

FORM 10-K Annual Report Pursuant to Section 13 or 15(d) of The Securities Exchange Act of 1934

For the fiscal year ended 12/31/2019

 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
(State or other jurisdiction of
incorporation or organization)11-3547680
(I.R.S. Employer Identification No.)23 Main Street
(Address of principal executive offices)Holmdel , New Jersey , 07733
(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	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, Par Value \$0.001 Per Share	VG	Nasdaq Global Select Market

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 every Interactive Data File required to be submitted 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 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 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, 2019 was \$2,588,190,451 based on the closing price of \$11.33 per share.

The number of shares outstanding of the registrant's common stock as of January 31, 2020 was 242,918,708.

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, 2019, are incorporated by reference in Part III of this Form 10-K.

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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. Important factors that could cause such differences include, but are not limited to: the competition we face; the expansion of competition in the cloud communications market; risks related to the acquisition or integration of businesses we have acquired; 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; developing and maintaining market awareness and a strong brand; developing and maintaining effective distribution channels; 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 vendors; system disruptions or flaws in our technology and systems; our ability to comply with data privacy and related regulatory matters; our ability to scale our business and grow efficiently; the impact of fluctuations in economic conditions, particularly on our small and medium business customers; the effects of significant foreign currency fluctuations; 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; restrictions in our debt agreements that may limit our operating flexibility; our ability to obtain additional financing if required; retaining senior executives and other key employees; intellectual property and other litigation that have been and may be brought against us; rapid developments in global API regulation and uncertainties relating to regulation of VoIP services; risks associated with legislative, regulatory or judicial actions regarding our business products; reliance on third parties for our 911 services; liability under anti-corruption laws or from governmental export controls or economic sanctions; actions of activist shareholders; risks associated with the taxation of our business; governmental regulation and taxes in our international operations; 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; risks associated with the settlement and conditional conversion of our Convertible Senior Notes; potential effects the capped call transactions may have on our stock in connection with our Convertible Senior Notes; 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 amendments to these reports.

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.

GLOSSARY OF TERMS

When the following terms and abbreviations appear in the text of this report, they have the meanings indicated below:

2016 Credit Facility	\$125 million senior secured term loan and \$325 million revolving facility due 2020
2018 Credit Facility	\$100 million senior secured term loan and \$500 million revolving facility due 2023
Convertible Senior Notes	\$345 million aggregate principal amount of 1.75% convertible notes due 2024
API	Application Program Interfaces
API Platform Group	Comprised of CPaaS programmable communication solutions for business customers
Applications Group	Comprised of UCaaS and CCaaS communication solutions for business customers
ASC	The FASB Accounting Standards Codification, which the FASB established as the source of authoritative GAAP
ASU	Accounting Standards Updates - updates to the ASC
CCaaS	Contact Center as a Service
Code	Internal Revenue Code of 1986, as amended
CPaaS	Communications Platform as a Service
CRM	Customer Relationship Management
Exchange Act	The Securities Exchange Act of 1934, as amended
ECP	Electronic Check Payments
EPS	Earnings Per Share
FASB	Financial Accounting Standards Board
FCC	Federal Communications Commission
FCPA	Foreign Corrupt Practice Act
GDPR	European Union General Data Protection Regulation
IP	Internet Protocol
IRS	Internal Revenue Service
LIBOR	London Inter-Bank Offered Rate
MPLS	Multi-Protocol Label Switching
NOLs	Net Operating Losses
NVM	NewVoiceMedia Limited
QoS	Quality of Service
SaaS	Software as a Service
SAB	Staff Accounting Bulletins
SD-WAN	Software-Defined Wide Area Network
SEC	U.S. Securities and Exchange Commission
SIP	Session Initiation Protocol
SMB	Small to medium-sized business
SMS	Short Message Service
TCJA	Tax Cuts and Jobs Act enacted in 2017
TokBox	Collectively, Telefonica Digital, Inc., TokBox, Inc., and TokBox Australia Pty Limited
TSR	Total Shareholder Return
UCaaS	Unified Communications as a Service
UI	User Interface
USF	Federal Universal Service Fund
VBC	Vonage Business Cloud
VoIP	Voice over Internet Protocol

ITEM 1. Business

OVERVIEW AND STRATEGY

At Vonage, our strategy is to build the world's most flexible cloud communications platform. Our mission is to make communications more flexible, intelligent, and personal to help businesses differentiate themselves by creating a better experience for their customers and employees. We provide UCaaS and CCaaS business solutions in our Applications Group and CPaaS business solutions in our API Platform Group, all built from a single platform. True to our roots as a technology disruptor, our flexible approach helps us to better serve the growing collaboration, communications, and customer experience needs of companies, across all communications channels. Every company is different, which is why we believe it is essential to provide communications flexibility to our customers. Vonage customers can choose from our Applications products, or may use our portfolio of APIs to create their own applications and integrations. Or, our customers may use Applications while customizing with APIs to fit their business needs. Whatever our customers choose, we provide our customers the ability and flexibility to integrate voice, video, messaging and chat apps and social media from a single owned platform.

We also provide a robust set of feature-rich residential communication solutions that allow consumers to connect their home phones and mobile phones to one number. We also offer competitive international long-distance rates.

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.

EVOLUTION OF VONAGE

Founded in 2001, Vonage was among the first companies to provide Voice over Internet Protocol technology offering feature-rich, low-cost voice services. Over recent years and through multiple acquisitions discussed in detail below, Vonage has transformed from solely a provider of VoIP communication services to predominantly a SaaS company offering a suite of communications solutions for businesses.

Beginning in November 2013 and continuing through September 2015, Vonage acquired five companies: Vocalocity, Inc., Telesphere Networks Ltd., Simple Signal Inc., gUnify LLC and iCore Networks Inc. With these acquisitions, Vonage began its execution of a pivot from a solely residential communications provider to establishing the foundation of unified communications as a service sector, addressing the needs of businesses to improve how they communicate with their customers and their employees.

In June 2016, Vonage completed the acquisition of Nexmo, Inc., a global leader in communications platform as a service sector of the cloud communications market. The acquisition of Nexmo accelerated Vonage's growth strategy to provide APIs for text messaging and voice communications, allowing developers and enterprises to embed contextual, programmable communications into mobile apps, websites, and business systems.

In August 2018, Vonage acquired TokBox Inc., an industry leader in WebRTC programmable video that enables developers and enterprises to integrate live video into websites, mobile apps and IoT devices with only a few lines of code. The acquisition of TokBox meaningfully broadened Vonage's API capabilities by adding video to its existing services in voice, SMS and IP messaging. This addition enables businesses to benefit from simple, flexible and scalable programmable video solutions to create deeper customer relationships for businesses.

In October 2018, Vonage completed the acquisition of NewVoiceMedia, an industry-leading cloud contact center as a service provider. This acquisition enabled Vonage to combine its robust UCaaS and CPaaS solutions with NVM's pure-play cloud contact center offerings, culminating in the Company's ability to provide an end-to-end communication experience for a company's employees and its customers. The addition of NewVoiceMedia helps to accelerate our growth strategy and leadership position in business communications, strengthening our presence with global mid-market and enterprise clients, and deepening our integrations and key go-to-market relationships with CRM platforms like Salesforce.com. In fact, NewVoiceMedia has a long and strategic relationship with Salesforce as the leading contact center provider in the Salesforce ecosystem.

Recently in August 2019, we acquired intellectual property assets from Over.ai in order to integrate conversational artificial intelligence into our Business product offerings. We also hired certain key employees and engineers from Over.ai in connection with this asset acquisition.

SERVICE OFFERINGS

Business

For our Business customers, our Applications Group provides innovative, cloud-based UCaaS solutions, comprised of integrated voice, text, video, data, collaboration, contact center and mobile applications over our flexible, scalable Session Initiation Protocol based VoIP network. We support the full range of business customers, using the Company's two UCaaS product families: Vonage Business Cloud, based on our cloud-native, proprietary platform; and Vonage Enterprise, based on Broadsoft's call processing platform in combination with other Vonage cloud-based solutions. Our UCaaS subscription 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 Applications Group also provides customers with a robust CCaaS offering, driving intelligent interactions for customers through emerging technologies such as skills-based routing, real-time sentiment analysis, and chatbots.

Our API Platform Group also offers CPaaS solutions via communications APIs to developers designed to enhance the way businesses communicate with their customers by embedding contextual 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 or onsite expertise.

Our customer base spans a wide variety of industries, including manufacturing, automotive, legal, information technology, financial services, construction, real estate, engineering, healthcare, and nonprofit organizations.

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 cloud-based business applications and CRM solutions, to improve productivity and streamline communication, including Google's G Suite, Zendesk, Salesforce, Oracle, Clio, and others.

The following provides a more detailed description of our Business services under its Applications Group and API Platform Group:

Applications

The Company's Applications are comprised of its UCaaS and CCaaS service offerings which covers a wide range of solutions as follows:

Vonage Business Cloud

Vonage Business Cloud utilizes our cloud-native, proprietary technology platform which aims to deliver seamless, integrated cloud-based unified communication services. It provides a cost-effective, highly scalable, feature-rich solution, delivered over-the-top of a customer's broadband. Vonage SmartWAN uses SD-WAN technology to optimize QoS for unified communications across a company's multiple locations over a private or public network to improve redundancy across locations for business customers that rely on high quantities of voice, video and data communications in their day-to-day operations. All of our Vonage Business Cloud offerings includes access to our mobile application. 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.

Vonage Business Cloud also integrates with other third-party software applications to improve workflow and enhance productivity via the Vonage App Center ecosystem. Built on a microservices architecture, Vonage App Center creates embedded, UI-level integrations with high-value applications, placing critical functionality at the fingertips of VBC users within a single, familiar interface. Our software uses a combination of open APIs and pre-built integrations to enhance functionality with data from other third-party enterprise applications including Salesforce, Microsoft Dynamics, NetSuite, Zendesk, Oracle Sales Cloud, Hubspot, and others. The investments we have made have enabled scalability to allow Vonage Business Cloud to serve a broader customer base.

The launch of Vonage Business Cloud was quickly followed by innovations to improve and build upon this service with new features and functionality that we believe transforms the way businesses connect, including:

- *Vonage Business Cloud Desktop Connect App*, which allows employees to start their day in the redesigned Vonage Business Cloud Mobile App and switch to the desktop when they reach the office;
- *Vee*, our virtual customer assistant chatbot integrated with a cloud-based unified communications solution that aids customers in managing their account services via simple natural-language text commands
- *VonageFlow*, our proprietary workstream collaboration solution;

- *Business Inbox*, which allows customers to reply to messages sent in messaging apps like Facebook Messenger, providing the ability to respond to customers in real-time directly within the app, organizing customer requests in one unified inbox; and
- *CX Cloud*, an advanced omni-channel contact center product suite allowing businesses to utilize Vonage APIs to customize their interactions with customers via real-time sentiment analysis, chatbots, and interactive voice response; and
- *Vonage Meetings*, a programmable video capability which is fully integrated with VBC and leverages Vonage APIs to enable voice, SMS, social, team messaging, email and video all within in a single interview for a simple, clean user experience.

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.

Vonage Enterprise services include 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.

Vonage's Contact Center Solution

With the 2018 acquisition of NVM, Vonage also provides customers with a robust CCaaS offering, driving intelligent interactions for customers through emerging technologies such as skills-based routing, real-time sentiment analysis and chatbots. Our cloud contact center solution, combined with Vonage's offering, provides an end-to-end communications experience for enhanced customer engagement and conversation. By integrating with CRMs, Vonage's Contact Center solution delivers better omni-channel interactions and robust analytics.

With Vonage's Contact Center solution, we believe that Vonage is the only cloud communication company that can combine deep CRM integrations with the full range of programmable communications used by a business's employees and its customers.

Vonage APIs

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. Programmable communications via APIs enable enterprises to improve the ways they engage their customers through personalized and contextual communications for deeper engagement and more meaningful relationships.

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, we believe enterprises of all sizes will adopt contextual communications to deliver better business outcomes.

Vonage APIs aims to remove the complexities of the global communications networks and deliver voice, messaging, and authentication capabilities 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 via prepaid accounts. Our customers include digital native companies that are looking to disrupt an existing industry, enterprises undergoing digital transformation, and enterprise SaaS companies looking to enhance their products with embedded communications capabilities.

We are observing an increased need among businesses to provide their customers with the ability to connect and communicate by their customers' own preferred channels (chat, voice, SMS, social messaging, etc). The need for companies to jump between modes of communication is being driven by today's customer. In a digital world, this is what customers have come to expect. These same businesses are therefore seeking the ability to implement these API tools quickly and without the need for in-house IT support or expertise.

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.
- *Messages API and Dispatch API*: Together they enable brands to engage with their customers wherever they prefer, elevating customer communications by meeting customers on the channels they find most engaging.
- *Video API*: Our programmable video enables developers, independent software vendors, and enterprises to incorporate highly scalable point-to-point and multi-party video into websites, mobile applications and IoT devices with only a few lines of code.

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, Vonage has office locations all over the world, including the United States, United Kingdom, Israel, 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 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. 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 inbound 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.

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. 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.

MARKETING

In connection with our transformation from a consumer telecommunications company to a business-focused SaaS provider, beginning in 2020 we initiated a rebranding of the Company and began implementing a new approach to marketing. Our marketing objective is to help drive growth and revenue across our business 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 and communications APIs, 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

Developer Ecosystem

Our API platform products are principally adopted and consumed by software developers all over the world. Given the nature of the business, we invest significant time and effort to build, recruit, and maintain developers and various software ecosystems. We have a large developer ecosystem worldwide with over 940,000 registered developers.

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 Vonage APIs. 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. We continue 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, Vonage'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 Vonage. This allows customers to self-provision their accounts with the aim of improving the customer experience while reducing customer acquisition costs.

INTELLECTUAL PROPERTY

We currently own over 235 issued U.S. patents as well as a number of foreign patents and pending U.S. and 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.

We have acquired multiple U.S. and foreign patents, and obtained licenses to numerous other patents. 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.

COMPETITION

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

- Independent cloud service 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.

We face 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 and CCaaS offerings.

There is a continuing trend toward consolidation of competitive 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.

EMPLOYEES

As of December 31, 2019, we had 2,264 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 at 100 F Street, NE, Washington, D.C. 20549. 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.

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, contact center as a service companies, 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 us 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, video, 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.

With our offering of cloud-based contact center services, we also compete with large legacy technology vendors that offer on-premise enterprise telephony and contact center systems and legacy on-premise software companies that come from a computer-telephony integration heritage. These companies are supplementing their traditional on-premise contact center systems with cloud offerings, either through acquisition or in-house development. Additionally, we compete with vendors that historically provided other contact center services and technologies and expanded to offer cloud contact center software. We also face competition from smaller contact center service providers with specialized contact center software offerings. Our actual and potential competitors may enjoy competitive advantages over us, including greater name recognition, longer operating histories, and larger marketing budgets, as well as greater financial or technical resources. With the introduction of new technologies and market entrants, we expect competition to intensify in the future.

