offerings to these segments, we may have to reduce our prices or increase promotions, which would impair our profitability, or offer additional features that may cause us to incur additional costs without commensurate price increase.

As a result of increasing competition, domestic and international telephony and messaging rates have generally decreased during the past few years, and we expect this trend to continue. Continued rate pressures or increasing cost to use our services could lessen or eliminate the pricing advantage that we maintain over certain competitors and cause customers or potential customers to select alternative providers or cause us to lower our prices, which would adversely impact our revenues and profitability.

As the cloud communications services market evolves, and the convergence of voice, video, messaging, mobility and data networking technologies accelerates, we may face competition in the future from companies that do not currently compete in the cloud communications services market, including companies that currently compete in other sectors, companies that serve consumer rather than business customers, or companies which expand their market presence to include business communications.

As the cloud communications services market evolves, combining voice, video, messaging and data networks, and information technology and communication applications, opportunity is created for new competitors to enter the cloud communications services market and offer competing products. This new competition may take many forms, and may offer products and applications similar to ours. If these new competitors emerge, the cloud communications services market will become increasingly competitive and we may not be able to maintain or improve our market position. Our failure to do so could materially and adversely affect our business and results of operations.

If we fail to adapt to rapid changes in the market for cloud communications services, then our products and services could become obsolete.

The market for our products and services is constantly and rapidly evolving as we and our competitors introduce new and enhanced products and services and react to changes in the cloud communications services industry and customer demands. We may not be able to develop or acquire new products and plans or product and plan enhancements that compete effectively with present or emerging cloud communications services technologies or differentiate our products and plans based on functionality and performance. In addition, we may not be able to establish or maintain strategic alliances that will permit enhancement opportunities or innovative distribution methods for our products and plans.

To address these issues, we are targeting revenue growth in large, existing markets, which require us to enhance our current products and plans, and develop new products and plans on a timely basis to keep pace with market needs and satisfy the increasingly sophisticated requirements of customers. If we are unable to attract users of these services our net revenues may fail to grow as we expect.

Cloud communications services are complex, and new products and plans and enhancements to existing products and plans can require long development and testing periods. Any delays in developing and releasing new or enhanced products and plans could cause us to lose revenue opportunities and customers. Any technical flaws in products we release could diminish the innovative impact of the products and have a negative effect on customer adoption and our reputation.

We also are subject to the risk of future disruptive technologies. New products based on new technologies or new industry standards could render our existing products obsolete and unmarketable. If new technologies develop that are able to deliver competing voice and messaging services at lower prices, better or more conveniently, it could have a material adverse effect on us.

The market for our CPaaS products and platform is relatively nascent and may not experience the growth that we anticipate.

The utilization of APIs to embed contextual, programmable real time communications into mobile apps, websites and business systems workflows, remains a relatively new market, and developers and organizations may not yet recognize the need for, or benefits of, our products and platform. It is important that we are able to educate developers, organizational leaders, and other potential customers regarding our products and platform in order to help grow the market and to realize our market share, The market for our products and platform or our share of that market could fail to grow significantly. If the CPaaS market, or our share of that market, does not experience significant growth, then our business, results of operations and financial condition could be adversely affected.

If we are unsuccessful at retaining customers or attracting new consumer or business customers we may experience a reduction in revenue or may be required to spend more money or alter our marketing approaches to grow our customer base.

Our rate of customer terminations for our UCaaS services could increase in the future if customers are not satisfied with the quality and reliability of our network, the value proposition of our products, and the ability of our customer service to meet the needs and expectations of our customers. For our CPaaS customers, our ability to grow revenue depends, in part, on our ability to maintain and grow usage of our platform by new and existing customers. If we are not able to increase customer usage of our products, our revenue may decline which would adversely impact our business, results of operations and financial condition. Our CPaaS customers are charged based on their usage of our products and generally our customers do not have long-term contractual financial commitments to us, therefore, usage rates may fluctuate at any time. In addition, our agreements with business customers typically provide for service level commitments. If we are unable to meet these commitments or if we suffer extended periods of downtime for our products or platform, our business, results of operations and financial condition could be adversely affected. Our ability to attract and retain customers for our consumer services are impacted by our pricing, brand awareness, customer service, network and system reliability and service features and capabilities. Competition from traditional telephone companies, cable companies, wireless companies, alternative communication providers, low-cost international calling cards, disruptive technologies, general economic conditions, and our ability to activated and register new customers on our network also influence churn rate. A material decline in the usage of our business and consumer products could cause us to spend significantly more on sales and marketing than we currently budget in order to maintain or increase revenue from customers, which could adversely affect our business, results of operations and financial condition.

The success of our CPaaS products depends in part on attracting new customers in a cost-effective manner. The failure to do so could materially and adversely affect our business.

The success of our business relies on our ability to attract new customers in a cost effective manner by using a variety of marketing channels. We use developer events and developer evangelism, search engine marketing and optimization, and other marketing efforts such as regional customer events, email campaigns, advertising and public relations events. These methods are prioritized depending on effectiveness and efficiency, and may be altered if costs increase dramatically or if the results do not meet expectations. Alternative, less expensive channels, may not be as effective as our preferred channels. Our continued success requires that we continue to attract new customers in a cost-effective manner. If we fail to do so, our revenues may decrease and our operating results would suffer.

Our success in the cloud communications market for our business services depends in part on developing and maintaining effective distribution channels. The failure to develop and maintain these channels could materially and adversely affect our business.

A portion of our business revenue is generated through our direct sales, or "field sales," team. This channel consists of sales agents that market and sell our business services products to customers to customers through direct, commonly face-to-face interaction. Our continued success requires that we continue developing and maintaining a successful sales organization. If we fail to do so, or if our sales agents are not successful in their sales efforts, our sales may decrease and our operating results would suffer.

A portion of our business revenue is generated through indirect channel sales. These channels consist of third-party resellers and value-added distributors that market and sell our business services products to customers. These channels may generate an increasing portion of our business revenue in the future. Generally, we do not have long-term contracts with these third-party resellers and value-added distributors, and the loss of or reduction in sales through these third parties could materially reduce our revenues. We also compete for preference amongst our current or potential resellers with our competitors. Our continued success requires that we continue developing and maintaining successful relationships with these third-party resellers and value-added distributors. If we fail to do so, or if our resellers are not successful in their sales efforts, our sales may decrease and our operating results would suffer.

We may face difficulties related to the acquisition or integration of businesses, which could harm our growth or operating results.

We have made several acquisitions over the past several years to build our business services and continue to periodically review acquisition opportunities. Acquisition and integration activities require substantial management time and resources. Acquisitions of existing businesses involve substantial risks, including the risk that we may not be able to integrate the operations, personnel, services, or technologies, the potential disruption of our ongoing businesses, the diversion of management attention, the maximization of financial and strategic opportunities, the difficulty in developing or maintaining controls and procedures, and the dilution to our existing stockholders from the issuance of additional shares of common stock. We may elect to acquire additional businesses or assets in the future. However, we cannot predict or guarantee that we will be able to identify suitable acquisition candidates or consummate any acquisition. As a result of these and other risks, we may not produce anticipated revenue, profitability, or synergies.

Acquisitions may require us to issue debt or equity securities, use our cash resources, incur debt or contingent liabilities, amortize intangibles, or write-off acquisition-related expenses. If we are unable to successfully integrate any acquired businesses or assets we may not receive the intended benefits of such acquisition. In addition, we cannot predict market reactions to any acquisitions we may make or to any failure to announce any future acquisitions.

Further, while we conduct due diligence in connection with acquisition and joint venture opportunities, there may be risks or liabilities that such due diligence efforts fail to discover, are not disclosed to us, or that we inadequately assess. The discovery of material liabilities associated with acquisitions or joint venture opportunities, economic risks faced by joint venture partners, or any failure of joint venture partners to perform their obligations could adversely affect our business, results of operations, and financial condition.

Security breaches and other cybersecurity or technological risks could compromise our information systems and network and expose us to liability, which would cause our business and reputation to suffer and which could have a material adverse effect on our business, financial condition, and operating results.

There are several inherent risks to engaging in a technology business, including our reliance on our data centers and networks, and the use and interconnectivity of those networks. A significant portion of our operations relies heavily on our ability to provide secure processing, storage and transmission of confidential and other sensitive data, including intellectual property, proprietary business information, and personally identifiable information of our customers and employees, in our data centers and on our networks. The secure processing, storage, and transmission of this information is critical to our operations and business strategy. As seen in our industry and others, these activities have been, and will continue to be, subject to continually evolving cybersecurity or other technological risks. Targeted attacks, such as advanced persistent threat is prevalent throughout the Internet and associated with the theft of intellectual property and state-sponsored espionage. Due to the nature of our business and reliance on the Internet, we are susceptible to this type of attack. In addition, physical security of devices located within our offices, and/or remote devices, pose cybersecurity and other technological risks that could negatively impact our business and reputation.

We also operate Internet based, worldwide data, voice, video communications, and messaging services and electronic billing, which require the transmission of confidential and at times personal or sensitive customer or employee information over public networks that may or may not support end to end security. Despite our security measures, which include the development, operation and maintenance of systems and processes that are designed to protect consumer and employee information and prevent fraudulent credit card transactions and other security breaches, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to error, malfeasance or other disruptions by a current or former employee or third-party provider and our failure to mitigate such fraud or breaches may adversely affect our operating results. Any such breach could compromise our systems and network and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, regulatory penalties, disruption to our operations, damage to our reputation, and a loss of confidence in our products and services, and our ability to keep personally identifiable information confidential, which could adversely affect our business.

We have been subject to cyber incidents from external sources including “brute force” and distributed denial of service attacks, as well as attacks that introduce fraudulent VoiP traffic. Although these incidents have not had a material adverse effect financially or on our ability to provide services, this may not continue to be the case going forward. There can be no assurance that cyber incidents will not occur in the future, potentially more frequently and/or on a more significant scale.

We have taken steps designed to improve the security of our networks and computer systems and our physical space. Despite these defensive measures, there can be no assurance that we are adequately protecting our information or that we will not experience future incidents. The expenses associated with protecting our information could reduce our operating margins. We maintain insurance intended to cover some of these risks, however, this insurance may not be sufficient to cover all of our losses from any future breaches of our systems. In addition, third parties with which we do business may also be sources of cybersecurity or other technological risks. We outsource certain functions, which results in the storage and processing of customer information by third parties. While we engage in certain actions to reduce the exposure resulting from outsourcing, unauthorized access, loss or destruction of data or other cyber incidents could occur, resulting in similar costs and consequences as those discussed above.

We make available on our website our privacy policy, which describes how we collect, use, and disclose our customers' personal information. To the extent we expand our operations into new geographies, we may become subject to local data security, privacy, data retention, and disclosure laws and regulations. It may be difficult for us to comply with these laws and regulations if they were deemed to be applicable to us. In addition, risks related to cybercrime and fraud increase when establishing a global presence.

We are subject to Payment Card Industry, or PCI, data security standards, which require periodic audits by independent third parties to assess compliance. PCI data security standards are a comprehensive set of requirements for enhancing payment account data security that was developed by the PCI Security Standards Council including American Express, Discover Financial Services, JCB International, MasterCard Worldwide, and VISA Inc., to help facilitate the broad adoption of consistent data security measures. Failure to comply with the security requirements as identified in subsequent audits or rectify a security issue may result in fines. While we believe it is unusual, restrictions on accepting payment cards, including a complete restriction, may be imposed on companies that are not compliant. Further, the law relating to the liability of providers of online payment services is currently unsettled and states may enact their own rules with which we may not comply.

We rely on third party providers to process and guarantee payments made by Vonage and its affiliates' subscribers, up to certain limits, and we may be unable to prevent our customers from fraudulently receiving goods and services. Our liability risk will increase if a larger fraction of our Vonage transactions involve fraudulent or disputed credit card transactions. Any costs we incur as a result of fraudulent or disputed transactions could harm our business. In addition, the functionality of our current billing system relies on certain third party vendors delivering services. If these vendors are unable or unwilling to provide services, we will not be able to charge for our services in a timely or scalable fashion, which could significantly decrease our revenue and have a material adverse effect on our business, financial condition and operating results.

Sales of our business services to medium-sized and enterprise customers involve significant risks which, if not managed effectively, could materially and adversely affect our business and results of operations.

As we continue to expand our sales efforts to medium-sized and larger businesses, we may incur higher selling expense and longer, more complex, sales cycles. Customers in this market segment may also require bespoke features and integration services, increasing the complexity and expense related to the sales and delivery process. As a result, we may devote greater sales and support to these customers, which may result in increased costs and a strain on our support resources. These factors could materially and adversely affect our results of operations and our overall ability to grow our customer base.

Our ability to provide our telephony service and manage related customer accounts is dependent upon third-party facilities, equipment, and systems, the failure of which could cause delays of or interruptions to our service, damage our reputation, cause us to lose customers, limit our growth, and affect our financial condition.

Our success depends on our ability to provide quality and reliable telephony service, which is in part dependent upon the proper functioning of facilities and equipment owned and operated by third parties and is, therefore, beyond our control. Unlike traditional wireline telephone service or wireless service, our telephony service typically requires our customers to have an operative broadband Internet connection and an electrical power supply, which are provided by the customer's Internet service provider and electric utility company, respectively, and not by us. The quality of some broadband Internet connections may be too poor for customers to use our telephony services properly. In addition, if there is any interruption to a customer's broadband Internet service or electrical power supply, that customer will be unable to make or receive calls, including emergency calls, using our telephony service.

We outsource several of our network functions to third-party providers. For example, we outsource the maintenance of our regional data connection points, which are the facilities at which our network interconnects with the public switched telephone network. If our third-party service providers fail to maintain these facilities properly, or fail to respond quickly to problems, our customers may experience service interruptions. Interruptions in our service caused by third-party facilities have in the past caused and may in the future cause us to lose customers or cause us to offer substantial customer credits, which could adversely affect our revenue and profitability. If interruptions adversely affect the perceived reliability of our service, we may have difficulty attracting new customers, and our brand, reputation, and growth will be negatively impacted.

In order to access our consumer services, a customer needs to connect a standard telephone to a broadband Internet connection through a Vonage-enabled device that we provide. Although we closely monitor inventory levels, if we are unable to procure a sufficient number of devices from our suppliers in a timely manner, including as a result of a failure by a component supplier, we would be delayed in activating new customers and may lose these customers.

While we believe that relations with our current third party providers are good, and we have contracts in place with these vendors, there can be no guarantee that these third party providers will be able or willing to supply services to us in the future on commercially reasonable terms, or that we will be able to engage alternative or additional providers. We believe that we could replace our current third party providers, however, our ability to provide our services may be impacted during any transition, which could have an adverse effect on our business, financial condition or results of operations.

We rely on third-party vendors that may be difficult to replace or may not perform adequately.

For our CPaaS customers, we rely on Softlayer to provide substantially all of the cloud infrastructure that hosts our CPaaS products and platform. Our CPaaS customers require uninterrupted performance of this platform and we are therefore vulnerable to service interruptions at Softlayer. We may experience interruptions, delays and outages in Softlayer's service and availability due to a variety of factors, including infrastructure changes, human or software errors, website hosting disruptions and capacity constraints caused by technical failures, natural disasters, fraud or security attacks. To the extent that we do not effectively address interruptions, delays and outages in Softlayer's service and availability or capacity constraints, our business, results of operations and financial condition may be adversely affected.

In some cases we rely on purchased or leased hardware and software licensed from third parties in order to provide our UCaaS services. For example, Broadsoft, Inc. provides us with infrastructure, call termination and origination services, and other hardware and software in connection with our Vonage Enterprise offerings. We also integrate third-party licensed software components into our platform. This hardware and software may not continue to be available on commercially reasonable terms or pricing or may fail to continue to be updated to remain competitive. The loss of the right to use this third party hardware or software may increase our expenses or impact the provisioning of our services. The failure of this third party hardware or software could materially impact the performance of our UCaaS services and may cause material harm to our business or results of operations.

We outsource some of our cloud infrastructure to Amazon Web Services, or AWS, which hosts certain of our products and platform. Customers of our products need to be able to access our platform at any time, without interruption or degradation of performance. AWS runs its own platform that we access, and we are, therefore, vulnerable to service interruptions at AWS. To the extent that we do not effectively address capacity constraints, either through AWS or alternative providers of cloud infrastructure, our business, results of operations and financial condition may be adversely affected. In addition, any changes in service levels from AWS may adversely affect our ability to meet our customers' requirements.

Flaws in our technology and systems or our failure to adapt our systems to any new Internet Protocol could cause delays or interruptions of service, which could damage our reputation, cause us to lose customers, and limit our growth.

Although we have designed our service network to reduce the possibility of disruptions or other outages, our service may be disrupted by problems with our technology and systems that we provide to customers, software or facilities and overloading of our network. As we attract new subscribers, we expect increased call volume that we need to manage to avoid network interruptions. Interruptions have caused and may in the future cause us to lose customers and offer substantial customer credits, which could adversely affect our revenue and profitability. Network interruptions have also impaired our ability at times to sign-up new customers and the ability of customers to manage their accounts. If service interruptions or other outages adversely affect the perceived reliability of our service or customer service, we may have difficulty attracting and retaining customers and our brand reputation and growth may suffer.

In addition, we utilize third-party Internet-based or "cloud" computing services in connection with some of our business operations. Any disruption to the internet or to our third-party Web hosting or cloud computing providers, including technological or business-related disruptions, could adversely impact the experience of our customers and have adverse effects on our operations. In addition, fires, floods, earthquakes, power losses, telecommunications failures, and similar "Acts of God" could damage these systems and hardware or cause them to fail completely. While we do maintain redundant systems consistent with industry best practices certain events could result in downtime for our operations and could adversely affect our business.

Our Business segment is growing rapidly, and any inability to scale our business and grow efficiently could materially and adversely harm our business and results of operations.

As our Business segment expands, we will need to continue to improve our application architecture, integrate our products and applications across our technology platforms, integrate with third-party systems, and maintain infrastructure performance. We expect the number of users, the amount of data transferred and processed, the number of locations where our service is being used, and the volume of communications over our networks to continue to expand. To address this growth, we will need to scale our systems and customer services organization. Our ability to execute on these initiatives may impact system and network performance, customer satisfaction, and ultimately, sales and revenue. These efforts may also divert management resources. These factors may materially and adversely harm our business and results of operations.

We depend on third party vendors to supply, configure and deliver the phones that we sell. Any delays in delivery, or failure to operate effectively with our own servers and systems, may result in delay or failure of our services, which could harm our business, financial condition and results of operations.

We rely on Yealink Inc. and Polycom, Inc. to provide, and a single fulfillment agent to configure and deliver, the phones that we offer for sale to our customers that use our UCaaS services. If these third parties are unable to deliver phones of acceptable quality or quantity, or in a timely manner, we may be forced to offer replacements at a higher cost than what is currently contracted. In addition, these phones must interoperate with our servers and systems. If either of our providers changes the operation of their phones, we may be required to engage in development efforts to ensure that the new phones interoperate with our system. The failure of our vendor-supplied phones to operate effectively with our system could impact our customers' ability to use our services and could cause customers to cancel our services, which may cause material harm to our business or results of operations.

We market our products and services to small and medium-sized businesses, which may be disproportionately impacted by fluctuations in economic conditions.

We market our products to small and medium-sized businesses. Customers in this market may be affected by economic downturns to a greater extent, and may have more limited financial resources, than larger or more established businesses. If customers in our Business markets experience financial hardship as a result of a weak economy, the demand for our services could be materially and adversely affected.

The storage, processing, and use of personal information and related data subjects us to evolving governmental laws and regulation, commercial standards, contractual obligations, and other legal obligations related to consumer and data privacy, which may have a material impact on our costs, use of our products and services, or expose us to increased liability.

Federal, state, local and foreign laws and regulations, commercial obligations and industry standards, each provide for obligations and restrictions with respect to data privacy and security, as well as the collection, storage, retention, protection, use, processing, transmission, sharing, disclosure and protection of personal information and other customer data. The evolving nature of these obligations and restrictions dictates that differing interpretations, inconsistency or conflicts among countries or rules, and general uncertainty impact the application to our business.

These obligations and restrictions may limit our ability to collect, store, process, use, transmit and share data with our customers, employees, and third party providers and to allow our customers to collect, store, retain, protect, use, process, transmit, share and disclose data with others through our products and services. Compliance with, and other burdens imposed by, such obligations and restrictions could increase the cost of our operations and impact our ability to market our products and services through effective segmentation.

Examples of key data privacy and security related obligations and restrictions include the European Union General Data Protection Regulation, GDPR. The GDPR was adopted in April 2016 and comprehensively regulates the processing of personal data of any individual residing in the EU. The GDPR effectively requires any company processing data of EU individuals to develop a comprehensive privacy program. The GDPR becomes effective on May 25, 2018. In addition, in January 2017, the European Commission introduced a new proposed ePrivacy regulation that would restrict communications service provider's ability to use metadata and content from communications services. In order to become effective, the proposal needs to be adopted by the European Council and European Parliament. In October 2016, the Federal Communications Commission adopted a new privacy rules for the U.S. communications industry. These rules greatly extended the scope of FCC privacy regulation. Numerous parties have filed petitions for reconsideration at the FCC on the new privacy rules.

Failure to comply with obligations and restrictions related to applicable data protection laws, regulations, standards, and codes of conduct, as well as our own posted privacy policies and contractual commitments could subject us to lawsuits, fines, criminal penalties, statutory damages, consent decrees, injunctions, adverse publicity, loss of user confidence in our services, and loss of users, which could materially harm our business. Additionally, third-party contractors may have access to customer or employee data. If these or other third-party vendors violate obligations and restrictions related to applicable data protection laws or our policies, such violations may also put our customers' or employees' information at risk and could in turn have a material and adverse effect on our business.

If we fail to protect our internally developed systems, technology, and software and our trademarks, we may become involved in costly litigation or our business or brand may be harmed.

Our ability to compete effectively is dependent in large part upon the maintenance and protection of systems and software that we have developed internally based on open standards. While we own over 185 issued U.S. patents as well as a number of foreign patents and more than 60 pending U.S. patent applications along with a number of foreign patent applications, we cannot patent much of the technology that is important to our business. Our pending patent applications may not be granted. Any issued patent that we own may be challenged, narrowed, invalidated, or circumvented. To date, we have relied on patent, copyright and trade secret laws, as well as confidentiality procedures and licensing arrangements, to establish and protect our rights to this technology. We typically enter into confidentiality agreements with our employees, consultants, customers, partners, and vendors in an effort to control access to and distribution of technology, software, documentation, and other information. Despite these precautions, it may be possible for a third party to copy or otherwise obtain and use this technology without authorization. Policing unauthorized use of this technology is difficult. The steps we take may not prevent misappropriation of the technology we rely on. In addition, effective protection may be unavailable or limited in some jurisdictions outside the United States, Canada, and the United Kingdom. Litigation may be necessary in the future to enforce or protect our rights or to determine the validity and scope of the rights of others. That litigation could cause us to incur substantial costs and divert resources away from our daily business, which in turn could materially adversely affect our business.

The unlicensed use of our brands by third parties could harm our reputation, cause confusion among our customers, and impair our ability to market our services. To that end, we have registered numerous trademarks and service marks and have applied for registration of our trademarks and service marks in the United States and abroad to establish and protect our brand names as part of our intellectual property strategy. If our applications receive objections or are successfully opposed by third parties, it may be difficult for us to prevent third parties from using our brand without our permission. Moreover, successful opposition to our applications might encourage third parties to make additional oppositions or commence trademark infringement proceedings against us, which could be costly and time consuming to defend against. If we decide to take limited or no action to protect our trademarks, our trademark rights may be diluted and subject to challenge or invalidation, which could materially and adversely affect our brand in the marketplace.

Third parties may fraudulently use our name to obtain access to customer accounts and other personal information, use our services to commit fraud or steal our services or equipment, which could damage our reputation, limit our growth, and cause us to incur additional expenses.

Our customers have been subject to “phishing,” which occurs when a third party calls or sends an email or pop-up message to a customer that claims to be from a business or organization that provides services to the customer. The purpose of the inquiry is typically to encourage the customer to visit a bogus website designed to look like a website operated by the legitimate business or organization or provide information to the operator. At the bogus website, the operator attempts to trick the customer into divulging customer account or other personal information such as credit card information or to introduce viruses through “Trojan horse” programs to the customers’ computers. This has resulted in identity theft from our customers and the unauthorized use of Vonage services. Third parties have also used our communications services to commit fraud. Although we have engaged a third party to assist in the shutdown of purported phishing sites, if we are unable to detect and prevent “phishing,” use of our services for fraud, and similar activities, our brand reputation and growth may suffer and we may incur additional costs, including costs to increase security, or be required to credit significant amounts to customers.

Third parties also have used our communications services and obtained delivery of our equipment without paying, including by submitting fraudulent credit card information. This has resulted in our incurring the cost of providing the services, including incurring call termination fees, or providing the equipment without any corresponding revenues. We have implemented anti-fraud procedures in order to limit the expenses resulting from theft of service or equipment. If our procedures are not effective, theft of service or equipment could significantly increase our expenses and negatively impact our profitability.

We may be subject to damaging and disruptive intellectual property disputes that could materially and adversely affect our business, results of operations, and financial condition, as well as the continued viability of our company.

There has been substantial litigation in the cloud communications, UCaaS, VoIP, telecommunications, hosted services, and related industries regarding intellectual property rights and, given the rapid technological change in our industry, expansion into new technological and geographical markets, and our continual development of new products and services, we and/or our commercial partners may be subject to infringement claims from time to time. For example, we may be unaware of filed patent applications and issued patents that could include claims that might be interpreted to cover our products and services. We have been subject to patent infringement claims in the past, are currently named as a defendant in several proceedings that relate to alleged patent infringement, and from time to time we receive letters from third parties offering an opportunity for us to obtain licenses to patents that may be relevant to our business or alleging that our services infringe upon third party patents or other intellectual property. We may seek to obtain rights to third party technology in the future, but may not be able to agree upon commercially reasonable terms or at all with respect to obtaining such rights. If we are unable to extend existing licenses or are unable to obtain rights to other technology that may be commercially advantageous or necessary for our product and service offerings, we may experience a decrease in the quality of our products or services or we may lose the ability to provide our products and services on a non-infringing basis until alternative technology or suitable alternative products and services can be developed, identified, obtained either through acquisition, license or other grants of rights, and integrated.

Parties making claims of infringement may be able to obtain injunctive or other equitable relief that could effectively block our ability to provide our services and could cause us to pay substantial royalties, licensing fees, damages or settlement fees. Our agreements with certain customers, vendors, or partners may obligate us to defend or indemnify them in connection with such claims of infringement, further increasing our costs of defense and potential liability. Although we generally limit our contractual liability regarding such obligations, we may incur significant liability with respect to them, and disputes with our customers, vendors or partners over such obligations may have an adverse relationship on our relations with those entities. The defense of any lawsuit could divert management's efforts and attention from ordinary business operations and result in time-consuming and expensive litigation, regardless of the merits of such claims. These outcomes may:

- result in the loss of a substantial number of existing customers or prohibit the acquisition of new customers;
- cause us to accelerate expenditures to preserve existing revenues;
- cause existing or new vendors to require prepayments or letters of credit;
- cause our credit card processors to demand reserves or letters of credit or make holdbacks;
- result in substantial employee layoffs;
- materially and adversely affect our brand in the marketplace and cause a substantial loss of goodwill;
- cause our stock price to decline significantly;
- materially and adversely affect our liquidity, including our ability to pay debts and other obligations as they become due;
- cause us to change our business methods or services;
- require us to cease certain business operations or offering certain products and services; and
- lead to our bankruptcy or liquidation.

We rely on third parties to provide a portion of our customer service representatives, provide aspects of our E-911 service, which differs from traditional 911 service, and initiate local number portability for our customers. If these third parties do not provide our customers with reliable, high-quality service, our reputation will be harmed and we may lose customers.

We offer our customers support 24 hours a day, seven days a week through both our comprehensive online account management website and our toll free number. Our customer support is currently provided via United States based employees as well as third party partners located in the United States, Philippines, Costa Rica, Chile, Mexico, and India. We can offer support in English, Spanish, and French Canadian. Our third-party providers generally represent us without identifying themselves as independent parties. The ability to support our customers may be disrupted by natural disasters, inclement weather conditions, civil unrest, and other adverse events in the locations where our customer support is provided.

We also contract for services required to provide E-911 services including assistance in routing emergency calls, terminating E-911 calls, operating a national call center that is available 24 hours a day, seven days a week to receive certain emergency calls, and maintaining PSAP databases for the purpose of deploying and operating E-911 services. Interruptions in service from our vendor could cause failures in our customers' access to E-911 services and expose us to liability and damage our reputation.

We also have agreements with companies that initiate our local number portability, which allow new customers to retain their existing telephone numbers when subscribing to our services.

If any of these third parties do not provide reliable, high-quality service, our reputation and our business will be harmed. In addition, industry consolidation among providers of services to us may impact our ability to obtain these services or increase our expense for these services.

Our services are subject to regulation in the United States, United Kingdom, and Canada, and future legislative, regulatory or judicial actions could adversely affect our business and expose us to liability.

Our business has developed in a relatively lightly regulated environment. However, the United States, United Kingdom, and Canada have applied some traditional telephone company regulations to VoIP and continue to evaluate how VoIP should be regulated. The effects of future regulatory developments are uncertain. At the federal level in the U.S., the Federal Communications Commission has imposed certain telecommunications regulations on VoIP services including:

- Requirements to provide E-911 service;
- Communications Assistance for Law Enforcement Act obligations;
- Obligation to support Universal Service;
- Customer Proprietary Network Information, or CPNI, requirements;
- Disability access obligations;
- Local Number Portability requirements;
- Service discontinuance notification obligations;
- Outage reporting requirements; and
- Rural call completion reporting and rules related to ring signal integrity.

In general, the focus of interconnected VoIP telecommunications regulation is at the federal level. On November 12, 2004, the FCC issued a declaratory ruling providing that our service is subject to federal regulation and preempted the Minnesota Public Utilities Commission from imposing certain of its regulations on us. While this ruling does not exempt us from all state oversight of our service, it effectively prevents state telecommunications regulators from imposing certain burdensome and inconsistent market entry requirements and certain other state utility rules and regulations on our service. As such, Vonage is subject to relatively few state regulatory requirements including:

- Payment of state and local E-911 fees; and
- State Universal Service support obligations.

In Canada, the Canadian Radio-television and Telecommunications Commission, or CRTC. regulates VoIP service. CRTC VoIP regulations include:

- Requirement to provide 911 service; and
- Local Number Portability requirements.

In the UK, we are subject to regulation in the UK by the Office of Communications, or OFCOM. OFCOM VoIP regulations include:

- Requirement to provide 999/112 service; and
- Number Portability requirements.

Vonage seeks to comply with all applicable regulatory requirements. We could, however, be subject to regulatory enforcement action if a regulator does not believe that we are complying with applicable regulations.

In addition, the regulatory framework for VoIP service is still evolving and it is possible that Vonage could be subject to additional regulatory obligations and/or existing regulatory obligations could be modified or expanded particularly at the state and local level. For instance, several states public utility commissions are attempting to regulate ‘fixed’ VoIP provided by cable companies versus the nomadic nature of Vonage's services. These states believe that the FCC’s 2004 Vonage Preemption Order did not preempt regulation of these ‘fixed’ services. The effects of future regulatory developments are uncertain. Future legislative, judicial or other regulatory actions could have a negative effect on our business. If we become subject to the rules and regulations applicable to telecommunications providers in individual states, we may incur significant litigation and compliance costs, and we may have to restructure our service offerings, exit certain markets, or raise the price of our services, any of which could cause our services to be less attractive to customers. In addition, future regulatory developments could increase our cost of doing business and limit our growth.

The regulatory framework for CPaaS services is not developed; future legislative, regulatory or judicial actions on CPaaS could adversely affect our business and expose us to liability.

In most countries where we offer CPaaS products, it is not clear how CPaaS fits into the communications regulatory framework. Regulators could claim that our CPaaS products are subject to licensing and substantive communications regulatory requirements or could modify their regulatory requirements to make it clear that CPaaS products are covered.

Future legislative, judicial or other regulatory actions could have a negative effect on our business. If our CPaaS products become subject to the rules and regulations applicable to communications providers, we may incur significant litigation and compliance costs, and we may have to restructure our service offerings, exit certain markets, or raise the price of our services, any of which could cause our services to be less attractive to customers. In addition, future regulatory developments could increase our cost of doing business and limit our growth.

Customer misuse of our CPaaS products in violation of the Telephone Consumer Protection Act may cause us to face litigation risk.

The Telephone Consumer Protection Act of 1991 restricts telemarketing and the use of automatic SMS text messages without proper consent. The scope and interpretation of the laws that are or may be applicable to the delivery of text messages are continuously evolving and developing. If we do not comply with these laws or regulations or if we become liable under these laws or regulations due to the failure of our customers to comply with these laws by obtaining proper consent, we could face liability.

Our business is subject to country-specific governmental regulation and related actions and taxes that may increase our costs or impact our product offerings.

In the United States, Canada, and United Kingdom, we are not a regulated telecommunications business subject primarily to regulations surrounding provision of emergency services and payment into universal service type funds. Our services are also in use in countries outside of the United States, Canada, and the United Kingdom, including countries where providing VoIP services is or may be illegal. We may need to change our service offerings to avoid regulation as a telecommunications business in a jurisdiction, or if we are treated as a fully regulated telecommunications business, we may be required to incur additional expenses. In addition, if governments believe that we are providing unauthorized service in their countries, they may pursue fines, penalties, or other governmental action, including criminal action, that may damage our brand and reputation. If we use a local partner to provide services in a country and the local partner does not comply with applicable governmental regulations, we may face additional regulation, liabilities, penalties or other governmental action, and our brand and reputation may be harmed.

In addition to the risk of being directly subjected to regulation, decisions by foreign regulators to increase the charge for terminating international calls into their countries could cause increased costs, impact margin, and impact churn. These regulatory actions may be taken without notice and cause us to react quickly to changing market conditions. These efforts could divert management’s efforts and attention from ordinary business operations which could materially and adversely affect our results of operations.

As a United States-based company, any foreign subsidiary or joint venture that we use for international operations may be subject to a variety of governmental regulations in the countries where we market our products, including tariffs, taxes and employment regulations different from those in the U.S. For example, distributions of earnings and other payments, including interest, received from our foreign subsidiaries may be subject to withholding taxes imposed by the jurisdiction in which such entities are formed or operating, which will reduce the amount of after-tax cash we can receive. In general, as a United States corporation, we may claim a foreign tax credit against our federal income tax expense for such foreign withholding taxes and for foreign income taxes paid directly by foreign corporate entities in which we own 10% or more of the voting stock. The ability to claim such foreign tax credits and to utilize net foreign losses is, however, subject to numerous limitations, and we may incur incremental tax costs as a result of these limitations or because we are not currently in a tax-paying position in the United States. We may also be required to include in our income for United States federal income tax purposes our proportionate share of certain earnings of those foreign subsidiaries that are classified as “controlled foreign corporations” without regard to whether distributions have been actually received from such subsidiaries.

Our CPaaS offerings may be subject to liability for historic and future sales, use and similar taxes, that may increase our costs or impact our product offerings.

In some United States tax jurisdictions in which we conduct operations, sales and use and telecommunications taxes could apply to our CPaaS products. Historically, we have not billed or collected these taxes from our CPaaS customers. It is possible that some tax jurisdictions may assert that such taxes are applicable to our CPaaS products, which could result in tax assessments, penalties and interest, and we may be required to collect such taxes on our CPaaS customers in the future. Such tax assessments, penalties and interest or future requirements may adversely affect our business, results of operations and financial condition. To the extent that we decide to collect such taxes from our CPaaS customers in the future, we may have some customers that question the incremental tax charges and some may seek to negotiate lower pricing from us, which could adversely affect our business, results of operations and financial condition.

The global scope of our operations may subject us to potentially adverse tax consequences.

We generally report our taxable income in various jurisdictions worldwide based upon our business operations in those jurisdictions. Intercompany relationships are subject to complex transfer pricing regulations in various jurisdictions. If revenue and taxing authorities disagree with positions we have taken we could be required to pay additional taxes, interest and penalties, which could result in one-time tax charges, higher effective tax rates, reduced cash flows and lower overall profitability of our operations. In addition, changes in tax laws of countries in which we do business could change on a prospective or retroactive basis, and any such changes could increase our liabilities for taxes, interest and penalties, and therefore could harm our business, cash flows, results of operations and financial position.

We may be exposed to liabilities under anti-corruption, export control and economic sanction regulations, and similar laws and regulations, and any determination that we violated any of these laws or regulations could have a material adverse effect on our business.

We are subject to the Foreign Corrupt Practice Act, or FCPA, the UK Bribery Act and other laws that prohibit improper payments or offers of payments to foreign governments and their officials, political parties, and/or private parties by persons and entities for the purpose of obtaining or retaining business. We have operations, agreements with third parties, and make sales internationally. In addition, we plan to expand our international operations through potential joint ventures with local partners. Our international activities create the risk of unauthorized payments or offers of payments by one of our employees, consultants, partners, sales agents or distributors, even though these parties are not always subject to our control. It is our policy to prohibit these practices by our employees, consultants, partners, sales agents or distributors, however, our existing safeguards and any future improvements may prove to be less than effective, and our employees, consultants, partners, sales agents or distributors may engage in conduct for which we might be held responsible. Violations of the FCPA, the UK Bribery Act or other laws may result in severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results, and financial condition.

Our products and services may be subject to export control and economic sanctions regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls. Our products and services must be offered and sold in compliance with these laws and regulations. If we do not comply with these laws or regulations or if we become liable under these laws or regulations due to the failure of our customers to comply with these laws by obtaining proper consent, we could face liability. In addition, changes in our products or services, changes in applicable regulations, or change in the target of such regulations, could also result in decreased use of our products and services, or in our decreased ability to sell our products or provide our services to existing or prospective customers with international operations. Any decreased use of our products and services or limitation on our ability to export our products and provide our services could adversely affect our business, results of operations and financial condition.

The success of our business relies on customers' continued and unimpeded access to broadband service. Providers of broadband services may be able to block our services or charge their customers more for also using our services, which could adversely affect our revenue and growth.

Our customers must have broadband access to the Internet in order to use our service. Some providers of broadband access, including outside of the United States, may take measures that affect their customers' ability to use our service, such as degrading the quality of the data packets we transmit over their lines, giving those packets low priority, giving other packets higher priority than ours, blocking our packets entirely or attempting to charge their customers more for also using our services.