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.

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, 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. 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 API Platform 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. If we fail to achieve the foregoing, the market for our products and platform or our share of that market could fail to grow significantly. If the API Platform 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 Applications Group 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 API Platform 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 API 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 activate 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.

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

In August 2018, we acquired TokBox with the intention of integrating and adding video to our Business offerings in voice, SMS, and IP messaging. In October 2018, we completed the acquisition of NewVoiceMedia as a contact center provider, with the intention of combining our Applications Group and API Platform solutions to provide an end-to-end communications experience for a company's employees and customers. In August 2019, we acquired intellectual property assets from Over.ai in order to integrate conversational artificial intelligence into our Business product offerings. In addition, 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, 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.

Growth of our business will depend on market awareness and a strong brand, and any failure to develop, maintain, protect and enhance our brand would hurt our ability to retain or attract subscribers.

Beginning in 2020, we initiated a rebranding of the Company and began implementing a new marketing campaign. Building and maintaining market awareness, brand recognition and goodwill in a cost-effective manner is important to our overall success in achieving widespread acceptance of our existing and future solutions and products and is an important element in attracting new customers. While we may choose to engage in a broader marketing campaign to further promote our brand, this effort may not be successful, or our marketing techniques or content may be challenged. The success of our business also 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. Our efforts in developing our brand may be hindered by the marketing efforts of our competitors and our reliance on any strategic partners to promote our brand. If we are unable to cost-effectively maintain and increase awareness of our brand, our business, financial condition, cash flows and results of operations could be harmed.

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 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.

Security breaches and other cybersecurity or technological risks could compromise our information systems and network and expose us to liability, which could 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 and 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, as well as our ability to keep personally identifiable information confidential, which could adversely affect our business.

We have been subject to cybersecurity 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 cybersecurity incidents will not occur in the future, potentially more frequently and/or on a more significant scale.

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 cybersecurity 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, such as areas in the Asia Pacific including China, we may become subject to local data security, privacy, data retention, and disclosure laws and regulations. Due to more burdensome and country-specific requirements, 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 Applications 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, and requiring highly skilled sales and support personnel. 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. In addition, the rollout of our products with medium-sized and enterprise customers can take longer periods of time compared to smaller customers, which can result in longer lead times in realizing revenues. 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.

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. 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.

It is vital to our customers that there be a minimum of disruption to the performance of our API and Applications services. We are therefore vulnerable to service interruptions of our third-party data center providers, such as IBM Softlayer and Amazon Web Services, or AWS; and of third-party hosted services. We may experience interruptions, delays and outages in third-party 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 our data center providers' and other hosted providers' 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 services. For example, Broadsoft, Inc. provides us with infrastructure, call termination and origination services, and other hardware and software in connection with certain of our 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 services and may cause material harm to our business or results of operations.

We outsource some of our cloud infrastructure to 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.

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 customers, 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.

Unpredictable technological disruptions, natural disasters, pandemic diseases, or other disruptions outside of our control could cause significant business interruptions resulting in harm to our business operations and financial condition.

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 operations, and the operations of our vendors and customers, may also suffer interruptions caused by natural disasters, acts of terrorism or pandemic diseases, and such operations may be further affected by government reactions due to such incidents. For example, the Company has both employees and business operations in the Asia Pacific, including China. The recent and ongoing coronavirus outbreak stemming from China (COVID-19) has resulted in increased travel restrictions and extended shutdown of certain businesses in China and the larger Asia Pacific region. These or any further political or governmental developments or health concerns in China, or other countries in which we operate, could result in social, economic or labor instability. Such uncertainties could have a material adverse effect on the continuity of our business and our results of operations and financial condition.

The storage, processing, and use of personal information and other confidential information 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 commitments and industry standards, each provide for obligations and restrictions with respect to data privacy and security, as well as the collection, storage, retention, 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 new laws may also impact our innovation and business drivers in developing new and emerging technologies (e.g., artificial intelligence and machine learning).

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, which in turn could limit the ability of 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.

An example of data privacy and security 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 residents to develop a comprehensive privacy program. The GDPR became 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.

Additionally, California enacted the California Consumer Privacy Act ("CCPA"), which is a sweeping legislation with some similarities to GDPR, which came into effect on January 1, 2020. Pursuant to the CCPA, we are required, among other things, to make certain enhanced disclosures related to California residents regarding our use and disclosure of their personal information, allow California residents to opt-out of certain uses and disclosures of their personal information without penalty, provide Californians with other choices related to personal data in our possession, and obtain opt-in consent before engaging in certain uses of personal information relating to Californians under the age of 16.

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.

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 Applications 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.

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, our API business 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 this referendum, the U.K. officially withdrew from the EU on January 31, 2020, subject to a transition period until the end of 2020 while the U.K. and EU negotiate additional arrangements. Brexit has continued to cause 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 fail to protect unique aspects of our internally developed systems, technology, products, 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 235 issued U.S. patents as well as a number of foreign patents and over 45 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 be capable of fraudulently using 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.

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

On July 31, 2018, we replaced our 2016 Credit Facility previously consisting of a \$125 million senior secured term loan and a \$325 million revolving credit facility with the 2018 Credit Facility consisting of a \$100 million senior secured term loan and a \$500 million revolving facility. The 2018 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 2018 Credit Facility, we are required to comply with financial covenants, including 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 2018 Credit Facility. In that case, the lenders could elect to declare due and payable immediately all amounts due under the 2018 Credit Facility, including principal and accrued interest.

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, 2018.

We depend on the continued services of our senior management and other key employees, the loss of any of whom could adversely affect our business, results of operations and financial condition.

Our future performance depends on the continued services and contributions of our senior management and other key employees to execute on our business plan, and to identify and pursue opportunities and services innovations. The loss of services of senior management or other key employees could significantly delay or prevent the achievement of our development and strategic objectives. For example, Chief Financial Officer David Pearson has announced his retirement, effective May 2020. None of our executive officers or other senior management personnel is bound by a written employment agreement and any of them may therefore terminate employment with us at any time with no advance notice. The replacement of any of these senior management personnel would likely involve significant time and costs, and such loss could significantly delay or prevent the achievement of our business objectives and acquisition integrations. The loss of the services of our senior management or other key employees for any reason could adversely affect our business, financial condition, or results of operations.

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, Applications, 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, 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.

The regulatory framework for API services continues to develop, as many existing regulations may not fully contemplate this type of service or business model; future legislative, regulatory or judicial actions impacting API could adversely affect our business and financial results of operations, increase the cost and complexity of compliance, and expose us to liability.

In many countries where we offer API products, it is not clear how our API Platform fits into the communications regulatory framework. The Company is also expanding into new regions, such as the Asia Pacific (including China), where regulations are unclear and subject to rapid change. Regulators could claim that our API products are subject to licensing and substantive communications regulatory requirements, could modify their regulations to explicitly expand the obligations to which our API products are subject, or could increase the level of scrutiny and enforcement they apply.

Future legislative, judicial or other regulatory actions could have a negative effect on our business. If our API products become subject to additional rules and regulations applicable to technology or communications providers, we may incur significant litigation and compliance costs, or it may significantly impact our ability to compete. Moreover, the regulatory environment is constantly evolving and changes to the applicable regulations could impose additional compliance costs and require modifications to our technology operations. We may also experience interruptions or limitations on the delivery and use of our API products on our platform, or incur significant losses based on the timing of customer payments and any difficulty in collecting accounts receivable from our API Platform customers. Any decreased use of our products and services or limitation on our ability to collect payments from our customers could adversely affect our business, results of operations, and financial condition.

We may also have to restructure or discontinue certain of our service offerings, exit certain markets, or raise the price of our services in response to regulatory changes or actions, any of which could cause our services to be less attractive to customers. In addition, future regulatory developments could increase our cost or complexity of doing business, limit our growth, or impact our results of operations.

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

In many countries, we are not a regulated telecommunications business subject primarily to regulations surrounding provision of emergency services and payment into universal service type funds. In some countries, 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 VoIP services are subject to regulation in the United States, United Kingdom, and Canada, and in additional countries as we expand globally. Future legislative, regulatory or judicial actions could adversely affect our business and expose us to liability and limit our growth potential.

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, as are other countries as we expand globally. 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, but not limited to:

- 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; and
- Consumer protection, including protection from unwanted telemarketing and other calls.

As we expand globally, these types of regulations are likely to be similarly enacted and enforced by local regulatory authorities.

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. Despite this, Vonage may be subject to state and local 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. In the UK, the Office of Communications, or OFCOM, regulates voice services. Other regulatory bodies in various jurisdictions regulate services Vonage offers its customers. These regulated services are similar to those regulated in the United States discussed above. 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 or other foreign jurisdictions, 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.

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 various global locations. 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.

Customer misuse of our API 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.

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.

Actions of activist stockholders could cause us to incur substantial costs, divert management’s attention and resources, and have an adverse effect on our business.

From time to time, we may be subject to proposals by stockholders urging us to take certain corporate actions. For example, on March 15, 2019, we entered into a cooperation agreement with an activist shareholder and certain related investors. If activist stockholder activities ensue, our business could be adversely affected because responding to proxy contests and reacting to other actions by activist stockholders can be costly and time-consuming, disrupt our operations, and divert the attention of management and our employees. For example, we may be required to retain the services of various professionals to advise us on activist stockholder matters, including legal, financial, and communications advisers, the costs of which may negatively impact our future financial results. This may be exploited by our competitors, cause concern to our current or potential customers, and make it more difficult to attract and retain qualified personnel. In addition, actions of activist shareholders may cause significant fluctuations in our stock price based on temporary or speculative market perceptions or other factors that do not necessarily reflect the underlying fundamentals and prospects of our business.

Our API Platform 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 API products. Historically, we have not billed or collected these taxes from our API customers. It is possible that some tax jurisdictions may assert that such taxes are applicable to our API products, which could result in tax assessments, penalties and interest, and we may be required to collect such taxes on our API 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 API 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 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 \$19,482 for the year ended December 31, 2019 and our accumulated deficit is \$631,009 from our inception through December 31, 2019. 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 carryforward 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 through 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.

We may not have the ability to raise the funds necessary to settle conversions of the convertible senior notes due 2024 in cash or to repurchase the notes upon a fundamental change, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of the notes.

Holders of our 1.75% convertible senior notes due 2024 (the “Convertible Senior Notes”) have the right to require us to repurchase their Convertible Senior Notes upon the occurrence of a fundamental change at a fundamental change repurchase price equal to 100% of the aggregate principal amount of the Convertible Senior Notes to be repurchased, plus accrued and unpaid interest, if any. In addition, upon conversion of the Convertible Senior Notes, unless we elect to deliver solely shares of our common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we will be required to make cash payments in respect of the Convertible Senior Notes being converted. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Convertible Senior Notes surrendered therefor or Convertible Senior Notes being converted. In addition, our ability to repurchase the Convertible Senior Notes or to pay cash upon conversions of the Convertible Senior Notes may be limited by law, by regulatory authority or by agreements governing our future indebtedness. Our failure to repurchase Convertible Senior Notes at a time when the repurchase is required by the indenture setting forth the terms of the Convertible Senior Notes or to pay any cash payable on future conversions of the Convertible Senior Notes as required by the indenture would constitute a default under the indenture. A default under the indenture setting forth the terms of the Convertible Senior Notes or the occurrence of the fundamental change itself may lead to a default under our 2018 Credit Facility or other agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Convertible Senior Notes or make cash payments upon conversions thereof. The increase in the conversion rate for Convertible Senior Notes converted in connection with a make-whole fundamental change or notice of redemption may not adequately compensate holders for any lost value of such holders’ Convertible Senior Notes as a result of such transaction.

If a make-whole fundamental change occurs prior to the maturity date or if we issue a notice of redemption with respect to the Convertible Senior Notes, under certain circumstances, we will increase the conversion rate by a number of additional shares of our common stock for Convertible Senior Notes converted in connection with such make-whole fundamental change or notice of redemption, as the case may be. The increase in the conversion rate will be determined based on the date on which the specified corporate transaction becomes effective, or the date of the notice of redemption, as the case may be and the price paid (or deemed to be paid) per share of our common stock in such transaction or with respect to such redemption, as the case may be. The increase in the conversion rate for Convertible Senior Notes converted in connection with a make-whole fundamental change or notice of redemption may not adequately compensate holders for any lost value of such holders’ Convertible Senior Notes as a result of such transaction or redemption. In addition, if the price per share of our common stock paid (or deemed paid) in the transaction is greater than \$60.00 per share or less than \$11.73 per share (in each case, subject to adjustment), no additional shares will be added to the conversion rate. Moreover, in no event will the conversion rate per \$1,000 aggregate principal amount of Convertible Senior Notes as a result of this adjustment exceed 85.2514 shares of common stock, subject to adjustment in the same manner as the conversion rate.

Our obligation to increase the conversion rate for Convertible Senior Notes converted in connection with a make-whole fundamental change or notice of redemption could be considered a penalty, in which case the enforceability thereof would be subject to general principles of reasonableness and equitable remedies.

The conditional conversion feature of the Convertible Senior Notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the Convertible Senior Notes is triggered, holders of Convertible Senior Notes will be entitled to convert the Convertible Senior Notes at any time during specified periods at their option. If one or more holders elect to convert their Convertible Senior Notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders of Convertible Senior Notes do not elect to convert their Convertible Senior Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Convertible Senior Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

Convertible debt securities that may be settled in cash, such as the Convertible Senior Notes, could have a material effect on our reported financial results.

Under certain circumstances, convertible debt instruments (such as the Convertible Senior Notes) that may be settled entirely or partly in cash may be accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of such Convertible Senior Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of such Convertible Senior Notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable or otherwise elect not to use the treasury stock method in accounting for the shares issuable upon conversion of the Convertible Senior Notes, then our diluted earnings per share could be adversely affected.

The capped call transactions entered into in connection with the pricing of the Convertible Senior Notes may affect the value of the Convertible Senior Notes and our common stock.

In connection with the pricing of the Convertible Senior Notes and subsequently in connection with the exercise of the initial purchasers' exercise of their option to purchase additional Convertible Senior Notes, we entered into capped call transactions (the "Capped Calls") with certain option counterparties. The Capped Calls are expected generally to reduce the potential dilution upon conversion of the Convertible Senior Notes and/or offset any cash payments we are required to make in excess of the aggregate principal amount of converted Convertible Senior Notes, as the case may be, with such reduction and/or offset subject to a cap.