In the United States, there continues to be some uncertainty regarding whether suppliers of broadband Internet access have a legal obligation to allow their customers to access and use our service without interference. On February 26, 2015, the FCC adopted neutrality rules that would protect against interference by suppliers of broadband Internet access. On December 14, 2017, the FCC voted to reverse its 2015 neutrality rules. The FCC's recent reversal of its stance on net neutrality may have a negative long term impact on businesses such as ours who rely on the Internet to create and deliver products and services. Challenges to the FCC's ruling are underway, with public interest groups, states, local municipalities and companies seeking redress in the courts and/or through legislation.

An unremediated material weakness in our internal control over financial reporting could adversely affect our reputation, business or stock price.

As described under Item 9A - Controls and Procedures, we identified a control deficiency constituting a material weakness in our internal control over financial reporting related to our controls over the preparation of the annual tax provision for the year ended December 31, 2016. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented or detected on a timely basis. Although we remediated this material weakness during 2017, we cannot assure you that we will not identify additional material weaknesses in our internal control over financial reporting in the future. If we are unable to remediate any future material weakness, our ability to record, process and report financial information accurately, and to prepare financial statements within the time periods specified by the rules and forms of the Securities and Exchange Commission, could be adversely affected. The occurrence of or failure to remediate any future material weakness may adversely affect our reputation and business and the market price of our common stock and any other securities we may issue.

The debt agreements governing our financing contain restrictions that may limit our flexibility in operating our business or executing on our acquisition strategy.

On June 3, 2016, we entered into Amendment No. 1 to the Amended and Restated Credit Agreement, or the 2016 Credit Facility, consisting of a $125,000 senior secured term loan and a $325,000 revolving credit facility. The 2016 Credit Facility contains customary representations and warranties and affirmative covenants that limit our ability and/or the ability of certain of our subsidiaries to engage in specified types of transactions. These covenants and other restrictions may under certain circumstances limit, but not necessarily preclude, our and certain of our subsidiaries' ability to, among other things:

- consolidate or merge;
- create liens;
- incur additional indebtedness;
- dispose of assets;
- consummate acquisitions;
- make investments; or
- pay dividends and other distributions.

Under the 2016 Credit Facility, we are required to comply with the following financial covenants: specified maximum consolidated leverage ratio, specified minimum consolidated fixed coverage charge ratio, minimum cash position and maximum capital expenditures. Our ability to comply with such financial and other covenants may be affected by events beyond our control, so we may not be able to comply with these covenants. A breach of any such covenant could result in a default under the 2016 Credit Facility. In that case, the lenders could elect to declare due and payable immediately all amounts due under the 2016 Credit Facility, including principal and accrued interest.

Significant foreign currency exchange rate fluctuations could adversely affect our financial results.

Because our consolidated financial statements are presented in U.S. dollars, increases or decreases in the value of the U.S. dollar relative to other currencies in which we transact business could materially adversely affect our financial results. For example, Nexmo collects revenues in Euros, and accordingly the strengthening of the U.S. dollar relative to the Euro adversely affects our revenue and operating results presented in U.S. dollars. In addition, on June 23, 2016, the United Kingdom held a referendum in which a majority of voters approved an exit from the European Union, or E.U., commonly referred to as "Brexit." As a result of the referendum, it is expected that the British government will begin negotiating the terms of the U.K.'s withdrawal from the E.U. Brexit caused significant volatility in global stock markets and currency exchange rate fluctuations that resulted in the strengthening of the U.S. dollar against foreign currencies in which we conduct business, such as the British Pound, Euro and other currencies. Such strengthening of the U.S. dollar relative to other currencies may adversely affect our revenue and operating results. In addition, changes to U.K. border and immigration policy could likewise occur as a result of Brexit, affecting our U.K. operation's ability to recruit and retain employees from outside the U.K.

If we require additional capital, we may not be able to obtain additional financing on favorable terms or at all.

We may need to pursue additional financing to respond to new competitive pressures, pay extraordinary expenses such as litigation settlements or judgments or fund growth, including through acquisitions. Because of our past significant losses and our limited tangible assets, we do not fit traditional credit lending criteria, which, in particular, could make it difficult for us to obtain loans or to access the capital markets. In addition, the credit documentation for our recent financing contains affirmative and negative covenants that affect, and in many respects may significantly limit or prohibit, among other things, our and certain of our subsidiaries' ability to incur, refinance or modify indebtedness and create liens.

Our credit card processors have the ability to impose significant holdbacks in certain circumstances. The reinstatement of such holdbacks likely would have a material adverse effect on our liquidity.

Under our credit card processing agreements with our Visa, MasterCard, American Express, and Discover credit card processors, the credit card processor has the right, in certain circumstances, including adverse events affecting our business, to impose a holdback of our advanced payments purchased using a Visa, MasterCard, American Express, or Discover credit card, as applicable, or demand additional reserves or other security. If circumstances were to occur that would allow any of these processors to reinstate a holdback, the negative impact on our liquidity likely would be significant. In addition, our Visa and MasterCard credit card processing agreement may be terminated by the credit card processor at its discretion if we are deemed to be financially insecure. As a significant portion of payments to us are made through Visa and MasterCard credit cards, if the credit card processor does not assist in transitioning our business to another credit card processor, the negative impact on our liquidity likely would be significant. There were no cash reserves and cash-collateralized letters of credit with any credit card processors as of December 31, 2017.

We have incurred cumulative losses since our inception and may not achieve consistent profitability in the future.

We incurred a net loss attributable to Vonage of $33,933 for the year ended December 31, 2017 and our accumulated deficit is $672,561 from our inception through December 31, 2017 . Although we have achieved profitability in prior years and believe we will achieve consistent profitability in the future, we ultimately may not be successful. We believe that our ability to achieve consistent profitability will depend, among other factors, on our ability to continue to achieve and maintain substantive operational improvements and structural cost reductions while maintaining and growing our net revenues. In addition, certain of the costs of our business are not within our control and may increase. For example, we and other telecommunications providers are subject to regulatory termination charges imposed by regulatory authorities in countries to which customers make calls.

We may be unable to fully realize the benefits of our net operating loss, or NOL, carry forwards if an ownership change occurs.

If we were to experience a "change in ownership" under Section 382 of the Internal Revenue Code, or Section 382, the NOL carry forward limitations under Section 382 would impose an annual limit on the amount of the future taxable income that may be offset by our NOL generated prior to the change in ownership. If a change in ownership were to occur, we may be unable to use a significant portion of our NOL to offset future taxable income. In general, a change in ownership occurs when, as of any testing date, there has been a cumulative change in the stock ownership of the corporation held by 5% stockholders of more than 50 percentage points over an applicable three-year period. For these purposes, a 5% stockholder is generally any person or group of persons that at any time during an applicable three-year period has owned 5% or more of our outstanding common stock. In addition, persons who own less than 5% of the outstanding common stock are grouped together as one or more "public group" 5% stockholders. Under Section 382, stock ownership would be determined under complex attribution rules and generally includes shares held directly, indirectly though intervening entities, and constructively by certain related parties and certain unrelated parties acting as a group. We have implemented a Tax Benefits Preservation Plan intended to provide a meaningful deterrent effect against acquisitions that could cause a change in ownership, however this is not a guarantee against such a change in ownership.

Our certificate of incorporation and bylaws and the agreements governing our indebtedness contain provisions that could delay or discourage a takeover attempt, which could prevent the completion of a transaction in which our stockholders could receive a substantial premium over the then-current market price for their shares.

Certain provisions of our restated certificate of incorporation and our second amended and restated bylaws may make it more difficult for, or have the effect of discouraging, a third party from acquiring control of us or changing our board of directors and management. These provisions:

- permit our board of directors to issue additional shares of common stock and preferred stock and to establish the number of shares, series designation, voting powers if any, preferences, other special rights, qualifications, limitations or restrictions of any series of preferred stock;
- limit the ability of stockholders to amend our restated certificate of incorporation and second amended and restated bylaws, including supermajority requirements;
- allow only our board of directors, Chairman of the board of directors or Chief Executive Officer to call special meetings of our stockholders;
- eliminate the ability of stockholders to act by written consent;
- require advance notice for stockholder proposals and director nominations;
- limit the removal of directors and the filling of director vacancies; and
- establish a classified board of directors with staggered three-year terms.

Such provisions could have the effect of depriving stockholders of an opportunity to sell their shares at a premium over prevailing market prices. Any delay or prevention of, or significant payments required to be made upon, a change of control transaction or changes in our board of directors or management could deter potential acquirors or prevent the completion of a transaction in which our stockholders could receive a substantial premium over the then-current market price for their shares.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

The following is a summary of our offices and locations:

Location	Business Use	Square Footage	Lease Expiration Date
Holmdel, New Jersey	Corporate Headquarters, Network Operations, Customer Services, Sales and Marketing, Administration	350,000	2023
New York, New York	Sales and Marketing, Administration, and Product Development	10,166	2026
Dallas, Texas	Sales and Marketing, Administration, and Product Development	5,567	2021
Atlanta, Georgia	Sales and Marketing, Administration, and Product Development	162,839	2020
Scottsdale, Arizona	Network Operations, Customer Services, Marketing, and Administration	37,870	2021
Englewood, Colorado	Sales and Marketing	19,146	2020
Minneapolis, Minnesota	Sales and Marketing	2,206	2020
Oak Brook, Illinois	Sales and Marketing	4,890	2019
Houston, Texas	Sales and Marketing	4,040	2020
McLean, Virginia	Network Operations, Customer Services, Sales and Marketing, Administration	25,475	2020
Philadelphia, Pennsylvania	Sales and Marketing	5,795	2020
San Francisco, California	Sales and Marketing, Administration, and Customer Services	5,000	2018
London, United Kingdom	Sales and Marketing, Administration	22,361	2027
Raanana, Israel	Application Development	7,158	2020
		662,513	

We sublease 52,000 square feet of office space in our Holmdel, NJ location to a third party. We believe that the facilities that we occupy are adequate for our current needs and do not anticipate leasing any material additional space.

ITEM 3. Legal Proceedings

Refer to Note 11, *Commitments and Contingencies* to our Consolidated Financial Statements included in this Annual Report on Form 10-K for a discussion of recent developments regarding our legal proceedings.

ITEM 4. Mine Safety Disclosures

Not Applicable.

ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Price Range of Common Stock

Our common stock has been listed on the New York Stock Exchange under the ticker symbol "VG" since May 24, 2006. Prior to that time, there was no public market for our common stock. The following table sets forth the high and low sales prices for our common stock as reported on the NYSE for the quarterly periods indicated.

	Price Range of Common Stock	
	High	Low
2017		
Fourth quarter	$ 10.57	$ 7.85
Third quarter	$ 8.59	$ 6.28
Second quarter	$ 7.44	$ 5.98
First quarter	$ 7.88	$ 5.74
2016		
Fourth quarter	$ 7.57	$ 6.10
Third quarter	$ 6.75	$ 5.43
Second quarter	$ 6.29	$ 3.82
First quarter	$ 5.88	$ 4.13

Holders

At January 31, 2018, we had approximately 523 stockholders of record. This number does not include beneficial owners whose shares are held in street name.

Dividends

We have never paid cash dividends on our common stock, and we do not anticipate paying any cash dividends on our common stock for at least the next 12 months. We intend to retain all of our earnings, if any, for general corporate purposes, and, if appropriate, to finance the expansion of our business.

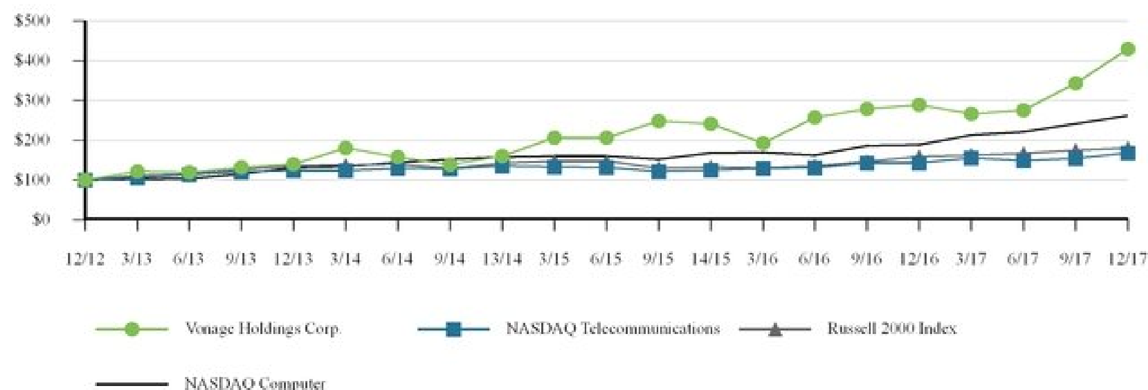
Stock Performance Graph

The graphs below and related information shall not be deemed "soliciting material" or "filed" with the Securities and Exchange Commission or otherwise subject to the liabilities of Section 18 of the Securities Exchange Act of 1934, or the Exchange Act, nor shall such information be deemed incorporated by reference into any filing under the Securities Act of 1933, or the Securities Act, or the Exchange Act, except to the extent we specifically request that such information be treated as soliciting material or specifically incorporate such information by reference into a document filed under the Securities Act or the Exchange Act.

The graph below compares the cumulative total return of our common stock between December 31, 2012 and December 31, 2017 , with the cumulative total return of (1) NASDAQ Telecommunications, (2) Russell 2000 Index, and (3) NASDAQ Computer. This graph assumes the investment of $100 on December 31, 2012 in our common stock, NASDAQ Telecommunications, Russell 2000 Index, and NASDAQ Computer, and assumes the reinvestment of dividends, if any.

COMPARISON OF THE CUMULATIVE TOTAL RETURN ON COMMON STOCK BETWEEN DECEMBER 31, 2012 AND December 31, 2017

Among Vonage Holdings Corp., the NASDAQ Telecommunications, the Russell 2000 Index, and the NASDAQ Computer.



										December 31,
		2013		2014		2015		2016		2017
Vonage Holdings Corp.	$	140.51	$	160.76	$	242.19	$	289.03	$	429.11
NASDAQ Telecommunications	$	124.02	$	135.07	$	124.94	$	143.52	$	168.54
Russell 2000 Index	$	137.00	$	141.84	$	133.74	$	159.78	$	180.79
NASDAQ Computer	$	131.95	$	158.17	$	168.05	$	188.67	$	261.81

Common Stock repurchases

See Note 9, *Common Stock* to the Consolidated Financial Statements for information regarding common stock repurchases by quarter.

On December 9, 2014, Vonage's Board of Directors authorized a new program for the Company to repurchase up to $100,000 of its outstanding common stock. Repurchases under the 2014 $100,000 repurchase program are expected to be made over a four-year period beginning in 2015. Under this program, the timing and amount of repurchases will be determined by management based on its evaluation of market conditions, the trading price of the stock and will vary based on available capital resources and other financial and operational performance, market conditions, securities law limitations, and other factors. Repurchases may be made in the open market or through private transactions from time to time. The repurchases will be made using available cash balances. In any period, cash used in financing activities related to common stock repurchases may differ from the comparable change in stockholders' equity, reflecting timing differences between the recognition of share repurchase transactions and their settlement for cash.

During the three months ended December 31, 2017 , we did not repurchase Vonage Holdings Corp. common stock. As of December 31, 2017 , approximately $42,533 remained of our 2014 $100,000 repurchase program.

ITEM 6. Selected Financial Data

The following table presents the Company's historical selected financial data. This information should be read in conjunction with the Consolidated Financial Statements and the related notes thereto in Item 15 and Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations*. The Company has completed several acquisitions as further described in Note 12, *Acquisition of Business* to the consolidated financial statements.

	For the years ended December 31,				
(In thousands, except per share amounts)	**2017**	**2016 (1)**	**2015 (2)**	**2014 (3)**	**2013 (4)**
Statement of Operations Data:					
Total revenues	$ 1,002,286	$ 955,621	$ 895,072	$ 868,854	$ 829,067
Income from operations	59,391	44,154	52,992	58,071	53,975
(Loss)/income from continuing operations	$ (33,933)	$ 13,151	$ 25,035	$ 29,707	$ 29,427
Discontinued operations	—	—	(2,439)	(10,260)	(1,626)
Net (Loss)/Income	(33,933)	13,151	22,596	19,447	27,801
Plus: Net loss from discontinued operations attributable to noncontrolling interest	$ —	$ —	$ 59	$ 819	$ 488
Net (loss)/income attributable to Vonage	$ (33,933)	$ 13,151	$ 22,655	$ 20,266	$ 28,289
Net (Loss)/Income per common share - continuing operations:					
Basic	$ (0.15)	$ 0.06	$ 0.12	$ 0.14	$ 0.14
Diluted	$ (0.15)	$ 0.06	$ 0.11	$ 0.14	$ 0.13
Net Loss per common share - discontinuing operations attributable to Vonage:					
Basic	—	—	(0.01)	(0.04)	(0.01)
Diluted	—	—	(0.01)	(0.04)	(0.01)
Net (Loss)/Income per common share - attributable to Vonage:					
Basic	(0.15)	0.06	0.11	0.10	0.13
Diluted	(0.15)	0.06	0.10	0.09	0.13
Weighted-average common shares outstanding:					
Basic	225,311	215,751	213,147	209,822	211,563
Diluted	225,311	231,941	224,110	219,419	220,520
Statement of Cash Flow Data:					
Net cash provided by operating activities	$ 128,058	$ 93,456	$ 134,485	$ 101,546	$ 89,554
Net cash used in investing activities	(30,737)	(191,449)	(153,509)	(119,523)	(122,237)
Net cash provided by (used in) financing activities	(96,242)	68,054	35,451	(23,243)	20,580
Balance Sheet Data:					
Total assets	858,681	935,666	784,566	674,460	642,158
Total notes payable and indebtedness under revolving credit facility, including current portion	232,515	318,874	210,392	156,032	121,075
Capital lease obligations	140	3,428	7,761	10,201	13,090
Total stockholders' equity	472,898	436,541	388,741	343,497	338,074

(1) The year ended December 31, 2016 includes the impacts of the acquisition of Nexmo, which was completed in the second quarter. In addition, refer to Note 3. *Correction of Prior Period Financial Statements* for impact of correction on the financial statements for the year ended December 31, 2016.
(2) The year ended December 31, 2015 includes the impacts of the acquisition of iCore, which was completed in the third quarter and the acquisition of Simple Signal, which was completed in the second quarter.
(3) The year ended December 31, 2014 includes the impact of the acquisition of Telesphere Networks Ltd., which was completed in the fourth quarter.
(4) The year ended December 31, 2013 includes the impact of the acquisition of Vocalocity Inc., which was completed in the fourth quarter.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion together with "Selected Financial Data" and our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements, which involve risks and uncertainties. Our actual results may differ materially from those we currently anticipate as a result of many factors, including the factors we describe under "Item 1A—Risk Factors," and elsewhere in this Annual Report on Form 10-K.

OVERVIEW

We are a leading provider of cloud communications services for businesses and consumers. Our business services transform the way people work and businesses operate through a portfolio of communications solutions that enable internal collaboration among employees, while also keeping companies closely connected with their customers, across any mode of communication, on any cloud-connected device. Vonage customers can choose among or combine two separate service delivery options to suit their specific cloud communication needs. They can buy Vonage Business as a subscription and they can buy our Vonage API Platform and consume our cloud communication as a service product as programmable modules, delivered via APIs. We also provide a robust suite of feature-rich residential communication solutions.

Business

For our Business customers, we provide innovative, cloud-based Unified Communications as a Service, or UCaaS, solutions, comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable Session Initiation Protocol based Voice over Internet Protocol, or VoIP, network. We also offer CPaaS solutions designed to enhance the way businesses communicate with their customers by embedding communications into apps, websites and business processes. In combination, our products and services permit our business customers to communicate with their customers and employees through any cloud-connected device, in any place, at any time without the often costly investment required with on-site equipment. We have a robust set of product families tailored to serve the full range of the business value chain, from the SMB market, through mid-market and enterprise markets. We provide customers with multiple deployment options, designed to provide the reliability and quality of service they demand. We provide customers the ability to integrate our cloud communications platform with many cloud-based productivity and CRM solutions, including Google's G Suite, Zendesk, Salesforce's Sales Cloud, Oracle, and Clio. With our ability to integrate these cloud-based, workplace tools, Vonage integrates the entire business communications value chain - from employee communications that maximize productivity to the direct engagement with customers that CPaaS provides. When combined with our MPLS network, as well as voice services over customers' broadband networks via our SmartWan solution, we create a differentiated offering.

Consumer

For our Consumer customers, we enable users to access and utilize our services and features, via their existing internet connections, including over 3G/4G, LTE, Cable, or DSL broadband networks. This technology enables us to offer our Consumer customers attractively priced voice and messaging services and other features around the world on a variety of devices. Our Consumer strategy is focused on the continued penetration of our core North American markets, where we will continue to provide value in international long distance and target under-served segments.

Services outside of the United States

We currently have UCaaS and consumer operations in the United States, United Kingdom, and Canada and believe that our low-cost Internet based communications platform enables us to cost effectively deliver voice and messaging services to other locations throughout the world. Through Nexmo, we have operations in the United States, United Kingdom, Hong Kong, and Singapore, and provide CPaaS solutions to our customers located in many countries around the world.

Trends in Our Industry

A number of trends in our industry have a significant effect on our results of operations and are important to an understanding of our financial statements.

Competitive landscape. We face intense competition from traditional telephone companies, wireless companies, cable companies, and alternative communication providers. Most traditional wireline and wireless telephone service providers and cable companies are substantially larger and better capitalized than we are and have the advantage of a large existing customer base. In addition, because our competitors provide other services, they often choose to offer VoIP services or other voice services as part of a bundle that includes other products, such as video, high speed Internet access, and wireless telephone service, which we do not offer. In addition, such competitors may in the future require new customers or existing customers making changes to their service to purchase voice services when purchasing high speed Internet access. Further, as wireless providers offer more minutes at lower prices, better coverage, and companion landline alternative services, their services have become more attractive to households as a replacement for wireline service. We also compete against alternative communication providers. Some of these service providers have chosen to sacrifice telephony revenue in order to gain market share and have offered their services at low prices or for free. As we continue to introduce applications that integrate different forms of voice and messaging services over multiple devices, we are facing competition from emerging competitors focused on similar integration, as well as from alternative voice communication providers. In addition, our competitors have partnered and may in the future partner with other competitors to offer products and services, leveraging their collective competitive positions. We also are subject to the risk of future disruptive technologies. In connection with our emphasis on the international long distance market in the United States, we face competition from low-cost international calling cards and VoIP providers in addition to traditional telephone companies, cable companies, and wireless companies, each of which may implement promotional pricing targeting international long distance callers.

Regulation. Our business has developed in a relatively lightly-regulated environment. The United States and other countries, however, are examining how VoIP services should be regulated. In particular, state telecommunications regulators continue to try to regulate VoIP service despite the FCC’s 2004 Vonage Preemption Order that preempted state regulation. For example, on July 28, 2015, the Minnesota Public Utility Commission found that it has authority to regulate Charter’s ‘fixed' interconnected VoIP service. In addition to regulatory matters that directly address VoIP, a number of other regulatory initiatives could impact our business. One such regulatory initiative is net neutrality. On February 26, 2015, the FCC adopted strong net neutrality rules. On December 14, 2017 the FCC voted to reverse its 2015 neutrality rules. The FCC's recent reversal of its stance on net neutrality may have a negative long term impact on businesses such as ours who rely on the Internet to create and deliver products and services. Challenges to the FCC's ruling are underway, with public interest groups, states, local municipalities and companies seeking redress in the courts and/or through legislation. See also the discussion under "Regulation" in Note 11 to our financial statements for a discussion of regulatory issues that impact us.

Key Operating Data

The table below includes key operating data that our management uses to measure the growth and operating performance of the Business segment:

Business	**For the Years Ended December 31,**		
	2017	**2016**	**2015**
Revenues [(1)]	$ 498,922	$ 376,352	$ 219,027
Average monthly revenues per seat [(2)]	$ 43.86	$ 44.94	$ 42.79
Seats (at period end) [(2)]	727,085	638,096	541,884
Revenue churn [(2)]	1.3%	1.4%	1.2%

(1) Includes revenues of $139,665 and $58,148 from CPaaS for the years ended December 31, 2017 and December 31, 2016 , respectively.
(2) UCaaS only.

Revenues. Business revenues includes revenues from our business customers from primarily from acquired entities.

Average monthly revenues per seat. Average monthly revenues per seat for a particular period is calculated by dividing our revenues for that period by the simple average number of seats for the period, and dividing the result by the number of months in the period. The simple average number of seats for the period is the number of seats on the first day of the period, plus the number of seats on the last day of the period, divided by two. Our average monthly revenues per seat decreased from $44.94 for 2016 to $43.86 for 2017 in part due to the loss of cloud service revenues for some of the Company's UCaaS customers as a result of the sale of our Hosted Infrastructure product line in May 2017 along with the Company's plan to sell access more selectively during the current year period.

Seats. Seats include, as of a particular date, all paid seats from which a customer can make an outbound telephone call on that date and virtual seats. Seats exclude electronic fax lines and toll free numbers, which do not allow outbound telephone calls by customers. Seats increased from 638,096 as of December 31, 2016 to 727,085 as of December 31, 2017 . This increase is due to continued growth in our Business customers as we have increased marketing investment to attract these more profitable customers.

Revenue churn. Revenue churn is calculated by dividing the monthly recurring revenue from customers or customer locations that have terminated during a period by the simple average of the total monthly recurring revenue from all customers in a given period. The simple average of total monthly recurring revenue from all customers during the period is the total monthly recurring revenue on the first day of the period, plus the total monthly recurring revenue on the last day of the period, divided by two. Terminations, as used in the calculation of churn statistics, do not include customers terminated during the period if termination occurred within the first month after activation. Other companies may calculate revenue churn differently, and their revenue churn data may not be directly comparable to ours. Revenue churn decreased from 1.4% for the year ended 2016 to 1.3% for the year ended 2017 . Our revenue churn will fluctuate over time due to economic conditions, loss of customers who are acquired, and competitive pressures including promotional pricing. We are continuing to invest in our overall quality of service which includes customer care headcount and systems, billing systems, on-boarding processes and self-service options to ensure we scale our processes to our growth and continue to improve the overall customer experience.

The table below includes key operating data that our management uses to measure the growth and operating performance of the Consumer segment:

Consumer	**For the Years Ended December 31,**		
	2017	**2016**	**2015**
Revenues	$ 503,364	$ 579,269	$ 676,045
Average monthly revenues per subscriber line	$ 26.19	$ 26.43	$ 27.58
Subscriber lines (at period end)	1,492,067	1,711,366	1,940,825
Customer churn	2.0%	2.2%	2.3%

Revenues. Consumer revenues represents revenue from our consumer customers including revenues from our legacy business customers using Vonage VoIP products.

Average monthly revenues per subscriber line. Average monthly revenues per subscriber line for a particular period is calculated by dividing our revenues for that period by the simple average number of subscriber lines for the period, and dividing the result by the number of months in the period. The simple average number of subscriber lines for the period is the number of subscriber lines on the first day of the period, plus the number of subscriber lines on the last day of the period, divided by two. Our average monthly revenues per subscriber line decreased from $26.43 for 2016 to $26.19 for 2017 due primarily to lower international long distance pay-per-use revenue.

Subscriber lines. Our subscriber lines include, as of a particular date, all paid subscriber lines from which a customer can make an outbound telephone call on that date. Our subscriber lines include fax lines, including fax lines bundled with subscriber lines in our small office home office calling plans and soft phones, but do not include our virtual phone numbers and toll free numbers, which only allow inbound telephone calls to customers. Subscriber lines decreased from 1,711,366 as of December 31, 2016 to 1,492,067 as of December 31, 2017 , reflecting planned actions to enhance the profitability of the assisted sales channel by eliminating lower performing locations and restructuring the pricing offers, and to shift investment to our business market.

Customer churn. Customer churn is calculated by dividing the number of customers that have terminated during a period by the simple average of number of customers in a given period. The simple average number of customers during the period is the number of customers on the first day of the period, plus the number of customers on the last day of the period, divided by two. Terminations, as used in the calculation of churn statistics, do not include customers terminated during the period if termination occurred within the first month after activation. Other companies may calculate customer churn differently, and their customer churn data may not be directly comparable to ours. Customer churn decreased to 2.0% for 2017 from 2.2% for 2016 . The decrease was due primarily to our decision to maximize customer value by focusing marketing spend on higher return channels and away from assisted selling channels which had higher early life churn. We monitor customer churn on a daily basis and use it as an indicator of the level of customer satisfaction. Customers who have been with us for a year or more tend to have a lower churn rate than customers who have not. In addition, our customers who are international callers generally churn at a lower rate than customers who are domestic callers. Our customer churn will fluctuate over time due to economic conditions, competitive pressures including promotional pricing targeting international long distance callers, marketplace perception of our services, and our ability to provide high quality customer care and network quality and add future innovative products and services. Customer churn differs from our previously reported average monthly customer churn in that our business customers are no longer included in this metric. See the discussion below for detail regarding churn impacting our business customers.

REVENUES

Revenues consist of services revenue and customer equipment and shipping revenue. Substantially all of our revenues are services revenue. For consumer customers in the United States, we offer domestic and international rate plans, including a variety of residential plans and mobile plans. Through our acquisitions we offer SMB, mid-market, and enterprise customers several service plans with different pricing structures and contractual requirements ranging in duration from month-to-month to three years. In addition, we provide managed equipment to business customers for which the customers pay a monthly fee. Customers also have the opportunity to purchase premium features for additional fees. In addition, through our acquisition of Nexmo we derive revenue from usage-based fees earned from customers using our cloud-based software products. These usage-based software products include our messaging, voice, Verify and chat APIs. Usage-based fees include number of text messages sent or received using our messaging APIs, minutes of call duration activity for our voice APIs, and number of converted authentications for our Verify API. Services revenue is offset by the cost of certain customer acquisition activities, such as rebates and promotions. In addition, in certain instances, we charge disconnect fees which are recognized as revenue at the time the disconnect fees are collected from our customer.

In the United States, we charge regulatory, compliance, E-911, and intellectual property-related recovery fees on a monthly basis to defray costs, and to cover taxes that we are charged by the suppliers of telecommunications services. In addition, we recognize revenue on a gross basis for contributions to the Federal Universal Service Fund, or USF, and related fees. All other taxes are recorded on a net basis.

Customer equipment and shipping revenue consists of revenue from sales of customer equipment to our wholesalers or directly to customers and retailers. In addition, customer equipment and shipping revenues include revenues from the sale of VoIP telephones in order to access our small and medium business services. Customer equipment and shipping revenue also includes the fees, when collected, that we charge our customers for shipping any equipment to them.

OPERATING EXPENSE

Operating expenses consist of cost of service, cost of goods sold, sales and marketing expense, engineering and development expense, general and administrative expense, and depreciation and amortization.

RESULTS OF OPERATION

The following table sets forth, as a percentage of consolidated operating revenues, our consolidated statement of income for the periods indicated:

	For the Years Ended December 31,		
	2017	2016	2015
Total revenues	100 %	100 %	100 %
Operating Expenses:			
Cost of services (excluding depreciation and amortization)	38	34	29
Cost of goods sold	3	3	4
Sales and marketing	31	35	39
Engineering and development	3	3	3
General and administrative	12	13	12
Depreciation and amortization	7	7	7
Total operating expense	94	95	94
Income from operations	6	5	6
Other Income (Expense):			
Interest income	—	—	—
Interest expense	(1)	(2)	(1)
Other income (expense), net	—	—	—
Total other income (expense), net	(1)	(2)	(1)
Income from continuing operation before income taxes	5	3	5
Income tax expense	(8)	(2)	(2)
(Loss)/income from continuing operations	(3)	1	3
Loss from discontinued operations	—	—	—
Loss on disposal, net of taxes	—	—	—
Discontinued operations	—	—	—
Net (loss)/income	(3)	1	3
Plus: Net loss from discontinued operations attributable to noncontrolling interest	—	—	—
Net (loss)/income attributable to Vonage	(3)%	1 %	3 %

Management's discussion of the results of operations for the Years Ended December 31, 2017 , 2016 , and 2015

We calculate gross margin in order to evaluate operating revenues as total revenues less cost of service, which primarily consists of fees that we pay to third parties on an ongoing basis in order to provide our services, and cost of goods sold which primarily includes costs incurred when a customer first subscribes to our service.

The following table presents the composition of gross margin for the years Ended December 31, 2017 , 2016 , and 2015 :

(in thousands, except percentages)	For the years ended December 31, 2017	2016	2015	$ Change 2016 to 2017	% Change 2016 to 2017	$ Change 2015 to 2016	% Change 2015 to 2016
Revenues	$ 1,002,286	$ 955,621	$ 895,072	$ 46,665	5 %	$ 60,549	7 %
Cost of services [(1)]	378,960	321,373	261,768	57,587	18 %	59,605	23 %
Cost of goods sold	25,994	33,777	34,210	(7,783)	(23)%	(433)	(1)%
Gross margin	$ 597,332	$ 600,471	$ 599,094	$ (3,139)	(1)%	$ 1,377	— %

(1) Excludes depreciation and amortization of $27,308 , $28,489 , and $24,868 , respectively.

Business Segment Gross Margin for the Years Ended December 31, 2017 , 2016 , and 2015

(in thousands, except percentages)	For the years ended December 31, 2017	2016	2015	$ Change 2016 to 2017	% Change 2016 to 2017	$ Change 2015 to 2016	% Change 2015 to 2016
Revenues							
Service revenues	$ 419,591	$ 301,877	$ 170,489	$ 117,714	39 %	$ 131,388	77%
Product revenues [1]	52,498	52,450	35,545	48	— %	16,905	48%
Service and product revenues	472,089	354,327	206,034	117,762	33 %	148,293	72%
USF revenues	26,833	22,025	12,993	4,808	22 %	9,032	70%
Total revenues	498,922	376,352	219,027	122,570	33 %	157,325	72%
Cost of revenues							
Service cost of revenues [2]	190,934	111,485	44,997	79,449	71 %	66,488	148%
Product cost of revenues [1]	51,026	51,129	31,185	(103)	— %	19,944	64%
Service and product cost of revenues	241,960	162,614	76,182	79,346	49 %	86,432	113%
USF cost of revenues	26,833	22,036	13,022	4,797	22 %	9,014	69%
Total cost of revenues	268,793	184,650	89,204	84,143	46 %	95,446	107%
Segment gross margin							
Service margin	228,657	190,392	125,492	38,265	20 %	64,900	52%
Gross margin ex-USF (Service and product margin)	230,129	191,713	129,852	38,416	20 %	61,861	48%
Total segment gross margin	$ 230,129	$ 191,702	$ 129,823	$ 38,416	20 %	$ 61,879	48%
Segment gross margin %							
Service margin %	54.5%	63.1%	73.6%	(9)%		(11)%	
Gross margin ex-USF (Service and product margin) %	48.7%	54.1%	63.0%	(5)%		(9)%	
Segment gross margin %	46.1%	50.9%	59.3%	(5)%		(8)%	

(1) Includes customer premise equipment, access, professional services, and shipping and handling.
(2) Excludes depreciation and amortization of $20,100 , $18,820 , and $15,819 , respectively.

For the year ended December 31, 2017 compared to the year ended December 31, 2016

The following table describes the increase in business gross margin for the year ended December 31, 2017 as compared to the year ended December 31, 2016 :

	(in thousands)
Service gross margin increased 20% primarily due to higher CPaaS gross margin of $8,321 related to Nexmo which was acquired on June 3, 2016 along with an increase in UCaaS gross margin of $29,944 primarily due to an increase in seats of 14% during the current year	$ 38,265
Product gross margin decreased 11% primarily due to lower costs during the current year period	151
	38,416

For the year ended December 31, 2016 compared to the year ended December 31, 2015

The following table describes the increase in business gross margin for the year ended December 31, 2016 as compared to the year ended December 31, 2015 :

		(in thousands)
Service gross margin increased 52% due to an increase in the number of Business seats as we have shifted marketing investment to attract more profitable business customers combined with the acquisition of Simple Signal and iCore, both acquired in 2015, and the acquisition of Nexmo in June 2016 offset by higher technical care and network operations costs in support of growth within the segment	$	64,900
Product gross margin decreased 70% due to an increase in costs associated with customer's equipment and broadband access as a result of increased customer additions and installation costs		(3,039)
USF gross margin increased slightly due to the increase in Business seats along with the acquisitions of Simple Signal and iCore		18
Increase in segment gross margin		61,879

Consumer Gross Margin for the Years Ended December 31, 2017 , 2016 , and 2015

(in thousands, except percentages)	For the years ended December 31, 2017	2016	2015	$ Change 2016 to 2017	% Change 2016 to 2017	$ Change 2015 to 2016	% Change 2015 to 2016
Revenues							
Service revenues	$ 454,340	$ 522,515	$ 612,822	$ (68,175)	(13)%	$ (90,307)	(15)%
Product revenues (1)	525	702	645	(177)	(25)%	57	9 %
Service and product revenues	454,865	523,217	613,467	(68,352)	(13)%	(90,250)	(15)%
USF revenues	48,499	56,052	62,578	(7,553)	(13)%	(6,526)	(10)%
Total revenues	503,364	579,269	676,045	(75,905)	(13)%	(96,776)	(14)%
Cost of revenues							
Service cost of revenues (2)	80,454	100,054	123,580	(19,600)	(20)%	(23,526)	(19)%
Product cost of revenues (1)	7,208	14,394	20,616	(7,186)	(50)%	(6,222)	(30)%
Service and product cost of revenues	87,662	114,448	144,196	(26,786)	(23)%	(29,748)	(21)%
USF cost of revenues	48,499	56,052	62,578	(7,553)	(13)%	(6,526)	(10)%
Total cost of revenues	136,161	170,500	206,744	(34,339)	(20)%	(36,274)	(18)%
Segment gross margin							
Service margin	373,886	422,461	489,242	(48,575)	(11)%	(66,781)	(14)%
Gross margin ex-USF (Service and product margin)	367,203	408,769	469,271	(41,566)	(10)%	(60,502)	(13)%
Total segment gross margin	$ 367,203	$ 408,769	$ 469,271	$ (41,566)	(10)%	$ (60,502)	(13)%
Segment gross margin %							
Service gross margin %	82.3%	80.9%	79.8%	1%		1%	
Gross margin ex-USF (Service and product margin) %	80.7%	78.1%	76.5%	3%		2%	
Segment gross margin %	72.9%	70.6%	69.4%	2%		1%	

(1) Includes customer premise equipment, professional services, and shipping and handling.
(2) Excludes depreciation and amortization of $7,208 , $9,669 , and $9,049 , respectively.