In addition, the option counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions following the pricing of the Convertible Senior Notes and prior to the maturity of the Convertible Senior Notes (and are likely to do so during any observation period related to a conversion of the Convertible Senior Notes). This activity could also cause or avoid an increase or a decrease in the market price of our common stock or the Convertible Senior Notes, which could affect holders' ability to convert the Convertible Senior Notes and, to the extent the activity occurs during any observation period related to a conversion of Convertible Senior Notes, it could affect the number of shares and value of the consideration that holders will receive upon conversion of the Convertible Senior Notes.

In addition, if any such Capped Call fails to become effective, the option counterparty party thereto may unwind its hedge positions with respect to our common stock, which could adversely affect the value of our common stock and, if the Convertible Senior Notes have been issued, the value of the Convertible Senior Notes.

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 Amended and Restated By-laws 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 Amended and Restated By-laws, 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; and
- limit the removal of directors and the filling of director vacancies.

In addition, our Restated Certificate of Incorporation and Amended and Restated By-laws were amended on June 13, 2018 to declassify our Board of Directors. The declassification of the Board will be phased in commencing with the 2019 annual meeting of stockholders and will result in the Board being fully declassified (and all Board members standing for annual elections) commencing with the 2021 annual meeting of stockholders. A classified structure will therefore remain in place during the phase-in period.

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

Our headquarters are located in Holmdel, New Jersey. We also lease office, building space and research and development sites around the world, primarily in the United States, Europe, Israel, Australia and Asia. We sublease portions of office space including space in our Holmdel, NJ location to a third parties. We believe that the facilities that we occupy are in good condition, adequate for our current needs and do not anticipate leasing any material additional space.

ITEM 3. Legal Proceedings

Refer to Note 15, *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 was listed on the New York Stock Exchange from May 24, 2006 to December 30, 2019 and transferred to the Nasdaq Global Select Market starting December 31, 2019, both listings are under the ticker symbol “VG”.

Holders

At January 31, 2020, we had approximately 477 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.

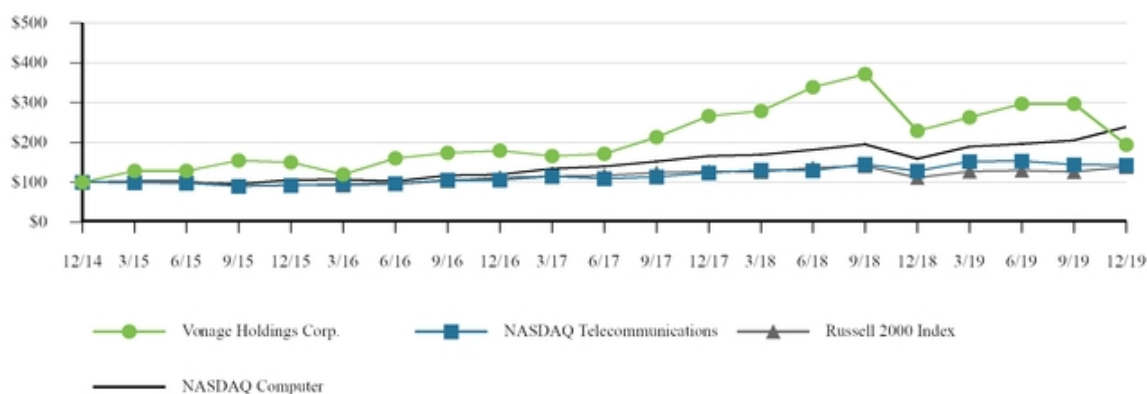
Stock Performance Graph

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, 2014 and December 31, 2019, 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, 2014 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, 2014 AND DECEMBER 31, 2019

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



	December 31,				
	2015	2016	2017	2018	2019
Vonage Holdings Corp.	\$ 150.66	\$ 179.79	\$ 266.93	\$ 229.13	\$ 194.49
NASDAQ Telecommunications	\$ 92.50	\$ 106.25	\$ 124.78	\$ 128.57	\$ 143.20
Russell 2000 Index	\$ 94.29	\$ 112.65	\$ 127.46	\$ 111.94	\$ 138.50
NASDAQ Computer	\$ 106.24	\$ 119.28	\$ 165.52	\$ 159.43	\$ 239.67

Common Stock Repurchases

See Note 10, *Common Stock* to the Company's Consolidated Financial Statements for information regarding common stock repurchases.

In connection with the issuance of the Convertible Senior Notes in June 2019, the Company repurchased an aggregate of 852,515, or \$10 million, of shares of the Company's outstanding common stock in privately negotiated transactions at a price of \$11.73 per share, which was equal to the closing price per share of the Company's common stock on June 11, 2019, the date of the pricing of the offering of the Convertible Senior Notes.

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 listed in Item 15 and included in 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 4, *Acquisitions and Dispositions* to the Company's Consolidated Financial Statements.

(In thousands, except per share amounts)	For the years ended December 31,				
	2019 ⁽¹⁾	2018 ⁽²⁾	2017	2016 ⁽³⁾	2015 ⁽⁴⁾
Statement of Operations Data:					
Total revenues	\$ 1,189,346	\$ 1,048,782	\$ 1,002,286	\$ 955,621	\$ 895,072
Income from operations	6,763	51,911	59,391	44,154	52,992
(Loss) Income from continuing operations	(19,482)	35,728	(33,933)	13,151	25,035
Discontinued operations	—	—	—	—	(2,439)
Net (loss) income	(19,482)	35,728	(33,933)	13,151	22,596
Plus: Net loss from discontinued operations attributable to noncontrolling interest	—	—	—	—	59
Net (loss) income attributable to Vonage	\$ (19,482)	\$ 35,728	\$ (33,933)	\$ 13,151	\$ 22,655
(Loss) Earnings per common share - continuing operations:					
Basic	\$ (0.08)	\$ 0.15	\$ (0.15)	\$ 0.06	\$ 0.12
Diluted	\$ (0.08)	\$ 0.14	\$ (0.15)	\$ 0.06	\$ 0.11
Loss per common share - discontinued operations attributable to Vonage:					
Basic	\$ —	\$ —	\$ —	\$ —	\$ (0.01)
Diluted	\$ —	\$ —	\$ —	\$ —	\$ (0.01)
(Loss) Earnings per common share - attributable to Vonage:					
Basic	\$ (0.08)	\$ 0.15	\$ (0.15)	\$ 0.06	\$ 0.11
Diluted	\$ (0.08)	\$ 0.14	\$ (0.15)	\$ 0.06	\$ 0.10
Weighted-average common shares outstanding:					
Basic	242,018	237,499	225,311	215,751	213,147
Diluted	242,018	248,892	225,311	231,941	224,110
Statement of Cash Flow Data:					
Net cash provided by operating activities	\$ 92,926	\$ 123,205	\$ 128,058	\$ 93,456	\$ 134,485
Net cash used in investing activities	(52,079)	(407,230)	(30,737)	(191,449)	(153,509)
Net cash (used in) provided by financing activities	(21,921)	258,212	(96,242)	68,054	35,451
Balance Sheet Data:					
Total assets	1,364,700	1,259,488	858,681	935,666	784,566
Total notes payable, indebtedness under revolving credit facility and convertible notes, net	497,158	519,228	232,515	318,874	210,392
Capital lease obligations	—	—	140	3,428	7,761
Total stockholders' equity	567,062	535,768	472,898	436,541	388,741

(1) The year ended December 31, 2019 includes the impacts of the adoption of ASC Topic 842, *Leases* on January 1, 2019.

(2) The year ended December 31, 2018 includes the impacts of the adoption of ASC Topic 606, *Revenue from Contracts with Customers* on January 1, 2018, the acquisition of NVM, which was completed in the fourth quarter, and the acquisition of TokBox, which was completed in the third quarter.

(3) The year ended December 31, 2016 includes the impacts of the acquisition of Nexmo, which was completed in the second quarter.

(4) 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.

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.

This section of this Form 10-K generally discusses 2019 and 2018 items and year-to-year comparisons between 2019 and 2018. Discussions of 2017 items and year-to-year comparisons between 2018 and 2017 that are not included in this Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of the Company's Annual Report on Form 10-K for the year ended December 31, 2018.

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 Applications Group solutions as a subscription and they can buy our API Platform Group offerings 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 Applications, comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable SIP based VoIP network along with contact center solutions. We also offer API 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 APIs 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 Applications 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. We also have operations in the United States, United Kingdom, Hong Kong, and Singapore, and provide Applications 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. The business cloud communications markets and consumer services market in which we participate are highly competitive. We face competition from a board set of companies, including (i) SaaS companies, CCaaS companies, other alternative communication providers, other providers of cloud communication services and (ii) traditional telephone, wireless service providers, cable companies, and alternative communications providers with consumer offerings. 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. For additional information, refer to "Competition" in Part I, Business.

Regulation. Our business has developed in a relatively lightly regulated environment. For further discussion regarding regulatory issues which impacts the Company, refer to "Regulation" in Note 15, *Commitments and Contingencies* to our financial statements.

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,		
	2019	2018	2017
Service revenues per customer	\$ 447	\$ 358	\$ 327
Business revenue churn	1.1%	1.1%	1.2%

Service revenues per customer. Service revenues per customer for a particular period is calculated by dividing the average monthly service revenues for the period by the average number of customers over the number of months in the period. The average number of customers 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. Service revenues excludes revenues from trading and auction customers. Service revenues per customer increased from \$358 for 2018 to \$447 for 2019 primarily driven by the Company's successful efforts to attract larger business customers and to expand services provided to our existing business customers.

Business revenue churn. Business revenue churn is calculated by dividing the revenue from customers or customer locations that have been confirmed to be foregone during a period by the simple average of the total revenue from all customers in that period. Revenue for purposes of determining Business revenue churn is service revenue excluding revenue from our trading and auction customers, and usage in excess of a customer's contracted service plan, regulatory fees charged to customers, and credits. The simple average of total revenue from all customers during the period is the total revenue as defined herein on the first day of the period, plus the total revenue as defined herein 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 business revenue churn differently, and their business revenue churn data may not be directly comparable to ours. Business revenue churn was flat at 1.1% for 2018 and 2019. Our revenue churn may fluctuate over time due to economic conditions, seasonality in certain customer's operations, 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,		
	2019	2018	2017
Average monthly revenues per subscriber line	\$ 27.04	\$ 26.42	\$ 26.19
Subscriber lines (at period end)	1,087,819	1,287,649	1,492,067
Customer churn	1.8%	1.8%	2.0%

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 increased from \$26.42 for 2018 to \$27.04 for 2019 due primarily to the Company's ability to retain its more tenured customers.

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 1,287,649 as of December 31, 2018 to 1,087,819 as of December 31, 2019, 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 was flat at 1.8% for 2019 and for 2018. We 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. See the discussion above for detail regarding churn impacting our business customers.

REVENUES

Revenues consist of services revenue and customer equipment and shipping fee 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. For our 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. In addition, 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 and intellectual property, and E-911 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 USF and related fees. All other taxes are recorded on a net basis.

Revenues are generated from sales of customer equipment 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.

OPERATING EXPENSES

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

RESULTS OF OPERATIONS

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,		
	2019	2018	2017
Total revenues	100 %	100 %	100 %
Operating Expenses:			
Cost of revenues (excluding depreciation and amortization)	43	40	41
Sales and marketing	30	30	31
Engineering and development	6	5	3
General and administrative	13	13	12
Depreciation and amortization	7	7	7
Total operating expenses	99	95	94
Income from operations	1	5	6
Other Income (Expense):			
Interest expense	(3)	(1)	(1)
Other income (expense), net	—	—	—
Total other income (expense), net	(3)	(1)	(1)
(Loss) Income before income taxes	(2)	4	5
Income tax benefit (expense)	1	—	(8)
Net (loss) income	(1)%	4 %	(3)%

Management's discussion of the results of operations for the Years Ended December 31, 2019, and 2018,

The Company reported loss before income taxes of \$26,108 and income before income taxes of \$36,525 for the years ended December 31, 2019 and 2018, respectively. The decrease in (loss)/income before income taxes as compared to the prior year was primarily caused by higher other operating expenses of \$101,623 primarily as a result of the acquisitions of NVM and TokBox in 2018 driven by increases in salary costs due to higher headcount, increases in sales and marketing expenses, and increases in depreciation and amortization expenses due to additional intangible assets acquired. In addition, there were increases in engineering and development expenses in connection with the Company's continued transformation focused on innovation.

The Company reported net loss of \$19,482 and net income of \$35,728, respectively, for the years ended December 31, 2019 and 2018. The decrease in net (loss)/income for the year ended December 31, 2019 is mainly due to the aforementioned decrease in (loss)/income before income taxes and the increase in income tax benefit/(expense) of \$7,423.

We calculate gross margin 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 costs incurred when a customer first subscribes to our service. The following table presents total revenues, cost of revenues and the composition of gross margin for the years ended December 31, 2019, and 2018:

<i>(in thousands, except percentages)</i>	For the years ended December 31,			\$ Change	% Change	\$ Change	% Change
	2019	2018	2017	2018 to 2019	2018 to 2019	2017 to 2018	2017 to 2018
Total revenues	\$ 1,189,346	\$ 1,048,782	\$ 1,002,286	\$ 140,564	13%	\$ 46,496	5%
Cost of revenues ⁽¹⁾	511,084	426,995	404,954	84,089	20%	22,041	5%
Gross margin	\$ 678,262	\$ 621,787	\$ 597,332	\$ 56,475	9%	\$ 24,455	4%

(1) Excludes depreciation and amortization of \$38,167, \$27,754, and \$27,308, respectively.

Total revenues and cost of revenues were impacted by the following trends and uncertainties:

For the year ended December 31, 2019 compared to the year ended December 31, 2018

Total revenues increased 13% for the year ended December 31, 2019 as compared to the prior year period. The increase is primarily due to business customer growth driving an increase in revenues of \$195,736, offset by declining consumer revenues of \$55,172 in connection with the continued decline of subscriber lines. The Company continues to expect that the Consumer portion of the Company's overall business will become less significant as the Company reallocates resources to increase market share in its Business communications platforms.

Cost of revenues increased 20% for the year ended December 31, 2019 as compared to the prior year period driven by increased costs incurred in servicing our business customers of \$99,083 due to an increase in customers year over year. This was partially offset by a decrease in costs in Consumer of \$14,994 as subscriber lines continues to decline resulting in lower international and long-distance termination costs.

Business Gross Margin for the Years Ended December 31, 2019, 2018, and 2017

<i>(in thousands, except percentages)</i>	For the years ended December 31,			\$ Change 2018	% Change	\$ Change 2017	% Change
	2019	2018	2017	to 2019	2018 to 2019	to 2018	2017 to 2018
Revenues							
Service revenues	\$ 719,514	\$ 526,707	\$ 417,118	\$ 192,807	37 %	\$ 109,589	26 %
Access and product revenues ⁽¹⁾	46,232	50,068	54,971	(3,836)	(8)%	(4,903)	(9)%
Service, access and product revenues	765,746	576,775	472,089	188,971	33 %	104,686	22 %
USF revenues	38,134	31,369	26,833	6,765	22 %	4,536	17 %
Total revenues	803,880	608,144	498,922	195,736	32 %	109,222	22 %
Cost of revenues							
Service cost of revenues ⁽²⁾	336,045	239,096	184,054	96,949	41 %	55,042	30 %
Access and product cost of revenues ⁽¹⁾	53,455	58,081	57,906	(4,626)	(8)%	175	— %
Service, access and product cost of revenues	389,500	297,177	241,960	92,323	31 %	55,217	23 %
USF cost of revenues	38,134	31,374	26,833	6,760	22 %	4,541	17 %
Total cost of revenues	427,634	328,551	268,793	99,083	30 %	59,758	22 %
Segment gross margin							
Service margin	383,469	287,611	233,064	95,858	33 %	54,547	23 %
Gross margin ex-USF (Service, access and product margin)	376,246	279,598	230,129	96,648	35 %	49,469	21 %
Segment gross margin	\$ 376,246	\$ 279,593	\$ 230,129	\$ 96,653	35 %	\$ 49,464	21 %
Segment gross margin %							
Service margin %	53.3%	54.6%	55.9%	(1.3)%		(1.3)%	
Gross margin ex-USF (Service, access and product margin) %	49.1%	48.5%	48.7%	0.6 %		(0.2)%	
Segment gross margin %	46.8%	46.0%	46.1%	0.8 %		(0.1)%	

(1) Includes customer premise equipment, access, and shipping and handling.

(2) Excludes depreciation and amortization of \$33,484, \$22,554, and \$20,100, respectively.

For the year ended December 31, 2019 compared to the year ended December 31, 2018

The following table describes the increase in business gross margin for the year ended December 31, 2019 as compared to the year ended December 31, 2018:

	<i>(in thousands)</i>
Service gross margin excluding the impact of the acquisitions increased 11% primarily due to overall growth in our Business customer base of 6% as compared to the prior year	\$ 31,822
Service gross margin also increased due to acquisitions of TokBox on August 1, 2018 and NVM on October 31, 2018, respectively	64,036
Access and product gross margin increased due to higher costs providing access services to Business customers during the current year	790
USF gross margin increased mainly due to payment during the first quarter of 2018 for USF fees not collected in 2017	5
Increase in segment gross margin	\$ 96,653

Business service gross margin percentage decreased to 53.3% for the year December 31, 2019 from 54.6% for the year ended December 31, 2018. The decrease in business service gross margin percentage is a result of faster growth of certain lower-margin products across our Business segment for the year ended December 31, 2019 as compared to the same period in the prior year. Our gross margin percentage may continue to be impacted by changes in the mix of service offerings provided to our customers across our Business segment.

Consumer Gross Margin for the Years Ended December 31, 2019, 2018, and 2017

<i>(in thousands, except percentages)</i>	For the years ended December 31,			\$ Change	% Change	\$ Change	% Change
	2019	2018	2017	2018 to 2019	2018 to 2019	2017 to 2018	2017 to 2018
Revenues							
Service revenues	\$ 340,462	\$ 394,389	\$ 454,340	\$ (53,927)	(14)%	\$ (59,951)	(13)%
Access and product revenues ⁽¹⁾	264	559	525	(295)	(53)%	34	6 %
Service, access and product revenues	340,726	394,948	454,865	(54,222)	(14)%	(59,917)	(13)%
USF revenues	44,740	45,690	48,499	(950)	(2)%	(2,809)	(6)%
Total revenues	385,466	440,638	503,364	(55,172)	(13)%	(62,726)	(12)%
Cost of revenues							
Service cost of revenues ⁽²⁾	34,677	47,439	80,454	(12,762)	(27)%	(33,015)	(41)%
Access and product cost of revenues ⁽¹⁾	4,033	5,289	7,208	(1,256)	(24)%	(1,919)	(27)%
Service, access and product cost of revenues	38,710	52,728	87,662	(14,018)	(27)%	(34,934)	(40)%
USF cost of revenues	44,740	45,716	48,499	(976)	(2)%	(2,783)	(6)%
Total cost of revenues	83,450	98,444	136,161	(14,994)	(15)%	(37,717)	(28)%
Segment gross margin							
Service margin	305,785	346,950	373,886	(41,165)	(12)%	(26,936)	(7)%
Gross margin ex-USF (Service, access and product margin)	302,016	342,220	367,203	(40,204)	(12)%	(24,983)	(7)%
Segment gross margin	\$ 302,016	\$ 342,194	\$ 367,203	\$ (40,178)	(12)%	\$ (25,009)	(7)%
Segment gross margin %							
Service margin %	89.8%	88.0%	82.3%	1.8%		5.7%	
Gross margin ex-USF (Service, access and product margin) %	88.6%	86.6%	80.7%	2.0%		5.9%	
Segment gross margin %	78.4%	77.7%	72.9%	0.7%		4.8%	

(1) Includes customer premise equipment, and shipping and handling.

(2) Excludes depreciation and amortization of \$4,683, \$5,200, and \$7,208, respectively.

For the year ended December 31, 2019 compared to the year ended December 31, 2018

The following table describes the decrease in consumer gross margin for the year ended December 31, 2019 as compared to the year ended December 31, 2018:

	<i>(in thousands)</i>
Service gross margin decreased primarily due to a decrease in subscriber lines of 16% resulting in lower gross margin of \$41,874 as the Company is not actively pursuing expansion of the Consumer customer base. This was offset by a slight increase in average revenue per customer and lower overall costs incurred by the Consumer segment resulting in increased gross margin of \$709	\$ (41,165)
Access and product gross margin increased 20% primarily due lower equipment costs associated with sales to customers during the current year	961
USF gross margin increased mainly due to payment during the first quarter of 2018 for USF fees not collected in 2017	26
Decrease in segment gross margin	\$ (40,178)

Consumer service gross margin percentage increased to 89.8% for the year ended December 31, 2019 from 88.0% for the year ended December 31, 2018 due to lower international and domestic termination rates and the allocation of certain shared network costs to Business as that revenue becomes a greater proportion of the whole. The increase in Consumer service margin percentage is also driven by overall lower costs attributed to consumer services as the Company shifts resources towards attracting more profitable Business customers.

Other Operating Expenses

The following table presents our other operating expenses during the years ended December 31, 2019, 2018, and 2017, respectively:

<i>(in thousands, except percentages)</i>	For the years ended December 31,			\$ Change	% Change	\$ Change	% Change
	2019	2018	2017	2018 to 2019	2018 to 2019	2017 to 2018	2017 to 2018
Sales and marketing	\$ 363,111	\$ 311,433	\$ 313,251	\$ 51,678	17%	\$ (1,818)	(1)%
Engineering and development	69,460	52,139	29,630	17,321	33%	22,509	76 %
General and administrative	152,672	135,324	122,537	17,348	13%	12,787	10 %
Depreciation and amortization	86,256	70,980	72,523	15,276	22%	(1,543)	(2)%
Total other operating expenses	\$ 671,499	\$ 569,876	\$ 537,941	\$ 101,623	18%	\$ 31,935	6 %

For the year ended December 31, 2019 compared to the year ended December 31, 2018

Total other operating expenses increased by \$101,623 during the year ended December 31, 2019 as compared to the year ended December 31, 2018 primarily due to the following:

- Sales and marketing expense increased by \$51,678, or 17%, primarily due to additional costs from TokBox and NVM which were acquired in August 2018 and October 2018, respectively. Additionally, sales and marketing costs were impacted by increased spending in the current year related to media marketing initiatives, expansion of the Company's sales force, hosting the Company's first ever Vonage Campus event in October 2019, and the attendance at conferences such as Dreamforce.
- Engineering and development expense increased \$17,321 or 33%, in connection with the Company's continued transformation focused on innovation and developing further functionality related to its proprietary platform in order to support customers through the mid-market and enterprise sector.
- General and administrative expense increased by \$17,348, or 13%, primarily due to higher personnel costs driven by the increase in headcount following the acquisition of TokBox and NVM.
- Depreciation and amortization expense increased by \$15,276, or 22%, primarily due to the amortization of acquired intangible assets related to TokBox and NVM.

Other Income (Expense)

<i>(in thousands, except percentages)</i>	For the years ended December 31,			\$ Change 2018 to 2019	% Change 2018 to 2019	\$ Change 2017 to 2018	% Change 2017 to 2018
	2019	2018	2017				
Interest expense	\$ (32,821)	\$ (15,068)	\$ (14,868)	\$ (17,753)	(118)%	\$ (200)	(1)%
Other income (expense), net	(50)	(318)	1,270	268	84 %	(1,588)	125 %
	<u>\$ (32,871)</u>	<u>\$ (15,386)</u>	<u>\$ (13,598)</u>	<u>\$ (17,485)</u>	<u>(114)%</u>	<u>\$ (1,788)</u>	<u>(13)%</u>

For the year ended December 31, 2019 compared to the year ended December 31, 2018

Interest expense. The increase in interest expense of \$17,753, or 118%, was mainly due to interest expense associated with the Convertible Senior Note issued in June 2019, which includes the amortization of the discount on the notes, along with higher interest costs on the Company's 2018 Credit Facility during the first half of the year due to higher outstanding debt balance during that time.

Income Taxes

<i>(in thousands, except percentages)</i>	For the years ended December 31,			\$ Change 2018 to 2019	% Change 2018 to 2019	\$ Change 2017 to 2018	% Change 2017 to 2018
	2019	2018	2017				
Income tax benefit (expense)	\$ 6,626	\$ (797)	\$ (79,726)	\$ 7,423	931%	\$ 78,929	99%
Effective tax rate	25%	2%	174%				

For the year ended December 31, 2019 compared to the year ended December 31, 2018

We recognize income taxes equal to pre-tax income multiplied by our annual effective income tax rate. In addition, adjustments are recorded for discrete period items and changes to our state effective tax rate which can cause the rate to fluctuate from quarter to quarter.

During the year ended December 31, 2019, we recognized tax benefit of \$6,626 related to U.S., state and foreign income tax expense. The Company recorded a permanent benefit related to the equity based stock compensation and an interested related adjustment in the United Kingdom.

During the year ended December 31, 2018, we recognized tax expense of \$797 related to U.S., state and foreign income tax expense. The Company has recorded a permanent benefit related to excess share-based stock compensation. In addition, certain acquisition related expenses incurred during 2018 are treated as a permanent difference as the expenses are not deductible for tax purposes but are a reduction of pre-tax income. The Company also recorded a permanent difference related to the impact of the TCJA related to the excess compensation deduction pertaining to covered employees who received compensation in excess of \$1 million dollars.

LIQUIDITY AND CAPITAL RESOURCES

Overview

For the year ended December 31, 2019, we had lower net cash from operations compared to the years ended December 31, 2018 and 2017 due to lower net income. 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:

<i>(dollars in thousands)</i>	For the years ended December 31,			\$ Change 2018 to 2019	\$ Change 2017 to 2018
	2019	2018	2017		
Net cash provided by operating activities	\$ 92,926	\$ 123,205	\$ 128,058	\$ (30,279)	\$ (4,853)
Net cash used in investing activities	(52,079)	(407,230)	(30,737)	355,151	(376,493)
Net cash (used in) provided by financing activities	(21,921)	258,212	(96,242)	(280,133)	354,454

Operating Activities

The following table describes the changes in cash provided by operating activities for the year ended December 31, 2019 as compared to the year ended December 31, 2018:

	<i>(in thousands)</i>
Decrease in operating income adjusted for non-cash items due to the decline of the Consumer segment and higher operating expenses in 2019	\$ (27,475)
Decrease in working capital driven primarily by timing of accounts receivable collections, payments to acquire customers, and vendor payments	(2,804)
Decrease in cash provided by operating activities	\$ (30,279)

Investing Activities

The following table describes the changes in cash used in/provided by investing activities for the year ended December 31, 2019 as compared to the year ended December 31, 2018:

	<i>(in thousands)</i>
Decrease in cash paid related to prior year acquisitions of NewVoiceMedia and TokBox	\$ 377,484
Increase in payments to acquire and develop software assets	(20,774)
Increase in payments related to capital expenditures	(1,241)
Current year payments to acquire new patents	(318)
Increase in cash used in investing activities	\$ 355,151

Financing Activities

The following table describes the changes in cash used financing activities for the year ended December 31, 2019 as compared to the year ended December 31, 2018:

	<i>(in thousands)</i>
Increase in repayments under the 2018 Credit Facility and capital lease obligations during the current year	\$ (123,172)
Decrease in borrowings under the 2018 Credit Facility and Convertible Senior Notes as compared to the prior year	(118,000)
Payment for the capped call transaction in connection with the June 2019 issuance of the Convertible Senior Notes	(28,325)
Share repurchases in connection with the June 2019 issuance of the Convertible Senior Notes	(10,000)
Increase in debt issuance costs largely associated with the June 2019 issuance of the Convertible Senior Notes	(6,663)
Decrease in proceeds received from exercise of stock options due to fewer exercises in 2019	(4,523)
Decrease in payments associated with taxes on share based compensation due to lower vesting in 2019	10,550
Decrease in cash (used in) provided by financing activities	\$ (280,133)

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 8, *Long-Term Debt*, to the Consolidated Financial Statements, the Company's financing arrangements consist of its Convertible Senior Notes and the 2018 Credit Facility comprised of a \$100,000 term note and a \$500,000 revolving credit facility.

Uses of Liquidity

The Company's requirements for liquidity and capital resources are generally for the purposes of operating activities, debt service obligations, and capital expenditures. For the year ended December 31, 2019, 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 December 31, 2019 were \$49,079, of which \$28,488 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 2020, we believe our capital and software expenditures will be approximately \$60 million.

Available Borrowings Under the 2018 Credit Facility

We maintain significant availability under our line of credit to meet our short-term liquidity requirements. As of December 31, 2019, amounts available under the 2018 Credit Facility totaled \$279.5 million.

CONTRACTUAL OBLIGATIONS AND OTHER COMMERCIAL COMMITMENTS

The table below summarizes our contractual obligations at December 31, 2019, and the effect such obligations are expected to have on our liquidity and cash flow in future periods.