For the year ended December 31, 2017 compared to the year ended December 31, 2016

The following table describes the decrease in consumer gross margin for the year ended December 31, 2017 as compared to the year ended December 31, 2016 :

		(in thousands)
Service gross margin decreased 11% primarily due to a decline in subscriber lines of 13% over the current year reflecting planned actions to enhance profitability by restructuring pricing offers and targeting customers with lower subscription acquisition costs	$	(48,575)
Higher product gross margin of 51% primarily due to lower costs incurred primarily related to retail equipment as the Company shifted away from utilizing retailers in the current year		7,009
		(41,566)

For the year ended December 31, 2016 compared to the year ended December 31, 2015

The following table describes the decrease in consumer gross margin for the year ended December 31, 2016 as compared to the year ended December 31, 2015 :

		(in thousands)
Lower service gross margin of 14% due to fewer subscriber lines reflecting planned actions to enhance profitability by aligning marketing spend, restructuring pricing offers and targeting consumers with lower subscription acquisition costs and churn profiles	$	(66,781)
Higher product gross margin as a result of a decrease in products costs of 31% due to decreased customer equipment costs resulting from lower new customer additions in the period and a decrease in reserves related to inventory		6,279
Decrease in segment gross margin		(60,502)

Operating Expenses

	For the years ended December 31,										
(in thousands, except percentages)		2017		2016		2015		$ Change 2016 to 2017	% Change 2016 to 2017		$ Change 2015 to 2016	% Change 2015 to 2016
Sales and marketing	$	313,251	$	330,969	$	347,896	$	(17,718)	(5)%	$	(16,927)	(5)%
Engineering and development		29,630		29,759		27,220		(129)	— %		2,539	9 %
General and administrative		122,537		123,304		109,153		(767)	(1)%		14,151	13 %
Depreciation and amortization		72,523		72,285		61,833		238	— %		10,452	17 %
Total other operating expenses	$	537,941	$	556,317	$	546,102	$	(18,376)	(3)%	$	10,215	2 %

For the year ended December 31, 2017 compared to the year ended December 31, 2016

Total other operating expenses decreased by $18,376 during the year ended December 31, 2017 as compared to the year ended December 31, 2016 due to the following:

- Sales and marketing expense decreased by $17,718 , or (5)% , due to a continued shift during 2017 in traditional marketing investments targeting Consumer customers to more selective targeted advertising focused on attracting more profitable Business customers resulting in overall fewer media marketing programs being deployed during the current year.
- General and administrative expense decreased by $767 , or (1)% , primarily due to a decrease in consulting and legal fees associated with the acquisition of Nexmo during the previous year.

For the year ended December 31, 2016 compared to the year ended December 31, 2015

Total other operating expenses increased $10,215 during the year ended December 31, 2016 as compared to the year ended December 31, 2015 due to the following:

- Sales and marketing expense decreased by $16,927 , or 5% , due to a shift in traditional media marketing investments from Consumer to Business customers as part of an effort to attract these more profitable customers.
- Engineering and development expense increased by $2,539 , or 9% , due to incremental investment in new business products and services, the acquisition of Nexmo in 2016 and the acquisition of iCore and Simple Signal in 2015.
- General and administrative expense increased by $14,151 , or 13% , primarily due to the addition of Simple Signal, iCore and Nexmo, offset by the reduction of Nexmo contingent consideration of $11,472.
- Depreciation and amortization increased $10,452 , or 17% , primarily due to the amortization of acquisition-related intangibles from the acquisition of Simple Signal in April 2015, iCore in August 2015, and Nexmo in June 2016.

Other Income (Expense)

(in thousands, except percentages)	For the years ended December 31, 2017	2016	2015	$ Change 2016 to 2017	% Change 2016 to 2017	$ Change 2015 to 2016	% Change 2015 to 2016
Interest income	$ 17	$ 79	$ 89	$ (62)	(78)%	$ (10)	(11)%
Interest expense	(14,868)	(13,042)	(8,786)	(1,826)	14 %	(4,256)	48 %
Other income (expense), net	1,253	(346)	(842)	1,599	462 %	496	59 %
	$ (13,598)	$ (13,309)	$ (9,539)	$ (289)	2 %	$ (3,770)	40 %

For the year ended December 31, 2017 compared to the year ended December 31, 2016

Interest expense. The increase in interest expense of $1,826 , or 14% , was due mainly to higher interest rates in 2017 compared to 2016, offset by lower principal balances, and the additional interest expense associated with our interest rate swaps arrangement.

Other income (expense), net. Other income (expense), net increased by $1,599 , or 462% in 2017 compared to 2016 due the sale of the Hosted Infrastructure product line during the second quarter of 2017 as further discussed in Note 12, *Acquisitions and Dispositions* .

For the year ended December 31, 2016 compared to the year ended December 31, 2015

Interest expense. The increase in interest expense of $4,256 , or 48% , was due mainly to increased borrowings under the credit agreement, or the 2016 Credit Facility, entered into by the Company in June 2016 in order to finance the acquisition of Nexmo.

Provision for Income Taxes

(in thousands, except percentages)	For the years ended December 31, 2017	2016	2015	$ Change 2016 to 2017	% Change 2016 to 2017	$ Change 2015 to 2016	% Change 2015 to 2016
Income tax expense	$ (79,726)	$ (17,694)	$ (18,418)	$ (62,032)	(351)%	$ 5,480	4%
Effective tax rate	174%	57%	43%				

For the year ended December 31, 2017 compared to the year ended December 31, 2016

During the year ended December 31, 2017, the Company recognized tax expense of $79,726 which primarily reflects the impact of the Tax Cuts and Jobs Act, or TCJA, which was signed into law by the President of the United States on December 22, 2017. The TCJA most notably reduces the corporate tax rate from 35% to 21% along with eliminating the alternative minimum tax, or AMT, and imposes a mandatory one-time tax on foreign earnings. Based upon currently available information, the Company estimates that the enactment of the legislation will result in a charge to income tax expense of $69,378 which is primarily associated with the re-measurement of the Company’s deferred tax balances at the 21% income tax rate.

During the year ended December 31, 2016, the Company's tax expense reflects a discrete period tax expense of $1,220 which was recorded related to expired stock options which was partially offset by $389, $661 and $77 which was recorded in the second quarter of 2016, the third quarter of 2016, and the fourth quarter of 2016, respectively. In addition, certain acquisition related expenses incurred in the second quarter of 2016 are treated as a permanent difference as the expenses are not deductible for tax purposes but are a reduction of pre-tax income. In the third quarter and fourth quarter of 2016, the reduction in the value of our contingent consideration in connection with the acquisition of Nexmo was treated as a permanent difference resulting in a decrease in the effective tax rate for the three months ended September 30, 2016. In the first quarter of 2015 a discrete period tax benefit of $1,058 was recorded in discontinued operations related to the write-off of intercompany loans associated with the wind down of our joint venture in Brazil.

Discontinued Operations Attributable to Vonage

During the year ended December 31, 2015, the Company had a loss from discontinued operations of $2,380 as a result of the Company exiting the Brazilian market.

LIQUIDITY AND CAPITAL RESOURCES

Overview

For the three years ended December 31, 2017 , 2016 , and 2015 we generated income from operations. We expect to continue to balance efforts to grow our revenue while consistently achieving operating profitability. To grow our revenue, we continue to make investments in growth initiatives, marketing, application development, network quality and expansion, and customer care. Although we believe we will achieve consistent profitability in the future, we ultimately may not be successful and we may not achieve consistent profitability. We believe that cash flow from operations and cash on hand will fund our operations for at least the next twelve months.

The following table sets forth a summary of our cash flows for the periods indicated:

	For the years ended December 31,			$ Change 2016 to	$ Change 2015 to
(dollars in thousands)	2017	2016	2015	2017	2016
Net cash provided by operating activities	$ 128,058	$ 93,456	$ 134,485	$ 34,602	$ (41,029)
Net cash used in investing activities	(30,737)	(191,449)	(153,509)	160,712	$ (37,940)
Net cash (used in) provided by financing activities	(96,242)	68,054	35,451	(164,296)	$ 32,603
Effect of exchange rate on changes on cash	1,319	555	(316)	764	$ 871

Operating Activities

Cash provided by operating activities increased to $128,058 for the year ended December 31, 2017 compared to $93,456 for the year ended December 31, 2016 , primarily due to an increase in operating income adjusted for non-cash items of $27,817 driven by a decrease in operating expenses as compared to the year ended December 31, 2016 primarily attributable to decreased sales and marketing costs. Also attributing to the increase in operating activities was a decrease in cash used for working capital requirements of $6,785 during the year ended December 31, 2017 as compared to the year ended December 31, 2016 primarily due to a decrease in timing of prepayments made during the current year.

Cash provided by operating activities decreased to $93,456 for the year ended December 31, 2016 as compared to $134,485 for the year ended December 31, 2015 primarily due to an increase in cash used for working capital requirements of $34,209 due to increased payments for acquisition and integration related costs along with increased payments related to interest on the Company's outstanding financing arrangements.

Investing Activities

Cash used in investing activities for the year ended December 31, 2017 of $30,737 , which is a decrease from cash used in investing activities of $191,449 during the year ended December 31, 2016 is primarily attributable to payments of $163,042 made during the prior year to acquire Nexmo slightly offset by a decrease in cash provided from the maturity and sale of marketable securities of $14,389 .

Cash used in investing activities increased to $191,449 for the year ended December 31, 2016 from $153,509 during the year ended December 31, 2015 primarily driven by an increase in payments made for the acquisition of businesses of $46,298 related the acquisition of Nexmo in 2016 as compared to payments made during 2015 for the acquisitions of Simple Signal and iCore. This was offset by an increase in cash provided by the sale and maturity of available for sale securities of $ 7,768 during the year ended December 31, 2016 .

Financing Activities

Cash used by financing activities was $96,242 for the year ended December 31, 2017 as compared to cash provided by financing activities of $68,054 during the year ended December 31, 2016 . The decrease in cash provided by financing activities was primarily attributable increased payments for financing arrangements net of new borrowings of $195,188 slightly offset by fewer repurchases of common stock of $23,360 during the current year.

Cash provided by financing activities increased to $68,054 for the year ended December 31, 2016 from $35,451 for the year ended December 31, 2015 due to increased proceeds from financing arrangements net or repayments of $53,938 in connection with the 2016 Credit Facility offset by an increase in payments made to repurchase common stock of $16,991 .

Sources of Liquidity

The principal sources of liquidity are derived from available borrowings under our existing financing arrangements, existing cash on hand, and cash flows from operations. As described in Note 7, *Long-Term Debt and Revolving Credit Facility* , to the Consolidated Financial Statements, the Company's financing arrangements consist of the 2016 Credit Facility comprised of a $125,000 term note and a $325,000 revolving credit facility.

Uses of Liquidity

Acquisition of Businesses

Nexmo was acquired on June 3, 2016. Nexmo shareholders are receiving consideration of $231,122. Of the consideration, $194,684 (net of cash acquired of $16,094) was paid at close, consisting of $163,093 of cash (net of $16,094 of cash acquired) and 6,823 in shares of Vonage common stock valued at $31,591. The remaining $36,438 of the $231,122 purchase price is in the form of restricted cash, restricted stock and options held by Nexmo management and employees, subject to vesting requirements over time. We financed the transaction with $179,000 from our 2016 Credit Facility.

iCore was acquired on August 31, 2015 for $92,000 cash consideration, increased by $689 of working capital excess as of the closing date, resulting in a total acquisition cost of $92,689. We financed the transaction with $10,689 of cash on hand and $82,000 from our 2015 revolving credit facility.

Simple Signal was acquired on April 1, 2015 for $25,578. We financed the transaction by borrowing $20,000 from our 2014 revolving credit facility.

Capital expenditures

For 2017 , capital expenditures were primarily for the implementation of software solutions and purchase of network equipment as we continue to expand our network. Our capital expenditures for the year ended 2017 were $33,289 , of which $11,374 was for software acquisition and development. The majority of these expenditures are comprised of investments in information technology and systems infrastructure, including an electronic data warehouse, online customer service, and customer management platforms. For 2018 , we believe our capital and software expenditures will be approximately $35,000.

Available Borrowings Under the 2016 Credit Facility

We maintain significant availability under our lines of credit to meet our short-term liquidity requirements. As of December 31, 2017 , amounts available under the 2016 Credit Facility totaled $184 million .

State and Local Sales Taxes

We also have contingent liabilities for state and local sales taxes. As of December 31, 2017 , we had a reserve of $1,147 . If our ultimate liability exceeds this amount, it could affect our liquidity unfavorably. However, we currently do not believe that these contingent liabilities will significantly impair our liquidity.

CONTRACTUAL OBLIGATIONS AND OTHER COMMERCIAL COMMITMENTS

The table below summarizes our contractual obligations at December 31, 2017 , and the effect such obligations are expected to have on our liquidity and cash flow in future periods.

	Payments Due by Period				
(dollars in thousands)	**Total**	**Less than 1 year**	**2-3 years**	**4-5 years**	**After 5 years**
			(unaudited)		
Contractual Obligations:					
2016 term note	$ 92,187	18,750	73,437	—	—
2016 revolving credit facility	$ 141,000	—	141,000	—	—
Interest related to 2016 term note	$ 8,335	3,996	4,339	—	—
Interest related to 2016 revolving credit facility	$ 16,551	6,624	9,927	—	—
Capital lease obligations	$ 140	140	—	—	—
Operating lease obligations	$ 57,928	11,481	21,012	12,441	12,994
Purchase obligations	$ 53,650	38,956	13,698	996	—
Total contractual obligations	$ 369,791	$ 79,947	$ 263,413	$ 13,437	$ 12,994
Other Commercial Commitments:					
Standby letters of credit	$ 1,562	$ 1,562	$ —	$ —	$ —
Total contractual obligations and other commercial commitments	$ 371,353	$ 81,509	$ 263,413	$ 13,437	$ 12,994

Credit Facility. On June 3, 2016, we entered the 2016 Credit Facility consisting of a $125,000 term note and a $325,000 revolving credit facility. See Note 7, *Long-Term Debt and Revolving Credit Facility* in the notes to the Consolidated Financial Statements.

Capital lease obligations. At December 31, 2017 , we had current capital lease obligations of $140 mainly related to leasing of office equipment.

Operating lease obligations. At December 31, 2017 , we had future commitments for operating leases for co-location facilities mainly in the United States that accommodate a portion of our network equipment, for office spaces leased in Holmdel, New Jersey for our headquarters, as well as various other locations for field sales and administration offices, in Tel Aviv, Israel for application development, and in London United Kingdom for our UK office.

Purchase obligations. The purchase obligations are primarily commitments to vendors who will provide local inbound services, provide customer care services, provide efax service, provide carrier operation, provide data center with technical supports, provide networks and telephone related services, provide marketing infrastructure and services, provide customer caller ID, provide electricity to our office, license patents to us, partner with us in international operations, process LNP orders, and lease office space to us. In certain cases, we may terminate these arrangements early upon payment of specified fees. These amounts do not represent our entire anticipated purchases in the future, but represent only those items for which we are contractually committed. We also purchase products and services as needed with no firm commitment. For this reason, the amounts presented do not provide a reliable indicator of our expected future cash outflows or changes in our expected cash position. See also Note 11 to our Consolidated Financial Statements.

SUMMARY OF CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of consolidated financial statements in conformity with U.S. GAAP requires estimates and assumptions that affect the reported amounts and classifications of assets and liabilities, revenues and expenses, and the related disclosures of contingent liabilities in the consolidated financial statements and accompanying notes. The SEC has defined critical accounting policies as those policies management believes are most important to the portrayal of the Company's financial condition and results of operation and which require the Company to make its most difficult and subjective judgments, often as a result of the need to make estimates of matters that are inherently uncertain. Based on this definition, the Company has identified the following critical accounting policies and estimated addressed below. Our significant accounting policies are summarized in Note 1 and Note 2 to our Consolidated Financial Statements. The following describes our critical accounting policies and estimates:

Use of Estimates

Our consolidated financial statements are prepared in conformity with U.S. GAAP, which require management to make estimates and assumptions that affect the amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

We base our estimates on historical experience, available market information, appropriate valuation methodologies, and on various other assumptions that we believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Estimates are used for such items as depreciable lives for long-lived assets including intangible assets, tax provisions, uncollectible accounts, and assets and liabilities assumed in business combinations, among others. In addition, estimates are used to test long-lived assets and goodwill for impairment.

Revenue Recognition

Operating revenues consist of services revenues and sales of equipment to customers. The point in time at which revenues are recognized is determined in accordance with Securities and Exchange Commission Staff Accounting Bulletin No. 104, Revenue Recognition, and Accounting Standards Codification, or ASC, 605, *Revenue Recognition* . The Company recognizes revenue when the following criteria are met: persuasive evidence of an arrangement exist; delivery has occurred; the selling prices is fixed or determinable; and collectability is reasonably assured.

Services Revenue

Substantially all of our revenues are services revenues, which are derived from monthly subscription fees, usage based billion, and, in Vonage Enterprise, we offer domestic and international rate plans, including a variety of residential plans and mobile plans. For business customers, we offer SMB, mid-market, and enterprise customers several service plans with different pricing structures and contractual requirements ranging in duration from month-to-month to three years. As a result of multiple billing cycles each month, we estimate the amount of revenues earned from customers but not billed from the end of each billing cycle to the end of each reporting period and record these amounts as accounts receivable. These estimates are based primarily upon historical evidence and have been consistent with our actual results.

In the United States, we charge regulatory, compliance, E-911, and intellectual property-related fees on a monthly basis to defray costs, and to cover taxes that we are charged by the suppliers of telecommunications services. These charges, along with the remittance to the relevant government entity, are recorded on a net basis. In addition, we collect Federal Universal Service Fund, or USF, fees from customers to recover our obligation to contribute to the fund, as allowed by the FCC. We recognize USF revenues on a gross basis and record the related fees in cost of sales.

Through Nexmo, we provide CPaaS solutions to our customers through innovative communication APIs for text messaging and voice communications, allowing developers and enterprises to embed contextual communications into mobile apps, websites and business workflows via text, social media, chat apps and voice. Nexmo has two types of revenue activities:

- *Retail* - Revenue is primarily derived from supplying messaging (SMS and Voice) services to customers. Nexmo customers are typically billed in advance of use of our service. Revenue is recognized in the period when messages are sent by the customer.
- *Trading* - We refer to transactions with service providers or bulk SMS aggregators customers as "trading" activity. We sell services to these customers who then onsell to their customers, delivering voice or SMS messages. Since the aggregator is our customer, revenue is recognized on a gross basis with related costs included in cost of sales.

Customer Equipment and Shipping Revenue

Revenue is generated from sales of customer equipment to wholesalers or directly to customers for replacement devices, or for upgrading their device at the time of customer sign-up for which we charge an additional fee. In addition, customer equipment and shipping revenues include revenues from the sale of VoIP telephones in order to access our small and medium business services. Customer equipment and shipping revenues also include the fees that customers are charged for shipping their customer equipment to them. Customer equipment and shipping revenues include sales to our wholeslaers, who subsequently resell this customer equipment to customers. Revenues are reduced for payments to retailers and rebates to customers to the extent of customer equipment and shipping revenues.

On January 1, 2018, the Company adopted Accounting Standards Update, or ASU, 2014-09, *Revenue from Contracts with Customers (Topic 606)*. Refer to Item 15, Note 2, *Summary of Significant Accounting Policies* for additional information on the adoption of ASU 2014-09.

Valuation of Goodwill and Intangible Assets

As of December 31, 2017 , the Company had goodwill of $373,764 consisting of $149,328 associated with the acquisition of Nexmo, which comprises the CPaaS reporting unit, and $224,436 associated with the acquisitions of iCore, Simple Signal, Telesphere and gUnify, which collectively comprise the UCaaS reporting unit. The Company does not have any goodwill allocated to its Consumer segment as of December 31, 2017. In addition, the Company recognized intangible assets measured primarily based upon significant inputs that are not observable in the market and represent Level 3 measurements as defined by ASC 820, *Fair Value Measurements* . Intangible assets acquired in the settlement of litigation or by direct purchase are accounted for based upon the fair value of assets received.

The Company applies ASC 805, *Business Combinations* and ASC 350, *Intangibles - Goodwill and Other* to account for goodwill and intangible assets. The Company amortizes all finite-lived intangible assets over their respective estimated useful lives while goodwill has an indefinite life and is not amortized. Goodwill and intangible assets not subject to amortization are tested for impairment on an annual basis on October 1st and, when specific circumstances dictate, between annual tests. The Company tests for goodwill at the reporting unit level, which is identified by assessing whether the components of the Company's operating segments constitute businesses for which discrete financial information is available. With respect to the annual goodwill impairment test, the Company identified the UCaaS and CPaaS reporting units which collectively represent the Business segment. The goodwill impairment test involves evaluating qualitative information to determine if it is more than 50% likely that the fair value of a reporting unit is less than its carrying value. If such a determination is made or if the Company chooses not to utilize a qualitative approach, then the traditional two-step goodwill impairment test described below is applied. The first step, identifying a potential impairment, compares the fair value of a reporting unit with its carrying amount, including goodwill. If the carrying value of the reporting unit exceeds its fair value, the second step would need to be conducted; otherwise, no further steps are necessary as no potential impairment exists. The second step, measuring the impairment loss, compares the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. Any excess of the reporting unit goodwill carrying value over the respective implied fair value is recognized as an impairment loss. There was no impairment of goodwill for the year ended December 31, 2017 .

The Company performed step one of the two-step impairment test for its UCaaS and CPaaS reporting units as of October 1, 2017 utilizing the income approach. Under the income approach, the Company estimated that the fair value of the reporting units' invested capital exceeded its carrying value and, as such, the Company concluded that goodwill associated with the reporting units in the following table is not impaired:

Reporting Unit (Segment)	% Fair Value Over Carrying Value
UCaaS (Business)	392%
CPaaS (Business)	295%

We perform a review of purchased-intangible assets whenever events or changes in circumstances indicate that the useful life is shorter than we had originally estimated or that the carrying amount of assets may not be recoverable. If such facts and circumstances exist, we assess the recoverability of purchased-intangible assets by comparing the projected undiscounted net cash flows associated with the related asset or group of assets over their remaining lives against their respective carrying amounts. Impairments, if any, are based on the excess of the carrying amount over the fair value of those assets. If the useful life of the asset is shorter than originally estimated, we accelerate the rate of amortization and amortize the remaining carrying value over the new shorter useful life. There was no impairment of purchased-intangible assets identified for the years ended December 31, 2017 , 2016 , or 2015 .

Income Taxes

We recognize deferred tax assets and liabilities at enacted income tax rates for the temporary differences between the financial reporting bases and the tax bases of our assets and liabilities. Any effects of changes in income tax rates or tax laws are included in the provision for income taxes in the period of enactment. Our net deferred tax assets primarily consist of net operating loss carry forwards, or NOLs,. We are required to record a valuation allowance against our net deferred tax assets if we conclude that it is more likely than not that taxable income generated in the future will be insufficient to utilize the future income tax benefit from our net deferred tax assets (namely, the NOLs) prior to expiration. We periodically review this conclusion, which requires significant management judgment. If we are able to conclude in a future period that a future income tax benefit from our net deferred tax assets has a greater than 50% likelihood of being realized, we are required in that period to reduce the related valuation allowance with a corresponding decrease in income tax expense. This would result in a non-cash benefit to our net income in the period of the determination. In subsequent periods, we would expect to recognize income tax expense equal to our pre-tax income multiplied by our effective income tax rate, an expense that was not recognized prior to the reduction of the valuation allowance.

As of December 31, 2017 , we had NOLs for United States federal and state tax purposes, including those NOLs acquired as part of past business combinations, of $556,368 and $146,254 , respectively, expiring at various times from years ending through 2037 . In addition, we had NOLs for United Kingdom tax purposes of $50,142 with no expiration date.

Under Section 382 of the Internal Revenue Code, if we undergo an "ownership change" which is generally defined as a greater than 50% change by value in our equity ownership over a three-year period, our ability to use our pre-change of control NOLs and other pre-change tax attributes against our post-change income may be limited. The Section 382 limitation is applied annually so as to limit the use of our pre-change NOLs to an amount that generally equals the value of our stock immediately before the ownership change multiplied by a designated federal long-term tax-exempt rate. At December 31, 2017 , there were no limitations on the use of our NOLs except for the NOLs of Vocalocity as of the date of acquisition for which the Company has reflected in the deferred tax asset.

Capitalized Software

Capitalized costs include external consulting fees, payroll related cost for employees who are directly associated with, and who devote time to, the Company's internal-use software projects. Capitalization begins when the planning stage is complete, and continues during the application development stage. Capitalization ceases when the software has been tested and is ready for its intended use. Internal and external costs incurred during the preliminary project stage, post implementation operation stage and ongoing maintenance are expensed as incurred. The Company amortizes completed internal-use software that is used on its network to expense over its estimated useful life.

Recent Accounting Pronouncements

See Note 2, *Summary of Significant Accounting Policies* to Consolidated Financial Statements for a discussion of recent accounting developments.

OFF-BALANCE SHEET ARRANGEMENTS

We do not have any off-balance sheet arrangements.

ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to financial market risks, including changes in currency exchange rates and interest rates.

Foreign Exchange Risk

We sell our products and services primarily in the United States, Canada, the European Union, and Asia and have a portion of our sales denominated in Euros, the Canadian Dollar, and the British Pound. Our financial results could be affected by changes in foreign currency exchange rates, although foreign exchange risks have not been material to our financial position or results of operations to date.

We prepared a sensitivity analysis to determine the impact of hypothetical changes foreign currency exchange rates have on our results of operations. The foreign currency rate analysis assumed a uniform movement in currencies by 10% relative to the U.S. Dollar on our results. Based upon the results of this analysis, a 10% change in currency rates would have resulted in an increase or decrease in our earnings for the year ended December 31, 2017 of approximately $3.5 million.

Interest Rate and Debt Risk

Our exposure to market risk for changes in interest rates primarily relates to our long-term debt. In order to hedge the variability of expected future cash interest payments related to the 2016 Credit Facility we have entered into three interest rate swap agreements which were executed on July 14, 2017. The swaps have an aggregate notional amount of $150 million, require us to pay a fixed rate of 4.7%, while receiving LIBOR. The swaps are effective on July 31, 2017 through June 3, 2020 concurrent with the term of the 2016 Credit Facility and are accounted for as cash flow hedges in accordance with ASC 815, *Derivatives and Hedging* .

As of December 31, 2017 , if the interest rate on our variable rate debt changed by 1% on our 2016 term note and our 2016 revolving credit facility, our annual debt service payment would change by approximately $1 million.

ITEM 8. Financial Statements and Supplementary Data

The financial statements and schedules required by this Item are listed in Part IV, Item 15 in this Annual Report on Form 10-K.

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2017 . The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, or the Exchange Act, as amended, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized, and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2017 , our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Remediation of Previous Material Weakness in Internal Control Over Financial Reporting.

In connection with the preparation of our consolidated financial statements as of and for the year ended December 31, 2016, we had identified a material weakness in our internal control over financial reporting related to our controls over the preparation of the annual tax provision. During the year ended December 31, 2017, the Company has executed on its remediation plan for this material weakness and the material weakness has been remediated.

Management's Report on Internal Control Over Financial Reporting.

February 27, 2018

To the Stockholders of Vonage Holdings Corp.:

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for the company. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Securities Exchange Act of 1934 as a process designed by, or under the supervision of, our principal executive and principal financial officers and effected by our board of directors, management, and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of our management and directors; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2017 . In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework (2013)* **.**

Based on our assessment, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2017 , our internal control over financial reporting was effective.

Our independent registered public accounting firm has issued an attestation report on our internal control over financial reporting. This report appears on page F-4.

/s/ ALAN MASAREK	/s/ DAVID PEARSON
Alan Masarek Director, Chief Executive Officer	David T. Pearson Chief Financial Officer(Principal Financial Officer and Duly Authorized Officer)

Report of the Independent Registered Public Accounting Firm on Internal Control Over Financial Reporting.

See Report of Independent Registered Public Accounting Firm on page F-3.

Changes in Internal Control Over Financial Reporting

During 2017, the Company executed on its remediation plan with respect to the material weakness identified as of December 31, 2016. As part of this remediation plan, the Company executed on (i) the implementation of additional review procedures designed to enhance our tax provision controls and (ii) strengthening our tax provision controls with improved documentation standards, oversight and training. In the course of this remediation, we identified an additional error caused by the control deficiency identified at year-end as further described in Note 3, *Correction of Prior Period Financial Statements* to the Consolidated Financial Statements. There were no other changes to controls during the quarter ended December 31, 2017 that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

ITEM 9B. Other Information

None.

PART III

ITEM 10. Directors, Executive Officers and Corporate Governance

The discussion under the headings “Election of Directors,” “Section 16(a) Beneficial Ownership Reporting Compliance,” “Director Nomination Process”, “Corporate Governance – Board Committees – Audit Committee”, and “Executive Officers of Vonage” in our Proxy Statement for the 2018 Annual Meeting of Stockholders is hereby incorporated by reference.

We have adopted a Vonage Code of Conduct applicable to all of our directors, officers, and employees and a Vonage Finance Code of Ethics applicable to our chief financial officer and other employees in our finance organization. The Vonage Code of Conduct and Vonage Finance Code of Ethics are posted in the Investor Relations section of our website, *www.vonage.com* . We will provide you with print copies of our codes free of charge on written request to Vonage Investor Relations, 23 Main Street, Holmdel NJ, 07733. We intend to disclose any amendments to, or waivers from, provisions of our codes that apply to our principal executive officer, principal financial officer, principal accounting officer or controller, or any person performing in similar functions, on our website promptly following the date of such amendment or waiver.

ITEM 11. Executive Compensation

The discussion under the headings “Compensation”, “Director Compensation”, “Corporate Governance – Compensation Committee Interlocks and Insider Participation”, and “Corporate Governance – Compensation Committee Report” in our Proxy Statement for the 2018 Annual Meeting of Stockholders is hereby incorporated by reference.

The “Compensation Committee Report” contained in our Proxy Statement shall not be deemed “soliciting material” or “filed” with the Securities and Exchange Commission or otherwise subject to the liabilities of Section 18 of the Securities Exchange Act of 1934, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, or the Securities Act, or the Exchange Act, except to the extent we specifically request that such information be treated as soliciting material or specifically incorporate such information by reference into a document filed under the Securities Act or the Exchange Act.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The discussion under the headings “Stock Ownership Information” and “Equity Compensation Plan Information” in our Proxy Statement for the 2018 Annual Meeting of Stockholders is hereby incorporated by reference.

ITEM 13. Certain Relationships and Related Transactions, and Director Independence

The discussion under the headings “Election of Directors – Transactions with Related Persons”, and “Corporate Governance – Board Determination of Independence” in our Proxy Statement for the 2018 Annual Meeting of Stockholders is hereby incorporated by reference.

ITEM 14. Principal Accountant Fees and Services

The discussion under the heading “Ratification of Independent Registered Public Accounting Firm” in our Proxy Statement for the 2018 Annual Meeting of Stockholders is hereby incorporated by reference.

PART IV

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Vonage Holdings Corp.

Opinion on the Financial Statement Schedule

We have audited the consolidated financial statements of Vonage Holdings Corp. (the "Company") as of December 31, 2017, and for the year then ended (which report expressed an unqualified opinion and included an emphasis of a matter paragraph related to the adoption of a new accounting standard), and the Company's internal control over financial reporting as of December 31, 2017, and have issued our reports thereon dated February 27, 2018; such reports are included elsewhere in this Form 10-K. Our audit also included the financial statement schedule of the Company listed in the Index at Item 15. This financial statement schedule is the responsibility of the Company's management. Our responsibility is to express an opinion on the Company’s financial statement schedule based on our audit. In our opinion, such financial statement schedule, when considered in relation to the financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

/s/ DELOITTE & TOUCHE LLP
Parsippany, NJ
February 27, 2018

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Vonage Holdings Corp.
Holmdel, New Jersey 07733

The audits referred to in our report dated February 28, 2017, except for Note 3 for which is February 27, 2018 , relating to the consolidated financial statements of Vonage Holdings Corp., which is contained in Item 8 of this Form 10-K also included the audit of the financial statement schedule related to the years ended December 31, 2016 and 2015 listed in the accompanying index. The financial statement schedule is the responsibility of the Company’s management. Our responsibility is to express an opinion on this financial statement schedule based on our audits.

In our opinion such financial statement schedule for the years ended December 31, 2016 and 2015, when considered in relation to the basic consolidated financial statements taken as a whole, present fairly, in all material respects, the information set forth therein.

/s/ BDO USA, LLP
Woodbridge, New Jersey
February 28, 2017

ITEM 15. Exhibits, Financial Statement Schedules

(a)

(1) *Financial Statements.* The index to our financial statements is found on page F-1 of this Form 10-K.

(2) *Financial Statement Schedule.* Schedule II—Valuation and Qualifying Accounts is as follows:

	Balance at Beginning of Period	Additions		Less Deductions	Other	Balance at End of Period
		Revenue	Expense			
Allowance for Doubtful Accounts:						
Year ended December 31, 2017	$ 2,093	$ (1,822)	$ 1,987	$ —	$ —	$ 2,258
Year ended December 31, 2016	1,091	(51)	1,053	—	—	2,093
Year ended December 31, 2015	607	492	(8)	—	—	1,091
Inventory Obsolescence:						
Year ended December 31, 2017	$ 117	$ —	$ 412	$ (421)	$ —	$ 108
Year ended December 31, 2016	686	—	589	(1,158)	—	117
Year ended December 31, 2015	181	—	1,882	(1,377)	—	686
Valuation Allowance for Deferred Taxes:						
Year ended December 31, 2017	$ 18,546	$ —	$ 3,844 (1)	$ —	$ —	22,390
Year ended December 31, 2016	20,456	—	(1,910) (1)	—	—	18,546
Year ended December 31, 2015	17,451	—	3,005 (1)	—	—	20,456

(1) Amounts charged (credited) to expense represent change in valuation allowance.

(3) Exhibits.

Exhibit Number	Description of Exhibit
2.1	Agreement and Plan of Merger, dated October 9, 2013, by and among Vonage, Vista Merger Corp., Vocalocity and the Representative (11).
2.2	Agreement and Plan of Merger, dated November 4, 2014, by and among Vonage, Thunder Acquisition Corp., Telesphere and the Representative (18)
2.3	Agreement and Plan of Merger, dated August 19, 2015, by and among Vonage Holdings Corp., Cirrus Acquisition Corp., iCore Networks, Inc. and Stephen G. Canton, as the Representative (15)
2.4	Agreement and Plan of Merger, dated May 5, 2016, by and among Vonage Holdings Corp., Neptune Acquisition Corp., Nexmo and the Representative (24)
2.5	Amendment No. 1 to Agreement and Plan of Merger, dated June 2, 2016, by and among Vonage Holdings Corp., Neptune Acquisition Corp., Nexmo and the Representative (25)
3.1	Restated Certificate of Incorporation of Vonage Holdings Corp.(3)
3.2	Amended and Restated By-Laws of Vonage Holdings Corp., effective as of December 10, 2015 (7)
4.1	Form of Certificate of Vonage Holdings Corp. Common Stock(2)
4.2	Tax Benefits Preservation Plan, dated as of June 7, 2012, by and between Vonage Holdings Corp. and American Stock Transfer & Trust Company, LLC, as Rights Agent, including as Exhibit A the form of Certificate of Designation of the Company's Series A Participating Preferred Stock and as Exhibit B the forms of Right Certificate and of Election to Purchase (14)
10.1	Vonage Holdings Corp. 2015 Equity Incentive Plan. (28)*
10.2	Nexmo Inc. 2011 Stock Plan (26)
10.3	Vonage Holdings Corp. 2006 Incentive Plan (Amended and Restated through June 6, 2013)(10)*
10.4	Form of Restricted Stock Unit Agreement under the Vonage Holdings Corp. 2006 Incentive Plan(4)*
10.5	Form of Nonqualified Stock Option Agreement under the Vonage Holdings Corp. 2006 Incentive Plan(12)*
10.6	Form of Restricted Stock Agreement under the Vonage Holdings Corp. 2006 Incentive Plan(4)*
10.7	Form of Restricted Stock Agreement for Non-Executive Directors under the Vonage Holdings Corp. 2006 Incentive Plan (8)*
10.8	Form of Nonqualified Stock Option Agreement for Non-Executive Directors (Quarterly Grants) under the Vonage Holdings Corp. 2006 Incentive Plan (8)*
10.9	Form of Nonqualified Stock Option Agreement for Non-Executive Directors (Sign-on Grant) under the Vonage Holdings Corp. 2006 Incentive Plan (8)*
10.10	Vonage Holdings Corp. 401(k) Retirement Plan(1)*
10.11	Lease Agreement, dated March 24, 2005, between 23 Main Street Holmdel Associates LLC and Vonage USA Inc.(1)
10.12	Amendment to Lease Agreement, dated November 1, 2006, between 23 Main Street Holmdel Associates LLC and Vonage USA Inc.(23)

10.13	Amendment to Lease Agreement, dated December 1, 2015, between 23 Main Street Holmdel Associates LLC and Vonage USA Inc.(23)
10.14	Amended and Restated Non-Compete Agreement dated as of October 17, 2008 by and between Vonage Holdings Corp. and Jeffrey A. Citron(9)
10.15	Form of Nonqualified Stock Option Agreement for Jeffrey A. Citron under the Vonage Holdings Corp. 2006 Incentive Plan(21)*
10.16	Employment Agreement dated as of April 25, 2013 by and between Vonage Holdings Corp. and David T. Pearson (16)*
10.17	Letter Agreement, dated April 2, 2015, between Vonage Holdings Corp. and Edward M. Gilvar (17)*
10.18	Letter Agreement dated as of June 9, 2015 by and between Vonage Holdings Corp. and Omar Javaid (13)*
10.19	Non-Executive Director Compensation Program (23)*
10.20	Form of Indemnification Agreement between Vonage Holdings Corp. and its directors and certain officers(5)*
10.21	Employment Agreement dated as of October 6, 2014 by and between Vonage Holdings Corp. and Alan Masarek (22)*
10.22	First Amendment to Employment Agreement by and between Vonage Holdings Corp. and Alan Masarek (23)*
10.23	Settlement and Patent License Agreement, dated December 21, 2007, between Vonage Holdings Corp. and AT&T Corp.(6)
10.24	Credit Agreement, dated August 13, 2014, by and among Vonage America Inc. and Vonage Holdings Corp., as borrowers, various lenders, and JPMorgan Chase Bank, N.A., as Administrative Agent, Citizens Bank, N.A., as Syndication Agent, and Silicon Valley Bank and Suntrust Bank, as Documentation Agents (19)
10.25	Amended and Restated Credit Agreement among Vonage America Inc., Vonage Holdings Corp., the Lenders from time to time party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, Citizens Bank, N.A., as Syndication Agent, and Fifth Third Bank, MUFG Union Bank, N.A., Silicon Valley Bank and SunTrust Bank, as Documentation Agents. (20)
10.26	Amendment No. 1 to Amended and Restated Credit Agreement, dated June 3, 2016, by and among Vonage America Inc., a Delaware corporation, Vonage Holdings Corp., Citizens Bank, N.A., Fifth Third Bank, MUFG Union Bank, N.A., Silicon Valley Bank, SunTrust Bank, Keybank National Association, Santander Bank, N.A., Capital One National Association, First Niagara Bank, N.A., and JPMorgan Chase Bank, N.A., as Administrative Agent (27)
21.1	List of Subsidiaries of Vonage Holdings Corp.(28)
23.1	Consent of Deloitte & Touche LLP, independent registered public accounting firm(28)
23.2	Consent of BDO USA, LLP, independent registered public accounting firm(28)
31.1	Certification of our Chief Executive Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002(28)
31.2	Certification of our Chief Financial Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002(28)
32.1	Certification of our Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002(28)

(1) Incorporated by reference to Amendment No. 1 to Vonage Holdings Corp.'s Registration Statement on Form S-1 (File No. 333-131659) filed on April 7, 2006.
(2) Incorporated by reference to Amendment No. 5 to Vonage Holdings Corp.'s Registration Statement on Form S-1 (File No. 333-131659) filed on May 8, 2006.
(3) Incorporated by reference to Vonage Holdings Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on August 4, 2006.
(4) Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on April 17, 2007.
(5) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 14, 2007.
(6) Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on March 17, 2008.
(7) Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on December 11, 2015.
(8) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on August 11, 2008.
(9) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 10, 2008.
(10) Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 6, 2013.
(11) Incorporated by reference to the Current Report on Form 8-K (File No. 001-32887) filed by on October 10, 2013.
(12) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on May 7, 2010.
(13) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 4, 2015.
(14) Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 8, 2012.
(15) Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on August 20, 2015.
(16) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on July 31, 2013.
(17) Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-Q (File No. 001-32887) filed on May 7, 2015.
(18) Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on November 5, 2014.
(19) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 5, 2014.
(20) Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on July 30, 2015.
(21) Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on August 4, 2008.
(22) Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 13, 2015.
(23) Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 12, 2016.