(dollars in thousands)	Total	Payments Due by Period			
		1 year or less	2-3 years	4-5 years	After 5 years
		(unaudited)			
Contractual Obligations:					
Convertible senior notes	\$ 345,000	\$ —	\$ —	\$ 345,000	\$ —
2018 revolving credit facility	220,500	—	—	220,500	—
Interest associated with outstanding debt	67,468	17,402	34,743	15,323	—
Operating lease obligations	69,246	15,017	19,262	13,789	21,178
Purchase obligations	94,196	41,807	48,844	3,545	—
Total contractual obligations	796,410	74,226	102,849	598,157	21,178
Other Commercial Commitments:					
Standby letters of credit	1,528	1,528	—	—	—
Total contractual obligations and other commercial commitments	\$ 797,938	\$ 75,754	\$ 102,849	\$ 598,157	\$ 21,178

Convertible Senior Notes. The company issued \$345 million aggregate principal amount of 1.75% convertible senior note due 2024. See Note 8, *Long-Term Debt* in the notes to the Consolidated Financial Statements.

Credit Facility. The 2018 Credit Facility was entered in July 2018 consisting of a \$100,000 term note and a \$500,000 revolving credit facility. See Note 8, *Long-Term Debt* in the notes to the Consolidated Financial Statements.

Operating Lease Obligations. At December 31, 2019, we had future commitments for office spaces leased in Holmdel, New Jersey for our headquarters, various other locations for field sales and administration offices in the United States and other countries, in Tel Aviv, Israel for application development, in London, United Kingdom for our UK offices, and for operating leases for co-location facilities mainly in the United States that accommodate a portion of our network equipment

Purchase obligations. The purchase obligations are primarily commitments to vendors who will provide web hosting service, provide carrier operation, provide networks and telephone related services, provide electricity to our office, license patents to us, and software maintenance, as well as hardware purchases and software supports. 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 15, *Commitments and Contingencies* 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 operations 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 estimates addressed below. Our significant accounting policies are summarized in Note 2, *Summary of Significant Accounting Policies* to our Consolidated Financial Statements. The following describes our critical accounting policies and estimates:

Use of Estimates

Our consolidated financial statements and notes thereto 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 reported and disclosed in the consolidated financial statements and the accompanying notes. Actual results could differ materially from these estimates.

We base our estimates on historical experience, available market information, appropriate valuation methodologies, and on various other assumptions that we believe 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, convertible notes, 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

The Company recognizes revenue in accordance with ASC Topic 606, *Revenue from Contracts with Customers* which is further described in *Note 3, Revenue Recognition* to the Consolidated Financial Statements

We measure revenue based upon consideration specified by contracts with our customers. Revenue is recognized when our performance obligation under the contract is satisfied by transferring control over the product or service to the customer. We derive our revenues for our Consumer and Business segments primarily from the sale of our communication services and customer equipment as further described below. The majority of the Company's contracts with customers have a single performance obligation for service revenues. We recognize revenue with customers when control transfers, which occurs upon delivery of a service or product. For our Business segment, the typical life of a service customer is seven years.

Service Revenues

Substantially all of our revenues are service revenues, which are derived from monthly subscription fees under usage based or pay-per-use type billing arrangements, and contract-based services 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 small and medium business, 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 a monthly fee. Customers also have the opportunity to purchase premium features for additional fees. We also derive service 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 ECP in advance and are recognized over the following month as service is provided.

Service revenue also includes supplying messaging (SMS and Voice) services to customers as part of our API offerings. 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 revenues.

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. These charges, along with the remittance to the relevant government entity, are recorded on a gross basis. In addition, we charge customers USF fees from customers to recover our obligation to contribute to the fund, as allowed by the FCC. We recognize USF revenue on a gross basis and record the related fees in cost of revenues.

Customer Equipment and Shipping Revenues

Revenues are generated from sales of customer equipment 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.

Valuation of Goodwill and Intangible Assets

As of December 31, 2019, the Company had goodwill of \$602,970 consisting of \$159,966 associated with the API Platform Group through the acquisitions of Nexmo and TokBox and \$443,004 associated with the Applications Group as a result of acquisitions of NVM, iCore, Simple Signal, Telesphere, gUnify and Vocalocity. The Company does not have any goodwill allocated to its Consumer segment as of December 31, 2019. 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*.

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 on October 1st, the Company identified the Applications Group and API Platform Group reporting units which collectively represent the Business segment as of that date.

On January 26, 2017, the FASB issued ASC No. 2017-04, *Intangibles - Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment*. The new guidance eliminates Step 2 of the goodwill impairment test. A goodwill impairment loss will now be measured as the amount by which a reporting unit's carrying amount, including goodwill, exceeds its fair value, not to exceed the carrying amount of goodwill. The revised guidance is effective for public business entities that are SEC filers for annual and interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption was permitted for any impairment test performed on testing dates after January 1, 2017. The Company early adopted this guidance effective September 30, 2019. The guidance allows an entity to assess qualitative factors to determine whether it is more likely than not (that is, a likelihood of more than 50%) that the fair value of a reporting unit is less than its carrying amount, including goodwill. If determined to be necessary, the quantitative impairment test shall be used to identify goodwill impairment and measure the amount of a goodwill impairment loss to be recognized (if any).

The Company performed its quantitative impairment test for its Applications Group and API Platform Group reporting units as of October 1, 2019 utilizing the income approach. Under the income approach, the Company estimated the fair value of the reporting units 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
Applications Group (Business)	152%
API Platform Group (Business)	435%

We also perform a review of our 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, 2019, 2018, or 2017.

Valuation of 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 taxes primarily consist of net operating loss carry forwards, or NOLs, intangibles and prepaids. 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, 2019, we had NOLs for United States federal and state tax purposes, including those NOLs acquired as part of past business combinations, of \$509,313 and \$237,667, respectively, expiring at various times through 2037. In addition, we had Non-US NOLs of \$165,104 primarily related to the United Kingdom which has 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, 2019, 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

The Company capitalizes qualifying internal-use software development costs that are incurred during the application development stage. Capitalization is dependent on whether management with the relevant authority has authorized and committed to funding the project, it is probable the project will be completed, and the software will be used to perform the function intended. Costs related to preliminary project activities and post implementation activities are expensed as incurred. Capitalized software is stated at cost less accumulated amortization and amortized on a straight-line basis over their estimated useful lives. During the year ended December 31, 2019, the Company incurred \$28,488 related to the acquisition of software assets which was largely comprised of labor directly associated with internal-use projects.

Business Combinations

We account for acquired businesses treated as a business combination using the acquisition method of accounting, which requires that assets acquired and liabilities assumed be recorded at the date of acquisition at their respective fair values. Any excess of the purchase price over the estimated fair values of the net assets acquired is recorded as goodwill. Acquisition-related costs are expensed as incurred in the consolidated financial statements. Significant judgments are used in determining the estimated fair values assigned to the assets acquired and liabilities assumed and in determining estimates of useful lives of long-lived assets acquired. Estimates of the fair values of assets acquired and liabilities assumed are based upon assumptions believed to be reasonable, and when appropriate, include assistance from independent third-party appraisal firms.

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. A portion of our sales denominated in Euros, the Canadian Dollar, and the British Pound Sterling, which are affected by changes in currency exchange rates. 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, 2019 of approximately \$1.6 million.

On January 31, 2020, the United Kingdom officially withdrew from the European Union or , "EU". While the UK will no longer be a member of the EU, it will still be subject to EU rules and remain a member of the Customs Union for a period of time as it negotiates the rules to be applied to future trading, taxes, and other relationships. Uncertainty and currency volatility in the British Pound Sterling exchange rate is expected to continue in the short term. In the longer term, any impact from the Brexit on the Company's operations and financial statements will depend on the outcome of future negotiations.

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 our credit facilities 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 and are effective on July 31, 2017 through June, 3, 2020. 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, 2019, if the interest rate on our variable rate debt changed by 1% on our 2018 revolving credit facility, our annual debt service payment would change by approximately \$700.

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

Under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, we have evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, or the Exchange Act, as amended, as of the end of the period covered by this Annual Report on Form 10-K. Based on the evaluation of our disclosure controls and procedures as of December 31, 2019, 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.

Changes in Internal Control Over Financial Reporting

We have implemented significant phases of reporting and transaction system upgrades and are in initial stages of consolidating and upgrading additional transaction systems. Controls over installed and upgraded applications have not changed significantly but may in planned future phases of system and application implementations. There were no other changes to controls during the quarter ended December 31, 2019 that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

Inherent Limitations over Internal Controls

The Company's controls and other procedures 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.

Management's Report on Internal Control Over Financial Reporting

February 20, 2020

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, 2019. 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, 2019, 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

Alan Masarek
Director, Chief Executive
Officer

/s/ DAVID T. PEARSON

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-4.

ITEM 9B. Other Information

None.

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 2020 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 2020 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. Delinquent Section 16(a) Reports

The discussion under the headings “Stock Ownership Information” and “Equity Compensation Plan Information” in our Proxy Statement for the 2020 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 2020 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 2020 Annual Meeting of Stockholders is hereby incorporated by reference.

ITEM 15. Exhibits, Financial Statement Schedules

Exhibits, Financial Statements and Financial Statement Schedule

(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, 2019	\$	3,542	\$	(325)	\$	2,277	\$	—	\$	5,494
Year ended December 31, 2018		2,258		(489)		1,773		—		3,542
Year ended December 31, 2017		2,093		(1,822)		1,987		—		2,258
Inventory Obsolescence:										
Year ended December 31, 2019	\$	152	\$	—	\$	(30)	\$	(46)	\$	76
Year ended December 31, 2018		108		—		237		(193)		152
Year ended December 31, 2017		117		—		412		(421)		108
Valuation Allowance for Deferred Taxes:										
Year ended December 31, 2019	\$	23,815	\$	—	\$	(3,837) ⁽¹⁾	\$	—	\$	19,978
Year ended December 31, 2018		22,390		—		1,425 ⁽¹⁾		—		23,815
Year ended December 31, 2017		18,546		—		3,844 ⁽¹⁾		—		22,390

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

(3) Exhibits.

Exhibit Number	Description of Exhibit
2.1	Stock Purchase Agreement, dated July 30, 2018, by and among Nexmo Inc., Telefonica Digital Ltd and Telefonica Digital, Inc (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K/A (File No. 001-32887) filed on September 18, 2018).
2.2	Recommended Offer by Vonage Holdings Corp. for NVM Limited, dated September 20, 2018 (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on September 20, 2018).
3.1	Restated Certificate of Incorporation, effective June 13, 2018 (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2018).
3.2	Amended and Restated By-laws of Vonage Holdings Corp, effective June 13, 2018 (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2018).
4.1	Form of Certificate of Vonage Holdings Corp. Common Stock (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).
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 (Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 8, 2012).
4.3	Indenture, dated as of June 14, 2019, between Vonage Holdings Corp. and Wilmington Trust, National Association, as trustee (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2019).
4.4	Form of 1.75% Convertible Senior Notes due 2024 (included in Exhibit 4.1) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2019).
4.5	Description of Securities (filed herewith).
10.1	Nexmo Inc. 2011 Stock Plan (Incorporated by reference to Vonage Holding Corp.'s Registration Statement on Form S-8 (File No. 001-32887) filed on June 29, 2016).*
10.2	Vonage Holdings Corp. 2006 Incentive Plan (Amended and Restated through June 6, 2013) (Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 6, 2013).*
10.3	Form of Restricted Stock Unit Agreement under the Vonage Holdings Corp. 2006 Incentive Plan (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on April 17, 2007).*
10.4	Form of Nonqualified Stock Option Agreement under the Vonage Holdings Corp. 2006 Incentive Plan (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on May 7, 2010).*
10.5	Form of Restricted Stock Agreement under the Vonage Holdings Corp. 2006 Incentive Plan (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on April 17, 2007).*

10.6 [Form of Restricted Stock Agreement for Non-Executive Directors under the Vonage Holdings Corp. 2006 Incentive Plan](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on August 11, 2008).*

10.7 [Form of Nonqualified Stock Option Agreement for Non-Executive Directors \(Annual Grant\) under the Vonage Holdings Corp. 2006 Incentive Plan](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on August 11, 2008).*

10.8 [Form of Nonqualified Stock Option Agreement for Non-Executive Directors \(Sign-on Grant\) under the Vonage Holdings Corp. 2006 Incentive Plan](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on August 11, 2008).*

10.9 [Vonage Holdings Corp. 401\(k\) Retirement Plan](#) (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).*

10.10 [Lease Agreement, dated March 24, 2005, between 23 Main Street Holmdel Associates LLC and Vonage USA Inc.](#) (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).

10.11 [Amendment to Lease Agreement, dated November 1, 2006, between 23 Main Street Holmdel Associates LLC and Vonage USA Inc.](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 12, 2016).

10.12 [Amendment to Lease Agreement, dated December 1, 2015, between 23 Main Street Holmdel Associates LLC and Vonage USA Inc.](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 12, 2016).

10.13 [Amended and Restated Non-Compete Agreement dated as of October 17, 2008 by and between Vonage Holdings Corp. and Jeffrey A. Citron](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 10, 2008).

10.14 [Form of Nonqualified Stock Option Agreement for Jeffrey A. Citron under the Vonage Holdings Corp. 2006 Incentive Plan](#) (Incorporated by reference to Vonage Holding Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on August 4, 2008).*

10.15 [Employment Agreement dated as of April 25, 2013 by and between Vonage Holdings Corp. and David T. Pearson](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on July 31, 2013).*

10.16 [Letter Agreement dated as of June 9, 2015 by and between Vonage Holdings Corp. and Omar Javaid](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 4, 2015).*

10.17 [Non-Executive Director Compensation Program](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 12, 2016).*

10.18 [Form of Indemnification Agreement between Vonage Holdings Corp. and its directors and certain officers](#) (Incorporated by reference to Vonage Holding Corp.'s Quarterly Report on Form 10-Q (File No. 001-32887) filed on November 14, 2007).*

10.19 [Employment Agreement dated as of October 6, 2014 by and between Vonage Holdings Corp. and Alan Masarek](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 13, 2015).*

10.20 [First Amendment to Employment Agreement by and between Vonage Holdings Corp. and Alan Masarek](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on February 12, 2016).*

10.21 [Settlement and Patent License Agreement, dated December 21, 2007, between Vonage Holdings Corp. and AT&T Corp.](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-K (File No. 001-32887) filed on March 17, 2008).

10.22 [Second Amended and Restated Credit Agreement, dated July 31, 2018, by and among Vonage America Inc., Vonage Holdings Corp., JPMorgan Chase Bank, N.A., as Administrative Agent, Citizens Bank, N.A. and Bank of America, N.A. as Syndication Agent, and the Lenders party thereto](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on August 2, 2018).

10.23 [Form of Irrevocable Undertaking \(Director\)](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on September 20, 2018).

10.24 [Form of Irrevocable Undertaking \(Officer\)](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on September 20, 2018).

10.25 [Implementation and Management Warranty Deed, dated September 20, 2018, among each Warrantor provided therein, NVM Limited and Vonage Holdings Corp.](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on September 20, 2018).

10.26 [Amendment No. 1 to the Second Amended and Restated Credit Agreement, dated March 11 2019, by and among Vonage America Inc., Vonage Holdings Corp., JP Morgan Chase Bank, N.A., as Administrative Agent, and the Lenders party thereto](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on March 15, 2019).

10.27 [Cooperation Agreement, dated March 15, 2019, among Vonage Holdings Corp., Legion Partners Asset Management LLC, and each of the signatories thereto](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on March 15, 2019).

10.28 [Amendment No. 2 to the Second Amended and Restated Credit Agreement, dated March 29, 2019, by and among Vonage America Inc., Vonage Holdings Corp., JP Morgan Chase Bank, N.A., as Administrative Agent, and the Lenders party thereto\(3\)](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-Q (File No. 001-32887) filed on May 8, 2019).

10.29 [Capped Call Confirmation, dated as of June 11, 2019, by and between the Company and Bank of America, N.A.](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2019).

10.30 [Capped Call Confirmation, dated as of June 11, 2019, by and between the Company and Morgan Stanley & Co. LLC](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2019).

10.31 [Capped Call Confirmation, dated as of June 11, 2019, by and between the Company and Deutsche Bank AG, London Branch](#) (Incorporated by reference to Vonage Holdings Corp.'s Current Report on Form 8-K (File No. 001-32887) filed on June 14, 2019).

10.32 [Amended and restated 2015 Equity Incentive Plan*](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-Q (File No. 001-32887) filed on August 6, 2019).

10.33 [Amended and restated 2015 Equity Incentive Plan - Restricted Stock Unit Agreement*](#) (Incorporated by reference to Vonage Holding Corp.'s Annual Report on Form 10-Q (File No. 001-32887) filed on August 6, 2019).

- 21.1 [List of Subsidiaries of Vonage Holdings Corp.](#) (Filed herewith).
- 23.1 [Consent of Deloitte & Touche LLP, independent registered public accounting firm](#) (Filed herewith).
- 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](#) (Filed herewith).
- 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](#) (Filed herewith).
- 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](#) (Filed herewith).
- 101.INS Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
- 101.SCH Inline XBRL Taxonomy Extension Schema Document
- 101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase Document
- 101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document
- 101.LAB Inline XBRL Taxonomy Extension Label Linkbase Document
- 101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document
- * Management contract or compensatory plan or arrangement.
- (b) Exhibits Filed Herewith
Refer to (a)(3) above.
- (c) Financial Statement Schedule
Schedule II – Valuation and Qualifying Accounts.

ITEM 16. Form 10-K Summary

None.

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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 sheets of Vonage Holdings Corp. (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income (loss), cash flows, and stockholders' equity, for each of the three years in the period ended December 31, 2019, and the related notes and the schedule listed in the Index at Item 15 (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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with 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, 2019, 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 20, 2020, expressed an unqualified opinion on the Company's internal control over financial reporting.

Changes in Accounting Principles

As discussed in Note 2 to the financial statements, on January 1, 2018, the Company changed its method of accounting for the recognition of costs to obtain and fulfill contracts with customers in accordance with the adoption of Financial Accounting Standards Board (FASB) Accounting Standards Update 2014-09, *Revenue from Contracts with Customers (Topic 606)*; and effective January 1, 2019, the Company adopted FASB Accounting Standards Update 2016-02, *Leases (Topic 842)*, using the using a modified retrospective transition approach.

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 audits. 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 audits 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 audits 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 audits 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 audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Convertible Senior Notes - Refer to Note 8 to the financial statements

Critical Audit Matter Description

In June 2019, the Company issued \$300 million aggregate principal amount of 1.75% convertible senior notes due 2024 in a private placement and an additional \$45 million aggregate principal amount of such notes pursuant to the exercise in full of the over-allotment option of the initial purchasers (collectively, "Convertible Senior Notes"). The total net proceeds from the offering, after deducting initial purchase discounts and expenses payable by the Company, were \$334.8 million. In accounting for the issuance of the Convertible Senior Notes, the Company separated the Convertible Senior Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The fair value was determined utilizing a discounted cash flow model that includes assumptions such as implied credit spread, expected volatility, and the risk-free rate for notes with a similar term. The carrying amount of the equity component representing the conversion option was determined by deducting the fair value of the liability component from the par value of the Convertible Senior Notes. The equity component is not remeasured as long as it continues to meet the conditions for equity classification.

Given (a) the complexity of applying the accounting framework for the Convertible Senior Notes, and (b) the determination of the fair value of the liability component requires the Company to make significant estimates and assumptions relating to the implied credit spread, expected volatility, and the risk-free rate, performing audit procedures to (a) evaluate the appropriateness of the accounting framework and (b) the reasonableness of these estimates and assumptions required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the accounting for the Convertible Senior Notes, including the Company's judgments and calculations related to the fair value of the liability component, included the following procedures, among others:

- We tested the effectiveness of controls over the Company's accounting for the Convertible Senior Notes, and over the determination of the fair value of the liability component.
- With the assistance of professionals in our firm having expertise in debt issuance accounting, we evaluated the Company's conclusions regarding the accounting treatment applied to the Convertible Senior Notes.
- With the assistance of our fair value specialists, we evaluated the reasonableness of the valuation methodology and the significant assumptions used to determine the fair value of the liability component, by:
 - Testing the source information underlying the fair value of the liability component and the mathematical accuracy of the calculation.
 - Developing an independent expectation of the certain of the significant assumptions, including the implied credit spread and expected volatility, and comparing our estimate to the Company's estimate.

/s/ Deloitte & Touche LLP
Parsippany, New Jersey
February 20, 2020

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

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, 2019, 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, 2019, 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 consolidated financial statements as of and for the year ended December 31, 2019, of the Company and our report dated February 20, 2020, expressed an unqualified opinion on those financial statements and included an explanatory paragraph regarding the Company's adoption of new accounting standards.

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, New Jersey
February 20, 2020

VONAGE HOLDINGS CORP. CONSOLIDATED BALANCE SHEETS
(In thousands, except par value)

	December 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 23,620	\$ 5,057
Accounts receivable, net of allowance of \$5,494 and \$3,542, respectively	101,813	75,342
Inventory, net of allowance of \$76 and \$152, respectively	1,475	1,470
Deferred customer acquisition costs, current portion	13,834	11,755
Prepaid expenses	22,338	26,496
Other current assets	9,988	7,634
Total current assets	173,068	127,754
Property and equipment, net of accumulated depreciation of \$109,646 and \$104,999, respectively	48,371	49,262
Operating lease right-of-use assets	50,847	—
Goodwill	602,970	598,499
Software, net of accumulated amortization of \$102,133 and \$100,870, respectively	40,300	17,430
Deferred customer acquisition costs	55,148	37,881
Restricted cash	2,015	2,047
Intangible assets, net of accumulated amortization of \$221,182 and \$162,788, respectively	249,905	299,911
Deferred tax assets	108,347	102,560
Other assets	33,729	24,144
Total assets	\$ 1,364,700	\$ 1,259,488
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 42,366	\$ 53,262
Accrued expenses	137,589	87,370
Deferred revenue, current portion	59,464	53,447
Operating lease liabilities, current portion	12,477	—
Current portion of notes payable	—	10,000
Total current liabilities	251,896	204,079
Indebtedness under revolving credit facility	220,500	425,000
Notes payable, net of current portion	—	84,228
Convertible senior notes, net	276,658	—
Operating lease liabilities	45,722	—
Other liabilities	2,862	10,413
Total liabilities	797,638	723,720
Commitments and Contingencies (Note 15)	—	—
Stockholders' Equity		
Common stock, par value \$0.001 per share; 596,950 shares authorized at December 31, 2019 and 2018; 315,808 and 309,736 shares issued at December 31, 2019 and 2018, respectively; 242,849 and 239,743 shares outstanding at December 31, 2019 and 2018, respectively	316	310
Additional paid-in capital	1,494,469	1,415,682
Accumulated deficit	(631,009)	(611,985)
Treasury stock, at cost, 72,959 shares at December 31, 2019 and 69,993 shares at December 31, 2018	(306,043)	(275,009)
Accumulated other comprehensive income	9,329	6,770
Total stockholders' equity	567,062	535,768
Total liabilities and stockholders' equity	\$ 1,364,700	\$ 1,259,488

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

VONAGE HOLDINGS CORP. CONSOLIDATED STATEMENTS OF OPERATIONS

	For the years ended December 31,		
	2019	2018	2017
<i>(In thousands, except per share amounts)</i>			
Total revenues	\$ 1,189,346	\$ 1,048,782	\$ 1,002,286
Operating Expenses:			
Cost of revenues (excluding depreciation and amortization)	511,084	426,995	404,954
Sales and marketing	363,111	311,433	313,251
Engineering and development	69,460	52,139	29,630
General and administrative	152,672	135,324	122,537
Depreciation and amortization	86,256	70,980	72,523
Total operating expenses	1,182,583	996,871	942,895
Income from operations	6,763	51,911	59,391
Other Income (Expense):			
Interest expense	(32,821)	(15,068)	(14,868)
Other income (expense), net	(50)	(318)	1,270
Total other income (expense), net	(32,871)	(15,386)	(13,598)
(Loss) Income before income taxes	(26,108)	36,525	45,793
Income tax benefit (expense)	6,626	(797)	(79,726)
Net (loss) income	\$ (19,482)	\$ 35,728	\$ (33,933)
(Loss) Earnings per common share:			
Basic	\$ (0.08)	\$ 0.15	\$ (0.15)
Diluted	\$ (0.08)	\$ 0.14	\$ (0.15)
Weighted-average common shares outstanding:			
Basic	242,018	237,499	225,311
Diluted	242,018	248,892	225,311

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

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

<i>(In thousands)</i>	For the years ended December 31,		
	2019	2018	2017
Net (loss) income:	\$ (19,482)	\$ 35,728	\$ (33,933)
Other comprehensive income (loss):			
Foreign currency translation adjustment, net of tax expense (benefit) of \$393, (\$4,433), and \$4,616, respectively	4,535	(7,249)	26,637
Unrealized gain on available-for-sale securities, net of tax expense of \$0, \$0, and \$0, respectively	—	—	1
Unrealized gain on derivatives, net of tax expense (benefit) of \$397, (\$73), and (\$320), respectively	(1,976)	10	965
Total other comprehensive income (loss)	2,559	(7,239)	27,603
Comprehensive (loss) income	\$ (16,923)	\$ 28,489	\$ (6,330)

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,		
	2019	2018	2017
<i>(In thousands)</i>			
Cash flows from operating activities:			
Net (loss) income	\$ (19,482)	\$ 35,728	\$ (33,933)
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	27,815	31,444	34,255
Amortization of intangibles	58,441	39,457	38,056
Deferred income taxes	(13,411)	(4,809)	74,577
Amortization of deferred customer acquisition costs	11,359	10,287	—
Allowance for doubtful accounts and obsolete inventory	2,247	2,010	2,399
Amortization of financing costs and debt discount	8,907	1,022	1,074
Loss on disposal of property and equipment	771	79	212
Loss on extinguishment of debt	—	14	—
Share-based expense	45,242	33,799	37,482
Gain on sale of business	—	—	(1,879)
Change in derivatives	(531)	(198)	—
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(29,139)	(20,485)	(7,253)
Inventory	27	1,233	789
Prepaid expenses and other current assets	1,956	2,787	3,339
Deferred customer acquisition costs	(30,546)	(25,439)	1,729
Accounts payable and accrued expenses	38,027	13,502	(24,025)
Deferred revenue	3,947	1,416	(2,584)
Other assets - cloud computing implementation costs	(15,480)	(6,255)	—
Other assets and liabilities	2,776	7,613	3,820
Net cash provided by operating activities	92,926	123,205	128,058
Cash flows from investing activities:			
Capital expenditures	(20,273)	(19,032)	(21,915)
Purchase of intangible assets	(318)	—	—
Maturities and sales of marketable securities	—	—	602
Acquisition and development of software assets	(28,488)	(7,714)	(11,374)
Acquisitions, net of cash acquired	(3,000)	(380,484)	—
Proceeds from sale of business	—	—	1,950
Net cash used in investing activities	(52,079)	(407,230)	(30,737)
Cash flows from financing activities:			
Principal payments on capital lease obligations and other financing obligations	—	(140)	(5,788)
Payments on short and long-term debt	(443,500)	(320,188)	(101,750)
Proceeds from issuance of short and long-term debt	489,000	607,000	15,000
Payment of debt issuance costs	(10,043)	(3,380)	—
Payment for capped call transactions and costs	(28,325)	—	—
Common stock repurchases	(10,000)	—	(9,542)
Employee taxes paid on withholding shares	(21,034)	(31,584)	(15,572)
Proceeds from exercise of stock options	1,981	6,504	21,410
Net cash (used in) provided by financing activities	(21,921)	258,212	(96,242)
Effect of exchange rate changes on cash and cash equivalents	(395)	(410)	1,319
Net increase (decrease) in cash, cash equivalents, and restricted cash	18,531	(26,223)	2,398
Cash, cash equivalents, and restricted cash, beginning of period	7,104	33,327	30,929
Cash, cash equivalents, and restricted cash, end of period	\$ 25,635	\$ 7,104	\$ 33,327

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

VONAGE HOLDINGS CORP. CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

<i>(In thousands)</i>	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Treasury Stock	Accumulated Other Comprehensive Income	Total
Balance at December 31, 2016	\$ 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	16	21,394				21,410
Share-based expense		37,482				37,482
Employee taxes paid on withholding shares				(15,572)		(15,572)
Common stock repurchases				(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	298	1,375,391	(672,561)	(244,239)	14,009	472,898
Cumulative effect adjustment upon the adoption of Topic 606			24,848			24,848
Stock option exercises	12	6,492				6,504
Share-based expense		33,799				33,799
Employee taxes paid on withholding shares				(30,770)		(30,770)
Foreign currency translation adjustment					(7,249)	(7,249)
Unrealized gain on derivatives					10	10
Net income			35,728			35,728
Balance at December 31, 2018	310	1,415,682	(611,985)	(275,009)	6,770	535,768
Cumulative effect adjustment upon the adoption of Topic 842			458			458
Stock option exercises	6	1,975				1,981
Share-based expense		45,242				45,242
Employee taxes paid on withholding shares				(21,034)		(21,034)
Common stock repurchases				(10,000)		(10,000)
Equity component of convertible notes, net of issuance costs and tax		50,123				50,123
Purchase of capped calls, net of tax		(21,553)				(21,553)
Common stock issued for acquisition of assets		3,000				3,000
Foreign currency translation adjustment					4,535	4,535
Unrealized gain on derivatives					(1,976)	(1,976)
Net loss			(19,482)			(19,482)
Balance at December 31, 2019	\$ 316	\$ 1,494,469	\$ (631,009)	\$ (306,043)	\$ 9,329	\$ 567,062

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. At Vonage, our strategy is to continually redefine business communications. We are making communications more flexible, intelligent and personal to help enterprises the world over stay ahead. We provide unified communications, contact centers and programmable communications APIs, built on what we believe to be the world's most flexible cloud communications platform. True to our roots as a technology disruptor, our flexible approach helps us better serve the growing collaboration, communications, and customer experience needs of companies, across all communications channels.