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(24) Incorporated by reference to Vonage Holdings Corp.'s Quarterly Report on Form 8-K (File No. 001-32887) filed on May 5, 2016.
(25) Incorporated by reference to Vonage Holdings Corp.'s Quarterly Report on Form 8-K (File No. 001-32887) filed on June 6, 2016.
(26) Incorporated by reference to Vonage Holding Corp.'s Registration Statement on Form S-8 (File No. 001-32887) filed on June 29, 2016.
(27) Incorporated by reference to Vonage Holdings Corp.'s Quarterly Report on Form 8-K (File No. 001-32887) filed on June 6, 2016.
(28) Filed herewith.
† Portions of this Exhibit have been omitted and filed separately with the Securities and Exchange Commission as part of an order or application for confidential treatment pursuant to the Securities Act of 1933, as amended or the Securities Exchange Act of 1934, as amended.
* Management contract or compensatory plan or arrangement.

(b) Exhibits Filed Herewith
Refer to (a)(3) above.

(c) Financial Statement Schedule
Report of Independent Registered Public Accounting Firm
Schedule II – Valuation and Qualifying Accounts.

ITEM 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Holmdel, State of New Jersey, on February 27, 2018 .

VONAGE HOLDINGS CORP.

Dated: February 27, 2018 By: /S/ DAVID PEARSON

David Pearson

David T. Pearson
Chief Financial Officer
(Principal Financial Officer and Duly Authorized Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the registrant and in the capacities and as of the dates indicated.

Signature	Title	Date
/S/ ALAN MASAREK Alan Masarek	Director, Chief Executive Officer (principal executive officer)	February 27, 2018
/S/ DAVID T. PEARSON David T. Pearson	Chief Financial Officer (principal financial officer)	February 27, 2018
/S/ DAVID LEVI David Levi	Vice President and Controller (principal accounting officer)	February 27, 2018
/S/ JEFFREY A. CITRON Jeffrey A. Citron	Director, Chairman	February 27, 2018
/S/ HAMID AKHAVAN Hamid Akhavan	Director	February 27, 2018
/S/ NAVEEN CHOPRA Naveen Chopra	Director	February 27, 2018
/S/ STEPHEN FISHER Stephen Fisher	Director	February 27, 2018
/S/ CAROLYN KATZ Carolyn Katz	Director	February 27, 2018
/S/ JOHN J. ROBERTS John J. Roberts	Director	February 27, 2018
/S/ GARY STEELE Gary Steele	Director	February 27, 2018

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Vonage Holdings Corp.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheet of Vonage Holdings Corp. (the "Company") as of December 31, 2017, the related consolidated statements of operations, comprehensive income/(loss), cash flows, and stockholders' equity and redeemable noncontrolling interest, in the period ended December 31, 2017, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017, and the results of its operations and its cash flows for the year then ended, in conformity with the accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 27, 2018 , expressed an unqualified opinion on the Company's internal control over financial reporting.

Adoption of ASU 2016-09

As discussed in Note 2 to the consolidated financial statements, the Company has changed its method of accounting for the excess tax benefit from stock-based awards prospectively beginning January 1, 2017 in accordance with the adoption of Accounting Standards Update 2016-09, *Compensation - Stock Compensation: Improvements to Employee Share-Based Payment Accountin* g.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ DELOITTE & TOUCHE LLP
Parsippany, NJ
February 27, 2018

We have served as the Company's auditor since 2017.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Vonage Holdings Corp.
Holmdel, New Jersey 07733

We have audited the accompanying consolidated balance sheets of Vonage Holdings Corp. as of December 31, 2016 and the related consolidated statements of income, comprehensive income, stockholders' equity (deficit) and redeemable noncontrolling interest and cash flows for each of the two years in the period ended December 31, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Vonage Holdings Corp. as of December 31, 2016 and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2016, in conformity with accounting principles generally accepted in the United States of America.

/s/ BDO USA, LLP
Woodbridge, New Jersey
February 28, 2017, except for Note 3 for which is February 27, 2018

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Vonage Holdings Corp.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Vonage Holdings Corp. (the "Company") as of December 31, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the financial statements as of and for the year ended December 31, 2017, of the Company and our report dated February 27, 2018 , expressed an unqualified opinion on those financial statements and included an emphasis of a matter paragraph related to the adoption of a new accounting standard.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ DELOITTE & TOUCHE LLP
Parsippany, NJ
February 27, 2018

VONAGE HOLDINGS CORP. CONSOLIDATED BALANCE SHEETS

(In thousands, except par value)	December 31, 2017	December 31, 2016 (revised) [(1)]
Assets		
Current assets:		
Cash and cash equivalents	$ 31,360	$ 29,078
Marketable securities	—	601
Accounts receivable, net of allowance of $2,258 and $2,093, respectively	44,159	36,688
Inventory, net of allowance of $108 and $117, respectively	2,971	4,116
Deferred customer acquisition costs, current	1,089	2,610
Prepaid expenses	23,763	26,041
Other current assets	6,433	3,147
Total current assets	109,775	102,281
Property and equipment, net of accumulated depreciation of $87,792 and $129,166, respectively	46,754	48,415
Goodwill	373,764	360,363
Software, net of accumulated amortization of $93,858 and $87,626, respectively	22,252	21,971
Restricted cash	1,967	1,851
Intangible assets, net of accumulated amortization of $124,573 and $88,419, respectively	173,270	199,256
Deferred tax assets	110,892	184,210
Other assets	20,007	17,319
Total assets	$ 858,681	$ 935,666
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 29,766	$ 30,751
Accrued expenses	85,410	109,195
Deferred revenue, current portion	30,255	32,442
Current maturities of capital lease obligations	140	3,288
Other current liabilities	156	—
Current portion of notes payable	18,750	18,750
Total current liabilities	164,477	194,426
Indebtedness under revolving credit facility	141,000	209,000
Notes payable, net of debt related cost and current portion	72,765	91,124
Other liabilities	7,541	4,575
Total liabilities	385,783	499,125
Commitments and Contingencies (Note 11)	—	—
Stockholders' Equity		
Common stock, par value $0.001 per share; 596,950 shares authorized at December 31, 2017 and 2016; 298,174 and 282,319 shares issued at December 31, 2017 and 2016, respectively; 230,939 and 219,001 shares outstanding at December 31, 2017 and 2016, respectively	298	282
Additional paid-in capital	1,375,391	1,310,847
Accumulated deficit	(672,561)	(641,869)
Treasury stock, at cost, 67,235 shares at December 31, 2017 and 63,318 shares at December 31, 2016	(244,239)	(219,125)
Accumulated other comprehensive income/(loss)	14,009	(13,594)
Total stockholders' equity	472,898	436,541
Total liabilities and stockholders' equity	$ 858,681	$ 935,666

(1) see Note 3. *Correction of Prior Period Financial Statements.*

The accompanying notes are an integral part of these consolidated financial statements

VONAGE HOLDINGS CORP. CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)	For the years ended December 31, 2017	2016 (Revised) [1]	2015
Total revenues	$ 1,002,286	$ 955,621	$ 895,072
Operating Expenses:			
Cost of services (excluding depreciation and amortization)	378,960	321,373	261,768
Cost of goods sold	25,994	33,777	34,210
Sales and marketing	313,251	330,969	347,896
Engineering and development	29,630	29,759	27,220
General and administrative	122,537	123,304	109,153
Depreciation and amortization	72,523	72,285	61,833
Total operating expenses	942,895	911,467	842,080
Income from operations	59,391	44,154	52,992
Other Income (Expense):			
Interest income	17	79	89
Interest expense	(14,868)	(13,042)	(8,786)
Other income/(expense), net	1,253	(346)	(842)
Total other income/(expense), net	(13,598)	(13,309)	(9,539)
Income from continuing operations before income tax expense	45,793	30,845	43,453
Income tax expense	(79,726)	(17,694)	(18,418)
(Loss)/income from continuing operations	(33,933)	13,151	25,035
Loss from discontinued operations	—	—	(1,615)
Loss on disposal, net of taxes	—	—	(824)
Discontinued operations	—	—	(2,439)
Net (loss)/income	(33,933)	13,151	22,596
Plus: Net loss from discontinued operations attributable to noncontrolling interest	—	—	59
Net (loss)/income attributable to Vonage	$ (33,933)	$ 13,151	$ 22,655
Net (loss)/income per common share - continuing operations:			
Basic	$ (0.15)	$ 0.06	$ 0.12
Diluted	$ (0.15)	$ 0.06	$ 0.11
Net loss per common share - discontinued operations attributable to Vonage:			
Basic	$ —	$ —	$ (0.01)
Diluted	$ —	$ —	$ (0.01)
Net (loss)/income per common share - attributable to Vonage:			
Basic	$ (0.15)	$ 0.06	$ 0.11
Diluted	$ (0.15)	$ 0.06	$ 0.10
Weighted-average common shares outstanding:			
Basic	225,311	215,751	213,147
Diluted	225,311	231,941	224,110

(1) see Note 3. *Correction of Prior Period Financial Statements.*

The accompanying notes are an integral part of these consolidated financial statements

VONAGE HOLDINGS CORP. CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME/(LOSS)

(In thousands)	For the years ended December 31, 2017	2016 (revised) [1]	2015
Net (loss)/income	$ (33,933)	$ 13,151	$ 22,596
Other comprehensive income/(loss):			
Foreign currency translation adjustment, net of tax expense/(benefit) of $4,616, $(1,473), and $0, respectively	26,637	(11,937)	493
Discontinued operations cumulative translation adjustment, net of tax expense of $0, $0, and $0, respectively	—	—	974
Unrealized loss on available-for-sale securities, net of tax expense of $0, $0, and $0, respectively	1	20	(13)
Unrealized gain on derivatives, net of tax expense of $320, $0, and $0, respectively	965	—	—
Total other comprehensive income/(loss)	27,603	(11,917)	1,454
Comprehensive (loss)/income	(6,330)	1,234	24,050
Comprehensive income attributable to noncontrolling interest:			
Comprehensive income	—	—	59
Total comprehensive income attributable to noncontrolling interest	—	—	59
Comprehensive (loss)/income attributable to Vonage	$ (6,330)	$ 1,234	$ 24,109

(1) see Note 3. *Correction of Prior Period Financial Statements.*

The accompanying notes are an integral part of these consolidated financial statements

VONAGE HOLDINGS CORP. CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the years ended December 31,		
(In thousands)	2017	2016	2015
Cash flows from operating activities:		(Revised) [(1)]	(Revised) [(1)]
Net (loss)/income	$ (33,933)	$ 13,151	$ 22,596
Adjustments to reconcile net (loss)/income to net cash provided by operating activities:			
Depreciation and impairment charges	34,255	37,651	35,620
Amortization of intangibles	38,056	34,634	26,404
Deferred income taxes	74,577	12,058	13,949
Change in contingent consideration	—	(16,472)	—
Loss on foreign currency	—	—	1,358
Allowance for doubtful accounts	1,987	1,053	(8)
Allowance for obsolete inventory	412	589	1,882
Amortization of debt related costs	1,074	1,080	997
Loss on disposal of property and equipment	212	—	—
Share-based expense	37,482	40,682	27,541
Gain on sale of business	(1,879)	—	—
Noncontrolling interest	—	—	907
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(7,253)	(9,642)	185
Inventory	789	800	2,815
Prepaid expenses and other current assets	3,339	(10,182)	(1,904)
Deferred customer acquisition costs	1,729	1,357	421
Accounts payable	(664)	(13,604)	(3,830)
Accrued expenses	(23,361)	6,090	9,522
Deferred revenue	(2,584)	(2,126)	(3,682)
Other assets and liabilities	3,820	(3,663)	(288)
Net cash provided by operating activities	128,058	93,456	134,485
Cash flows from investing activities:			
Capital expenditures	(21,915)	(26,146)	(17,323)
Purchase of intangible assets	—	(50)	(2,500)
Purchase of marketable securities	—	(5,664)	(9,982)
Maturities and sales of marketable securities	602	14,991	7,223
Acquisition and development of software assets	(11,374)	(11,538)	(14,183)
Acquisition of business, net of cash acquired	—	(163,042)	(116,744)
Proceeds from sale of business	1,950	—	—
Net cash used in investing activities	(30,737)	(191,449)	(153,509)
Cash flows from financing activities:			
Principal payments on capital lease obligations	(5,788)	(8,583)	(3,549)
Principal payments on notes and revolving credit facility	(101,750)	(72,812)	(47,500)
Proceeds received from draw down of revolving credit facility and issuance of notes payable	15,000	181,250	102,000
Debt related costs	—	(1,316)	(2,007)
Common stock repurchases	(9,542)	(32,902)	(15,911)
Employee taxes paid on withholding shares	(15,572)	(6,444)	(4,754)
Proceeds from exercise of stock options	21,410	8,861	7,172
Net cash (used in) provided by financing activities	(96,242)	68,054	35,451
Effect of exchange rate changes on cash	1,319	555	(316)
Net change in cash and cash equivalents and restricted cash	2,398	(29,384)	16,111
Cash and cash equivalents and restricted cash, beginning of period	30,929	60,313	44,202
Cash and cash equivalents and restricted cash, end of period	$ 33,327	$ 30,929	$ 60,313

(1) See Note 2. *Summary of Significant Accounting Policies* for reclassification due to the adoptions of new Accounting Standard Updates and Note 3. *Correction of Prior Period Financial*

Statements .

The accompanying notes are an integral part of these consolidated financial statements

VONAGE HOLDINGS CORP. CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY AND REDEEMABLE NONCONTROLLING INTEREST

(In thousands)	Shares Outstanding	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Treasury Stock	Accumulated Other Comprehensive Income	Redeemable Non-controlling interest	Total
				(Revised) [1]				
Balance at December 31, 2014	211,994	$ 264	$ 1,184,662	$ (677,675)	$ (159,775)	$ (3,131)	$ (848)	$ 343,497
Stock option exercises	5,414	5	7,167					7,172
Share-based expense			27,541					27,541
Employee taxes paid on withholding shares	(919)				(4,754)			(4,754)
Common stock repurchases	(3,320)				(15,250)			(15,250)
Acquisition of business	1,111	1	5,577					5,578
Foreign currency translation adjustment						1,467		1,467
Unrealized loss on available-for-sale securities						(13)		(13)
Net income				22,655			848	23,503
Balance at December 31, 2015	214,280	270	1,224,947	(655,020)	(179,779)	(1,677)	—	388,741
Stock option exercises	6,548	5	8,856					8,861
Share-based expense			40,682					40,682
Employee taxes paid on withholding shares	(1,250)				(6,444)			(6,444)
Common stock repurchases	(7,400)				(32,902)			(32,902)
Acquisition of business	6,823	7	36,362					36,369
Foreign currency translation adjustment						(11,937)		(11,937)
Unrealized loss on available-for-sale securities						20		20
Net income [1]				13,151				13,151
Balance at December 31, 2016	219,001	282	1,310,847	(641,869)	(219,125)	(13,594)	—	436,541
Cumulative effect adjustment upon the adoption of ASU 2016-09			5,668	3,241				8,909
Stock option exercises	15,856	16	21,394					21,410
Share-based expense			37,482					37,482
Employee taxes paid on withholding shares	(2,319)				(15,572)			(15,572)
Common stock repurchases	(1,599)				(9,542)			(9,542)
Foreign currency translation adjustment						26,637		26,637
Unrealized loss on available-for-sale securities						1		1
Unrealized gain on derivatives						965		965
Net loss				(33,933)				(33,933)
Balance at December 31, 2017	230,939	$ 298	$ 1,375,391	$ (672,561)	$ (244,239)	$ 14,009	$ —	$ 472,898

(1) see Note 3. *Correction of Prior Period Financial Statements.*

The accompanying notes are an integral part of these consolidated financial statements

Note 1. Nature of Business

Nature of Operations

Vonage Holdings Corp. (“Vonage”, “Company”, “we”, “our”, “us”) is incorporated as a Delaware corporation. We are a leading provider of cloud communications services for businesses. We transform the way people work and businesses operate through a portfolio of cloud-based communications solutions that enable internal collaboration among employees, while also keeping companies closely connected with their customers, across any mode of communication, on any device.

For our business customers, we provide innovative, cloud-based Unified Communications as a Service, or UCaaS, solutions, comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable Session Initiation Protocol, or SIP, based Voice over Internet Protocol, or VoIP, network. We also offer Communications Platform as a Service, or CPaaS, solutions designed to enhance the way businesses communicate with their customers by embedding communications into apps, websites and business processes. In combination, our products and services permit our business customers to communicate with their customers and employees through any cloud-connected device, in any place, at any time without the often costly investment required with on-site equipment.

We also provide a robust suite of feature-rich residential communication solutions.

Customers in the United States represented 85% , 91% , and 95% of our consolidated revenues at December 31, 2017 , December 31, 2016 , and December 31, 2015 , respectively, with the balance in Canada, the United Kingdom, and other countries. Nexmo Inc., or Nexmo, has operations in the United States, United Kingdom, Hong Kong, and Singapore, and provides CPaaS solutions to our customers located in many countries around the world.

Note 2. Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements have been prepared in accordance with U.S. GAAP. The Accounting Standards Codification, ASC, established by the Financial Accounting Standards Board, FASB, is the source of authoritative GAAP to be applied to nongovernmental entities. In addition, the rules and interpretive releases of the Securities and Exchange Commission, SEC, under the authority of federal securities laws are also sources of authoritative GAAP for SEC registrants.

The consolidated financial statements include the accounts and operations of Vonage and its wholly-owned subsidiaries for which we have a controlling interest. All intercompany balances and transactions have been eliminated in consolidation. The usual condition for a controlling financial interest is ownership of a majority of the voting interests of an entity; however, a controlling financial interest may also exist through arrangements that do not involve controlling voting interests. As such, Vonage applies the guidance of ASC 810, *Consolidations* , or ASC 810, to determine when an entity that is insufficiently capitalized or not controlled through its voting interests, referred to as a VIE, should be consolidated. In addition, the results of companies acquired or disposed of are included in the consolidated financial statements from the effective date of the acquisition or up to the date of disposal.

Revenue Recognition

Operating revenues consist of services revenues and customer equipment (which enables our services) and shipping revenues. The point in time at which revenues are recognized is determined in accordance with SEC Staff Accounting Bulletin, SAB, No. 104, Revenue Recognition, and ASC 605, *Revenue Recognition* .

At the time a customer signs up for our services, there are the following deliverables:

- Providing equipment, if any, to the customer that enables our telephony services;
- Providing services; and
- Installation of equipment if required in the contract or terms of service.

Activation devices are provided free of charge to our Consumer customers while VOIP enabled phones are provided for a fee to our Business customers. In most instances there are no fees collected at sign-up. We record the fees collected for shipping the equipment to the customer, if any, as shipping and handling revenue at the time of shipment.

Services Revenue

Substantially all of our revenues are services revenues, which are derived , usage based billion, and, in Vonage Enterprise, we offer domestic and international rate plans, including a variety of residential plans and mobile plans. For consumer customers in the United States, we offer domestic and international rate plans, including a variety of residential plans and mobile plans. For business customers, we offer SMB, mid-market, and enterprise customers several service plans with different pricing structures and contractual requirements ranging in duration from month-to-month to three years. In addition, we provide managed equipment to business customers for which the customers pay a monthly fee. Customers also have the opportunity to purchase premium features for additional fees. We also derive services revenues from per minute fees for international calls if not covered under a plan, including calls made via applications for mobile devices and other stand-alone products, and for any calling minutes in excess of a customer’s monthly plan limits. For a portion of our customers, monthly subscription fees are automatically charged to customers’ credit cards, debit cards or electronic check payments, or ECP, in advance and are recognized over the following month when services are provided. Revenues generated from international calls and from customers exceeding allocated call minutes under limited minute plans are recognized as services are provided, that is, as minutes are used, and are billed to a customer's credit cards, debit cards or ECP in arrears. As a result of multiple billing cycles each month, we estimate the amount of revenues earned from international calls and from customers exceeding allocated call minutes under limited minute plans but not billed from the end of each billing cycle to the end of each reporting period and record these amounts as accounts receivable. These estimates are based primarily upon historical minutes and have been consistent with our actual results.

In the United States, we charge regulatory, compliance, E-911, and intellectual property-related fees on a monthly basis to defray costs, and to cover taxes that we are charged by the suppliers of telecommunications services. These charges, along with the remittance to the relevant government entity, are recorded on a net basis. In addition, we collect Federal Universal Service Fund, or USF, fees from customers to recover our obligation to contribute to the fund, as allowed by the FCC. We recognize USF revenues on a gross basis and record the related fees in cost of services.

Services revenue also includes supplying messaging (SMS and Voice) services to customers as part of our CPaaS business. Revenue is recognized in the period when messages are sent by the customer. We also transact with providers or bulk SMS aggregators and sell services to these customers who then onsell to their customers. Since the aggregator is our customer, revenue is recognized on a gross basis with related costs included in cost of sales.

Customer Equipment and Shipping Revenue

Revenue is generated from sales of customer equipment to wholesalers or directly to customers for replacement devices, or for upgrading their device at the time of customer sign-up for which we charge an additional fee. In addition, customer equipment and shipping revenues include revenues from the sale of VoIP telephones in order to access our small and medium business services. Customer equipment and shipping revenues also include the fees that customers are charged for shipping their customer equipment to them. Customer equipment and shipping revenues include sales to our wholesalers, who subsequently resell this customer equipment to customers. Revenues are reduced for payments to wholesalers and rebates to customers to the extent of customer equipment and shipping revenues.

Cost of Services

Cost of service consists of costs that we pay to third parties such as access and interconnection charges that we pay to other companies to terminate domestic and international phone calls on the public switched telephone network. In addition, costs to lease phone numbers, to co-locate in other companies’ facilities, to provide enhanced emergency dialing capabilities to transmit 911 calls, and to provide local number portability are also included in cost of service. These costs also include taxes that we pay on telecommunications services from our suppliers or are imposed by government agencies such as USF contributions and royalties for use of third parties’ intellectual property. In addition, these costs include certain personnel and related costs for network operations and technical support that are attributable to revenue generating activities. Cost of services excludes depreciation and amortization expense of $27,308 , $28,489 , and $24,868 for the years ended December 31, 2017 , 2016 , and 2015 , respectively.

Cost of Goods Sold

Cost of goods sold consists primarily of costs incurred on customer equipment for customers who subscribe through the direct sales channel in excess of activation fees. The amortization of deferred customer equipment, the cost of shipping and handling for customer equipment, and the cost of certain promotions are also included in cost of goods sold.

Sales and Marketing Expenses

Sales and marketing expenses consist primarily of personnel and related costs for employees and contractors directly associated with our sales and marketing activities, internet advertising fees, radio and billboard advertising, public relations, commissions paid to employees, resellers and other third parties, trade shows, marketing and promotional activities, customer support, credit card fees, collections, and systems and information technology support. We expense advertising costs during the period in which they are incurred. Advertising costs included in sales and marketing were $57,703 , $75,587 , and $103,320 for the years ended December 31, 2017 , 2016 , and 2015 , respectively.

Engineering and Development Expenses

Engineering and development expenses primarily include personnel and related costs for developers responsible for new products, and software engineers maintaining and enhancing existing products. Research and development costs related to new product development included in engineering and development were $23,730 , $22,447 , and $18,350 for the years ended December 31, 2017 , 2016 , and 2015 , respectively.

Costs for research, including predevelopment efforts prior to establishing technological feasibility of software expected to be marketed, are expensed as incurred.

Development costs are capitalized when technological feasibility has been established and anticipated future revenues support the recoverability of the capitalized amounts. Capitalization stops when the product is available for general release to customers. Due to the short time period between achieving technological feasibility and product release and the insignificant amount of costs incurred during such periods, we have not capitalized any software development, and have expensed these costs as incurred.

Restructuring Activities

For the year ended December 31, 2017 , we recognized $5,101 of costs associated with restructuring activities included in general and administrative expense. This amount is primarily comprised of costs associated with severance and other employee related costs. As of December 31, 2017, $1,090 remained accrued related to restructuring activities and $4,011 was paid during 2017.

Cash, Cash Equivalents and Marketable Securities

We maintain cash with several investment grade financial institutions. Highly liquid investments, which are readily convertible into cash, with original maturities of three months or less, are recorded as cash equivalents.

Management determines the appropriate classification of our investments in debt and marketable equity securities at the time of purchase and reevaluates such designation at each balance sheet date. Our debt securities have been classified and accounted for as available for sale. In response to changes in the availability of and the yield on alternative investments as well as liquidity requirements, we may sell these securities prior to their stated maturities. These securities are carried at fair value, with the unrealized gains and losses reported as a component of other comprehensive income (loss). Any realized gains or losses on the sale of marketable securities are determined on a specific identification method, and such gains and losses are reflected as a component of other income or expense.

Certain Risks and Concentrations

Financial instruments that potentially subject us to concentrations of credit risk consist principally of cash equivalents, marketable securities, and accounts receivable. They are subject to fluctuations in both market value and yield based upon changes in market conditions, including interest rates, liquidity, general economic conditions, and conditions specific to the issuers. Accounts receivable are typically unsecured and are derived from revenues earned from customers primarily located in the United States. A portion of our accounts receivable represents the timing difference between when a customer’s credit card is billed and the subsequent settlement of that transaction with our credit card processors. This timing difference is generally three days for substantially all of our credit card receivables. We have never experienced any accounts receivable write-offs due to this timing difference. In addition, we collect subscription fees in advance, minimizing our accounts receivable and bad debt exposure. If a customer’s credit card, debit card or ECP is declined, we generally suspend international calling capabilities as well as their ability to incur domestic usage charges in excess of their plan minutes. Generally, if the customer’s credit card, debit card or ECP could not be successfully processed during three billing cycles, we terminate the account. In addition, we automatically charge any per minute fees to our customers’ credit card, debit card or ECP monthly in arrears. To further mitigate our bad debt exposure, a customer’s credit card, debit card or ECP will be charged in advance of their monthly billing if their international calling or overage charges exceed a certain dollar threshold.

Inventory

Inventory consists of the cost of customer equipment and is valued at the lower of cost or market, with cost determined using the average cost method. We provide an inventory allowance for customer equipment that has been returned by customers but may not be able to be reissued to new customers or returned to the manufacturer for credit.

Property and Equipment

Property and equipment includes acquired assets and those accounted for under capital leases and consist principally of network equipment and computer hardware, software, furniture, and leasehold improvements. Company-owned equipment in use at customer premises is also included in property and equipment. Network equipment, computer hardware and furniture are stated at cost with depreciation provided using the straight-line method over the estimated useful lives of the related assets, which range from three to five years. Leasehold improvements are amortized over their estimated useful life of the related assets or the life of the lease, whichever is shorter. The cost of substantial improvements is capitalized while the cost of maintenance and repairs is charged to operating expenses as incurred. Company-owned customer premises equipment is depreciated on a straight-line basis over three years.

Our network equipment and computer hardware, which consists of routers, gateways, and servers that enable our services, is subject to technological risks and rapid market changes due to new products and services and changing customer demand. These changes may result in future adjustments to the estimated useful lives or the carrying value of these assets, or both.

Software Costs

We capitalize certain costs, such as purchased software and internally developed software that we use for customer acquisition and customer care automation tools, in accordance with FASB ASC 350-40, *Internal-Use Software* . Computer software is stated at cost less accumulated amortization and the estimated useful life is two to five years.

Goodwill

In accordance with ASC 350, *Intangibles - Goodwill and Other* , we recognize goodwill for the excess cost of an acquired business over the fair value assigned to assets acquired and liabilities assumed. Goodwill is tested for impairment on an annual basis on October 1st and, when specific circumstances dictate, between annual tests. When impaired, the carrying value of goodwill is written down to fair value. The goodwill impairment test involves evaluating qualitative information to determine if it is more than 50% likely that the fair value of a reporting unit is less than its carrying value. If such a determination is made or if an entity chooses not to perform a qualitative assessment, then the traditional two-step goodwill impairment test described below must be applied. The first step, identifying a potential impairment, compares the fair value of a reporting unit with its carrying amount, including goodwill. If the carrying value of the reporting unit exceeds its fair value, the second step would need to be conducted; otherwise, no further steps are necessary as no potential impairment exists. The second step, measuring the impairment loss, compares the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. Any excess of the reporting unit goodwill carrying value over the respective implied fair value is recognized as an impairment loss. There was no impairment of goodwill for the years ended December 31, 2017 , 2016 , and 2015 .

Intangible Assets

Intangible assets acquired in the settlement of litigation or by direct purchase are accounted for based upon the fair value of assets received.

Purchased-intangible assets are accounted for based upon the fair value of assets received and are amortized on a straight-line or accelerated basis over the periods of economic benefit, ranging from two to ten years. We perform a review of purchased-intangible assets whenever events or changes in circumstances indicate that the useful life is shorter than we had originally estimated or that the carrying amount of assets may not be recoverable. If such facts and circumstances exist, we assess the recoverability of purchased-intangible assets by comparing the projected undiscounted net cash flows associated with the related asset or group of assets over their remaining lives against their respective carrying amounts. Impairments, if any, are based on the excess of the carrying amount over the fair value of those assets. If the useful life of the asset is shorter than originally estimated, we accelerate the rate of amortization and amortize the remaining carrying value over the new shorter useful life. There was no impairment of purchased-intangible assets identified for the years ended December 31, 2017 , 2016 , and 2015 .

Patents and Patent Licenses

Patent rights acquired in the settlement of litigation or by direct purchase are accounted for based upon the fair value of assets received.

Asset Impairments

We evaluate impairment losses on long-lived assets used in operations when events and changes in circumstances indicate that the assets might be impaired. If our review indicates that the carrying value of an asset will not be recoverable, based on a comparison of the carrying value of the asset to the undiscounted future cash flows, the impairment will be measured by comparing the carrying value of the asset to its fair value. Fair value will be determined based on quoted market values, discounted cash flows or appraisals. Impairments of property and equipment are recorded in the statement of income as part of depreciation expense. There was no impairment of property and equipment identified for the years ended December 31, 2017 , 2016 , and 2015 .

Debt Related Costs

Costs incurred in raising debt are deferred and amortized as interest expense using the effective interest method over the life of the debt. Costs associated with term loans are netted against the underlying notes payable in accordance with ASU 2015-15, "Interest-Imputation of Interest" while costs deferred associated with revolving facilities are included in other assets.

Restricted Cash and Letters of Credit

We had a cash collateralized letter of credit for $1,563 and $1,578 as of December 31, 2017 and 2016 , respectively, mainly related to lease deposits for our Holmdel office. In the aggregate, cash reserves and collateralized letters of credit of $1,967 and $1,851 were recorded as long-term restricted cash at December 31, 2017 and 2016 , respectively.

Derivative Financial Instruments

The Company accounts for derivative financial instruments under ASC 815, *Derivatives and Hedging,* which requires the Company to record all derivatives on the balance sheet at fair value unless they qualify for a normal purchase normal sale exception. Changes in the fair value of non-hedge derivatives are immediately recognized into earnings. Changes in the fair value of derivatives accounted for as hedges, if elected for hedge accounting, are either recognized in earnings as an offset to the changes in the fair value of the related hedged assets and liabilities or deferred and recognized as a component of accumulated other comprehensive income, or OCI, until the hedged transactions occur and are recognized in earnings.

During 2017, the Company entered into an interest rate swap to mitigate variability in earnings due to fluctuations in interest rates and has been designated and qualifies as a cash flow hedge. The Company assesses hedge effectiveness under the critical terms matched method at inception and at least quarterly through the life of the hedging relationship. If the critical terms of the interest rate swap match the terms of the forecasted transaction, the Company concludes that the hedge is effective.

Income Taxes

We recognize deferred tax assets and liabilities at enacted income tax rates for the temporary differences between the financial reporting bases and the tax bases of our assets and liabilities. Any effects of changes in income tax rates or tax laws are included in the provision for income taxes in the period of enactment. Our net deferred tax assets primarily consist of net operating loss carry forwards, or NOLs. We are required to record a valuation allowance against our net deferred tax assets if we conclude that it is more likely than not that taxable income generated in the future will be insufficient to utilize the future income tax benefit from our net deferred tax assets prior to expiration. We periodically review this conclusion, which requires significant management judgment. If we are able to conclude in a future period that a future income tax benefit from our net deferred tax assets has a greater than 50% likelihood of being realized, we are required in that period to reduce the related valuation allowance with a corresponding decrease in income tax expense. This would result in a non-cash benefit to our net income in the period of the determination. In the future, if available evidence changes our conclusion that it is more likely than not that we will utilize our net deferred tax assets prior to their expiration, we will make an adjustment to the related valuation allowance and income tax expense at that time. In subsequent periods, we would expect to recognize income tax expense equal to our pre-tax income multiplied by our effective income tax rate, an expense that was not recognized prior to the reduction of the valuation allowance. Our effective rate may differ from the federal statutory rate due, in part, to our foreign operations and certain discrete period items.

On December 22, 2017, the Tax Cuts and Jobs Act, or TCJA, was signed into law by the President of the United States. The TCJA most notably reduces the corporate tax rate from 35% to 21% along with eliminating the alternative minimum tax, or AMT, and imposing a mandatory one-time tax on foreign earnings. Under ASC 740, *Income Taxes* , an entity is required to recognize the effect of tax law changes during the period of enactment. As such, the Company will be reflecting the impact of this law within its December 31, 2017 financial statements. Due to the complexities of the new legislation and associated accounting considerations, SEC SAB 118 provides for an entity to utilize a provisional estimate within its financial statements for the impact of the TCJA. Based upon currently available information, the Company estimates that the enactment of the legislation will result in a charge to income tax expense of $69,378 which is primarily associated with the re-measurement of the Company's deferred tax balances at the 21% income tax rate. The Company also reclassified the deferred tax asset related to AMT credits to receivables which are now refundable in the amount of $8,217 , of which $4,108 is included in other current assets as of December 31, 2017.

The Company does not currently estimate a material impact associated with the repatriation tax or other facets of the TCJA. Due to the timing of the enactment and the complexity involved in applying the provisions of the TCJA, the Company has made reasonable estimates of the effects and recorded provisional amounts in our financial statements as of December 31, 2017. Additionally, the Company is currently analyzing our global working capital and cash requirements and the potential tax liabilities attributable to a repatriation but we have yet to determine whether we plan to change our prior assessment and repatriate earnings. As such, we have not recorded any deferred taxes attributable to our investments in our foreign entities and will record the tax effects of any change in our prior assertion as we complete our analysis of the TCJA. As we collect further information and interpret the TCJA and any additional guidance issued by the U.S. Treasury Department, the IRS and other regulatory bodies, we may make adjustments to the provisional amounts. The Company will continue to analyze the effects of the TCJA on the Company's operations and will record any adjustments associated with the enactment of the legislature during the measurement period as provided by SAB 118. The accounting for the impact of the TCJA will be completed in 2018.

We file income tax returns in the U.S. for federal and state purposes and in various foreign jurisdictions. Our federal tax return remains subject to examination by the Internal Revenue Service from 2014 to present, our New Jersey tax returns remain open from 2013 to present, our Canada tax return remains open from 2014 to present, and other domestic and foreign tax returns remain open for all periods to which those filings relate. Our Canadian corporate income tax returns for 2012 and 2013 were selected for examination by the Canada Revenue Agency. The Canada Revenue Agency concluded their audit and there were no changes. We recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate resolution.

Business Combinations

We account for business combinations using the acquisition method of accounting. The acquisition method of accounting requires that the purchase price, including the fair value of contingent consideration, of the acquisition be allocated to the assets acquired and liabilities assumed using the fair values determined by management as of the acquisition date. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the net of the acquisition date fair values of assets acquired and the liabilities assumed. While the Company uses its best estimates and assumptions as part of the purchase price allocation process to accurately value assets acquired and liabilities assumed at the acquisition date, the Company's estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, the Company records adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill to the extent the Company identifies adjustments to the preliminary purchase price allocation. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the consolidated statements of operations. We include the results of all acquisitions in our consolidated financial statements from the date of acquisition.

Acquisition related transaction costs, such as banking, legal, accounting and other costs incurred in connection with an acquisition, are expensed as incurred in general and administrative expense.

Acquisition related integration costs include costs associated with exit or disposal activities, which do not meet the criteria of discontinued operations, including costs for employee, lease, and contract terminations, facility closing or other exit activities. Additionally, these costs include expenses directly related to integrating and reorganizing acquired businesses and include items such as employee retention costs, recruiting costs, certain moving costs, certain duplicative costs during integration and asset impairments. These costs are expensed as incurred in general and administrative expense.

Acquisition related consideration accounted for as compensation expense, such as restricted cash, restricted stock and option related costs incurred in connection with an acquisition are included in general and administrative expense.