For our Business customers, we provide innovative, cloud-based Applications, comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable SIP based VoIP network. We also offer API 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 APIs 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.

We also provide a robust suite 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.

Customers in the United States represented 72%, 79%, and 85% of our consolidated revenues for the years ended December 31, 2019, 2018, and 2017, respectively, with the balance in Canada, the United Kingdom, China, Singapore, Netherlands, and other 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 ASC established by the FASB is the source of authoritative GAAP to be applied to nongovernmental entities. In addition, the rules and interpretive releases of the 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

Beginning January 1, 2018, our results are presented in accordance with the guidance of ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606), or Topic 606. We measure revenue based upon consideration specified by contracts with our customers. Revenue is recognized when our performance obligation under the contract is satisfied by transferring control over the product or service to the customer. We derive our revenues for our Consumer and Business segments primarily from the sale of our communication services and customer equipment as further described in Note 3, *Revenue Recognition*. The majority of the Company's contracts with customers have a single performance obligation for service revenues. We recognize revenue with customers when control transfers, which occurs upon delivery of a service or product. For our Business segment, the typical life of a customer for service is 7 years.

Contract Acquisition Costs

We have various commission programs for which eligible employees and third parties may earn commission on sales of services and products to customers. We expect that these commission fees are recoverable and, therefore, we have capitalized these commissions as contract costs included within deferred customer acquisitions cost on our consolidated balance sheet. Capitalized commission fees are amortized to sales and marketing expense over estimated customer life, which is 7 years for Business customers. In addition, the Company expenses sales commissions for commission plans related to customer arrangements deemed less than a year and for residuals and renewals.

Cost of Revenues

Cost of revenues is primarily comprised of cost of services consisting 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 \$38,167, \$27,754, and \$27,308 for the years ended December 31, 2019, 2018, and 2017, respectively.

Also included in cost of revenues is costs of goods sold consisting 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.

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.

Access and 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 represents contributions to the Federal USF and related fees.

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 \$46,606, \$54,735, and \$57,703 for the years ended December 31, 2019, 2018, and 2017, respectively.

Engineering and Development Expenses

Engineering and development expenses predominantly include personnel and related costs for developers responsible for research and development of new products.

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

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. 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,			
	2019	2018	2017	2016
Cash and cash equivalents	\$ 23,620	\$ 5,057	\$ 31,360	\$ 29,078
Restricted cash	2,015	2,047	1,967	1,851
	<u>\$ 25,635</u>	<u>\$ 7,104</u>	<u>\$ 33,327</u>	<u>\$ 30,929</u>

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 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 3 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.

Leases

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use assets, operating lease obligations, current portion and operating lease obligations on the Company's consolidated balance sheets. A right-of-use asset represents the Company's right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. A right-of-use asset and related liability is recognized at the commencement date of the arrangement based upon the present value of lease payments over the lease term. As most of our lease arrangements do not provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at the commencement date in determining the present value of lease payments.

When the Company has the option to extend the lease term, terminate the lease before the contractual expiration date, or purchase the leased asset, and it is reasonably certain that the Company will exercise the option, the Company will consider these options in determining the classification and measurement of the lease. Lease expense for lease payments is recognized on a straight-line basis over the term of the lease arrangement.

The Company has lease arrangements with lease and non-lease components, which are generally accounted for separately. For certain leases, the Company accounts for the lease and non-lease components as a single lease component.

As of December 31, 2019, the Company did not have any finance lease arrangements.

Software

The Company capitalizes software which primarily consists qualifying internal-use software development costs that are incurred during the application development stage. Capitalization is dependent on whether management with the relevant authority has authorized and committed to funding the project, it is probable the project will be completed, and the software will be used to perform the function intended. Costs related to preliminary project activities and post implementation activities are expensed as incurred. Capitalized software is stated at cost less accumulated amortization and amortized on a straight-line basis over their estimated useful lives.

Cloud Computing Arrangements

The Company incurs costs to implement cloud computing arrangements that are hosted by a third party vendor. Generally, these arrangements are service contracts that do not provide the Company with the right to take possession of the software or the ability to run the software on its own hardware or contract with another party, other than the vendor, to host the software. As such, the costs incurred to implement these arrangements are capitalized into other assets on the Company's balance sheet and amortized on a straight-line basis over their estimated useful lives.

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 based on the quantitative test result. The Company early adopted ASC No. 2017-04, *Intangibles - Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment* on September 30, 2019. The new guidance eliminates Step 2 of the old goodwill impairment test. A goodwill impairment loss will instead be measured at the amount by which a reporting unit's carrying amount, including goodwill, exceeds its fair value, not to exceed the carrying amount of goodwill. The new guidance allows an entity to assess qualitative factors to determine whether it is more likely than not (that is, a likelihood of more than 50%) that the fair value of a reporting unit is less than its carrying amount, including goodwill. If determined to be necessary, the quantitative impairment test shall be used to identify goodwill impairment and measure the amount of a goodwill impairment loss to be recognized (if any).

The Company performed its quantitative assessment of the Applications Group and API Platform Group reporting units as of October 1, 2019 and estimated that the fair value of the reporting units' invested capital exceeded its carrying value and accordingly, no impairment needed to be recognized for the year ended December 31, 2019. There were also no impairments recorded during the years ended December 31, 2018 and 2017, respectively.

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 twelve 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, 2019, 2018, and 2017.

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 long-lived assets are recorded in the statement of operations as part of depreciation and amortization expense. There was no impairment of property and equipment identified for the years ended December 31, 2019, 2018, and 2017.

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. Upon refinancing, costs associated with the new debt are either expensed or deferred and unamortized costs associated with the old debt are either written off or deferred and to be amortized as interest expense if deferred using the effective interest method over the life of the new debt per the guidance in ASC 470-50. Total costs related to the Convertible Senior Notes were allocated to the liability and equity components of the Convertible Senior Notes based on the proportion of the proceeds allocated to the debt and equity components. Costs attributable to the liability component were recorded as additional debt discount and amortized to interest expense using the effective interest method over the contractual terms of the Convertible Senior Notes. Costs attributable to the equity component were netted with the equity component in stockholders' equity.

Restricted Cash and Letters of Credit

We had a cash collateralized letter of credit for \$1,528 and \$1,516 as of December 31, 2019 and 2018, respectively, mainly related to lease deposits for our Holmdel office. In the aggregate, cash reserves and collateralized letters of credit of \$2,015 and \$2,047 were recorded as long-term restricted cash at December 31, 2019 and 2018, 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 three interest rate swap agreements to mitigate variability in our 2016 Credit Facility earnings due to fluctuations in interest rates and has been designated and qualified as a cash flow hedge. Upon the refinancing in 2018, the Company de-designated the swaps of our 2016 Credit Facility and re-designated the swaps as a cash flow hedge of the 2018 Credit Facility. As such, the balances in Accumulated Other Comprehensive Income related to de-designated 2016 Credit Facility cash flow hedge were either released into earnings or continue to be deferred and amortized over the remaining life of the 2018 Credit Facility. 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 TCJA was signed into law by the President of the United States. The TCJA most notably reduced 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 was required to recognize the effect of tax law changes during the period of enactment. As such, the Company reflected the impact of this law within its December 31, 2017 financial statements. The Company recorded a charge to income tax expense of \$69,378 related to the re-measurement of the Company's deferred tax balances at the 21% income tax rate in its December 31, 2017 statement of operations.

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 2015 to present, our New Jersey tax returns remain open from 2014 to present, our Canada tax return remains open from 2015 to present, and other domestic and foreign tax returns remain open for all periods to which those filings relate. The Company received notice that the State of New Jersey will commence an income tax audit for the tax years ended December 31, 2014 through December 31, 2017. 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 API'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), net in the Company's consolidated statements of operations. For the year ended December 31, 2019, the amount recognized as foreign currency transaction loss was \$727, for the years ended December 31, 2018, the amount recognized as foreign currency transaction gain was \$145, and for the year ended December 31, 2017, the amount recognized as foreign currency transaction loss was \$620, 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. Any excess tax benefits or shortfalls are recorded in income taxes upon vest or exercise. During the years ended December 31, 2019, 2018, and 2017, the Company recorded a net benefit of \$5 million, \$16 million, and \$11 million, respectively, related to excess tax benefits.

Comprehensive Income (Loss)

Comprehensive income (loss) consists of net income (loss) and other comprehensive items. Other comprehensive items include unrealized gains (losses) on 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 December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* by removing certain exceptions currently permissible under ASC Topic 740 along with requiring entities to recognize a franchise tax that is partially based on income as an income-based tax and account for any incremental amounts incurred as non-income based tax, evaluate when a step up in the tax basis of goodwill should be considered as part of the business combination and when it should be considered a separate transaction, specifying that an entity is not required to allocate the consolidated amount of current and deferred tax expense to a legal entity that is not subject to tax in its separate financial statements, reflect the effect of an enacted change in tax laws or rates in the annual effective tax rate computation and other minor improvements. This ASU is effective for fiscal years beginning after December 15, 2020, and interim periods within those fiscal years. The Company is currently evaluating the impact of adopting ASU 2019-12 on our consolidated financial statements and disclosures.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses* (Topic 326): Measurement of Credit Losses on Financial Instruments which requires the use of a new current expected credit loss ("CECL") model in estimating allowances for doubtful accounts with respect to accounts receivable, straight-line receivable and notes receivable. Receivables from revenue transactions, or trade receivables, are recognized when the corresponding revenue is recognized under ASC Topic 606, *Revenue from Contracts with Customers*. The CECL model requires that the Company estimates its lifetime expected credit loss with respect to these receivables and records allowances when deducted from the balance of the receivables, which represent the estimated net amounts expected to be collected. Given the generally short term nature of trade receivables, we do not expect to apply a discounted cash flow methodology. However, the Company will consider whether historical loss rates are consistent with expectations of forward-looking estimates for our trade receivables. In November 2018, the FASB issued ASU 2018-19 to clarify that operating lease receivables recorded by lessors are explicitly excluded from the scope of Topic 326. In April 2019, the FASB issued ASU 2019-04 to improve certain codifications including Topic 326 where accrued interest on receivables, recoveries, variable interest rates and prepayments are addressed. In November 2019, the FASB issued ASU 2019-11 to require entities to include expected recoveries of the amortized cost basis previously written off or expected to be written off in the valuation account for purchased financial assets with credit deterioration and clarifies and improves various aspects of the guidance for ASU 2016-13. This ASU is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. The adoption of this ASU will not have a material impact on our consolidated financial statements and related disclosures.

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

In January 2017, the FASB issued ASU 2017-04, *Intangibles - Goodwill and Other*. The guidance eliminates Step 2 of the goodwill impairment test. A goodwill impairment loss will now be measured as the amount by which a reporting unit's carrying amount, including goodwill, exceeds its fair value, not to exceed the carrying amount of goodwill. The guidance is effective for annual and interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption was permitted for any impairment test performed on testing dates after January 1, 2017. The Company early adopted this guidance effective September 30, 2019. The adoption of this ASU did not have a material impact on our consolidated financial statements and related disclosures.

In February 2016, FASB issued ASU 2016-02, *Leases* (Topic 842) which replaces the guidance on accounting for leases in Topic 840. The new guidance increases transparency and comparability among organizations by requiring lessees to recognize assets and liabilities on the balance sheet for most leases and disclose key information about leasing arrangements.

The Company adopted the new standard on January 1, 2019 using a modified retrospective transition approach, which involves applying the new standard to all leases existing at the date of the initial application with any cumulative impact of the adoption recorded to retained earnings. The Company elected the practical expedient which permits the Company the use of hindsight along with package of practical expedients permitted under the transition guidance which excludes lease arrangements with an initial term of twelve month or less. Additionally, the Company carried over its assessment under ASC 840 regarding whether our contracts contained a lease arrangement, the classification of those lease, and the remaining lease terms. The Company also elected the optional transition method that allows adoption of the new standard prospectively, as of the effective date, without adjusting comparative periods presented.

The adoption of Topic 842 has had a significant effect on our balance sheet, mostly related to (1) the recognition of new right-of-use assets and new lease liabilities on our balance sheet for our existing operating leases (most notably leases of office space and co-location space); and (2) the derecognition of existing assets (most notably prepaid rent), and existing liabilities (most notably deferred rent) related to such leases. It will not materially affect our earnings or cash flows. We recorded the following transactions on January 1, 2019:

- Recognize currently unrecognized right-of-use assets of approximately \$57.3 million net of deferred rent and lease incentives which were previously included in other liabilities.
- Recognize currently unrecognized lease liabilities of approximately \$64.5 million (based on the present value of the remaining rental payments for existing operating leases).
- Recognize an adjustment to retained earnings of \$458 thousand related to release of deferred tax assets.

Note 3. Revenue Recognition

On January 1, 2018, the Company adopted ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606). Our results for reporting periods beginning after January 1, 2018 are presented in accordance with the provisions under Topic 606 but any prior period amounts have not been adjusted and continue to be reported in accordance with our revenue recognition policy.

Service Revenues

Substantially all of our revenues are service revenues, which are derived from monthly subscription fees under usage based or pay-per-use type billing arrangements, and contract-based services 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 small and medium business, 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 a monthly fee. Customers also have the opportunity to purchase premium features for additional fees. We also derive service 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 ECP in advance and are recognized over the following month as service is provided.

Service revenue also includes supplying messaging (SMS and Voice) services to customers as part of our CPaaS offerings. 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 revenues.

In the United States, we charge regulatory, compliance and intellectual property, and E-911 recovery 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 gross basis. In addition, we charge customers USF fees from customers to recover our obligation to contribute to the fund, as allowed by the FCC. We recognize USF revenue on a gross basis and record the related fees in cost of revenues.

Customer Equipment and Shipping Revenues

Revenues are generated from sales of customer equipment 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.

Disaggregation of Revenue

The following tables detail our revenue from customers disaggregated by primary geographical market, source of revenue, and timing of revenue recognition. The table also includes a reconciliation of the disaggregated revenue for our Business and Consumer segments.