Foreign Currency

Generally, the functional currency of our non-United States subsidiaries is the local currency. However, the functional currency of Nexmo's United States's subsidiary is the Euro. The financial statements of these subsidiaries are translated to their respective functional currency using month-end rates of exchange for assets and liabilities, and average rates of exchange for revenues, costs, and expenses. Translation gains and losses from the Company's net investments in subsidiaries are deferred and recorded in accumulated other comprehensive income as a component of stockholders' equity until sale or complete or substantially complete liquidation of the net investment in the foreign entity takes place. Foreign currency transaction gains or losses are reported within other income/(expense) in the Company's consolidated statements of operations. For the years ended December 31, 2017, 2016 and 2015, amounts recognized as foreign currency transaction losses were $620 , $346 and $860 , respectively.

Share-Based Compensation

We account for share-based compensation in accordance with FASB ASC 718, “Compensation-Stock Compensation”. Under the fair value recognition provisions of this pronouncement, share-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as expense over the applicable vesting period of the stock award on a straight-line basis. On January 1, 2017, the Company adopted ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting". Previously, excess tax benefits were recognized in additional paid-in capital on the consolidated balance sheet to the extent they reduced income taxes payable. Beginning in 2017, any excess tax benefits or shortfalls were recorded in the income tax provision upon vest or exercise. During 2017, the Company recorded a net benefit of $11 million related to excess tax benefits.

Comprehensive Income

Comprehensive income consists of net income (loss) and other comprehensive items. Other comprehensive items include changes in the fair value of derivatives, foreign currency translation adjustments and unrealized gains (losses) on available for sale securities.

Use of Estimates

Our consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States, which require management to make estimates and assumptions that affect the amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

We base our estimates on historical experience, available market information, appropriate valuation methodologies, and on various other assumptions that we believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Estimates are used for such items as depreciable lives for long-lived assets including intangible assets, tax provisions, uncollectible accounts, and assets and liabilities assumed in business combinations, among others. In addition, estimates are used to test long-lived assets and goodwill for impairment.

Reclassifications

Reclassifications have been made to our consolidated financial statements for the prior year periods to conform to classification used in the current year period. The reclassifications did not affect results from operations or net assets.

Recent Accounting Pronouncements

In August 2017, FASB issued ASU 2017-12, "Derivatives and Hedging". The ASU improves the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities in its financial statements and simplifies the application of the hedge accounting guidance in current GAAP. It also amends the disclosures requirements by requiring a tabular disclosure related to the effect on the incomes statement of fair value and cash flow hedges and eliminating the ineffective portion of the change in fair value of hedging instrument disclosures. This ASU is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted in any interim period after issuance of this ASU. We have evaluated the impact of adopting ASU 2017-12 on our consolidated financial statements and related disclosures and have determined that it will not have a material impact on our consolidated financial statements.

In January 2017, FASB issued ASU 2017-04, "Intangibles - Goodwill and Other" which simplifies the subsequent measurement of goodwill and eliminates Step 2 from the goodwill impairment test. This ASU is effective for an annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019 on a prospective basis. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The adoption of ASU 2017-04 will not have a material impact on our consolidated financial statements.

In August 2016, FASB issued ASU 2016-15, "Statement of Cash Flows". This ASU addresses eight specific cash flow issues with the objective of reducing the existing diversity in practice. This ASU is effective for fiscal years beginning after December 15, 2017 on a retrospective basis. Early adoption is permitted, including adoption in an interim period. The adoption of ASU 2016-15 will not have a material impact on our consolidated financial statements and related disclosures.

In February 2016, FASB issued ASU 2016-02, "Leases". This ASU increases transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. This ASU is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted for all entities. The adoption of this ASU will increase assets and liabilities for operating leases. We will adopt these ASUs when effective. We are currently evaluating the impact of adopting ASU 2016-02 on our consolidated financial statements and related disclosures.

In May 2014, FASB issued ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)" which was further amended through various updates issued by the FASB thereafter. The amendments of Topic 606 clarify the principles for recognizing revenue and provide a common revenue standard for U.S. GAAP and International Financial Reporting Standards, or IFRS, and to improve financial reporting. The core principle of these standards are that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Topic 606 also amends the current guidance for the recognition of costs to obtain and fulfill contracts with customers requiring that all incremental costs of obtaining and direct costs of fulfilling contracts with customers such as commissions be deferred and recognized over the expected customer life. In August 2015, an ASU was issued by the FASB which deferred the effective date to annual and interim periods beginning on or after December 15, 2017. As of January 1, 2018, we have adopted the requirements of the new standard using the modified retrospective transition method under which the standard will be applied only to the most current period presented and the cumulative effect of applying the standard will be recognized at the date of initial application as a cumulative adjustment to retained earnings.

We have finalized our evaluation the impact of the standard with respect to the terms of our revenue arrangements and the Company expects the impact of the adoption of Topic 606 to be the capitalization of incremental costs to obtain a contract of approximately $35 million to $40 million with a corresponding offset being recorded to stockholder's equity. This asset will be amortized to expense over a period of five to seven years, subject to periodic reviews for impairment and life.

The following standards were adopted by the Company during the current year:

In November 2016, FASB issued ASU 2016-18, "Statement of Cash Flows". This ASU requires that a statement of cash flows explains the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. As a result, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. This ASU is effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period, any adjustments should be reflected as of the beginning of the fiscal year that includes that interim period. We adopted this ASU in the first quarter of 2017 and applied the retrospective transition method for each period presented. Upon adoption of ASU 2016-18, $716 and $20 were reclassified from investing activities and effect of exchange rate changes on cash, respectively, for the year ended December 31, 2016 and $813 and $5 were reclassified from investing activities and effect of exchange rate changes on cash, respectively, for the year ended December 31 2015. The following table provides a reconciliation of cash and cash equivalents and restricted cash reported within the consolidated balance sheet to same such amounts show in the consolidated statement of cash flows:

	As of December 31,			
	2017	2016	2015	2014
Cash and cash equivalents	$ 31,360	$ 29,078	$ 57,726	$ 40,797
Restricted cash	1,967	1,851	2,587	3,405
	$ 33,327	$ 30,929	$ 60,313	$ 44,202

In March 2016, FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting". This ASU is issued as part of its Simplification Initiative. The areas for simplification in this ASU involve several aspects of the accounting for share- based payment transactions, including the income tax consequences, recognition of share-based expense, classification of awards as either equity or liabilities, and classification on the statement of cash flows. This ASU is effective for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. Early adoption is permitted for any entity in any interim or annual period. We adopted this ASU in the first quarter of 2017. We elected to account for forfeitures when they occur versus our prior practice of estimating the number of awards that are expected to vest. The election of this new ASU resulted in a one-time adjustment in 2017 to accumulated deficit and to additional paid-in-capital of $5,668 and the corresponding benefit to our accumulated deficit and deferred tax asset of $2,285 related to the reversal of forfeiture rate as of January 1, 2017. In addition, a benefit to our accumulated deficit and deferred tax asset of $6,624 was recorded for excess tax benefits on equity compensation as of December 31, 2016. We also classified cash paid by us when directly withholding shares for tax-withholding purposes as a financing activity. As a result, $6,444 and $4,754 was reclassified from operating activity to financing activity for the years ended December 31, 2016 and 2015, respectively.

In July 2015, FASB issued ASU 2015-11, "Simplifying the Measurement of Inventory". This ASU applies to inventory that is measured using first-in, first-out, or FIFO, or average cost. Under the updated guidance, an entity should measure inventory that is within scope at the lower of cost and net realizable value, which is the estimated selling prices in the ordinary course of business, less reasonably predicable costs of completion, disposal and transportation. Subsequent measurement is unchanged for inventory that is measured using last-in, first-out, or LIFO, or the retail inventory. This ASU is effective for annual and interim periods beginning after December 15, 2016, and should be applied prospectively with early adoption on permitted at the beginning of an interim and annual reporting period. We adopted ASU 2015-11 in the first quarter of 2017 and the adoption of this ASU did not have a material impact on our consolidated financial statements and related disclosures.

Note 3. Correction of Prior Period Financial Statements

In connection with the preparation of our consolidated financial statements for the quarter ended March 31, 2017, and our remediation efforts related to the material weakness in our internal control over financial reporting related to our controls over the preparation of the annual tax provision, we identified an error as of December 31, 2016 in our recognition of a deferred tax asset related to contingent consideration with vesting requirements paid in connection with the acquisition of Nexmo. Based in part upon the vesting requirements of contingent consideration, we recorded the consideration as compensation expense in general and administrative expense in our consolidated statements of operations. However, for tax purposes the contingent consideration should have been recorded as merger consideration and not deductible compensation. The correction of this error requires the reversal of the deferred tax asset on the consolidated balance sheets and related tax benefits of $4,756 as of December 31, 2016. In accordance with SAB No. 99, Materiality, and SAB No. 108, Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements, we evaluated the error and determined that the related impact was not material to our results of operations or financial position for any prior annual or interim period, but that correcting the $4,756 cumulative impact of the error would be material to our results of operations for the three months ended March 31, 2017. Accordingly, we have corrected the consolidated balance sheets as of December 31, 2016 and have corrected this error in all prior periods presented by revising the appropriate consolidated financial statements. The impact to the consolidated balance sheet as of December 31, 2016 and the consolidated statements of income for the three months and year ended December 31, 2016 is as follows:

Consolidated Balance Sheets	**As of December 31, 2016**		
	As Reported	**Adjustment**	**As Revised**
Deferred tax assets, non-current	$ 188,966	$ 4,756	$ 184,210
Total assets	940,422	4,756	935,666
Accumulated deficit	(637,113)	4,756	(641,869)
Total stockholders' equity	441,297	4,756	436,541
Total liabilities and stockholders' equity	940,422	4,756	935,666

Consolidated Statements of Operations

	Three Months Ended December 31, 2016			**Year Ended December 31, 2016**		
	(Unaudited)					
	As Reported	**Adjustment**	**As Revised**	**As Reported**	**Adjustment**	**As Revised**
Income tax expense	$ (1,553)	$ 2,039	$ (3,592)	$ (12,938)	$ 4,756	$ (17,694)
Net income	1	2,039	(2,038)	17,907	4,756	13,151
Net income per common share:						
Basic	$ —	$ 0.01	$ (0.01)	$ 0.08	$ 0.02	$ 0.06
Diluted	$ —	$ 0.01	$ (0.01)	$ 0.08	$ 0.02	$ 0.06

Note 4. Earnings Per Share

Net income or loss per share has been computed according to FASB ASC 260, "Earnings per Share", which requires a dual presentation of basic and diluted earnings per share, or EPS. Basic EPS represents net income or loss divided by the weighted average number of common shares outstanding during a reporting period. Diluted EPS reflects the potential dilution that could occur if securities or other contracts to issue common stock, including stock options and restricted stock units under our 2001 Stock Incentive Plan and 2006 Incentive Plan were exercised or converted into common stock. The dilutive effect of outstanding, stock options and restricted stock units is reflected in diluted earnings per share by application of the treasury stock method. In applying the treasury stock method for stock-based compensation arrangements, the assumed proceeds are computed as the sum of the amount the employee must pay upon exercise and the amounts of average unrecognized compensation cost attributed to future services.

The following table sets forth the computation for basic and diluted net income per share:

	For the years ended December 31,		
	2017	2016	2015
		(Revised) (1)	
Numerator			
(Loss)/income from continuing operations	$ (33,933)	$ 13,151	$ 25,035
Discontinued operations	—	—	(2,439)
Plus: Net loss from discontinued operations attributable to noncontrolling interest	—	—	59
Loss from discontinued operations attributable to Vonage	—	—	(2,380)
Net (loss)/income attributable to Vonage	$ (33,933)	$ 13,151	$ 22,655
Denominator			
Basic weighted average common shares outstanding	225,311	215,751	213,147
Dilutive effect of stock options and restricted stock units	—	16,190	10,963
Diluted weighted average common shares outstanding	225,311	231,941	224,110
Basic net (loss)/income per share			
Basic net (loss)/income per share - from continuing operations	$ (0.15)	$ 0.06	$ 0.12
Basic net loss per share - from discontinued operations attributable to Vonage	—	—	(0.01)
Basic net (loss)/income per share - attributable to Vonage	$ (0.15)	$ 0.06	$ 0.11
Diluted net income per share			
Diluted net (loss)/income per share - from continuing operations	$ (0.15)	$ 0.06	$ 0.11
Diluted net loss per share - from discontinued operations attributable to Vonage	—	—	(0.01)
Diluted net (loss)/income per share - attributable to Vonage	$ (0.15)	$ 0.06	$ 0.10

(1) see Note 3. Correction of Prior Period Financial Statements

The following shares were excluded from the calculation of diluted income per share because of their anti-dilutive effects:

	For the years ended December 31,		
	2017	2016	2015
Restricted stock units	11,928	8,282	5,827
Employee stock options	10,448	9,030	13,600
	22,376	17,312	19,427

Note 5. Goodwill and Intangible Assets

Goodwill

The Company's goodwill is derived primarily from the acquisitions of Vocalocity, Telesphere, iCore, Simple Signal, and Nexmo which are included in the Company's Business segment. The following table provides a summary of the changes in the carrying amounts of goodwill:

Balance at January 1, 2016	$	222,106
Increase in goodwill related to finalization of acquisition accounting for Simple Signal		16
Increase in goodwill related to finalization of acquisition accounting for iCore and immaterial correction of an error discussed further below		2,314
Goodwill recognized for the acquisition of Nexmo on June 3, 2016		143,073
Currency translation adjustments		(7,146)
Balance at December 31, 2016		360,363
Decrease in goodwill related to finalization of acquisition accounting for Nexmo		(5,482)
Currency translation adjustments		18,883
Balance at December 31, 2017	$	373,764

During the year ended December 31, 2016, the Company recorded an immaterial correction of an error related to the overstatement of certain deferred tax assets recorded in connection with acquisition accounting that were outside of the measurement period. The Company recognized a $2,298 decrease in deferred tax assets, net and a $2,298 increase to goodwill on the consolidated balance sheet as of December 31, 2016. Management performed an evaluation under SAB No. 108 and concluded the effect of the adjustment is immaterial to the current period’s financial statements. The correction of the error did not have an effect on our consolidated statements of operations or on our consolidated statements of cash flows for the year ended December 31, 2016.

The performance of the Company's annual impairment analysis did not result in any impairments of goodwill for the years ended December 31, 2017, 2016 and 2015, respectively.

Intangible assets, net

The Company's intangible assets as of December 31, 2017 and 2016 primarily reflect intangible assets established with the acquisitions of various companies such as customer relationships, trade names and developed technology. In addition, the Company's intangible assets include patents we have purchased and licensed, including in connection with the settlement of litigation.

		December 31, 2017			December 31, 2016		
	Useful Lives	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Customer relationships	7 to 12 years	$ 184,465	$ (62,072)	$ 122,393	$ 173,187	$ (39,413)	$ 133,774
Developed technology	3 to 10 years	90,417	(44,413)	46,004	88,609	(31,364)	57,245
Patents and patent licenses	3 to 5 years	20,214	(16,184)	4,030	20,214	(14,667)	5,547
Trade names	2 to 5 years	1,708	(1,356)	352	1,820	(787)	1,033
Non-compete agreements	3 years	1,039	(548)	491	3,845	(2,188)	1,657
Total finite-lived intangible assets		297,843	(124,573)	173,270	287,675	(88,419)	199,256

During the years ended December 31, 2017 , 2016 and 2015 , the Company recorded amortization expense of $38,056 , $34,634 and $26,404 , respectively. Amortization expense may vary in the future as acquisitions, dispositions and impairments, if any, occur. The total expected future annual amortization for the succeeding five years ended December 31 is as follows:

	Estimated Amortization Expense
2018	$ 35,747
2019	32,384
2020	27,934
2021	21,985
2022	17,006

Note 6. Income Taxes

The components of income from continuing operations before income tax expense are as follows:

	For the years ended December 31,		
	2017	2016	2015
United States	$ 39,370	$ 31,076	$ 38,115
Foreign	6,423	(231)	5,338
	$ 45,793	$ 30,845	$ 43,453

The income tax provision from continuing operations consisted of the following amounts:

	For the years ended December 31,		
	2017	2016	2015
Current:			
Federal	$ (1,101)	$ (621)	$ (1,846)
Foreign	(1,731)	(1,064)	(1,667)
State and local taxes	(2,317)	(3,951)	(956)
	$ (5,149)	$ (5,636)	$ (4,469)
Deferred:			
Federal	$ (75,928)	$ (12,550)	$ (11,289)
Foreign	1,631	2	(1,088)
State and local taxes	(280)	490	(1,572)
	(74,577)	(12,058)	(13,949)
	$ (79,726)	$ (17,694)	$ (18,418)

The reconciliation between the United States federal statutory rate of 35% to the Company's effective rate is as follows:

	For the years ended December 31,		
	2017	2016	2015
U.S. Federal statutory tax rate	35 %	35%	35%
Permanent items	10 %	10%	3%
Effect of the Tax Cuts and Jobs Act	152 %	—%	—%
Equity-based compensation	(24)%	—%	—%
State and local taxes, net of federal benefit	5 %	7%	2%
International tax (reflects effect of losses for which tax benefit not realized)	(4)%	—%	1%
Valuation reserve for income taxes and other	— %	5%	2%
Effective tax rate	174 %	57%	43%

For the year ended December 31, 2017, the Company's overall effective tax rate was different from the statutory rate of 35% primarily due to the impact of tax reform enacted in the United States on December 22, 2017 reducing the corporate tax rate from 35% to 21% beginning January 1, 2018. This resulted in an expense of $69,378 attributable to the re-measurement of the Company's deferred tax assets as of December 31, 2017. The Company does not currently estimate a material impact associated with the repatriation tax or other facets of the TCJA. Due to the timing of the enactment and the complexity involved in applying the provisions of the TCJA, the Company has made reasonable estimates of the effects and recorded provisional amounts in our financial statements as of December 31, 2017. As we collect further information and interpret the TCJA and any additional guidance issued by the U.S. Treasury Department, the IRS and other regulatory bodies, we may make adjustments to the provisional amounts. The Company will continue to analyze the effects of the TCJA on the Company’s operations and will record any adjustments associated with the enactment of the legislature during the measurement period as provided by SAB 118.

On January 1, 2017, the Company adopted ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting". Previously, excess tax benefits were recognized in additional paid-in capital on the consolidated balance sheet to the extent they reduced income taxes payable. Beginning in 2017, any excess tax benefits or shortfalls were recorded in the income tax provision upon vest or exercise. During 2017, the Company recorded a net benefit of $11 million related to excess tax benefits.

For the year ended December 31, 2016, the Company's overall effective tax rate was different than the statutory rate of 35% primarily due to the permanent adjustment for the contingent consideration relating to the acquisition of Nexmo.

For the year ended December 31, 2015, the Company's overall effective tax rate was different than the statutory rate of 35% primarily due to the limitation of the deductibility of compensation expense to certain executives as well as costs related to the acquisitions which occurred during the year.

The temporary differences which gave rise to the Company's deferred tax assets consisted of the following:

	December 31, 2017	December 31, 2016
Assets and liabilities:		
Accounts receivable and inventory allowances	$ 553	$ 816
Deferred rent	862	630
Contingent consideration	—	1,482
Acquired intangible assets and property and equipment	(39,077)	(61,486)
Accrued expenses	5,182	10,145
Research and development and alternative minimum tax credit	958	8,039
Stock option compensation	17,734	24,026
Capital leases	37	(7,762)
Cumulative translation adjustments	(714)	—
Deferred revenue	6,994	11,362
Derivatives	(319)	—
Net operating loss carryforwards	141,072	215,504
	133,282	202,756
Valuation allowance	(22,390)	(18,546)
Deferred tax assets, net, non-current	$ 110,892	$ 184,210

Deferred tax assets and valuation allowance

Net deferred tax balance - As of December 31, 2017 and 2016, Vonage recorded a net deferred tax asset of $110,892 and $184,210 , respectively. The Company believes that the net deferred tax assets related to its United Kingdom subsidiary Vonage Limited may not be realizable under a "more likely than not" measurement and as such, a valuation allowance has been established to reduce the asset accordingly.

NOL carryforwards - As of December 31, 2017, the Company has U.S. Federal and state NOL carryforwards of $556,368 and $146,254 , respectively, which expire at various times through 2037. We have NOLs for United Kingdom tax purposes of $50,142 with no expiration date. Under Section 382 of the Internal Revenue Code, if we undergo an “ownership change” which is generally defined as a greater than 50% change by value in our equity ownership over a three-year period, our ability to use our pre-change of control NOLs and other pre-change tax attributes against our post-change income may be limited. The Section 382 limitation is applied annually so as to limit the use of our pre-change NOLs to an amount that generally equals the value of our stock immediately before the ownership change multiplied by a designated federal long-term tax-exempt rate. At December 31,

2017 , there were no limitations on the use of our NOLs except for certain of the NOLs of Vocalocity as of the date of acquisition for which the Company has reflected in the deferred tax asset.

Valuation Allowance - As of December 31, 2017, the Company's tax effected valuation allowance was $22,390 , primarily consisting of NOLs associated with Vonage Limited and state NOLs for certain legal entities.

Uncertain tax benefits

The Company had uncertain tax benefits of $1,086 and $0 as of December 31, 2017 and 2016, respectively. The Company recognizes interest and penalties related to uncertain tax benefits in income tax expense. The Company did not have any interest or penalties related to these uncertain tax benefits as of December 31, 2017 and 2016. The following table reconciles the total amounts of uncertain tax benefits:

	As of December 31,	
	2017	**2016**
Balance as of January 1	$ —	—
Increase due to current year positions	1,086	—
Uncertain tax benefits as of December 31	$ 1,086	$ —

Tax jurisdictions

Business is conducted in various countries throughout the world and is subject to tax in numerous jurisdictions. A significant number of tax returns that are filed are subject by various Federal, state and local tax authorities. The Company is no longer subject to U.S. federal income tax examinations for years prior to 2014. With few exceptions, state and local income tax examinations are no longer open for years before 2013.

Note 7. Long-Term Debt and Revolving Credit Facility

A schedule of long-term debt at December 31, 2017 and 2016 is as follows:

	December 31, 2017	**December 31, 2016**
2.50-3.25% Term note - due 2020, net of debt related costs	72,765	91,124
2.50-3.25% Revolving credit facility - due 2020	141,000	209,000
Total long-term debt and revolving credit facility	$ 213,765	$ 300,124

As our credit facility described below matures in 2020, there are no future anticipated payments of debt obligations beyond June 3, 2020. As of December 31, 2017 , future payments under long-term debt obligations over each of the next three years are as follows:

	2016 Credit Facility
2018	18,750
2019	18,750
2020	195,687
Minimum future payments of principal	233,187
Less debt issuance costs	672
Current portion of long-term debt	18,750
Long-term debt and revolving credit facility	$ 213,765

2016 Financing

On June 3, 2016, we entered into Amendment No. 1 to the Amended and Restated Credit Agreement, or the 2016 Credit Facility, consisting of a $125,000 term note and a $325,000 revolving credit facility. The co-borrowers under the 2016 Credit Facility are the Company and Vonage America Inc., the Company's wholly owned subsidiary. Obligations under the 2016 Credit Facility are guaranteed, fully and unconditionally, by the Company's other United States material subsidiaries and are secured by substantially all of the assets of each borrower and each guarantor. The loans under the 2016 Credit Facility mature in June 2020. Principal amounts under the 2016 Credit Facility are repayable in quarterly installments of approximately $4,688 for the term note. The unused portion of our revolving credit facility incurs a 0.45% commitment fee. Such commitment fee will be reduced to 0.40% if our consolidated leverage ratio is greater than or equal to 1.50 to 1.00 and less than 2.50 to 1.00, 0.375% if our consolidated leverage ratio is greater than or equal to 0.75 to 1.00 and less than 1.50 to 1.00, and to 0.35% if our consolidated leverage ratio is less than 0.75 to 1.00. We may prepay the 2016 Credit Facility at our option at any time without premium or penalty.

The 2016 Credit Facility includes customary representations and warranties and affirmative covenants of the borrowers. In addition, the 2016 Credit Facility contains customary negative covenants, including, among other things, restrictions on the ability of us and our subsidiaries to consolidate or merge, create liens, incur additional indebtedness, dispose of assets, consummate acquisitions, make investments, and pay dividends and other distributions. As of December 31, 2017 , we were in compliance with all covenants, including financial covenants, for the 2016 Credit Facility.

Outstanding amounts under the 2016 Credit Facility, at our option, will bear interest at:

- LIBOR (applicable to one-, two-, three-, six-, or twelve-month periods) plus an applicable margin equal to 2.50% if our consolidated leverage ratio is less than 0.75 to 1.00, 2.75% if our consolidated leverage ratio is greater than or equal to 0.75 to 1.00 and less than 1.50 to 1.00, 3.00% if our consolidated leverage ratio is greater than or equal to 1.50 to 1.00 and less than 2.5 to 1.00, and 3.25% if our consolidated leverage ratio is greater than or equal to 2.50 to 1.00, payable on the last day of each relevant interest period or, if the interest period is longer than three months, each day that is three months after the first day of the interest period, or
- the base rate determined by reference to the highest of (a) the prime rate of JPMorgan Chase Bank, N.A., (b) the federal funds effective rate from time to time plus 0.50% , and (c) the adjusted LIBO rate applicable to one month interest periods plus 1.00% , plus an applicable margin equal to 1.50% if our consolidated leverage ratio is less than 0.75 to 1.00, 1.75% if our consolidated leverage ratio is greater than or equal to 0.75 to 1.00 and less than 1.50 to 1.00, 2.00% if our consolidated leverage ratio is greater than or equal to 1.50 to 1.00 and less than 2.50 to 1.00, and 2.25% if our consolidated leverage ratio is greater than or equal to 2.5 to 1.00, payable on the last business day of each March, June, September, and December and the maturity date of the 2016 Credit Facility.

Use of Proceeds

We used $197,750 of the net available proceeds of the 2016 Credit Facility to retire all of the debt under the credit facility entered into in 2015. We used $179,000 from our 2016 Credit Facility in connection with the acquisition of Nexmo on June 3, 2016. Remaining proceeds from the term note and the undrawn revolving credit facility under the 2016 Credit Facility will be used for general corporate purposes. We also incurred fees of $1,316 in connection with the 2016 Credit Facility, of which $395 was allocated to the term note and $921 was allocated to the revolving credit facility. The unamortized fees of $2,740 in connection with the 2015 Credit Facility were allocated as follows: $930 to the term note and $1,810 to the revolving credit facility. These fees were amortized to interest expenses over the life of the debt using the effective interest method for the term note and straight line method for the revolving credit facility.

Repayments

In 2017 , we made mandatory repayment of $18,750 under the term note. In addition, we repaid the $83,000 outstanding under the revolving credit facility.

Interest Rate Swap

On July 14, 2017, we executed on three interest rate swap agreements in order to hedge the variability of expected future cash interest payments related to the 2016 Credit Facility. The swaps have an aggregate notional amount of $150 million and were effective on July 31, 2017 through June 3, 2020 concurrent with the term of the 2016 Credit Facility. Under the swaps our interest rate is fixed at 4.7% . The interest rate swaps are accounted for as cash flow hedges in accordance with ASC 815, *Derivatives and Hedging* .

As of December 31, 2017, the fair market value of the swaps was $1,285 , which is included in other assets and accumulated OCI on the face of our consolidated balance sheet. As of December 31, 2017, the critical terms of the swap agreements have not changed and therefore, there is no ineffectiveness to be recorded and all changes in the fair value of the interest rate swaps are recorded in accumulated OCI. The following table summarizes the effects of ASC 815 on the Company's accumulated OCI balance attributable to cash flow derivatives:

	Year Ended December 31
	2017
Accumulated OCI beginning balance	$ —
Mark-to-market of cash flow hedge accounting contracts	965
Accumulated OCI ending balance, net of tax of $320	$ 965
Gains expected to be realized from accumulated OCI during the next 12 months	$ —

NOTE 8. Fair Value of Financial Instruments

ASC 820-10 defines fair value as the amount that would be received for an asset or paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820-10 also establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. ASC 820-10 describes the following three levels of inputs that may be used:

- Level 1: Quoted prices (unadjusted) in active markets that are accessible at the measurement date for identical assets and liabilities. The fair value hierarchy gives the highest priority to Level 1 inputs.
- Level 2: Observable prices that are based on inputs not quoted on active markets but corroborated by market data.
- Level 3: Unobservable inputs when there is little or no market data available, thereby requiring an entity to develop its own assumptions. The fair value hierarchy gives the lowest priority to Level 3 inputs.

Although management believed its valuation methods were appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could have resulted in a different fair value measurement at the reporting date.

The following table presents the assets and liabilities that are measured and recognized at fair value on a recurring basis classified under the appropriate level of the fair value hierarchy as of December 31, 2017 and December 31, 2016 :

	December 31, 2017	December 31, 2016
Level 1 Measurements		
Money market fund (1)	$ —	$ 300
Level 2 Measurements		
Available-for-sale securities (2)	$ —	$ 601
Interest rate swaps (3)	$ 1,285	$ —

(1) Included in cash and cash equivalents on our consolidated balance sheet.
(2) Included in marketable securities on our consolidated balance sheet.
(3) Included in other liabilities on our consolidated balance sheet.

Fair Value of Other Financial Instruments

The carrying amounts of our financial instruments, including cash and cash equivalents, accounts receivable, and accounts payable, approximate fair value and are classified as Level 1 because of their short maturities. The carrying amounts of our capital leases approximate fair value of these obligations based upon management's best estimates of interest rates that would be available for similar debt obligations at December 31, 2017 and 2016 . We believe the fair value of our debt at December 31, 2017 and December 31, 2016 were approximately the same as their carrying amounts as market conditions, including credit spread relative to our credit rating, and illiquidity, remain relatively unchanged from the issuance date of our debt on June 3, 2016 for a similar debt instrument and are classified as Level 3 within the fair value hierarchy.

As of December 31, 2017 , we did not have any other assets or liabilities that are measured and recognized at fair value on a recurring basis.

Note 9. Common Stock

As of December 31, 2017 and December 31, 2016, the Company had 596,950 shares of common stock authorized. For a detailed description of our share-based compensation programs refer to Note 10, *Employee Stock Benefit Plans*.

Common Stock Repurchases

On December 9, 2014, Vonage's Board of Directors authorized a program for the Company to repurchase up to $100,000 of its outstanding common stock, or the 2014 $100,000 repurchase program. Repurchases under the 2014 $100,000 repurchase program are expected to be made over a four -year period ending on December 31, 2018.

Under the 2014 $100,000 repurchase program, the timing and amount of repurchases will be determined by management based on its evaluation of market conditions, the trading price of the stock and will vary based on available capital resources and other financial and operational performance, market conditions, securities law limitations, and other factors. Repurchases may be made in the open market or through private transactions from time to time. The repurchases will be made using available cash balances. In any period, under each repurchase program, cash used in financing activities related to common stock repurchases may differ from the comparable change in stockholders' equity, reflecting timing differences between the recognition of share repurchase transactions and their settlement for cash.

We repurchased the following shares of common stock with cash resources under the 2014 $100,000 repurchase program as of December 31, 2017 and 2016 :

	December 31, 2017	December 31, 2016
Shares of common stock repurchased	1,599	7,400
Value of common stock repurchased	$ 9,510	$ 32,762

As of December 31, 2017 , $42,533 remained of our 2014 $100,000 repurchase program. The repurchase program expires on December 31, 2018 but may be suspended or discontinued at any time without notice.

In any period under the 2014 $100,000 repurchase program, cash used in financing activities related to common stock repurchases may differ from the comparable change in stockholders' equity, reflecting timing differences between the recognition of share repurchase transactions and their settlement for cash.

Net Operating Loss Rights Agreement

On June 7, 2012, we entered into a Tax Benefits Preservation Plan, or Preservation Plan, designed to preserve stockholder value and tax assets. Our ability to use our tax attributes to offset tax on U.S. taxable income would be substantially limited if there were an "ownership change" as defined under Section 382 of the U.S. Internal Revenue Code. In general, an ownership change would occur if one or more "5-percent shareholders," as defined under Section 382, collectively increase their ownership in us by more than 50 percent over a rolling three-year period.

In connection with the adoption of the Preservation Plan, our board of directors declared a dividend of one preferred share purchase right for each outstanding share of the Company's common stock. The preferred share purchase rights were distributed to stockholders of record as of June 18, 2012, as well as to holders of the Company's common stock issued after that date, but will only be activated if certain triggering events under the Preservation Plan occur.

Under the Preservation Plan, preferred share purchase rights will work to impose significant dilution upon any person or group which acquires beneficial ownership of 4.9% or more of the outstanding common stock, without the approval of our board of directors, from and after June 7, 2012. Stockholders that own 4.9% or more of the outstanding common stock as of the opening of business on June 7, 2012, will not trigger the preferred share purchase rights so long as they do not (i) acquire additional shares of common stock or (ii) fall under 4.9% ownership of common stock and then re-acquire shares that in the aggregate equal 4.9% or more of the common stock.

The Preservation Plan was initially set to expire no later than the close of business June 7, 2013, unless extended by our board of directors. On June 8, 2017, at the Vonage 2017 annual meeting of stockholders, stockholders ratified the continued extension of the Preservation Plan through June 30, 2019.

Note 10. Employee Stock Benefit Plans

Share-Based Compensation

Our stock option program is a long-term retention program that is intended to attract, retain and provide incentives for talented employees, officers and directors, and to align stockholder and employee interests. Currently, we grant options from our 2015 Equity Incentive Plan. Our 2006 Incentive Plan was terminated by our board of directors in 2015 and our 2001 Stock Incentive Plan was terminated by our board of directors in 2008. As such, share-based awards are no longer granted under either the 2006 Incentive Plan and the 2001 Stock Incentive Plan. Under the 2015 Equity Incentive Plan, share-based awards can be granted to all employees, including executive officers, outside consultants, and non-employee directors. Vesting periods for share-based awards are generally three or four years for both plans. Awards granted under each plan expire in five or ten years from the effective date of grant. As of April 2010, the Company began routinely granting awards with a ten year expiration period.

The fair value for these options was estimated at the date of grant using a Black-Scholes option-pricing model. The assumptions used to value options are as follows:

	2017	2016	2015
Risk-free interest rate	1.95-2.18%	1.17-2.12%	1.38-1.80%
Expected stock price volatility	46.19-47.59%	47.52-72.50%	73.55-83.14%
Dividend yield	0.00%	0.00%	0.00%
Expected life (in years)	6.25	6.25	6.25

We estimated the volatility of our stock using historical volatility of our common stock in accordance with guidance in FASB ASC 718, *"Compensation-Stock Compensation* ". The risk-free interest rate assumption is based upon observed interest rates appropriate for the term of our employee stock options. The expected term of employee stock options represents the weighted-average period that the stock options are expected to remain outstanding, which we derive based on our historical settlement experience. As we historically have not paid dividends, we utilize a dividend yield of 0% .

We also issue restricted performance stock units with vesting that is contingent on both total shareholder return, or TSR, compared to members of our peer group and continued service. For the market-based restricted performance stock units issued during the year ended December 31, 2017 and 2016, the payouts at vesting which are linearly interpolated between the percentiles specified below are as follows:

Payout Schedule	
Percentile Ranking	**% of Target Earned**
Greater than 80%	200%
50% — 80%	100% — 200%
30% — 50%	50% — 100%
Less than 30%	—% —%

Notwithstanding the foregoing, if our TSR is negative for the performance period, then the vesting percentage shall not exceed 100% . In addition, we reduce the shares available for grant to cover the potential payout of 200% .

To value these market-based restricted performance stock units, we used a Monte Carlo simulation model on the date of grant. Compensation expense for restricted stock units with performance and market conditions is recognized over the requisite service period using the straight-line method.

The assumptions used to value these market based restricted performance stock units are as follows:

	2017	2016	2015
Risk-free interest rate	1.54%	1.12%	0.98%
Expected stock price volatility	35.99%	42.61%	40.21%
Dividend yield	0.00%	0.00%	0.00%
Expected term (in years)	2.79	2.79	2.79

Our stock incentive plans as of December 31, 2017 are summarized as follows (in thousands):

	Shares Authorized	Shares Available for Grant	Stock Options Outstanding	Non-vested Restricted Stock and Restricted Stock Units
Options assumed from acquisition	2,227	377	594	685
2006 Incentive Plan	71,669	—	8,576	2,226
2015 Incentive Plan	21,731	11,455	1,278	9,017
Total as of December 31, 2017	95,627	11,832	10,448	11,928

2015 Equity Incentive Plan

On June 3, 2015, we adopted our 2015 Equity Incentive Plan which replaced the 2006 Incentive Plan. Shares issued under the plan may be authorized and unissued shares or may be issued shares that we have reacquired. Shares covered by awards that are forfeited, canceled or otherwise expire without having been exercised or settled, or that are settled by cash or other non-share consideration, will become available for issuance pursuant to a new award. Shares that are tendered or withheld to pay the exercise price of an award or to satisfy tax withholding obligations will not be available for issuance pursuant to new awards. Our 2015 Equity Incentive Plan will terminate on June 3, 2025. At December 31, 2017 , 11,455 shares were available for future grant under the 2015 Equity Incentive Plan.

The 2015 Equity Incentive Plan permits the grant of stock options, restricted stock, restricted stock units, stock appreciation rights, performance stock, performance units, annual awards, and other awards based on, or related to, shares of our common stock. Options awarded under our 2015 Equity Incentive Plan may be non-qualified stock options or may qualify as incentive stock options under Section 422 of the Internal Revenue Code of 1986, as amended. For purposes of complying with the requirements of Section 162(m) of the Internal Revenue Code of 1986, as amended, the maximum number of shares of common stock that may be subject to stock options, stock appreciation rights, performance-based restricted stock awards, performance-based restricted stock units and performance-based stock awards granted to any participant other than a non-employee director during any calendar year will be limited to 10,000 shares of common stock for each such award type individually. The maximum number of shares of common stock that may be subject to stock options, stock appreciation rights, restricted stock awards, restricted stock units and stock awards granted to any non-employee director during any calendar year will be limited to 10,000 shares of common stock for all such award types in the aggregate. Further, the maximum amount that may become payable to any one Participant during any one calendar year under all Cash Performance Awards intended to qualify as “performance-based compensation” under Section 162(m) of the Internal Revenue Code of 1986, as amended, is limited to $5,000 .

Stock Options

The following table summarizes the activity and changes related to stock options during the year:

	Stock Options Outstanding		
	Units		Weighted Average Exercise Price Per Unit
	(in thousands)		
Outstanding at December 31, 2016	17,580	$	2.82
Stock options granted	1,022		6.46
Stock options exercised	(7,734)		2.81
Stock options canceled	(420)		2.75
Outstanding at December 31, 2017	10,448	$	3.19
Exercisable at December 31, 2017	7,875	$	2.78

The weighted average exercise price of options granted was $6.46 , $5.91 , and $4.41 for the years ended December 31, 2017 , 2016 , and 2015 , respectively. The aggregate intrinsic value of exercised stock options for the years ended December 31, 2017 , 2016 , and 2015 was $38,958 , $12,142 , and $8,040 , respectively.

The weighted average grant date fair market value of stock options granted was $3.04 , $3.01 , and $3.09 for the years ended December 31, 2017 , 2016 , and 2015 , respectively.

Restricted Stock and Restricted Stock Units

The following table summarizes the activity and changes related to restricted stock and restricted stock units during the year:

	Restricted Stock and Restricted Stock Units Outstanding		
	Units		Weighted Average Grant Date Fair Market Value Per Unit
	(in thousands)		
Non-vested at December 31, 2016	15,923		5.04
Restricted stocks and restricted stock units granted	6,599		6.79
Restricted stocks and restricted stock units vested	(8,145)		5.02
Restricted stocks and restricted stock units canceled	(2,449)		5.16
Non-vested at December 31, 2017	11,928	$	5.94

The weighted average grant date fair market value of restricted stock and restricted stock units granted was $6.79 , $4.93 , and $5.37 during the year ended December 31, 2017 , 2016 , and 2015 , respectively. The fair value of restricted stock and restricted stock units that vested during the years ended December 31, 2017 , 2016 , and 2015 was $41,057 , $12,248 , and $8,844 , respectively. The aggregate intrinsic value of restricted stock units outstanding was $121,306 as of December 31, 2017 .

Supplemental Information

Total share-based compensation expense recognized for the years ended December 31, 2017 , 2016 , and 2015 was $37,482 , $40,682 , and $27,541 , respectively, which were recorded to cost of services and general and administrative expense in the consolidated statement of income. As of December 31, 2017 , total unamortized share-based compensation was $29,642 , accounting for forfeitures when they occur, which is expected to be amortized over the remaining vesting period of each grant, up to the next 48 months. Compensation costs for all share-based awards are amortized on a straight-line basis over the requisite service period. Our current policy is to issue new shares to settle the exercise of stock options and prospectively, the vesting of restricted stock units.

Information regarding the options outstanding as of December 31, 2017 is summarized below:

	Stock Options Outstanding				Stock Options Exercisable			
Range of Exercise Prices	Stock Options Outstanding	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Aggregate Intrinsic Value	Stock Options Vested and Exercisable	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Aggregate Intrinsic Value
	(in thousands)	(in years)		(in thousands)	(in thousands)	(in years)		(in thousands)
$0.33 to $1.43	2,734		1.32		2,317		1.34	
$1.44 to $1.99	12		1.72		12		1.72	
$2.00 to $4.00	5,779		3.25		4,773		3.18	
$4.01 to $7.34	1,923		5.68		773		4.68	
	10,448	4.97	3.19	$ 72,950	7,875	3.96	2.78	$ 58,181

Retirement Plan

In March 2001, we established a 401(k) Retirement Plan, or the Retirement Plan, available to employees who meet the plan's eligibility requirements. Participants may elect to contribute a percentage of their compensation to the Retirement Plan up to a statutory limit. We may make a contribution to the Retirement Plan in the form of a matching contribution. The employer matching contribution is 50% of each employee's contributions not to exceed $6 in 2015 , 2016 , and 2017 . Our expense related to the Retirement Plan was $5,411 , $5,015 , and $3,676 in 2017 , 2016 , and 2015 , respectively.

Note 11. Commitments and Contingencies

Capital Leases

Assets financed under capital lease agreements are included in property and equipment in the consolidated balance sheet and related depreciation and amortization expense is included in the consolidated statements of operations.

On March 24, 2005, we entered into a lease for our headquarters in Holmdel, New Jersey. The overall lease term is twelve years and five months, which ended on August 31, 2017. At the inception of the lease in 2005, we issued a letter of credit which requires $7,350 of cash as collateral, which is classified as restricted cash. A portion of the cash was released, leaving a balance of $1,563 at December 31, 2017 .

In November 2015, we entered into the fourth amendment to our headquarters lease effective December 1, 2015. The amendment extends the term of the lease for a period of seventy-four months to commence September 1, 2017 and continue through October 31, 2023. Based on the terms of the lease, it was accounted for as an operating lease when it became effective on September 1, 2017.

Operating Leases

We have entered into various non-cancelable operating lease agreements for certain of our existing office and telecommunications co-location space in the United States and for international subsidiaries with original lease periods expiring through 2026. We are committed to pay a portion of the buildings' operating expenses as determined under the agreements.

At December 31, 2017 , future payments under capital leases and minimum payments under non-cancelable operating leases are as follows over each of the next five years and thereafter:

	Capital Leases	Operating Leases	Committed Sub-lease Income	Net Operating Leases
2018	$ 140	$ 12,094	$ (613)	$ 11,481
2019	—	11,662	(613)	$ 11,049
2020	—	10,576	(613)	$ 9,963
2021	—	7,019	(613)	$ 6,406
2022	—	6,648	(613)	$ 6,035
Thereafter	—	13,403	(409)	$ 12,994
Total minimum payments required	140	$ 61,402	$ (3,474)	$ 57,928

Rent expense net of sub-lease income was $11,429 , $7,495 , and $6,378 for the years ended December 31, 2017, 2016 and 2015 , respectively.

Stand-by Letters of Credit

We have stand-by letters of credit totaling $1,563 and $1,578 , as of December 31, 2017 and 2016 , respectively.

End-User Commitments

We are obligated to provide telephone services to our registered end-users. The costs related to the potential utilization of minutes sold are expensed as incurred. Our obligation to provide this service is dependent on the proper functioning of systems controlled by third-party service providers. We do not have a contractual service relationship with some of these providers.

Vendor Commitments

We have several commitments primarily commitments to vendors who will provide local inbound services, provide carrier operation, provide data center with technical supports, provide networks and telephone related services, provide marketing infrastructure and services, provide customer caller ID, provide hardware and software supports, provide web hosting service, provide electricity to our office, and license patents to us. In certain cases, we may terminate these arrangements early upon payment of specified fees. These commitments total $53,650 . Of this total amount, we expect to purchase $38,956 in 2018 , $11,592 in 2019 , $2,106 in 2020 , and $498 in 2021 and 2022, respectively. These amounts do not represent our entire anticipated purchases in the future, but represent only those items for which we are contractually committed. We also purchase products and services as needed with no firm commitment. For this reason, the amounts presented do not provide a reliable indicator of our expected future cash outflows or changes in our expected cash position.

Litigation

From time to time, in addition to those identified below, we are subject to legal proceedings, claims, investigations, and proceedings in the ordinary course of business, including claims of alleged infringement of third-party patents and other intellectual property rights, commercial, employment, and other matters. From time to time, we also receive letters or other communications from third parties inviting us to obtain patent licenses that might be relevant to our business or alleging that our services infringe upon third party patents or other intellectual property. In accordance with generally accepted accounting principles, we make a provision for a liability when it is both probable that a liability has been incurred and the amount of the loss or range of loss can be reasonably estimated. These provisions, if any, are reviewed at least quarterly and adjusted to reflect the impacts of negotiations, settlements, rulings, advice of legal counsel, and other information and events pertaining to a particular case. Litigation is inherently unpredictable. We believe that we have valid defenses with respect to the legal matters pending against us and are vigorously defending these matters. Given the uncertainty surrounding litigation and our inability to assess the likelihood of a favorable or unfavorable outcome in the matters below and our inability to reasonably estimate the amount of loss or range of loss, it is possible that the resolution of one or more of these matters could have a material adverse effect on our consolidated financial position, cash flows or results of operations.

IP Matters

RPost Holdings, Inc . On August 24, 2012, RPost Holdings, Inc., RPost Communications Limited, and RMail Limited, collectively, RPost, filed a lawsuit against StrongMail Systems, Inc., or StrongMail, in the United States District Court for the Eastern District of Texas alleging that StrongMail's products and services, including its electronic mail marketing services, are covered by United States Patent Nos. 8,224,913, 8,209,389, 8,161,104, 7,966,372, and 6,182,219. On February 11, 2013, RPost filed an amended complaint, adding 27 new defendants, including Vonage America Inc. RPost's amended complaint alleges willful infringement of the RPost patents by Vonage and each of the other new defendants because they are customers of StrongMail. StrongMail has agreed to fully defend and indemnify Vonage in this lawsuit. Vonage answered the complaint on May 7, 2013. On September 17, 2015, the Court ordered the consolidation for pre-trial purposes of this case with other cases by RPost. The lead case has been administratively closed and stayed since January 30, 2014 due to multiple pending actions by third parties regarding ownership of the patents at issue. On December 1, 2017, the parties in the consolidated actions filed a joint notice regarding status of the co-pending actions. Plaintiffs requested that the stay be lifted, while defendants maintain that the stay should remain in place.

AIP Acquisition LLC . On January 3, 2014, AIP Acquisition LLC, or AIP, filed a lawsuit against Vonage Holdings Corp., Vonage America, Inc., and Vonage Marketing LLC in the U.S. District Court for the District of Delaware alleging that Vonage's products and services are covered by United States Patent No. 7,269,247. Vonage filed an answer and counterclaims on February 25, 2014. AIP filed an amended complaint on March 18, 2014, which Vonage answered on April 4, 2014. On April 8, 2014, the Court stayed the case pending final resolution of non-party Level 3's inter partes review request of United States Patent No. 7,724,879, which is a continuation of the '247 patent. On October 8, 2014, the Patent Office issued a Final Written Decision, finding all challenged claims of the '879 patent to be invalid. On November 10, 2015, the Federal Circuit rejected AIP's appeal and affirmed the Patent Office's rejection of the '879 patent.

Cisco petitioned for inter partes review of the '247 patent on November 25, 2014, which was granted on May 20, 2015. On May 18, 2016, the Patent Office issued a Final Written Decision, finding all challenged claims of the '247 patent to be invalid. On November 30, 2017, the Federal Circuit rejected another AIP appeal and affirmed the Patent Office's rejection of the '247 patent. On February 22, 2018, AIP's case was dismissed with prejudice by joint stipulation, with no payment to AIP.

Commercial Litigation

Merkin & Smith, et al . On September 27, 2013, Arthur Merkin and James Smith filed a putative class action lawsuit against Vonage America, Inc. in the Superior Court of the State of California, County of Los Angeles, alleging that Vonage violated California's Unfair Competition Law by charging its customers fictitious 911 taxes and fees. On October 30, 2013, Vonage filed a notice removing the case to the United States District Court for the Central District of California. On November 26, 2013, Vonage filed its Answer to the Complaint. On December 4, 2013, Vonage filed a Motion to Compel Arbitration, which the Court denied on February 4, 2014. On March 5, 2014, Vonage appealed that decision to the United States Court of Appeals for the Ninth Circuit. On March 26, 2014, the district court proceedings were stayed pending the appeal. On February 29, 2016, the Ninth Circuit reversed the district court's ruling and remanded with instructions to grant the motion to compel arbitration. On March 22, 2016, Merkin and Smith filed a petition for rehearing. On May 4, 2016, the Ninth Circuit withdrew its February 29, 2016 decision and issued a new order reversing the district court's order and remanded with instructions to compel arbitration. The Ninth Circuit also declared as moot the petition for rehearing. On June 27, 2016, the lower court stayed the case pending arbitration. A joint status report was filed with the District Court on December 23, 2016. A second joint status report was filed with the District Court on March 23, 2017. A third joint status report was filed with the District Court on June 27, 2017. A fourth joint status report was filed with the District Court on September 26, 2017. A fifth joint status report was filed with the District Court on December 26, 2017.

DSA Promotions, LLC v. Vonage America, Inc. On September 28, 2017, DSA Promotions, LLC, or DSA, filed suit in the District Court of Dallas County, Texas, seeking payment of approximately $162 for goods and materials provided by DSA to Vonage. Vonage was served with the Original Petition and Request for Disclosure on October 13, 2017. DSA makes its claim based upon the doctrine of suit on a sworn account, quantum meruit and unjust enrichment. Vonage removed the matter from Dallas County District Court to the United States Federal Court for the Northern District of Texas, Dallas Division, on November 6, 2017. On November 20, 2017, Vonage filed a motion to transfer venue to New Jersey. On December 4, 2017, DSA filed its response and brief in opposition to the motion to transfer venue.

Regulation

Telephony services are subject to a broad spectrum of state and federal regulations. Because of the uncertainty over whether Voice over Internet Protocol should be treated as a telecommunications or information service, we have been involved in a substantial amount of state and federal regulatory activity. Implementation and interpretation of the existing laws and regulations is ongoing and is subject to litigation by various federal and state agencies and courts. Due to the uncertainty over the regulatory classification of VoIP service, there can be no assurance that we will not be subject to new regulations or existing regulations under new interpretations, and that such change would not introduce material additional costs to our business.

Federal - Net Neutrality

Clear and enforceable net neutrality rules make it more difficult for broadband Internet service providers to block or discriminate against Vonage service. In addition, explicitly applying net neutrality rules to wireless broadband Internet service providers could create greater opportunities for VoIP applications that run on wireless broadband Internet service. In December 2010, the Federal Communications Commission, or FCC, adopted net neutrality rules that applied strong net neutrality rules to wired broadband Internet service providers and limited rules to wireless broadband Internet service providers. On January 14, 2014, the D.C. Circuit Court of Appeals vacated a significant portion of the 2010 rules. On May 15, 2014, the FCC issued a Notice of Proposed Rulemaking, or NPRM, proposing new net neutrality rules. After public response to the NPRM, the FCC adopted new neutrality rules on February 26, 2015. These rules prohibit broadband Internet service providers from: (1) blocking or throttling lawful content applications, or services; (2) imposing paid prioritization arrangements; and (3) unreasonably interfering or unreasonably disadvantaging consumers or edge providers. In addition, broadband Internet service providers are required to make certain disclosures regarding their network management practices, network performance, and commercial terms. These net neutrality rules apply the same requirements to wired and wireless broadband Internet service providers. In December 2017, the FCC issued a decision reversing its prior position on net neutrality. The decision allows for paid prioritization. Numerous public interest groups and some companies are currently or expected to challenge the order in court. It is also anticipated that Congress may introduce legislation to overrule the FCC's decision and reinstate net neutrality.

Federal - Rural Call Completion Issues

On February 7, 2013, the FCC released a NPRM on rural call completion issues. The NPRM proposed new detailed reporting requirements to gauge rural call completion performance. Rural carriers have argued that VoIP provider call completion performance to rural areas is generally poor. On October 28, 2013, the FCC adopted an order on rural call completion imposing new reporting obligations and restricting certain call signaling practices. The call signaling rules went into effect on January 31, 2014. We filed for extensions of the rules, which the FCC granted, and as of April 17, 2014, we were compliant with the FCC call signaling rules. The effective date for the reporting requirements was April 1, 2015. We could be subject to an FCC enforcement action in the future in the event the FCC took the position that our rural call completion performance is inadequate or we were not compliant with the FCC’s order. On June 22, 2017, the FCC issued a Second Further Notice of Proposed Rulemaking. The FCC has proposed changes to the FCC's rules that allegedly would more effectively address rural call completion problems while reducing burdens on covered providers. Vonage reviewed and evaluated the FCC's proposed changes and provided input to The Voice on the Net, or VON, Coalition, an organization that works to advance regulatory policies for IP-enabled communications.

Federal - NPRM - Number Slamming

On July 13, 2017, the FCC adopted a NPRM regarding ways to protect consumers from number slamming and cramming without impeding competition or impairing the ability of consumers to switch providers. Vonage is monitoring this NPRM.

Federal - NPRM Toll Free Assignment Modernization

On September 26, 2017 the FCC issued a NPRM regarding the modernization of toll free number assignment. The FCC proposes amending its rules to allow for the use of an auction to assign certain toll free numbers - such as vanity and repeater numbers - in order to better promote the equitable and efficient use of numbers, especially as afforded by the opening of the 833 toll free code. Vonage will continue to monitor activity with respect to this NPRM.

Federal - NOI - Enterprise Communications Systems Access to 911

On September 26, 2017, the FCC adopted a Notice of Inquiry, or NOI, with respect to 911 access, routing and location in Enterprise Communication Systems. Vonage continues to monitor activity related to this NOI.

Federal - Access to Telecommunication Equipment and Services by Persons with Disabilities

At its open meeting scheduled for October 24, 2017, the FCC applied its wireline hearing aid compatibility rules/standards to handsets that provide advanced communication services, which includes interconnected and non-interconnected Voice over IP. The rules include certain coupling and volume control requirements that would allow the handsets to work better for persons with hearing aids. There are also testing and certification requirements, which typically apply to the handset manufacturer. The FCC also adopted a requirement for volume control in wireless handsets. The new rules have a two-year phase in for new phones and do not require the modification to existing handsets.

Federal - Rules and Policies Regarding Caller ID Services

At its open meeting on October 24, 2017, the FCC issued a report and order regarding amendments to the Commission’s rules to exempt threatening calls from current Caller ID blocking roles so that, among other changes, law enforcement and security personnel have timely access to information they need to aid their investigations. The order exempts threatening calls from the CPN privacy rules.

Federal - Part 43 Report and Order

At its open meeting scheduled for October 24, 2017, the FCC issued a report and order based on a March 23, 2017 NPRM to eliminate the filing of annual traffic and revenue reports and streamline circuit capacity reports.

Federal - Number Portability NPRM and NOI

At its open meeting scheduled for October 24, 2017, the FCC released a NPRM that would allow carriers flexibility in conducting number portability database queries to promote nationwide number portability and eliminate the dialing party requirement as it applies to interexchange service. The NOI seeks comments on industry number portability models and how number administration might be improved for more efficient technical, operational, administrative and legal processes. Vonage is working with the VON Coalition and is monitoring this NPRM and NOI.

State Telecommunications Regulation

In general, the focus of interconnected VoIP telecommunications regulation is at the federal level. On November 12, 2004, the FCC issued a declaratory ruling providing that our service is subject to federal regulation and preempted the Minnesota Public Utilities Commission, or MPUC, from imposing certain of its regulations on us. The FCC's decision was based on its conclusion that our service is interstate in nature and cannot be separated into interstate and intrastate components. On March 21, 2007, the United States Court of Appeals for the 8th Circuit affirmed the FCC's declaratory ruling preempting state regulation of our service.

While this ruling does not exempt us from all state oversight of our service, it effectively prevents state telecommunications regulators from imposing certain burdensome and inconsistent market entry requirements and certain other state utility rules and regulations on our service. State regulators continue to probe the limits of federal preemption in their attempts to apply state telecommunications regulation to interconnected VoIP service. On July 16, 2009, the Nebraska Public Service Commission and the Kansas Corporation Commission filed a petition with the FCC seeking a declaratory ruling or, alternatively, adoption of a rule declaring that state authorities may apply universal service funding requirements to nomadic VoIP providers. We participated in the FCC proceedings on the petition. On November 5, 2010, the FCC issued a declaratory ruling that allowed states to assess state USF on nomadic VoIP providers on a going forward basis provided that the states comply with certain conditions to ensure that imposing state USF does not conflict with federal law or policy.

More recently on July 28, 2015, the MPUC found that it has authority to regulate Charter’s fixed, interconnected VoIP service. Charter challenged the MPUC’s order at the U.S. District Court for Minnesota. This challenge is currently pending. In September 2017 amicus briefs were filed in support of the Minnesota PUC's appeal of the Charter decision by AARP, the AARP Foundation, Professor Barbara Cherry, the National Association of Regulatory Utility Commissioners and the national Association of State Consumer Advocates and the Mid-Minnesota Legal Aid.

On August 14, 2017, the Arizona Corporation Commission issued an opinion and order with respect to amendments to the Arizona Universal Services Fund. The rulemaking allows for, among other things, the collection of additional USF surcharges in Arizona to fund the E-rate Broadband Special Construction Project Matching Fund Program. The Commission held hearings on September 12 and 13, 2017. Vonage will continue to monitor this rulemaking to determine its effect upon its business activities within Arizona.

We expect that state public utility commissions and state legislators will continue their attempts to apply state telecommunications regulations to nomadic VoIP service.

State and Municipal Taxes

In accordance with generally accepted accounting principles, we make a provision for a liability for taxes when it is both probable that a liability has been incurred and the amount of the liability or range of liability can be reasonably estimated. These provisions are reviewed at least quarterly and adjusted to reflect the impacts of negotiations, settlements, rulings, advice of legal counsel, and other information and events pertaining to a particular case. For a period of time, we did not collect or remit state or municipal taxes (such as sales, excise, utility, use, and ad valorem taxes), fees or surcharges, or Taxes, on the charges to our customers for our services, except that we historically complied with the New Jersey sales tax. We have received inquiries or demands from a number of state and municipal taxing and 911 agencies seeking payment of Taxes that are applied to or collected from customers of providers of traditional public switched telephone network services. Although we have consistently maintained that these Taxes do not apply to our service for a variety of reasons depending on the statute or rule that establishes such obligations, we are now collecting and remitting sales taxes in certain of those states including a number of states that have changed their statutes to expressly include VoIP. In addition, many states address how VoIP providers should contribute to support public safety agencies, and in those states we remit fees to the appropriate state agencies. We could also be contacted by state or municipal taxing and 911 agencies regarding Taxes that do explicitly apply to VoIP and these agencies could seek retroactive payment of Taxes. As such, we have a reserve of $1,147 as of December 31, 2017 as our best estimate of the potential tax exposure for any retroactive assessment.

Note 12. Acquisitions and Dispositions

Sale of Hosted Infrastructure Product Line

On May 31, 2017, we completed the sale of our Hosted Infrastructure product line for up to $4.0 million consideration comprised of $1.0 million received upon closing an additional $0.5 million of contingent consideration received during the third quarter and the potential for up to $2.5 million further consideration based on the achievement of financial objectives for net sales during the 18 months following closing. The results of our Hosted Infrastructure product line have been included within the Business segment. As a result of the sale, we recorded a gain of $1,879 within other income for the year ended December 31, 2017. This disposal did not represent a strategic shift in operations and, therefore, did not qualify for presentation as discontinued operations.

Acquisition of Nexmo

Nexmo Inc. is a global leader in the Communications-Platform-as-a-Service, or CPaaS, segment of the cloud communications market. Nexmo provides innovative communication APIs for text messaging and voice communications, allowing developers and enterprises to embed contextual communications into mobile apps, websites and business workflows via text, social media, chat apps and voice.

Pursuant to the Agreement and Plan of Merger dated May 5, 2016 and further amended on June 2, 2016, by and among the Company, Neptune Acquisition Corp., a Delaware corporation and newly formed indirect, wholly owned subsidiary of Vonage, or Merger Sub, Nexmo, a Delaware corporation, and Shareholder Representative Services LLC, a Colorado limited liability company, as representative of the security holders of Nexmo, on June 3, 2016, Merger Sub, on the terms and subject to the conditions thereof, merged with and into Nexmo, and Nexmo became a wholly owned indirect subsidiary of Vonage.

Under the agreement, Nexmo shareholders received consideration of $231,122 , with an additional earn-out opportunity, or the "Variable Payout Amount, of up to $20,000 contingent upon Nexmo achieving certain performance targets. Of the consideration, $194,684 (net of cash acquired of $16,094) was paid at close, consisting of $163,093 of cash, net of $16,094 of cash acquired, and 6,823 in shares of Vonage common stock valued at $31,591 . The remaining $36,438 of the $231,122 purchase price was in the form of restricted cash, restricted stock and options held by Nexmo management and employees, or the Employee Payout Amount, subject to vesting requirements over time and to be amortized to compensation expense quarterly until vested. The purchase price was subject to adjustments pursuant to the merger agreement for closing cash and working capital of Nexmo, reductions for indebtedness and transaction expenses of Nexmo that remained unpaid as of closing, and escrow fund deposits. The aggregate consideration was allocated among Nexmo equity holders.

The consideration was allocated to acquisition cost as follows:

Cash paid at closing (inclusive of cash acquired of $16,094)	$ 179,186
Stock paid at closing	31,591
Variable Payout Amount (described below)	16,472
Employee Payout Amount (described below)	4,779
Acquisition Cost	$ 232,028

In addition, Nexmo shareholders were eligible to earn a Variable Payout Amount of up to $20,000 , subject to the achievement of certain performance targets during the 12 month period following the closing of the transaction. We estimated using probability weighting that the value of the contingent consideration is $17,840 at the acquisition date and included that amount in acquisition cost at the net present value amount of $16,472 . As of December 31, 2016, the Company agreed to a $5,000 settlement in lieu of contingent consideration that could be potentially earned under the purchase agreement for which the parties were paid in the first quarter of 2017.

In addition, Nexmo management and employees were eligible to earn an Employee Payout Amount of $36,438 attributable to restricted cash, restricted stock and assumed options, of which $4,779 is included in acquisition cost as service had been provided pre-acquisition and $31,659 was recorded as post-acquisition expense assuming all amounts vest, of which $31,087 was recorded as compensation expense and $572 was recorded as interest expense as continued employment is a condition of receiving consideration.

During the years ended December 31, 2017 and 2016, we incurred approximately $0 and $5,500 , respectively in acquisition related transaction costs, which were recorded in general and administrative expense in the accompanying consolidated statements of income.

The acquisition was accounted for using the acquisition method of accounting under which assets and liabilities of Nexmo were recorded at their respective fair values including an amount for goodwill representing the difference between the acquisition consideration and the fair value of the identifiable net assets. We do not expect any portion of this goodwill to be deductible for tax purposes. The goodwill attributable to the acquisition has been recorded as a non-current asset and is not amortized, but is subject to an annual review for impairment. The factors that contributed to goodwill include synergies that are specific to our consolidated business, the acquisition of a talented workforce that provides us with expertise in the small and medium business markets, as well as other intangible assets that do not qualify for separate recognition.

The acquisition price was allocated to the tangible and identified intangible assets acquired and liabilities assumed as of the closing date. The fair values assigned to identifiable intangible assets assumed were based on management's current estimates and assumptions. The accounting for the Nexmo acquisition was completed during the three months ended June 30, 2017, at which point the fair values became final. The table below summarizes the provisional amounts recognized for assets acquired and liabilities assumed as of December 31, 2016 as well as adjustments made through the year ended December 31, 2017, when the allocation became final. Measurement period adjustments primarily reflect the tax impact of the acquisition date fair values.

The table below summarizes the Nexmo assets acquired and liabilities assumed as of June 3, 2016:

	Acquisition Date Fair Value as of December 31, 2016	Measurement period adjustments	Revised Acquisition Date Fair Value
Assets			
Current assets:			
Cash and cash equivalents	$ 16,094	$ —	$ 16,094
Accounts receivable	8,764	—	8,764
Prepaid expenses and other current assets	3,507	—	3,507
Total current assets	28,365	—	28,365
Property and equipment	757	—	757
Software, net	242	—	242
Intangible assets	101,770	—	101,770
Restricted cash	51	—	51
Total assets acquired	131,185	—	131,185
Liabilities			
Current liabilities:			
Accounts payable	1,841	—	1,841
Accrued expenses	9,299	—	9,299
Deferred revenue, current portion	1,735	—	1,735
Total current liabilities	12,875	—	12,875
Deferred tax liabilities, net, non-current	29,355	(5,482)	23,873
Total liabilities assumed	42,230	(5,482)	36,748
Net identifiable assets acquired	88,955	5,482	94,437
Goodwill	143,073	(5,482)	137,591
Total purchase price	$ 232,028	$ —	$ 232,028

The intangible assets as of the closing date of the acquisition included:

Customer relationships	$ 85,900
Developed technologies	13,768
Non-compete agreements	972
Trade names	1,130
	$ 101,770

Acquisition of iCore

On August 31, 2015 the Company, completed the acquisition of iCore Networks, Inc., or iCore, a provider of cloud-based unified communications and collaboration services, delivering voice, video and mobile communications solutions to business customers to complement the Company's rapidly growing UCaaS business further strengthening the Company's national footprint. The Company acquired iCore for $92,689 in cash consideration, which was subject to adjustments for closing cash and working capital of iCore, reductions for indebtedness and transaction expenses of iCore that remained unpaid as of closing, and escrow fund deposits.

The acquisition was accounted for using the acquisition method of accounting under which assets and liabilities of iCore were recorded at their respective fair values including an amount for goodwill representing the difference between the acquisition consideration and the fair value of the identifiable net assets. We do not expect any portion of this goodwill to be deductible for tax purposes. The goodwill attributable to the acquisition has been recorded as a non-current asset and is not amortized, but is subject to an annual review for impairment.

The table below summarizes the iCore assets acquired and liabilities assumed as of August 31, 2015:

		Acquisition Date Fair Value
Assets		
Current assets:		
Cash and cash equivalents	$	1,014
Current assets		2,700
Total current assets		3,714
Property and equipment		4,437
Intangible assets		38,064
Other assets		659
Total assets acquired		46,874
Liabilities		
Current liabilities:		
Accounts payable		3,344
Accrued expenses		3,979
Deferred revenue, current portion		576
Current maturities of capital lease obligations		557
Total current liabilities		8,456
Capital lease obligations, net of current maturities		552
Deferred tax liabilities, net, non-current		8,487
Total liabilities assumed		17,495
Net identifiable assets acquired		29,379
Goodwill		63,310
Total purchase price	$	92,689

Acquisition of Simple Signal

Pursuant to the Agreement and Plan of Merger dated March 15, 2015, by and among Vonage Holdings Corp., a Delaware corporation, Stratus Acquisition Corp., a California corporation and an indirect wholly owned subsidiary of Parent, or Merger Sub, Simple Signal Inc., a California corporation, or Simple Signal, and Simplerep, LLC, a Colorado limited liability company, as representative of the security holders of Simple Signal, on April 1, 2015, Merger Sub merged with and into Simple Signal, and Simple Signal became a wholly owned indirect subsidiary of Vonage.

Simple Signal provides cloud-based unified communications and collaboration services, delivering voice, video, and mobile communications solutions to business customers. Simple Signal is a natural complement to our expanding UCaaS business. We acquired Simple Signal for $25,578 , including 1,111 shares of Vonage common stock (which shares had an aggregate value of approximately $5,578 based upon the closing stock price on April 1, 2015) and cash consideration of $20,000 , subject to adjustments pursuant to the merger agreement for closing cash and working capital of Simple Signal, reductions for indebtedness and transaction expenses of Simple Signal that remained unpaid as of closing, and escrow fund deposits.

The acquisition was accounted for using the acquisition method of accounting under which assets and liabilities of Simple Signal were recorded at their respective fair values including an amount for goodwill representing the difference between the acquisition consideration and the fair value of the identifiable net assets. We do not expect any portion of this goodwill to be deductible for tax purposes. The goodwill attributable to the acquisition has been recorded as a non-current asset and is not amortized, but is subject to an annual review for impairment.

The table below summarizes the Simple Signal assets acquired and liabilities assumed as of April 1, 2015:

		Acquisition Date Fair Value
Assets		
Current assets:		
Cash and cash equivalents	$	53
Current assets		1,042
Total current assets		1,095
Property and equipment		979
Software		401
Intangible assets		6,407
Deferred tax assets, net, non-current		741
Total assets acquired		9,623
Liabilities		
Current liabilities:		
Accounts payable		785
Accrued expenses		593
Deferred revenue, current portion		370
Total current liabilities		1,748
Total liabilities assumed		1,748
Net identifiable assets acquired		7,875
Goodwill		17,703
Total purchase price	$	25,578

Pro forma financial information (unaudited)

The following unaudited supplemental pro forma information presents the combined historical results of operations of Vonage and Nexmo for the years ended December 31, 2016 and 2015, as if the acquisition had been completed at January 1, 2015.

	For the years ended			
		December 31, 2016		December 31, 2015
Revenue	$	989,846	$	958,416
Net income attributable to Vonage		8,403		5,679
Net income attributable to Vonage per share - basic		0.04		0.03
Net income attributable to Vonage per share - diluted		0.04		0.02

The pro forma financial information includes certain adjustments to reflect expenses in the appropriate pro forma periods as though the companies were combined as of the beginning of 2015 and includes the pro-forma impact of amortization of identifiable intangibles assets and interest expense on borrowings under our revolving line of credit utilized to, in part, finance the acquisition. The pro forma data was also adjusted to eliminate non-recurring transaction costs incurred by us as well as the related tax impact. The pro forma results are not necessarily indicative of the results that we would have achieved had the transaction actually occurred on January 1, 2015 and does not purport to be indicative of future financial operating results nor does it reflect any operating efficiencies and cost savings that may be realized from the integration of the acquisition.

Note 13. Property and Equipment

	December 31, 2017	December 31, 2016
Network equipment and computer hardware	$ 79,990	$ 93,437
Building (under capital lease through August 31, 2017)	—	25,709
Leasehold improvements	36,987	44,293
Customer premise equipment	12,884	9,700
Furniture	4,668	4,239
Vehicles	17	203
	134,546	177,581
Less accumulated depreciation	(87,792)	(129,166)
Property, plant and equipment	46,754	48,415

Note 14. Accrued Liabilities

	December 31, 2017	December 31, 2016
Compensation and benefits, related taxes and temporary labor	$ 30,059	$ 35,525
Marketing	10,759	12,754
Taxes and fees	13,353	19,234
Acquisition related consideration accounted for as compensation	2,534	6,608
Telecommunications	16,068	14,896
Settlement	—	5,000
Other accruals	6,782	10,256
Customer credits	2,310	2,074
Professional fees	1,618	1,680
Inventory	1,927	1,168
	$ 85,410	$ 109,195

Note 15. Discontinued Operations

On March 31, 2015, the Company completed its previously announced exit from the Brazilian market for consumer telephony services and the associated wind down of its joint venture operations in the country. The Company incurred a loss on disposal of $824 . The loss on disposal is comprised of the write-off of noncontrolling interest of $907 , foreign currency loss on intercompany loan forgiveness of $783 , and residual cumulative translation of $192 , partially offset by a tax benefit of $1,058 .

The results of operations of this discontinued operation are as follows:

	For the year ended December 31, 2015
Revenues	$ 33
Operating expenses	1,648
Loss from discontinued operations	(1,615)
Loss on disposal, net of taxes	(824)
Net loss from discontinued operations	(2,439)
Plus: Net loss from discontinued operations attributable to noncontrolling interest	59
Net loss from discontinued operations attributable to Vonage	$ (2,380)

Note 16. Industry Segment and Geographic Information

ASC 280, *Segment Reporting,* establishes reporting standards for an enterprise's business segments and related disclosures about its products, services, geographic areas and major customers. Under ASC 280, the method for determining what information to report is based upon the way management organizes the operating segments within the Company for making operating decisions and assessing financial performance. Our chief operating decision-makers review revenue and gross margin information for each of our reportable segments, but do not review operating expenses on a segment by segment basis. In addition, with the exception of goodwill and intangible assets, we do not identify or allocate our assets by the reportable segments.

Historically, we have had two operating segments that we have aggregated for reporting purposes. In 2016, as a result of the acquisition of Nexmo, we no longer meet the aggregation criteria for operating segments and now have the following two reportable segments:

Business

For our Business customers, we provide innovative, cloud-based Unified Communications as a Service, or UCaaS, solutions, comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable SIP based Voice over Internet Protocol, or VoIP, network. Through Nexmo, the Vonage API Platform, we also offer Communications Platform as a Service, or CPaaS, solutions designed to enhance the way businesses communicate with their customers embedding communications into apps, websites and business processes. Together we have a robust set of product families tailored to serve the full range of the business value chain, from the small and medium business, or SMB, market, through mid-market and enterprise markets. We provide customers with multiple deployment options, designed to provide the reliability and quality of service they demand. We provide customers the ability to integrate our cloud communications platform with many cloud-based productivity and CRM solutions, including Google's G Suite, Zendesk, Salesforce's Sales Cloud, Oracle, Clio, and other CRM solutions. In combination, our products and services permit our business customers to communicate with their customers and employees through any cloud-connected device, in any place, at any time without the often costly investment required with on-site equipment.

Consumer

For our Consumer customers, we enable users to access and utilize our UCaaS services and features, via a single "identity," either a number or user name, regardless of how they are connected to the Internet, including over 3G/4G, LTE, Cable, or DSL broadband networks. This technology enables us to offer our Consumer customers attractively priced voice and messaging services and other features around the world on a variety of devices.

For our segments we categorize revenues as follows:

Services revenues. Services revenues consists primarily of revenue attributable to our communication services for Consumer and UCaaS and CPaaS services for Business,

Product revenues . Product revenues includes equipment sold to customers, shipping and handling, professional services, and broadband access.

USF revenues. USF revenues represent fees passed on to customers to offset required contributions to the USF.

For our segments we categorize cost of revenues as follows:

Services cost of revenues. Services cost of revenues consists of costs associated with network operations and technical support personnel, communication origination, and termination services provided by third party carriers and excludes depreciation and amortization.

Product cost of revenues . Product cost of revenues includes equipment sold to customers, shipping and handling, professional services, cost of certain products including equipment or services that we give customers as promotions,
and broadband access.

USF cost of revenues. USF cost of revenues represent contributions to the USF and related fees.

Information about our segment results for the years ended December 31, 2017 , 2016 , and 2015 were as follows:

Year ended December 31, 2017

	Business	Consumer	Total
Revenues			
Service revenues	$ 419,591	$ 454,340	$ 873,931
Product revenues (1)	52,498	525	53,023
Service and product revenues	472,089	454,865	926,954
USF revenues	26,833	48,499	75,332
Total revenues	498,922	503,364	1,002,286
Cost of revenues			
Service cost of revenues (2)	190,934	80,454	271,388
Product cost of revenues (1)	51,026	7,208	58,234
Service and product cost of revenues	241,960	87,662	329,622
USF cost of revenues	26,833	48,499	75,332
Total cost of revenues	268,793	136,161	404,954
Segment gross margin			
Service margin	228,657	373,886	602,543
Product margin	1,472	(6,683)	(5,211)
Gross margin ex-USF (Service and product margin)	230,129	367,203	597,332
USF margin	—	—	—
Total segment gross margin	$ 230,129	$ 367,203	$ 597,332
Segment gross margin %			
Service margin %	54.5%	82.3%	68.9%
Gross margin ex-USF (Service and product margin %)	48.7%	80.7%	64.4%
Segment gross margin %	46.1%	72.9%	59.6%

(1) Includes customer premise equipment, access, professional services, and shipping and handling.
(2) Excludes depreciation and amortization of $20,100 , $7,208 , and $27,308 , respectively.

Year ended December 31, 2016

	Business	Consumer	Total
Revenues			
Service revenues	$ 301,877	$ 522,515	$ 824,392
Product revenues (1)	52,450	702	53,152
Service and product revenues	354,327	523,217	877,544
USF revenues	22,025	56,052	78,077
Total revenues	376,352	579,269	955,621
Cost of revenues			
Service cost of revenues (2)	111,485	100,054	211,539
Product cost of revenues (1)	51,129	14,394	65,523
Service and product cost of revenues	162,614	114,448	277,062
USF cost of revenues	22,036	56,052	78,088
Total cost of revenues	184,650	170,500	355,150
Segment gross margin			
Service margin	190,392	422,461	612,853
Product margin	1,321	(13,692)	(12,371)
Gross margin ex-USF (Service and product margin)	191,713	408,769	600,482
USF gross margin	(11)	—	(11)
Total segment gross margin	$ 191,702	$ 408,769	$ 600,471
Segment gross margin %			
Service margin %	63.1%	80.9%	74.3%
Gross margin ex-USF (Service and product margin %)	54.1%	78.1%	68.4%
Segment gross margin %	50.9%	70.6%	62.8%

(1) Includes customer premise equipment, access, professional services, and shipping and handling.
(2) Excludes depreciation and amortization of $18,820 , $9,669 , and $28,489 , respectively.

Year ended December 31, 2015

	Business	Consumer	Total
Revenues			
Service revenues	$ 170,489	$ 612,822	$ 783,311
Product revenues [1]	35,545	645	36,190
Service and product revenues	206,034	613,467	819,501
USF revenues	12,993	62,578	75,571
Total revenues	219,027	676,045	895,072
Cost of revenues			
Service cost of revenues [2]	44,997	123,580	168,577
Product cost of revenues [1]	31,185	20,616	51,801
Service and product cost of revenues	76,182	144,196	220,378
USF cost of revenues	13,022	62,578	75,600
Total cost of revenues	89,204	206,774	295,978
Segment gross margin			
Service margin	125,492	489,242	614,734
Product margin	4,360	(19,971)	(15,611)
Gross margin ex-USF (Service and product margin)	129,852	469,271	599,123
USF margin	(29)	—	(29)
Total segment gross margin	$ 129,823	$ 469,271	$ 599,094
Segment gross margin %			
Service margin %	73.6%	79.8%	78.5%
Gross margin ex-USF (Service and product margin %)	63.0%	76.5%	73.1%
Segment gross margin %	59.3%	69.4%	66.9%

(1) Includes customer premise equipment, access, professional services, and shipping and handling.
(2) Excludes depreciation and amortization of $15,819 , $9,049 , and $24,868 , respectively.

A reconciliation of the total of the reportable segments' gross margin to consolidated income before provision for income taxes is as follows:

	Years Ended December 31,		
	2017	2016	2015
Total reportable gross margin	$ 597,332	$ 600,471	$ 599,094
Sales and marketing	313,251	330,969	347,896
Engineering and development	29,630	29,759	27,220
General and administrative	122,537	123,304	109,153
Depreciation and amortization	72,523	72,285	61,833
Income from operations	59,391	44,154	52,992
Interest income	17	79	89
Interest expense	(14,868)	(13,042)	(8,786)
Other income (expense), net	1,253	(346)	(842)
Income before income taxes	$ 45,793	$ 30,845	$ 43,453

Information about our operations by geographic location is as follows:

	For the years ended December 31,		
	2017	2016	2015
Revenues:			
United States	$ 851,413	$ 872,147	$ 854,706
Canada	30,252	27,417	25,935
United Kingdom	28,309	17,365	14,431
Other Countries [1]	92,312	38,692	—
	$ 1,002,286	$ 955,621	$ 895,072

(1) No individual other international country represented greater than 9% of total revenue during the periods presented.

	December 31, 2017	December 31, 2016
Long-lived assets:		
United States	$ 615,432	$ 629,269
United Kingdom	365	450
Israel	243	286
	$ 616,040	$ 630,005

Note 17. Cash Flow Information

Detail of supplemental disclosures for cash flow and non-cash investing and financing information was

(In thousands)	For the years ended December 31, 2017	2016	2015
Supplemental disclosures of cash flow information:			
Cash paid during the periods for:			
Interest	$ 13,323	$ 11,621	$ 7,834
Income taxes	6,760	5,335	2,516
Non-cash investing and financing activities:			
Capital expenditures included in accounts payable and accrued liabilities	$ 2,345	$ 3,610	$ 8,741
Issuance of common stock in connection with acquisition of business	—	31,591	5,578
Purchase of intangible assets	—	—	5,000
Contingent consideration in connection with acquisition of business	—	16,472	—
Assumption of options in connection with acquisition of business	—	4,779	—

Note 18. Quarterly Financial Information (Unaudited)

Refer to Note 3, *Correction of Prior Period Financial Statements* for correction to the quarter ended December 31, 2016 and Note 12, *Acquisition of Business* for a description of the effect of unusual or infrequently occurring events during the quarterly periods. Summarized unaudited quarterly financial data is as follows:

	March 31,	June 30,	September 30,	December 31,
Year Ended 2017				
Revenue	243,347	251,836	253,083	254,020
Income from operations	5,124	6,659	24,623	22,985
Net income attributable to Vonage	5,913	4,825	10,602	(55,273)
Net income attributable to Vonage per common share:				
Basic net income per share				
Basic net income per share attributable to Vonage	0.03	0.02	0.05	(0.24)
Diluted net income per share				
Diluted net income per share attributable to Vonage	0.02	0.02	0.04	(0.24)
Year Ended 2016 [1]				
Revenue	226,824	233,675	248,359	246,763
Income from operations	18,524	5,387	15,029	5,214
Net income attributable to Vonage	7,931	218	7,040	(2,038)
Net income attributable to Vonage per common share:				
Basic net income per share				
Basic net income per share attributable to Vonage	0.04	—	0.03	(0.01)
Diluted net income per share				
Diluted net income per share attributable to Vonage	0.04	—	0.03	(0.01)

(1) see Note 3. *Correction of Prior Period Financial Statements*

EXHIBIT 10.1

VONAGE HOLDINGS CORP.

2015 EQUITY INCENTIVE PLAN

(as amended through February 8, 2017)

1. Purpose .

The purpose of the Vonage Holdings Corp. 2015 Equity Incentive Plan is to further align the interests of eligible participants with those of the Company's stockholders by providing long-term incentive compensation opportunities tied to the performance of the Company and its Common Stock. The Plan is intended to advance the interests of the Company and increase stockholder value by attracting, retaining and motivating key personnel upon whose judgment, initiative and effort the successful conduct of the Company's business is largely dependent.

2. Definitions . Wherever the following capitalized terms are used in the Plan and/or Award Agreement (as defined below), they shall have the meanings specified below:

" *Award* " means an award of a Stock Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit, Cash Performance Award or Stock Award granted under the Plan.

" *Award Agreement* " means a notice or an agreement entered into between the Company and a Participant setting forth the terms and conditions of an Award granted to a Participant as provided in Section 15.2 hereof.

" *Beneficial Owner* " shall have the meaning ascribed to such term in Rule 13d-3 under the Exchange Act.

" *Board* " means the Board of Directors of the Company.

" *Cash Performance Award* " means an Award that is denominated by a cash amount to an Eligible Person under Section 10 hereof and payable based on or conditioned upon the attainment of pre-established business and/or individual Performance Goals over a specified performance period.

" *Cause* " shall have the meaning set forth in Section 13.2 hereof.

" *Change of Control* " shall have the meaning set forth in Section 12.2 hereof.

" *Code* " means the Internal Revenue Code of 1986, as amended.

" *Committee* " means the Compensation Committee of the Board, or such other committee of the Board appointed by the Board to administer the Plan.

" *Common Stock* " means the Company's common stock, par value $0.001 per share.

" *Company* " means Vonage Holdings Corp., a Delaware corporation or any successor thereto.

" *Date of Grant* " means the date on which an Award under the Plan is granted by the Committee or such later date as the Committee may specify to be the effective date of an Award.

" *Disability* " shall mean, unless otherwise defined in an individual Award Agreement, the Participant has been unable to perform the essential duties, responsibilities and functions of Participant's position with the Company and its subsidiaries by reason of any medically determinable physical or mental impairment for 180 days in any one (1) year period

and has qualified to receive long-term disability payments under the Company's long-term disability policy, as may be in effect from time to time. Participant shall cooperate in all respects with the Company if a question arises as to whether he has become subject to a Disability (including, without limitation, submitting to reasonable examinations by one or more medical doctors and other health care specialists selected by the Company and authorizing such medical doctors and other health care specialists to discuss Participant's condition with the Company). Notwithstanding the foregoing, in the event that a Participant is party to an employment, severance or similar agreement with the Company or any of its affiliates and such agreement contains a definition of "Disability," the definition of "Disability" set forth above shall be deemed replaced and superseded, with respect to such Participant, by the definition of "Disability" used in such employment, severance or similar agreement.

" *Effective Date* " shall have the meaning set forth in Section 16.1 hereof.

" *Eligible Person* " means any person who is an employee, Non-Employee Director, consultant or other personal service provider of the Company or any of its Subsidiaries.

" *Exchange Act* " means the Securities Exchange Act of 1934, as amended.

" *Fair Market Value* " means, with respect to a share of Common Stock as of a given date of determination hereunder, for purposes of determining the exercise price per share of a Stock Option and the base price of a Stock Appreciation Right, the closing price as reported on the New York Stock Exchange or other principal exchange on which the Common Stock is then listed on such date, or if the Common Stock was not traded on such date, then on the next preceding trading day that the Common Stock was traded on such exchange, as reported by such responsible reporting service as the Committee may select. For all other purposes, "Fair Market Value" shall be such value as determined by the Board in its discretion and, to the extent necessary, shall be determined in a manner consistent with Section 409A of the Code and the regulations thereunder.

" *Forfeiture Event* " means: (i) the Participant has committed a deliberate and premeditated act against the interests of the Company including, without limitation: an act of fraud, embezzlement, misappropriation or breach of fiduciary duty against the Company, including, but not limited to, the offer, payment, solicitation or acceptance of any unlawful bribe or kickback with respect to the Company's business; (ii) the Participant has been convicted by a court of competent jurisdiction of, or pleaded guilty or nolo contendere to, any felony or any crime involving moral turpitude; or (iii) the Participant has breached any of the material terms contained in any employment agreement, non-competition agreement, confidentiality agreement, restrictive covenants agreement or similar type of agreement to which such Participant is a party.

" *Good Reason* " means, unless otherwise defined or provided in an individual Award Agreement, without the Participant's consent, a (i) material diminution in the Participant's authority, duties or responsibilities or (ii) material relocation by the Company following a Change of Control which shall mean the Company changes the Participant's principal place of employment to a location more than fifty (50) miles distance from the location of the Participant's principal place of employment and principal place of residence at the time of the Change of Control. Notwithstanding the foregoing, no event or condition described above shall constitute Good Reason unless (a) the Participant gives the Company written notice of the Participant's intention to terminate employment for Good Reason and the grounds for such termination, (b) such notice is provided within sixty (60) days after the occurrence of the event giving rise to the Good Reason termination, and (c) the grounds for termination are not corrected by the Company within thirty (30) days after its receipt of such notice. If the Company does not correct the event or condition constituting Good Reason that is described in such notice of termination during the thirty- (30) day cure period following such notice of termination, the Participant's termination of employment for Good Reason must become effective within thirty (30) days after the end of the cure period.

“ *Incentive Stock Option* ” means a Stock Option granted under Section 6 hereof that is intended to meet the requirements of Section 422 of the Code and the regulations thereunder.

“ *Non-Employee Director* ” means a member of the Board who is not an employee of the Company or any of its Subsidiaries.

“ *Nonqualified Stock Option* ” means a Stock Option granted under Section 6 hereof that is not an Incentive Stock Option.

“ *Participant* ” means any Eligible Person who holds an outstanding Award under the Plan.

“ *Performance Criteria* ” shall have the meaning set forth in Section 10.3 hereof.

“ *Performance Goals* ” shall have the meaning set forth in Section 10.4 hereof.

“ *Performance Stock Unit* ” means a Restricted Stock Unit designated as a Performance Stock Unit under Section 9.1 hereof, to be paid or distributed based on or conditioned upon the attainment of pre-established business and/or individual Performance Goals over a specified performance period.

“ *Person* ” shall have the meaning ascribed to such term in Section 3(a)(9) of the Exchange Act and used in Sections 13(d) and 14(d) thereof, including a “group” as defined in Section 13(d) thereof.

“ *Plan* ” means the Vonage Holdings Corp. 2015 Equity Incentive Plan as set forth herein, effective and as may be amended from time to time as provided herein.

“ *Restricted Stock Award* ” means a grant of shares of Common Stock to an Eligible Person under Section 8 hereof that are issued subject to such vesting and transfer restrictions as the Committee shall determine, and such other conditions, as are set forth in the Plan and the applicable Award Agreement.

“ *Restricted Stock Unit* ” means a contractual right granted to an Eligible Person under Section 9 hereof representing notional unit interests equal in value to a share of Common Stock to be paid or distributed at such times, and subject to such conditions, as set forth in the Plan and the applicable Award Agreement.

“Securities Act ” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder, as the same may be amended from time to time.

“ *Service* ” means a Participant’s employment with the Company or any Subsidiary or a Participant’s service as a Non-Employee Director, consultant or other service provider with the Company or any Subsidiary, as applicable.

“ *Stock Appreciation Right* ” means a contractual right granted to an Eligible Person under Section 7 hereof entitling such Eligible Person to receive a payment, representing the excess of the Fair Market Value of a share of Common Stock over the base price per share of the right, at such time, and subject to such conditions, as are set forth in the Plan and the applicable Award Agreement.

“ *Stock Award* ” means a grant of shares of Common Stock to an Eligible Person under Section 11 hereof.

“ *Stock Option* ” means a contractual right granted to an Eligible Person under Section 6 hereof to purchase shares of Common Stock at such time and price, and subject to such conditions, as are set forth in the Plan and the applicable Award Agreement.

"*Subsidiary*" means an entity (whether or not a corporation) that is wholly or majority owned or controlled, directly or indirectly, by the Company or any other affiliate of the Company that is so designated, from time to time, by the Committee, during the period of such affiliated status; provided, however, that with respect to Incentive Stock Options, the term "Subsidiary" shall include only an entity that qualifies under Section 424(f) of the Code as a "subsidiary corporation" with respect to the Company.

3. Administration.

3.1. *Committee Members*. The Plan shall be administered by a Committee comprised of no fewer than two members of the Board who are appointed by the Board to administer the Plan. To the extent deemed necessary by the Board, each Committee member shall satisfy the requirements for (i) an "independent director" under rules adopted by the New York Stock Exchange or other principal exchange on which the Common Stock is then listed, (ii) a "nonemployee director" for purposes of Rule 16b-3 under the Exchange Act and (iii) an "outside director" under Section 162(m) of the Code. Notwithstanding the foregoing, the mere fact that a Committee member shall fail to qualify under any of the foregoing requirements shall not invalidate any Award made by the Committee which Award is otherwise validly made under the Plan. Neither the Company nor any member of the Committee shall be liable for any action or determination made in good faith by the Committee with respect to the Plan or any Award thereunder.

3.2. *Committee Authority*. The Committee shall have all powers and discretion necessary or appropriate to administer the Plan and to control its operation, including, but not limited to, the power to (i) determine the Eligible Persons to whom Awards shall be granted under the Plan, (ii) prescribe the restrictions, terms and conditions of all Awards, (iii) interpret the Plan and terms of the Awards, (iv) adopt rules for the administration, interpretation and application of the Plan as are consistent therewith, and interpret, amend or revoke any such rules, (v) make all determinations with respect to a Participant's Service and the termination of such Service for purposes of any Award, (vi) correct any defect(s) or omission(s) or reconcile any ambiguity(ies) or inconsistency(ies) in the Plan or any Award thereunder, (vii) make all determinations it deems advisable for the administration of the Plan, (viii) decide all disputes arising in connection with the Plan and to otherwise supervise the administration of the Plan, (ix) subject to the terms of the Plan, amend the terms of an Award in any manner that is not inconsistent with the Plan, (x) accelerate the vesting or, to the extent applicable, exercisability of any Award at any time (including, but not limited to, upon a Change of Control or upon termination of Service under certain circumstances, as set forth in the Award Agreement or otherwise), and (xi) adopt such procedures and subplans as are necessary or appropriate to permit participation in the Plan by Eligible Persons who are foreign nationals or employed outside of the United States. The Committee's determinations under the Plan need not be uniform and may be made by the Committee selectively among Participants and Eligible Persons, whether or not such persons are similarly situated. The Committee shall, in its discretion, consider such factors as it deems relevant in making its interpretations, determinations and actions under the Plan including, without limitation, the recommendations or advice of any officer or employee of the Company or such attorneys, consultants, accountants or other advisors as it may select. All interpretations, determinations, and actions by the Committee shall be final, conclusive, and binding upon all parties.

3.3. *Delegation of Authority*. The Committee shall have the right, from time to time, to delegate in writing to one or more officers of the Company the authority of the Committee to grant and determine the terms and conditions of Awards granted under the Plan, subject to the requirements of Section 157(c) of the Delaware General Corporation Law (or any successor provision) or such other limitations as the Committee shall determine. In no event shall any such delegation of authority be permitted with respect to Awards granted to any member of the Board or to any Eligible Person who is subject to Rule 16b-3 under the Exchange Act or is a covered employee under Section 162(m) of the Code. The Committee shall also be

permitted to delegate, to any appropriate officer or employee of the Company, responsibility for performing certain ministerial functions under the Plan. In the event that the Committee's authority is delegated to officers or employees in accordance with the foregoing, all provisions of the Plan relating to the Committee shall be interpreted in a manner consistent with the foregoing by treating any such reference as a reference to such officer or employee for such purpose. Any action undertaken in accordance with the Committee's delegation of authority hereunder shall have the same force and effect as if such action was undertaken directly by the Committee and shall be deemed for all purposes of the Plan to have been taken by the Committee.

4. Shares Subject to the Plan .

4.1. *Number of Shares Reserved* . Subject to adjustment as provided in Section 4.5 hereof, the total number of Shares of Common Stock that are reserved for issuance under the Plan (the " *Share Reserve* ") shall equal the sum of (i) 16,000,000 shares of Common Stock, plus (ii) the number of shares of Common Stock that remain available under the Vonage Holding Corp. 2006 Incentive Plan, as amended (the " *2006 Plan* ") for new award grants on the Effective Date, and determined immediately before giving effect to the termination of the authority to grant new awards under the 2006 Plan in connection with such approval, plus (iii) to the extent that, on or after the Effective Date, an award under the 2006 Plan (a " *2006 Plan Award* ") is canceled, expired, forfeited, surrendered, settled by delivery of fewer shares of Common Stock than the number underlying such award or otherwise terminated without delivery of the shares of Common Stock or payment of consideration to a participant under the 2006 Plan, the number of shares of Common Stock retained by or returned to the Company. Each share of Common Stock subject to an Award shall reduce the Share Reserve by one share; provided , however , that Awards that are required to be paid in cash pursuant to their terms shall not reduce the Share Reserve. Any shares of Common Stock delivered under the Plan shall consist of authorized and unissued shares or treasury shares.

4.2. *Share Replenishment* . To the extent that an Award granted under this Plan or a 2006 Plan Award is canceled, expired, forfeited, surrendered, settled by delivery of fewer shares of Common Stock than the number underlying the Award or 2006 Plan Award, as applicable, or otherwise terminated without delivery of the shares of Common Stock or payment of consideration to the Participant under the Plan or participant under the 2006 Plan, the shares of Common Stock retained by or returned to the Company will (i) not be deemed to have been delivered under the Plan or 2006 Plan, as applicable, (ii) be available for future Awards under the Plan, and (iii) increase the Share Reserve by one share for each share that is retained by or returned to the Company. Notwithstanding the foregoing, shares of Common Stock that are (a) withheld from an Award or 2006 Plan Award, as applicable, in payment of the exercise or purchase price or taxes relating to such an Award or 2006 Plan Award or (b) not issued or delivered as a result of the net settlement of an outstanding Stock Option or Stock Appreciation Right under the Plan or 2006 Plan, as applicable, shall be deemed to constitute delivered shares of Common Stock and will not be available for future Awards under the Plan.

4.3. *Awards Granted to Eligible Persons Other Than Non-Employee Directors* . For purposes of complying with the requirements of Section 162(m) of the Code, the maximum number of shares of Common Stock that may be subject to (i) Stock Options, (ii) Stock Appreciation Rights, (iii) Restricted Stock Awards that vest in full or in part based on the attainment of Performance Goals, and (iv) Restricted Stock Units that vest in full or in part based on the attainment of Performance Goals, that are granted to any Eligible Person other than a Non-Employee Director during any calendar year shall be limited to 10,000,000 shares of Common Stock for each such Award type individually (subject to adjustment as provided in Section 4.5 hereof).

4.4. *Awards Granted to Non-Employee Directors* . The maximum number of shares of Common Stock that may be subject to Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Restricted Stock Units and Stock Awards

granted to any Non-Employee Director during any calendar year shall be limited to 10,000,000 shares of Common Stock for all such Award types in the aggregate (subject to adjustment as provided in Section 4.5 hereof).

4.5. *Adjustments* . If there shall occur any change with respect to the outstanding shares of Common Stock by reason of any recapitalization, reclassification, stock dividend, extraordinary dividend, stock split, reverse stock split or other distribution with respect to the shares of Common Stock or any merger, reorganization, consolidation, combination, spin-off, stock purchase or other similar corporate change or any other change affecting the Common Stock (other than regular cash dividends to stockholders of the Company), the Committee shall, in the manner and to the extent it considers appropriate and equitable to the Participants and consistent with the terms of the Plan, cause an adjustment to be made to (i) the maximum number and kind of shares of Common Stock provided in Sections 4.1, 4.3 and 4.4 hereof (including the maximum number of shares of Common Stock that may become payable to a Participant provided in Sections 4.3 and 4.4 hereof), (ii) the number and kind of shares of Common Stock, units or other rights subject to then outstanding Awards, (iii) the exercise or base price for each share or unit or other right subject to then outstanding Awards, (iv) the maximum amount that may become payable to a Participant under Cash Performance Awards provided in Section 10.6 hereof, (v) other value determinations applicable to the Plan and/or outstanding Awards, and (vi) any other terms of an Award that are affected by the event. Notwithstanding the foregoing, (a) any such adjustments shall, to the extent necessary, be made in a manner consistent with the requirements of Section 409A of the Code and (b) in the case of Incentive Stock Options, any such adjustments shall, to the extent practicable, be made in a manner consistent with the requirements of Section 424(a) of the Code.

5. Eligibility and Awards .

5.1. *Designation of Participants* . Any Eligible Person may be selected by the Committee to receive an Award and become a Participant. The Committee has the authority, in its discretion, to determine and designate from time to time those Eligible Persons who are to be granted Awards, the types of Awards to be granted, the number of shares of Common Stock or units subject to Awards to be granted and the terms and conditions of such Awards consistent with the terms of the Plan. In selecting Eligible Persons to be Participants, and in determining the type and amount of Awards to be granted under the Plan, the Committee shall consider any and all factors that it deems relevant or appropriate. Designation of a Participant in any year shall not require the Committee to designate such person to receive an Award in any other year or, once designated, to receive the same type or amount of Award as granted to such Participant in any other year.

5.2. *Determination of Awards; Minimum Vesting Period* . The Committee shall determine the terms and conditions of all Awards granted to Participants in accordance with its authority under Section 3.2 hereof. An Award may consist of one type of right or benefit hereunder or of two or more such rights or benefits granted in tandem. No portion of any Award, other than Cash Performance Awards and Awards that have vested in whole or in part upon a Change of Control, a termination of a Participant's Service as a result of death or Disability, a termination of a Participant's Service by the Company without Cause and/or a termination of a Participant's Service by the Participant for Good Reason, shall vest prior to one (1) year after the date of grant, provided , however , that such vesting restrictions shall not be applicable to Awards not in excess of ten percent (10%) of the Share Reserve under Section 4.1. Awards that vest based on the attainment of Performance Goal(s) shall have a minimum vesting period of one (1) year.

5.3. *Award Agreements* . Each Award granted to an Eligible Person shall be represented by an Award Agreement. The terms of all Awards under the Plan, as determined by the Committee, will be set forth in each individual Award Agreements as described in Section 15.2 hereof.

6. Stock Options .

6.1. *Grant of Stock Options* . A Stock Option may be granted to any Eligible Person selected by the Committee, except that an Incentive Stock Option may only be granted to an Eligible Person satisfying the conditions of Section 6.7(a) hereof. Each Stock Option shall be designated on the Date of Grant, in the discretion of the Committee, as an Incentive Stock Option or as a Nonqualified Stock Option. All Stock Options granted under the Plan are intended to comply with or be exempt from the requirements of Section 409A of the Code.

6.2. *Exercise Price* . The exercise price per share of a Stock Option shall not be less than one hundred percent (100%) of the Fair Market Value of a share of Common Stock on the Date of Grant. The Committee may in its discretion specify an exercise price per share that is higher than the Fair Market Value of a share of Common Stock on the Date of Grant.

6.3. *Vesting of Stock Options* . The Committee shall, in its discretion, prescribe the time or times at which or the conditions upon which, a Stock Option or portion thereof shall become vested and/or exercisable. The requirements for vesting and exercisability of a Stock Option may be based on the continued Service of the Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified Performance Goal(s) or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Stock Option are not satisfied, the Award shall be forfeited.

6.4. *Term of Stock Options* . The Committee shall in its discretion prescribe in an Award Agreement the period during which a vested Stock Option may be exercised; provided , however , that the maximum term of a Stock Option shall be ten (10) years from the Date of Grant. The Committee may provide that a Stock Option will cease to be exercisable upon or at the end of a specified time period following a termination of Service for any reason as set forth in the Award Agreement or otherwise. A Stock Option may be earlier terminated as specified by the Committee and set forth in an Award Agreement upon or following the termination of a Participant's Service with the Company or any Subsidiary, including by reason of voluntary resignation, death, Disability, termination for Cause or any other reason. Subject to Section 409A of the Code and the provisions of this Section 6, the Committee may extend at any time the period in which a Stock Option may be exercised.

6.5. *Stock Option Exercise; Tax Withholding* . Subject to such terms and conditions as specified in an Award Agreement, a Stock Option may be exercised in whole or in part at any time during the term thereof by notice in the form required by the Company, together with payment of the aggregate exercise price and applicable withholding tax. Payment of the exercise price may be made: (i) in cash or by cash equivalent acceptable to the Committee, or, (ii) to the extent permitted by the Committee in its sole discretion in an Award Agreement or otherwise (A) in shares of Common Stock valued at the Fair Market Value of such shares on the date of exercise, (B) through an open-market, broker-assisted sales transaction pursuant to which the Company is promptly delivered the amount of proceeds necessary to satisfy the exercise price, (C) by reducing the number of shares of Common Stock otherwise deliverable upon the exercise of the Stock Option by the number of shares of Common Stock having a Fair Market Value on the date of exercise equal to the exercise price, (D) by a combination of the methods described above or (E) by such other method as may be approved by the Committee and set forth in the Award Agreement. In addition to and at the time of payment of the exercise price, the Participant shall pay to the Company the full amount of any and all applicable income tax, employment tax and other amounts required to be withheld in connection with such exercise, payable under such of the methods described above for the payment of the exercise price as may be approved by the Committee and set forth in the Award Agreement.

6.6. *Limited Transferability of Nonqualified Stock Options* . All Stock Options shall be nontransferable except (i) upon the Participant's death, in accordance with Section 15.3 hereof or (ii) in the case of Nonqualified Stock Options only, for the transfer of all or part of the Stock Option to a Participant's "family member" (as defined for purposes of the Form S-8 registration statement under the Securities Act), or as otherwise permitted by the Committee, in each case as may be approved

by the Committee in its discretion at the time of proposed transfer. The transfer of a Nonqualified Stock Option may be subject to such terms and conditions as the Committee may in its discretion impose from time to time. Subsequent transfers of a Nonqualified Stock Option shall be prohibited other than in accordance with Section 15.3 hereof.

6.7. *Additional Rules for Incentive Stock Options* .

a. *Eligibility* . An Incentive Stock Option may only be granted to an Eligible Person who is considered an employee for purposes of Treasury Regulation Section 1.421-1(h) with respect to the Company or any Subsidiary that qualifies as a "subsidiary corporation" with respect to the Company for purposes of Section 424(f) of the Code.

b. *Annual Limits* . No Incentive Stock Option shall be granted to a Participant as a result of which the aggregate Fair Market Value (determined as of the Date of Grant) of the Common Stock with respect to which incentive stock options under Section 422 of the Code are exercisable for the first time in any calendar year under the Plan and any other stock option plans of the Company or any Subsidiary or parent corporation, would exceed $100,000, determined in accordance with Section 422(d) of the Code. This limitation shall be applied by taking Stock Options into account in the order in which granted.

c. *Additional Limitations* . In the case of any Incentive Stock Option granted to an Eligible Person who owns, either directly or indirectly (taking into account the attribution rules contained in Section 424(d) of the Code), stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Subsidiary, the exercise price shall not be less than one hundred ten percent (110%) of the Fair Market Value of a share of Common Stock on the Date of Grant and the maximum term shall be five (5) years.

d. *Termination of Employment* . An Award of an Incentive Stock Option may provide that such Stock Option may be exercised not later than (i) three (3) months following termination of employment of the Participant with the Company and all Subsidiaries (other than as set forth in clause (ii) of this Section 6.7(d)) or (ii) one year following termination of employment of the Participant with the Company and all Subsidiaries due to death or permanent and total disability within the meaning of Section 22(e)(3) of the Code, in each case as and to the extent determined by the Committee to comply with the requirements of Section 422 of the Code.

e. *Other Terms and Conditions; Nontransferability* . Any Incentive Stock Option granted hereunder shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as are deemed necessary or desirable by the Committee, which terms, together with the terms of the Plan, shall be intended and interpreted to cause such Incentive Stock Option to qualify as an "incentive stock option" under Section 422 of the Code. A Stock Option that is granted as an Incentive Stock Option shall, to the extent it fails to qualify as an "incentive stock option" under the Code, be treated as a Nonqualified Stock Option. An Incentive Stock Option shall by its terms be nontransferable other than by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of a Participant only by such Participant.

f. *Disqualifying Dispositions* . If shares of Common Stock acquired by exercise of an Incentive Stock Option are disposed of within two years following the Date of Grant or one year following the transfer of such shares to the Participant upon exercise, the Participant shall, promptly following such disposition, notify the Company in writing of the date and terms of such disposition and provide such other information regarding the disposition as the Company may reasonably require.

6.8. *Repricing Prohibited.* Subject to the anti-dilution adjustment provisions contained in Section 4.5 hereof, without the prior approval of the Company's stockholders, neither the Committee nor the Board shall cancel a Stock Option when the exercise price per share exceeds the Fair Market Value of one share of Common Stock in exchange for cash or another Award (other than in connection with a Change of Control) or cause the cancellation, substitution or amendment of a Stock Option that would have the effect of reducing the exercise price of such a Stock Option previously granted under the Plan or otherwise approve any modification to such a Stock Option, that would be treated as a "repricing" under the then applicable

rules, regulations or listing requirements adopted by the New York Stock Exchange or other principal exchange on which the Common Stock is then listed.

6.9. *Dividend Equivalent Rights.* Dividends shall not be paid with respect to Stock Options. Dividend equivalent rights shall be granted with respect to the shares of Common Stock subject to Stock Options to the extent permitted by the Committee and set forth in the Award Agreement.

7. Stock Appreciation Rights .

7.1. *Grant of Stock Appreciation Rights* . Stock Appreciation Rights may be granted to any Eligible Person selected by the Committee. Stock Appreciation Rights may be granted on a basis that allows for the exercise of the right by the Participant or that provides for the automatic payment of the right upon a specified date or event. Stock Appreciation Rights shall be non-transferable, except as provided in Section 15.3 hereof. All Stock Appreciation Rights granted under the Plan are intended to comply with or otherwise be exempt from the requirements of Section 409A of the Code.

7.2. *Stand-Alone and Tandem Stock Appreciation Rights* . A Stock Appreciation Right may be granted without any related Stock Option, or may be granted in tandem with a Stock Option, either on the Date of Grant or at any time thereafter during the term of the Stock Option. The Committee shall in its discretion provide in an Award Agreement the time or times at which or the conditions upon which, a Stock Appreciation Right or portion thereof shall become vested and/or exercisable. The requirements for vesting and exercisability of a Stock Appreciation Right may be based on the continued Service of a Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified Performance Goal(s) or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Stock Appreciation Right are not satisfied, the Award shall be forfeited. A Stock Appreciation Right will be exercisable or payable at such time or times as determined by the Committee; provided , however , that the maximum term of a Stock Appreciation Right shall be ten (10) years from the Date of Grant. The Committee may provide that a Stock Appreciation Right will cease to be exercisable upon or at the end of a period following a termination of Service for any reason. The base price of a Stock Appreciation Right granted without any related Stock Option shall be determined by the Committee in its discretion; provided , however , that the base price per share of any such stand-alone Stock Appreciation Right shall not be less than one hundred percent (100%) of the Fair Market Value of a share of Common Stock on the Date of Grant.

7.3. *Payment of Stock Appreciation Rights* . A Stock Appreciation Right will entitle the holder, upon exercise or other payment of the Stock Appreciation Right, as applicable, to receive an amount determined by multiplying: (i) the excess of the Fair Market Value of a share of Common Stock on the date of exercise or payment of the Stock Appreciation Right over the base price of such Stock Appreciation Right, by (ii) the number of shares as to which such Stock Appreciation Right is exercised or paid. Payment of the amount determined under the foregoing may be made, as approved by the Committee and set forth in the Award Agreement, in shares of Common Stock valued at their Fair Market Value on the date of exercise or payment, in cash or in a combination of shares of Common Stock and cash, subject to applicable tax withholding requirements.

7.4. *Repricing Prohibited* . Subject to the anti-dilution adjustment provisions contained in Section 4.5 hereof, without the prior approval of the Company's stockholders, neither the Committee nor the Board shall cancel a Stock Appreciation Right when the base price per share exceeds the Fair Market Value of one share of Common Stock in exchange for cash or another Award (other than in connection with a Change of Control) or cause the cancellation, substitution or amendment of a Stock Appreciation Right that would have the effect of reducing the base price of such a Stock Appreciation Right previously granted under the Plan or otherwise approve any modification to such Stock Appreciation Right that would be treated as a "repricing" under the then applicable rules, regulations or listing requirements adopted by the New York Stock Exchange or other principal exchange on which the Common Stock is then listed.

7.5. *Dividend Equivalent Rights*. Dividends shall not be paid with respect to Stock Appreciation Rights. Dividend equivalent rights shall be granted with respect to the shares of Common Stock subject to Stock Appreciation Rights to the extent permitted by the Committee and set forth in the Award Agreement.

8. Restricted Stock Awards .

8.1. *Grant of Restricted Stock Awards* . A Restricted Stock Award may be granted to any Eligible Person selected by the Committee. The Committee may require the payment by the Participant of a specified purchase price in connection with any Restricted Stock Award.

8.2. *Vesting Requirements* . The restrictions imposed on shares granted under a Restricted Stock Award shall lapse in accordance with the vesting requirements specified by the Committee in the Award Agreement. The requirements for vesting of a Restricted Stock Award may be based on the continued Service of the Participant with the Company or a Subsidiary for a specified time period (or periods), on the attainment of a specified Performance Goal(s) designed to meet the requirements for exemption under Section 162(m) of the Code and/or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Restricted Stock Award shall not be satisfied or, if applicable, the Performance Goal(s) with respect to such Restricted Stock Award are not attained, the Award shall be forfeited and the shares of Common Stock subject to the Award shall be returned to the Company.

8.3. *Transfer Restrictions* . Shares granted under any Restricted Stock Award may not be transferred, assigned or subject to any encumbrance, pledge or charge until all applicable restrictions are removed or have expired, except as provided in Section 15.3 hereof. Failure to satisfy any applicable restrictions shall result in the subject shares of the Restricted Stock Award being forfeited and returned to the Company. The Committee may require in an Award Agreement that certificates (if any) representing the shares granted under a Restricted Stock Award bear a legend making appropriate reference to the restrictions imposed, and that certificates (if any) representing the shares granted or sold under a Restricted Stock Award will remain in the physical custody of an escrow holder until all restrictions are removed or have expired.

8.4. *Rights as Stockholder* . Subject to the foregoing provisions of this Section 8 and the applicable Award Agreement, the Participant shall have all rights of a stockholder with respect to the shares granted to the Participant under a Restricted Stock Award, including the right to vote the shares and receive all dividends and other distributions paid or made with respect thereto, unless the Committee determines otherwise at the time the Restricted Stock Award is granted. The Committee may provide in an Award Agreement for the payment of dividends and distributions to the Participant at such times as paid to stockholders generally, at the times of vesting or other payment of the Restricted Stock Award or otherwise.

8.5. *Section 83(b) Election* . If a Participant makes an election pursuant to Section 83(b) of the Code with respect to a Restricted Stock Award, the Participant shall file, within thirty (30) days following the Date of Grant, a copy of such election with the Company and with the Internal Revenue Service, in accordance with the regulations under Section 83 of the Code. The Committee may provide in an Award Agreement that the Restricted Stock Award is conditioned upon the Participant’s making or refraining from making an election with respect to the Award under Section 83(b) of the Code.

9. Restricted Stock Units .

9.1. *Grant of Restricted Stock Units* . A Restricted Stock Unit may be granted to any Eligible Person selected by the Committee. The value of each Restricted Stock Unit is equal to the Fair Market Value of a share of Common Stock on the applicable date or time period of determination, as specified by the Committee. Restricted Stock Units shall be subject to such restrictions and conditions as the Committee shall determine. In addition, a Restricted Stock Unit may be designated as a “Performance Stock Unit”, the vesting requirements of which may be based, in whole or in part, on the attainment of pre-established business and/or individual Performance Goal(s) over a specified performance period designed to meet the requirements for exemption under Section 162(m) of the Code, or

otherwise, as approved by the Committee in its discretion. Restricted Stock Units shall be non-transferable, except as provided in Section 15.3 hereof.

9.2. *Vesting of Restricted Stock Units* . On the Date of Grant, the Committee shall, in its discretion, determine any vesting requirements with respect to Restricted Stock Units, which shall be set forth in the Award Agreement. The requirements for vesting of a Restricted Stock Unit may be based on the continued Service of the Participant with the Company or a Subsidiary for a specified time period (or periods) and/or on such other terms and conditions as approved by the Committee (including Performance Goal(s)) designed to meet the requirements for exemption under Section 162(m) of the Code and/or on such other terms and conditions as approved by the Committee in its discretion. If the vesting requirements of a Restricted Stock Unit Award are not satisfied, the Award shall be forfeited.

9.3. *Payment of Restricted Stock Units* . Restricted Stock Units shall become payable to a Participant at the time or times determined by the Committee and set forth in the Award Agreement, which may be upon or following the vesting of the Award. Payment of a Restricted Stock Unit may be made, as approved by the Committee and set forth in the Award Agreement, in cash or in shares of Common Stock or in a combination thereof, subject to applicable tax withholding requirements. Any cash payment of a Restricted Stock Unit shall be made based upon the Fair Market Value of a share of Common Stock, determined on such date or over such time period as determined by the Committee.

9.4. *Dividend Equivalent Rights.* Restricted Stock Units may be granted together with a dividend equivalent right with respect to the shares of Common Stock subject to the Award, which may be accumulated and may be deemed reinvested in additional Restricted Stock Units or may be accumulated in cash, as determined by the Committee in its discretion. Any payments made pursuant to dividend equivalent rights will be paid at such times as determined by the Committee in its discretion (including without limitation at the times paid to stockholders generally or at the times of vesting or payment of the Restricted Stock Unit). Dividend equivalent rights may be subject to forfeiture under the same conditions as apply to the underlying Restricted Stock Units.

9.5. *No Rights as Stockholder* . The Participant shall not have any rights as a stockholder with respect to the shares subject to a Restricted Stock Unit until such time as shares of Common Stock are delivered to the Participant pursuant to the terms of the Award Agreement.

10. Cash Performance Awards and Performance Criteria .

10.1. *Grant of Cash Performance Awards* . A Cash Performance Award may be granted to any Eligible Person selected by the Committee. Payment amounts may be based on the attainment of specified levels of attainment with respect to the Performance Goals, including, if applicable, specified threshold, target and maximum performance levels, and performance falling between such levels. The requirements for payment may be also based upon the continued Service of the Participant with the Company or a Subsidiary during the respective performance period and on such other conditions as determined by the Committee and set forth in the Award Agreement. With respect to Cash Performance Awards and other Awards intended to qualify as "performance-based compensation" under Section 162(m) of the Code, before the 90th day of the applicable performance period (or, if the performance period is less than one year, no later than the number of days which is equal to 25% of such performance period), the Committee will determine the duration of the performance period, the Performance Criteria, the applicable Performance Goals relating to the Performance Criteria, and the amount and terms of payment and/or vesting upon achievement of the Performance Goals. Cash Performance Awards shall be non-transferable, except as provided in Section 15.3 hereof.

10.2. *Award Agreements* . Each Cash Performance Award shall be evidenced by an Award Agreement that shall specify the performance period and such other terms and conditions as the Committee, in its discretion, shall determine. The

Committee may accelerate the vesting of a Cash Performance Award upon a Change of Control or termination of Service under certain circumstances, as set forth in the Award Agreement.

10.3. *Performance Criteria* . For purposes of Cash Performance Awards, Performance Stock Units and other Awards intended to qualify as "performance-based compensation" under Section 162(m) of the Code, the Performance Criteria shall be one or any combination of the following, for the Company or any identified Subsidiary or business unit, as determined by the Committee at the time of the Award: (a) net earnings, net income, or adjusted operating profit or loss (each before or after taxes); (b) earnings per share; (c) book value per share; (d) costs, including, without limitation, customer acquisition costs (" *CAC* "); (e) net sales or revenue growth; (f) net operating profit; (g) return measures (including, but not limited to, return on assets, investment, capital, equity, sales) and/or revenue measures (including, but not limited to, monthly recurring revenue, telephony services revenue, and/or adjusted average monthly revenue per line and/or per customer); (h) cash flow (including, but not limited to, operating cash flow, free cash flow, cash flow return on equity, cash flow return on investment, and pre-marketing operating income per line and/or per customer); (i) adjusted earnings before or after taxes, interest, depreciation, and/or amortization; (j) gross or operating margins; (k) productivity ratios (including, without limitation, customer lifetime value to CAC, CAC to pre-marketing operating income, CAC to annual contract value, and/or other CAC revenue ratios); (l) profitability of an identifiable business unit or product; (m) share price (including, but not limited to, growth measures and total shareholder return); (n) expense targets (including, but not limited to, subscriber line acquisition cost and average monthly direct costs of telephony services per line and/or per customer); (o) margins; (p) operating efficiency (including, without limitation, improvements in capital structure); (q) market share; (r) customer satisfaction (including, but not limited to, new subscriptions, lost subscriptions, and relations between the two); (s) net subscriber line additions, revenue churn, bookings, average seats per customer, gross seat additions, or net seat additions; (t) working capital targets; (u) cash value added; (v) economic value added; (w) market penetration; (x) product introductions; (y) platform availability; (z) staff training; (aa) corporate social responsibility policy implementation, and (bb) any combination of or a specified increase in any of the foregoing. Each of the Performance Criteria shall be applied and interpreted in accordance with an objective formula or standard established by the Committee at the time the applicable Award is granted including, without limitation, GAAP, consistently applied on a business unit, divisional, subsidiary or consolidated basis or any combination thereof. The Performance Goals may be described in terms of objectives that are related to the individual Participant or objectives that are Company-wide or related to a Subsidiary, division, department, region, function or business unit and may be measured on an absolute or cumulative basis or on the basis of percentage of improvement over time, and may be measured in terms of Company performance (or performance of the applicable Subsidiary, division, department, region, function or business unit) or measured relative to selected peer companies or a market or other index.

10.4. *Performance Goals* . For purposes of Cash Performance Awards and other Awards intended to qualify as "performance-based compensation" under Section 162(m) of the Code, the "Performance Goals" shall be the levels of achievement relating to the Performance Criteria selected by the Committee for the Award. The Performance Goals shall be written and shall be expressed as an objective formula or standard that precludes discretion to increase the amount of compensation payable that would otherwise be due upon attainment of the goal. The Performance Goals may be applied on an absolute basis or relative to an identified index, peer group, or one or more competitors or other companies (including particular business segments or divisions of such companies), as specified by the Committee. The Performance Goals need not be the same for all Participants.

10.5. *Adjustments* . At the time that an Award is granted, the Committee may provide for the Performance Goals or the manner in which performance will be measured against the Performance Goals to be adjusted in such objective manner as it deems appropriate, including, without limitation, adjustments to reflect charges for restructurings, non-operating income, the

impact of corporate transactions or discontinued operations, extraordinary and other unusual or non-recurring items and the cumulative effects of accounting or tax law changes. In addition, with respect to a Participant hired or promoted following the beginning of a performance period, the Committee may determine to prorate the Performance Goals and/or the amount of any payment in respect of such Participant's Cash Performance Awards for the partial performance period.

10.6. *Maximum Amount of Cash Performance Awards* . The maximum amount that may become payable to any one Participant during any one calendar year under all Cash Performance Awards intended to qualify as "performance-based compensation" under Section 162(m) of the Code is limited to $5,000,000.

10.7. *Negative Discretion* . Notwithstanding anything else contained in the Plan to the contrary, the Committee shall, to the extent provided in an Award Agreement, have the right, in its discretion, (i) to reduce or eliminate the amount otherwise payable to any Participant under an Award granted under this Section 10 and (ii) to establish rules or procedures that have the effect of limiting the amount payable to any Participant to an amount that is less than the amount that otherwise would be payable under an Award granted under this Section 10. The Committee may exercise such discretion in a non-uniform manner among Participants. The Committee shall not have discretion to increase the amount that otherwise would be payable to any Participant under a Cash Performance Award or other Award intended to qualify as "performance-based compensation" under Section 162(m) of the Code.

10.8. *Certification* . Following the conclusion of the performance period of a Cash Performance Award or other Award intended to qualify as "performance-based compensation" under Section 162(m) of the Code, the Committee shall certify in writing whether the Performance Goals for that performance period have been achieved, or certify the degree of achievement, if applicable.

10.9. *Payment* . Upon certification of the Performance Goals for a Cash Performance Award, or other Award intended to qualify as "performance-based compensation" under Section 162(m) of the Code, the Committee shall determine the level of vesting or amount of payment to the Participant pursuant to the Award, if any. Notwithstanding the foregoing, Cash Performance Awards may be paid, at the discretion of the Committee, in any combination of cash or shares of Common Stock, based upon the Fair Market Value of such shares at the time of payment.

11. Stock Awards .

11.1. *Grant of Stock Awards* . A Stock Award may be granted to any Eligible Person selected by the Committee. A Stock Award may be granted for past Services, in lieu of bonus or other cash compensation, as directors' compensation or for any other valid purpose as determined by the Committee. The Committee shall determine the terms and conditions of such Awards, and such Awards may be made without vesting requirements to the extent permissible under Section 5.2 hereof. In addition, the Committee may, in connection with any Stock Award, require the payment of a specified purchase price.

11.2. *Rights as Stockholder* . Subject to the foregoing provisions of this Section 11 and the applicable Award Agreement, upon the issuance of shares of Common Stock under a Stock Award the Participant shall have all rights of a stockholder with respect to the shares of Common Stock, including the right to vote the shares and receive all dividends and other distributions paid or made with respect thereto.

12. Change of Control .

12.1. *Effect on Awards* . Upon the occurrence of a Change of Control, unless otherwise provided in the Award Agreement, the Committee is authorized (but not obligated) to make adjustments in the terms and conditions of outstanding Awards, including without limitation the following (or any combination thereof): (a) continuation or assumption of such outstanding Awards under the Plan by the Company (if it is the surviving company or corporation) or by the surviving company or corporation or its parent; (b) substitution by the surviving company or corporation or

its parent of awards with substantially the same terms for outstanding Awards (with appropriate adjustments to the type of consideration payable upon settlement of the Awards); (c) acceleration of exercisability, vesting and/or payment under outstanding Awards immediately prior to the occurrence of such event or upon a termination of employment following such event; and (d) if all or substantially all of the Company's outstanding shares of Common Stock are transferred in exchange for cash consideration in connection with such Change of Control: (i) upon written notice, provide that any outstanding Stock Options and Stock Appreciation Rights are exercisable during a reasonable period of time immediately prior to the scheduled consummation of the event or such other reasonable period as determined by the Committee (contingent upon the consummation of the event), and at the end of such period, such Stock Options and Stock Appreciation Rights shall terminate to the extent not so exercised within the relevant period; and (ii) cancel all or any portion of outstanding Awards for fair value (in the form of cash, shares of Common Stock, other property or any combination thereof) as determined in the sole discretion of the Committee; provided , however , that, in the case of Stock Options and Stock Appreciation Rights, the fair value may equal the excess, if any, of the value of the consideration to be paid in the Change of Control transaction to holders of shares of Common Stock (or, if no such consideration is paid, Fair Market Value of the shares of Common Stock) over the aggregate exercise or base price, as applicable, with respect to such Awards or portion thereof being canceled, or if no such excess, zero.

12.2. *Definition of Change of Control.* Unless otherwise defined in an Award Agreement, " *Change of Control* " shall mean the occurrence of one or more of the following events:

a. Any Person becomes the Beneficial Owner, directly or indirectly, of more than thirty percent (30%) of the combined voting power, excluding any Person who holds thirty percent (30%) or more of the voting power on the Effective Date of the Plan (the " *Initial Owners* "), of the then outstanding voting securities of the Company entitled to vote generally in the election of its directors (the " *Outstanding Company Voting Securities* ") including by way of merger, consolidation or otherwise; provided , however , that for purposes of this definition, the following acquisitions shall not constitute a Change of Control: (i) any acquisition of voting securities of the Company directly from the Company, (ii) any acquisition by the Company or any of its Subsidiaries of Outstanding Company Voting Securities, including an acquisition by any employee benefit plan or related trust sponsored or maintained by the Company, or any of its Subsidiaries, (iii) any acquisition after which the Initial Owners and their affiliates remain the Beneficial Owners of more Outstanding Voting Securities than any other Person, or (iv) any acquisition by any Person that, together with its affiliates, is the Beneficial Owner of fifteen percent (15%) or more of the combined voting power of the Company's outstanding securities as of the Effective Date, unless such acquisition results in such Person, together with its affiliates, becoming the Beneficial Owner, directly or indirectly, of more than fifty percent (50%) of the combined voting power of the Outstanding Company Voting Securities, or the shares of Common Stock of the Company no longer being publicly traded on an established securities exchange.

b. The following individuals (the " *Incumbent Directors* ") cease for any reason to constitute a majority of the number of directors then serving on the Board: individuals who, on the Effective Date, constitute the Board and any new director (other than a director whose initial assumption of office is in connection with an actual or threatened election contest, including, but not limited to, a consent or proxy solicitation, relating to the election of directors of the Company by or on behalf of a Person other than the Board) whose appointment or election by the Board or nomination for election by the Company's stockholders was approved or recommended by a vote of at least a majority of the directors then still in office who either were directors on the Effective Date or whose appointment, election or nomination for election was previously so approved or recommended.

c. Consummation of a reorganization, merger, or consolidation to which the Company is a party or a sale or other disposition of all or substantially all of the assets of the Company (a " *Business Combination* "), unless, following

such Business Combination: (i) any individuals and entities that were the Beneficial Owners of Outstanding Company Voting Securities immediately prior to such Business Combination are the Beneficial Owners, directly or indirectly, of more than fifty percent (50%) of the combined voting power of the outstanding voting securities entitled to vote generally in the election of directors (or election of members of a comparable governing body) of the entity resulting from the Business Combination (including, without limitation, an entity which as a result of such transaction owns all or substantially all of the Company or all or substantially all of the Company's assets either directly or through one or more Subsidiaries) (the " *Successor Entity* ") in substantially the same proportions as their ownership immediately prior to such Business Combination; (ii) no Person (excluding any Successor Entity or any employee benefit plan or related trust of the Company, such Successor Entity, or any of their Subsidiaries) is the Beneficial Owner, directly or indirectly, of more than thirty percent (30%) of the combined voting power of the then outstanding voting securities entitled to vote generally in the election of directors (or comparable governing body) of the Successor Entity, except to the extent that such ownership existed prior to the Business Combination; and (iii) at least a majority of the members of the board of directors (or comparable governing body) of the Successor Entity were Incumbent Directors (including persons deemed to be Incumbent Directors) at the time of the execution of the initial agreement or of the action of the Board providing for such Business Combination.

Notwithstanding the foregoing, to the extent necessary to comply with Section 409A of the Code with respect to the payment of "nonqualified deferred compensation," "Change of Control" shall be limited to a "change in control event" as defined under Section 409A of the Code.

13. Forfeiture Events .

13.1. *General* . The Committee may specify in an Award Agreement at the time of the Award that the Participant's rights, payments and benefits with respect to an Award shall be subject to reduction, cancellation, forfeiture or recoupment upon the occurrence of certain specified events, in addition to any otherwise applicable vesting or performance conditions of an Award. Such events shall include, but shall not be limited to, termination of Service for Cause, violation of material Company policies, breach of noncompetition, non-solicitation, confidentiality or other restrictive covenants that may apply to the Participant or other conduct by the Participant that is detrimental to the business or reputation of the Company.

13.2. *Termination for Cause* .

a. *Treatment of Awards* . Unless otherwise provided by the Committee and set forth in an Award Agreement, if (i) a Participant's Service with the Company or any Subsidiary shall be terminated for Cause or (ii) after termination of Service for any other reason, the Committee determines in its discretion either that, (1) during the Participant's period of Service, the Participant engaged in an act which would have warranted termination of Service for Cause or (2) after termination, the Participant engaged in conduct that violated any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary, such Participant's rights, payments and benefits with respect to an Award shall be subject to cancellation, forfeiture and/or recoupment, as provided in Section 13.3 below. The Company shall have the power to determine whether the Participant has been terminated for Cause, the date upon which such termination for Cause occurs, whether the Participant engaged in an act which would have warranted termination of Service for Cause or engaged in conduct that violated any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary. Any such determination shall be final, conclusive and binding upon all Persons. In addition, if the Company shall reasonably determine that a Participant has committed or may have committed any act which could constitute the basis for a termination of such Participant's Service for Cause or violates any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary, the Company may suspend the Participant's rights to exercise any Stock Option or Stock Appreciation Right, receive any payment

or vest in any right with respect to any Award pending a determination by the Company of whether an act or omission could constitute the basis for a termination for Cause as provided in this Section 13.2.

b. *Definition of Cause* . Unless otherwise defined in an Award Agreement, " *Cause* " shall mean: (i) the Participant has committed a deliberate and premeditated act against the interests of the Company including, without limitation: an act of fraud, embezzlement, misappropriation or breach of fiduciary duty against the Company, including, but not limited to, the offer, payment, solicitation or acceptance of any unlawful bribe or kickback with respect to the Company's business; or (ii) the Participant has been convicted by a court of competent jurisdiction of, or pleaded guilty or nolo contendere to, any felony or any crime involving moral turpitude; or (iii) the Participant has failed to perform or neglected the material duties incident to his employment or other engagement with the Company on a regular basis, and such refusal or failure shall have continued for a period of twenty (20) days after written notice to the Participant specifying such refusal or failure in reasonable detail; or (iv) the Participant has been chronically absent from work (excluding vacations, illnesses, Disability or leaves of absence approved by the Board); or (v) the Participant has refused, after explicit written notice, to obey any lawful resolution of or direction by the Board which is consistent with the duties incident to his employment or other engagement with the Company and such refusal continues for more than twenty (20) days after written notice is given to the Participant specifying such refusal in reasonable detail; or (vi) the Participant has breached any of the material terms contained in any employment agreement, non-competition agreement, confidentiality agreement, restrictive covenants agreement or similar type of agreement to which such Participant is a party; or (vii) the Participant has engaged in (x) the unlawful use (including being under the influence) or possession of illegal drugs on the Company's premises or (y) habitual drunkenness on the Company's premises.

Any voluntary termination of employment or other engagement by the Participant in anticipation of an involuntary termination of the Participant's Service for Cause shall be deemed to be a termination for "Cause." Notwithstanding the foregoing, in the event that a Participant is party to an employment, severance or similar agreement with the Company or any of its affiliates and such agreement contains a definition of "Cause," the definition of "Cause" set forth above shall be deemed replaced and superseded, with respect to such Participant, by the definition of "Cause" used in such employment, severance or similar agreement.

13.3. *Right of Recapture* .

a. *General* . If at any time within one (1) year (or such longer time specified in an Award Agreement or other agreement with a Participant or policy applicable to the Participant) after the date on which a Participant exercises a Stock Option or Stock Appreciation Right or on which a Stock Award, Restricted Stock Award or Restricted Stock Unit vests or becomes payable or on which a Cash Performance Award is paid to a Participant, or on which income otherwise is realized by a Participant in connection with an Award, (i) a Participant's Service is terminated for Cause and a Forfeiture Event has occurred with respect to such Participant, (ii) the Committee determines in its discretion that the Participant is subject to any recoupment of benefits pursuant to the Company's compensation recovery, "clawback" or similar policy, as may be in effect from time to time, or (iii) after a Participant's Service otherwise terminates for any other reason, the Committee determines in its discretion either that, (1) during the Participant's period of Service, the Participant engaged in an act or omission which would have warranted termination of Service for Cause and a Forfeiture Event has occurred with respect to such Participant or (2) after termination, the Participant engaged in conduct that materially violated any continuing obligation or duty of the Participant in respect of the Company or any Subsidiary, then any gain realized by the Participant from the exercise, vesting, payment or other realization of income by the Participant in connection with an Award, shall be paid by the Participant to the Company upon notice from the Company, subject to applicable state law. Such gain shall be determined as of the date or dates on which the gain is realized by the Participant, without regard to any subsequent change in the Fair Market Value of a share of Common

Stock. To the extent not otherwise prohibited by law, the Company shall have the right to offset such gain against any amounts otherwise owed to the Participant by the Company (whether as wages, vacation pay or pursuant to any benefit plan or other compensatory arrangement).

b. *Accounting Restatement* . If a Participant receives compensation pursuant to an Award under the Plan (whether a Stock Option, Cash Performance Award or otherwise) based on financial statements that are subsequently required to be restated in a way that would decrease the value of such compensation, the Participant will, to the extent not otherwise prohibited by law, upon the written request of the Company, forfeit and repay to the Company the difference between what the Participant received and what the Participant should have received based on the accounting restatement, in accordance with (i) the Company's compensation recovery, "clawback" or similar policy, as may be in effect from time to time and (ii) any compensation recovery, "clawback" or similar policy made applicable by law including the provisions of Section 945 of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the rules, regulations and requirements adopted thereunder by the Securities and Exchange Commission and/or any national securities exchange on which the Company's equity securities may be listed (the " *Policy* "). By accepting an Award hereunder, the Participant acknowledges and agrees that the Policy shall apply to such Award, and all incentive-based compensation payable pursuant to such Award shall be subject to forfeiture and repayment pursuant to the terms of the Policy.

14. Transfer, Leave of Absence, Etc . For purposes of the Plan, except as otherwise determined by the Committee, the following events shall not be deemed a termination of employment: (a) a transfer to the employment of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or (b) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the employee's right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Committee otherwise so provides in writing.

15. General Provisions .

15.1. *Status of Plan* . The Committee may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver shares of Common Stock or make payments with respect to Awards.

15.2. *Award Agreement* . An Award under the Plan shall be evidenced by an Award Agreement in a written or electronic form approved by the Committee setting forth the number of shares of Common Stock or Restricted Stock Units subject to the Award, the exercise price, base price or purchase price of the Award, the time or times at which an Award will become vested, exercisable or payable and the term of the Award. The Award Agreement also may set forth the effect on an Award of a Change of Control and/or a termination of Service under certain circumstances. The Award Agreement shall be subject to and incorporate, by reference or otherwise, all of the applicable terms and conditions of the Plan, and also may set forth other terms and conditions applicable to the Award as determined by the Committee consistent with the limitations of the Plan. The grant of an Award under the Plan shall not confer any rights upon the Participant holding such Award other than such terms, and subject to such conditions, as are specified in the Plan as being applicable to such type of Award (or to all Awards) or as are expressly set forth in the Award Agreement. The Committee need not require the execution of an Award Agreement by a Participant, in which case, acceptance of the Award by the Participant shall constitute agreement by the Participant to the terms, conditions, restrictions and limitations set forth in the Plan and the Award Agreement as well as the administrative guidelines of the Company in effect from time to time. In the event of any conflict between the provisions of the Plan and any Award Agreement, the provisions of the Plan shall prevail.

15.3. *No Assignment or Transfer; Beneficiaries* . Except as provided in Section 6.6 hereof or as otherwise determined by the Committee, Awards under the Plan shall not be assignable or transferable by the Participant, and shall not be subject in any manner to assignment, alienation, pledge, encumbrance or charge. Notwithstanding the foregoing, in the event

of the death of a Participant, except as otherwise provided by the Committee in an Award Agreement, an outstanding Award may be exercised by or shall become payable to the Participant's beneficiary as determined under the Vonage 401(k) Retirement Plan (the " *Retirement Plan* "). In lieu of such determination, a Participant may, from time to time, name any beneficiary or beneficiaries to receive any benefit in case of the Participant's death before the Participant receives any or all of such benefit. Each such designation shall revoke all prior designations by the same Participant and will be effective only when filed by the Participant in writing (in such form or manner as may be prescribed by the Committee) with the Company during the Participant's lifetime. In the absence of a valid designation under the Retirement Plan or as provided above, if no validly designated beneficiary survives the Participant or if each surviving validly designated beneficiary is legally impaired or prohibited from receiving the benefits under an Award, the Participant's beneficiary shall be the legatee or legatees of such Award designated under the Participant's last will or by such Participant's executors, personal representatives or distributees of such Award in accordance with the Participant's will or the laws of descent and distribution. The Committee may provide in the terms of an Award Agreement or in any other manner prescribed by the Committee that the Participant shall have the right to designate a beneficiary or beneficiaries who shall be entitled to any rights, payments or other benefits specified under an Award following the Participant's death.

15.4. *Deferrals of Payment* . The Committee may in its discretion permit a Participant to defer the receipt of payment of cash or delivery of shares of Common Stock that would otherwise be due to the Participant by virtue of the exercise of a right or the satisfaction of vesting or other conditions with respect to an Award; provided , however , that such discretion shall not apply in the case of a Stock Option or Stock Appreciation Right. If any such deferral is to be permitted by the Committee, the Committee shall establish rules and procedures relating to such deferral in a manner intended to comply with the requirements of Section 409A of the Code, including, without limitation, the time when an election to defer may be made, the time period of the deferral and the events that would result in payment of the deferred amount, the interest or other earnings attributable to the deferral and the method of funding, if any, attributable to the deferred amount.

15.5. *No Right to Employment or Continued Service* . Nothing in the Plan, in the grant of any Award or in any Award Agreement shall confer upon any Eligible Person or any Participant any right to continue in the Service of the Company or any of its Subsidiaries or interfere in any way with the right of the Company or any of its Subsidiaries to terminate the employment or other service relationship of an Eligible Person or a Participant for any reason or no reason at any time.

15.6. *Rights as Stockholder* . A Participant shall have no rights as a holder of shares of Common Stock with respect to any unissued securities covered by an Award until the date the Participant becomes the holder of record of such securities. Except as provided in Section 4.5 hereof, no adjustment or other provision shall be made for dividends or other stockholder rights, except to the extent that the Award Agreement provides for dividend payments or dividend equivalent rights. The Committee may determine in its discretion the manner of delivery of Common Stock to be issued under the Plan, which may be by delivery of stock certificates, electronic account entry into new or existing accounts or any other means as the Committee, in its discretion, deems appropriate. The Committee may require that the stock certificates (if any) be held in escrow by the Company for any shares of Common Stock or cause the shares to be legended in order to comply with the securities laws or other applicable restrictions or should the shares of Common Stock be represented by book or electronic account entry rather than a certificate, the Committee may take such steps to restrict transfer of the shares of Common Stock as the Committee considers necessary or advisable.

15.7. *Trading Policy Restrictions* . Stock Option exercises and other transactions involving Awards under the Plan shall be subject to the Company's securities trading compliance policy and other restrictions, terms and conditions, to the extent established by the Committee, including any other applicable policies set by the Committee, from time to time.

15.8. *Section 409A Compliance* . To the extent applicable, it is intended that the Plan and all Awards hereunder comply with, or be exempt from, the requirements of Section 409A of the Code and the Treasury Regulations and other guidance issued thereunder, and that the Plan and all Award Agreements shall be interpreted and applied by the Committee in a manner consistent with this intent in order to avoid the imposition of any additional tax under Section 409A of the Code. In the event that any (i) provision of the Plan or an Award Agreement, (ii) Award, payment, transaction or (iii) other action or arrangement contemplated by the provisions of the Plan is determined by the Committee to not comply with the applicable requirements of Section 409A of the Code and the Treasury Regulations and other guidance issued thereunder, the Committee shall have the authority to take such actions and to make such changes to the Plan or an Award Agreement as the Committee deems necessary to comply with such requirements; provided , however , that no such action shall adversely affect any outstanding Award without the consent of the affected Participant. No payment that constitutes deferred compensation under Section 409A of the Code that would otherwise be made under the Plan or an Award Agreement upon a termination of Service will be made or provided unless and until such termination is also a "separation from service," as determined in accordance with Section 409A of the Code. Notwithstanding the foregoing or anything elsewhere in the Plan or an Award Agreement to the contrary, if a Participant is a "specified employee" as defined in Section 409A of the Code at the time of termination of Service with respect to an Award, then solely to the extent necessary to avoid the imposition of any additional tax under Section 409A of the Code, the commencement of any payments or benefits under the Award shall be deferred until the date that is six (6) months plus one (1) day following the date of the Participant's termination of Service or, if earlier, the Participant's death (or such other period as required to comply with Section 409A). In no event whatsoever shall the Company be liable for any additional tax, interest or penalties that may be imposed on a Participant by Section 409A of the Code or any damages for failing to comply with Section 409A of the Code.

15.9. *Securities Law Compliance* . No shares of Common Stock will be issued or transferred pursuant to an Award unless and until all then applicable requirements imposed by Federal and state securities and other laws, rules and regulations and by any regulatory agencies having jurisdiction, and by any exchanges upon which the shares of Common Stock may be listed, have been fully met. As a condition precedent to the issuance of shares of Common Stock pursuant to the grant or exercise of an Award, the Company may require the Participant to take any reasonable action that the Company determines is necessary or advisable to meet such requirements. The Committee may impose such conditions on any shares of Common Stock issuable under the Plan as it may deem advisable, including, without limitation, restrictions under the Securities Act under the requirements of any exchange upon which such shares of the same class are then listed, and under any blue sky or other securities laws applicable to such shares. The Committee may also require the Participant to represent and warrant at the time of issuance or transfer that the shares of Common Stock are being acquired solely for investment purposes and without any current intention to sell or distribute such shares.

15.10. *Substitute Awards in Corporate Transactions* . Nothing contained in the Plan shall be construed to limit the right of the Committee to grant Awards under the Plan in connection with the acquisition, whether by purchase, merger, consolidation or other corporate transaction, of the business or assets of any corporation or other entity. Without limiting the foregoing, the Committee may grant Awards under the Plan to an employee or director of another corporation who becomes an Eligible Person by reason of any such corporate transaction in substitution for awards previously granted by such corporation or entity to such person. The terms and conditions of the substitute Awards may vary from the terms and conditions that would otherwise be required by the Plan solely to the extent the Committee deems necessary for such purpose. Any such substitute awards shall not reduce the Share Reserve; provided , however , that such treatment is permitted by applicable law and the listing requirements of the New York Stock Exchange or other exchange or securities market on which the Common Stock is listed.

15.11. *Tax Withholding* . The Participant shall be responsible for payment of any taxes or similar charges required by law to be paid or withheld from an Award or an amount paid in satisfaction of an Award. Any required withholdings shall be paid by the Participant on or prior to the payment or other event that results in taxable income in respect of an Award. The Award Agreement may specify the manner in which the withholding obligation shall be satisfied with respect to the particular type of Award, which may include permitting the Participant to elect to satisfy the withholding obligation by tendering shares of Common Stock to the Company or having the Company withhold a number of shares of Common Stock having a value not exceeding the maximum statutory tax or similar charge required to be paid or withheld.

15.12. *Unfunded Plan* . The adoption of the Plan and any reservation of shares of Common Stock or cash amounts by the Company to discharge its obligations hereunder shall not be deemed to create a trust or other funded arrangement. Except upon the issuance of shares of Common Stock pursuant to an Award, any rights of a Participant under the Plan shall be those of a general unsecured creditor of the Company, and neither a Participant nor the Participant's permitted transferees or estate shall have any other interest in any assets of the Company by virtue of the Plan. Notwithstanding the foregoing, the Company shall have the right to implement or set aside funds in a grantor trust, subject to the claims of the Company's creditors or otherwise, to discharge its obligations under the Plan.

15.13. *Other Compensation and Benefit Plans* . The adoption of the Plan shall not affect any other share incentive or other compensation plans in effect for the Company or any Subsidiary, nor shall the Plan preclude the Company from establishing any other forms of share incentive or other compensation or benefit program for employees of the Company or any Subsidiary. The amount of any compensation deemed to be received by a Participant pursuant to an Award shall not constitute includable compensation for purposes of determining the amount of benefits to which a Participant is entitled under any other compensation or benefit plan or program of the Company or a Subsidiary, including, without limitation, under any pension or severance benefits plan, except to the extent specifically provided by the terms of any such plan.

15.14. *Plan Binding on Transferees* . The Plan shall be binding upon the Company, its transferees and assigns, and the Participant, the Participant's executor, administrator and permitted transferees and beneficiaries.

15.15. *Severability* . If any provision of the Plan or any Award Agreement shall be determined to be illegal or unenforceable by any court of law in any jurisdiction, the remaining provisions hereof and thereof shall be severable and enforceable in accordance with their terms, and all provisions shall remain enforceable in any other jurisdiction.

15.16. *Governing Law* . The Plan and all rights hereunder shall be subject to and interpreted in accordance with the laws of the State of Delaware, without reference to the principles of conflicts of laws, and to applicable Federal securities laws.

15.17. *No Fractional Shares* . No fractional shares of Common Stock shall be issued or delivered pursuant to the Plan or any Award, and the Committee shall determine whether cash, other securities or other property shall be paid or transferred in lieu of any fractional shares of Common Stock or whether such fractional shares or any rights thereto shall be canceled, terminated or otherwise eliminated.

15.18. *No Guarantees Regarding Tax Treatment* . Neither the Company nor the Committee make any guarantees to any person regarding the tax treatment of Awards or payments made under the Plan. Neither the Company nor the Committee has any obligation to take any action to prevent the assessment of any tax on any person with respect to any Award under Section 409A of the Code, Section 4999 of the Code or otherwise and neither the Company nor the Committee shall have any liability to a person with respect thereto.

15.19. *Data Protection* . By participating in the Plan, each Participant consents to the collection, processing, transmission and storage by the Company, its Subsidiaries and any third party administrators of any data of a professional or personal nature for the purposes of administering the Plan.

15.20. *Awards to Non-U.S. Participants.* To comply with the laws in countries other than the United States in which the Company or any of its Subsidiaries or affiliates operates or has employees, Non-Employee Directors or consultants, the Committee, in its sole discretion, shall have the power and authority to (i) modify the terms and conditions of any Award granted to Participants outside the United States to comply with applicable foreign laws, (ii) take any action, before or after an Award is made, that it deems advisable to obtain approval or comply with any necessary local government regulatory exemptions or approvals and (iii) establish subplans and modify exercise procedures and other terms and procedures, to the extent such actions may be necessary or advisable. Any subplans and modifications to Plan terms and procedures established under this Section 15.20 by the Committee shall be attached to this Plan document as appendices.

16. Term; Amendment and Termination; Stockholder Approval; Arbitration .

16.1. *Term* . The Plan shall be effective as of the date of its approval by the stockholders of the Company (the " *Effective Date* "). Subject to Section 16.2 hereof, the Plan shall terminate on the tenth anniversary of the Effective Date.

16.2. *Amendment and Termination* . The Board may from time to time and in any respect, amend, modify, suspend or terminate the Plan; provided , however , that no amendment, modification, suspension or termination of the Plan shall materially and adversely affect any Award theretofore granted without the consent of the Participant or the permitted transferee of the Award. The Board may seek the approval of any amendment, modification, suspension or termination by the Company's stockholders to the extent it deems necessary in its discretion for purposes of compliance with Section 162(m) or Section 422 of the Code or for any other purpose, and shall seek such approval to the extent it deems necessary in its discretion to comply with applicable law or listing requirements of the New York Stock Exchange or other exchange or securities market. Notwithstanding the foregoing, the Board shall have broad authority to amend the Plan or any Award under the Plan without the consent of a Participant to the extent it deems necessary or desirable in its discretion to comply with, take into account changes in, or interpretations of, applicable tax laws, securities laws, employment laws, accounting rules and other applicable laws, rules and regulations.

16.3. *Re-Approval of Performance Criteria* . At the discretion of the Board, for purposes of compliance with Section 162(m) of the Code, the Company may seek approval by the Company's stockholders of the Performance Criteria (or other designated performance goals) and such other provisions as determined by the Board no later than the annual general meeting of stockholders in the fifth year following the year in which the Effective Date occurs.

16.4. *Arbitration* . Any dispute, controversy or claim arising out of or relating to the Plan that cannot be resolved by the Participant on the one hand, and the Company on the other, shall be submitted to arbitration in the State of New Jersey under the National Rules for the Resolution of Employment Disputes of the American Arbitration Association; provided , however , that any such submission by the Participant must be made within one year of the date of the events giving rise to such dispute, controversy or claim. The determination of the arbitrator shall be conclusive and binding on the Company and the Participant, and judgment may be entered on the arbitrator's award in any court having jurisdiction. The expenses of such arbitration shall be borne by the Company; provided , however , that each party shall bear its own legal expenses unless the Participant is the prevailing party, in which case the Company shall promptly pay or reimburse the Participant for the reasonable legal fees and expenses incurred by the Participant in connection with such contest or dispute (excluding any fees payable pursuant to a contingency fee arrangement).

Exhibit 21.1

Vonage Holdings Corp.

List of Subsidiaries

Name	Jurisdiction of Incorporation
Vonage America Inc.	Delaware
Vonage Wireless Inc.	Delaware
Vonage Business Inc.	Delaware
Vonage Business Networks, Inc.	Delaware
Vonage Worldwide Inc.	Delaware
Vonage International Inc.	Delaware
Vonage Canada Corp.	British Columbia, Canada
Vonage Business Canada Corp.	British Columbia, Canada
Vonage A/S	Denmark
Vonage B.V.	The Netherlands
Vonage Limited	United Kingdom
Vonage India Private Limited	India
Vonage Applications Inc.	Delaware
Vonage Apps. Ltd.	Israel
Vonage Foundation Corp.	Delaware (Non-Profit)
Nexmo Inc.	Delaware
Nexmo Limited	England & Wales
Nexmo Asia Pacific Limited	Hong Kong
Nexmo Pte. Ltd.	Singapore
Nexmo World Services Limited	England & Wales
Nexmo Software Services Company Ltd.	China
Vonage Japan G.K.	Japan
Vonage France SARL	France

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statement No. 333-154974 on Form S-3 and Registration Statement Nos. 333-192629, 333-136227, 333-173053, 333-205224, and 333-212296 on Form S-8 of our reports dated February 27, 2018 , relating to the consolidated financial statements (which report expresses an unqualified opinion and includes an explanatory paragraph related to the adoption of a new accounting standard) and financial statement schedule of Vonage Holdings Corp., and the effectiveness of Vonage Holdings Corp.'s internal control over financial reporting, appearing in this Annual Report on Form 10-K of Vonage Holdings Corp. for the year ended December 31, 2017.

/s/ Deloitte & Touche LLP
Parsippany, NJ
February 27, 2018

Exhibit 23.2

Consent of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Vonage Holdings Corp.
Holmdel, New Jersey 07733

We hereby consent to the incorporation by reference in the Registration Statements on Form S3 (No. 333-154974) and Form S-8 (No. 333-192629, 333-136227, 333-173053, 333-205224, and 333-212296) of Vonage Holdings Corp. (“the Company”) of our report dated February 28, 2017, except for Note 3 for which is February 27, 2018 relating to the consolidated financial statements and schedule of the Company as of December 31, 2016 and for the two years in the period then ended, which appear in this 10-K.

/s/ BDO USA, LLP
Woodbridge, New Jersey
February 27, 2018

EXHIBIT 31.1

CERTIFICATION

PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Alan Masarek, certify that:

1. I have reviewed this annual report on Form 10-K of Vonage Holdings Corp.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2018

/s/ Alan Masarek

Alan Masarek

Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION

PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David T. Pearson, certify that:

1. I have reviewed this annual report on Form 10-K of Vonage Holdings Corp.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2018

/s/ David T. Pearson

David T. Pearson

Chief Financial Officer and Treasurer

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Alan Masarek, certify to my knowledge pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Vonage Holdings Corp. on Form 10-K for the annual period ended December 31, 2017 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Vonage Holdings Corp.

Date: February 27, 2018

/s/ Alan Masarek

Alan Masarek

Chief Executive Officer

I, David T. Pearson, certify to my knowledge pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Vonage Holdings Corp. on Form 10-K for the annual period ended December 31, 2017 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Vonage Holdings Corp.

Date: February 27, 2018

/s/ David T. Pearson

David T. Pearson

Chief Financial Officer and Treasurer