	For the years ended December 31, 2019			For the years ended December 31, 2018		
	Business	Consumer	Total	Business	Consumer	Total
Primary geographical markets						
United States	\$ 500,545	\$ 354,710	\$ 855,255	\$ 421,239	\$ 404,482	\$ 825,721
Canada	6,942	19,754	26,696	3,549	23,718	27,267
United Kingdom	55,721	11,002	66,723	36,992	12,438	49,430
Other Countries	240,672	—	240,672	146,364	—	146,364
	803,880	385,466	1,189,346	608,144	440,638	1,048,782
Major Sources of Revenue						
Service revenues	\$ 719,514	\$ 340,462	\$ 1,059,976	\$ 526,707	\$ 394,389	\$ 921,096
Access and product revenues	46,232	264	46,496	50,068	559	50,627
USF revenues	38,134	44,740	82,874	31,369	45,690	77,059
	803,880	385,466	1,189,346	608,144	440,638	1,048,782

In addition, the Company recognizes service revenues from its customers through subscription services provided or through usage or pay-per-use type arrangements. During the year ended December 31, 2019, the Company recognized \$637,980 related to subscription services, \$338,697 related to usage, and \$212,669 related to other revenues such as USF, other regulatory fees, and credits. During the year ended December 31, 2018, the Company recognized \$607,823 related to subscription services, \$247,256 related to usage, and \$193,703 related to other revenues such as USF, other regulatory fees, and credits.

Contract Assets and Liabilities

The following table provides information about receivables and contract liabilities from contracts with customers:

	December 31, 2019	December 31, 2018
Receivables ⁽¹⁾	\$ 101,813	75,342
Contract liabilities ⁽²⁾	59,464	53,447

⁽¹⁾ Amounts included in accounts receivables on our consolidated balance sheet.

⁽²⁾ Amounts included in deferred revenues on our consolidated balance sheet.

Our deferred revenue represents the advance consideration received from customers for subscription services and is predominantly recognized over the following month as transfer of control occurs. During the year ended December 31, 2019 and 2018, the Company recognized revenue of \$456,855 and \$445,547, respectively, related to its contract liabilities. We expect to recognize \$59,464 into revenue over the next twelve months related to our deferred revenue as of December 31, 2019.

Remaining Performance Obligation

Transaction price allocated to the remaining performance obligation represents contracted revenue that has not yet been recognized. The typical subscription term may range from 1 month to 3 years. Contracted revenue as of December 31, 2019 that has not yet been recognized was approximately \$0.4 billion. This excludes contracts with an original expected length of less than one year. The Company expects to recognize the majority of its remaining performance obligation over the next 18 months.

Contract Acquisition Costs

We have various commission programs for internal sales personnel and channel partners that are incremental to the acquisition of customer contracts. These costs are recorded as deferred contract acquisition costs on the consolidated balance sheets which eligible employees and third parties may earn commission on sales of services and products to customers. We expect that these commission fees are recoverable and, therefore, we have capitalized \$68,982 and \$49,636 as contract costs, net of accumulated amortization, as of December 31, 2019 and December 31, 2018, respectively, included within deferred customer acquisitions costs, current portion and deferred customer acquisition costs on our consolidated balance sheet. In addition, we established a deferred tax liability associated with the transition asset of \$9,636 upon the adoption of Topic 606 on January 1, 2018. Capitalized commission fees are amortized to sales and marketing expense over the estimated customer life, which is seven years for Business customers. During the year ended December 31, 2019 and 2018, the amounts amortized to sales and marketing were \$11,359 and \$10,287, respectively. There were no impairment losses recognized in relation to the costs capitalized for the years ended December 31, 2019 and December 31, 2018. In addition, the Company expenses sales commissions for commission plans related to customer arrangements deemed less than a year and for residuals and renewals.

Note 4. Acquisitions and Dispositions

Acquisition of NewVoiceMedia

On October 31, 2018, the Company acquired 100% of the issued and outstanding shares of NVM, a cloud CCaaS provider, for a purchase price of \$350,179 paid in cash. NVM is a private limited company organized under the laws of England & Wales. Adding NVM's contact center solutions to its existing suite of products will enable the Company to offer a full array of cloud business communications solutions delivered through owned technology.

The acquisition was recorded as a business combination under ASC 805, with identifiable assets acquired and liabilities assumed provisionally recorded at their estimated fair value on the acquisition date. The accounting for the business combination was completed as of October 31, 2019, at which point the fair values became final.

Under the terms of the offer, NVM shareholders received cash in the amount of approximately \$341 million (approximately £260 million based on a 1.31335 GBP to USD exchange rate as of September 18, 2018) shortly after completion of the offer and the Company paid transactions costs incurred by NVM of approximately \$9 million on the date of the acquisition.

The table below summarizes the NVM assets acquired and liabilities assumed as of October 31, 2018:

	Preliminary Acquisition Date Fair Value as of December 31, 2018	Measurement Period Adjustments	Final Acquisition Date Fair Value
Assets			
Cash and cash equivalents	\$ 1,994		\$ 1,994
Accounts receivable	13,747	(1,448)	\$ 12,299
Other current assets	3,907	(565)	\$ 3,342
Property and equipment	3,474		\$ 3,474
Intangible assets	154,300		\$ 154,300
Other assets	378		\$ 378
Total assets acquired	177,800	(2,013)	175,787
Liabilities			
Accounts payable	4,712		4,712
Accrued expenses	4,145	333	4,478
Deferred tax liabilities	7,756	(598)	7,158
Deferred revenue	22,000	800	22,800
Total liabilities assumed	38,613	535	39,148
Net identifiable assets acquired	139,187	(2,548)	136,639
Goodwill	210,992	2,548	213,540
Total purchase price	\$ 350,179	\$ —	\$ 350,179

The fair values of intangible assets at the acquisition date were measured primarily based on significant inputs that are not observable in the market and thus represent a Level 3 measurement as defined in ASC 820. The fair values of the trade name, customer relationships and developed technology were determined utilizing variations of the income approach where the expected future cash flows resulting from the acquired identifiable intangible assets were reduced by operating costs and charges for contributory assets and then discounted to present value at the weighted average cost of capital.

The Company recorded goodwill of \$213,540 which is attributable to the Business segment and is not deductible for tax purposes. The factors that resulted in goodwill arising from the acquisition include the revenues and synergies anticipated with the ability to provide a contact center solution to our existing suite of cloud communication services along with a skilled workforce proficient in API development. The Company also recorded intangible assets of \$154.3 million comprised of trade name of \$5.3 million, customer relationships of \$87 million, and developed technology of \$62 million. In addition, the Company incurred and expensed acquisition related transaction costs included in general and administrative expense related to the acquisition of NVM of \$253 and \$9,627 for the years ended December 31, 2019 and 2018, respectively.

Supplemental Pro Forma Information (unaudited)

The following supplemental pro forma information represents the results of operations if Vonage had acquired NVM on January 1, 2018.

	For the year ended December 31, 2018	
Revenue	\$	1,105,674
Net loss		(17,475)
Loss per share - basic		(0.07)
Loss per share - diluted		(0.07)

The pro forma information has been adjusted to include the pro-forma impact of amortization of intangible assets based on the purchase price allocations. The pro forma data has also been adjusted to eliminate non-recurring transaction costs as well as the related tax impact of pro forma adjustments. There were no transactions between Vonage and NVM. The pro forma results are presented for illustrative purposes only and do not reflect the realization of potential cost savings or any related integration costs.

Acquisition of TokBox

On August 1, 2018, the Company acquired 100% of the issued and outstanding shares of TokBox for a purchase price of \$32,906 paid in cash. San Francisco-based TokBox develops and operates the OpenTok Platform and is a provider in the WebRTC programmable video segment of the cloud communications market which will compliment the Company's existing portfolio of programmable communications.

The acquisition was recorded as a business combination under ASC 805, with identifiable assets acquired and liabilities assumed provisionally recorded at their estimated fair value on the acquisition date. The accounting for the business combination was completed as of June 30, 2019, at which point the fair values became final.

The table below summarizes the TokBox assets acquired and liabilities assumed as of August 1, 2018:

	Acquisition Date Fair Value
Assets	
Cash and cash equivalents	\$ 557
Current assets	2,205
Property and equipment	124
Intangible assets	15,602
Deferred tax asset	92
Restricted cash	50
Total assets acquired	18,630
Liabilities	
Accounts payable	371
Accrued expenses	6,003
Total liabilities assumed	6,374
Net identifiable assets acquired	12,256
Goodwill	20,650
Total purchase price	\$ 32,906

The Company recorded goodwill of \$20,650 which is attributable to the Business segment and is deductible for tax purposes. The factors that resulted in goodwill arising from the acquisition include the revenues expected to be achieved by incorporating a video feature in the Company's API platform along with a skilled workforce proficient in API development. The Company also recorded intangible assets of \$15,602 comprised of customer relationships of \$5,020 and developed technology of \$10,582.

Supplemental Pro Forma Information (unaudited)

The following supplemental pro forma information represents the results of operations if Vonage had acquired TokBox on January 1, 2018.

	For the year ended December 31, 2018
Revenue	\$ 1,054,649
Net income	19,459
Earnings per share - basic	0.08
Earnings per share - diluted	0.08

The pro forma information has been adjusted to include the pro-forma impact of amortization of intangible assets based on the preliminary purchase price allocations. The pro forma data has also been adjusted to eliminate non-recurring transaction costs as well as the related tax impact of pro forma adjustments. There were no transactions between Vonage and TokBox. The pro forma results are presented for illustrative purposes only and do not reflect the realization of potential cost savings or any related integration costs.

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 of 2017 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 historically been included within the Business segment. As a result of the sale, we recorded a gain \$1,879 for the year ended December 31, 2017, within other income. This disposal did not represent a strategic shift in operations and, therefore, did not qualify for presentation as discontinued operations.

Note 5. Earnings Per Share

Earnings (loss) per share has been computed according to FASB ASC 260, "Earnings per Share", which requires a dual presentation of basic and diluted 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 earnings (loss) per share:

	For the years ended December 31,		
	2019	2018	2017
Numerator			
Net (loss) income	\$ (19,482)	\$ 35,728	\$ (33,933)
Denominator			
Basic weighted average common shares outstanding	242,018	237,499	225,311
Dilutive effect of stock options and restricted stock units	—	11,393	—
Diluted weighted average common shares outstanding	242,018	248,892	225,311
Basic (loss) earnings per share			
Basic (loss) earnings per share	\$ (0.08)	\$ 0.15	\$ (0.15)
Diluted (loss) earnings per share			
Diluted (loss) earnings (loss) per share	\$ (0.08)	\$ 0.14	\$ (0.15)

The following shares were excluded from the calculation of diluted earnings (loss) per share because of their anti-dilutive effects:

	For the years ended December 31,		
	2019	2018	2017
Restricted stock units	10,389	3,285	11,928
Employee stock options	4,946	1,163	10,448
	15,335	4,448	22,376

As the Company expects to settle the principal amount of its outstanding convertible senior notes in cash and any excess in cash or shares of the Company's common stock, the Company uses the treasury stock method for calculating any potential dilutive effect of the conversion spread on diluted net income per share, if applicable. The conversion spread will have a dilutive impact on diluted net income per share of common stock when the average market price of the Company's common stock for a given period exceeds the conversion price of \$16.72 per share. The Company's convertible senior notes are further described in Note 8, *Long-Term Debt*.

Note 6. Goodwill and Intangible Assets

Goodwill

The Company's goodwill is derived primarily from the acquisitions of Vocalocity, Telesphere, iCore, Simple Signal, Nexmo, TokBox and NVM 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, 2018	\$	373,764
Increase in goodwill related to acquisition of TokBox		20,650
Increase in goodwill related to acquisition of NVM		210,992
Foreign currency translation adjustment		(6,907)
Balance at December 31, 2018		598,499
Increase in goodwill related to measurement period adjustments to initial acquisition accounting of NVM		2,548
Foreign currency translation adjustment		1,923
Balance at December 31, 2019	\$	602,970

Intangible assets, net

The Company's intangible assets as of December 31, 2019 and 2018 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.

	Useful Lives (years)	December 31, 2019			December 31, 2018		
		Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Customer relationships	7 to 12	\$ 272,767	\$ (115,583)	\$ 157,184	\$ 272,226	\$ (84,339)	\$ 187,887
Developed technology	3 to 10	169,722	(80,523)	89,199	162,316	(57,948)	104,368
Patents and patent licenses	3 to 5	20,554	(19,228)	1,326	20,214	(17,700)	2,514
Trade names	2 to 5	7,074	(4,878)	2,196	6,952	(1,947)	5,005
Non-compete agreements	3	970	(970)	—	991	(854)	137
Total finite-lived intangible assets		\$ 471,087	\$ (221,182)	\$ 249,905	\$ 462,699	\$ (162,788)	\$ 299,911

During the years ended December 31, 2019, 2018, and 2017, the Company recorded amortization expense of \$58,441, \$39,457 and \$38,056, 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	
2020	\$	51,219
2021		43,390
2022		39,942
2023		33,523
2024		27,927

Note 7. Income Taxes

The components of loss or income before income taxes are as follows:

	For the years ended December 31,		
	2019	2018	2017
United States	\$ 11,994	\$ 31,205	\$ 39,370
Foreign	(38,102)	5,320	6,423
	\$ (26,108)	\$ 36,525	\$ 45,793

The income tax benefit or expense consisted of the following amounts:

	For the years ended December 31,		
	2019	2018	2017
Current:			
Federal	\$ —	\$ —	\$ (1,101)
Foreign	(3,599)	(3,023)	(1,731)
State and local taxes	(3,186)	(2,583)	(2,317)
	\$ (6,785)	\$ (5,606)	\$ (5,149)
Deferred:			
Federal	\$ (1,495)	\$ 6,249	\$ (75,928)
Foreign	7,321	1,290	1,631
State and local taxes	7,585	(2,730)	(280)
	13,411	4,809	(74,577)
	\$ 6,626	\$ (797)	\$ (79,726)

The reconciliation between the United States federal statutory rate of 21% for the year ended December 31, 2019 and 2018, and 35% for the years ended December 31, 2017, respectively, to the Company's effective rates are as follows:

	For the years ended December 31,		
	2019	2018	2017
U.S. Federal statutory tax rate	21 %	21 %	35 %
Statutory permanent items	(3)%	3 %	9 %
Effect of the Tax Cuts and Jobs Act	— %	— %	152 %
Equity-based compensation	19 %	(43)%	(24)%
Acquisition costs	— %	4 %	— %
Officers' compensation	(7)%	3 %	1 %
Interest	(10)%	1 %	— %
State and local taxes, net of federal benefit	13 %	12 %	5 %
International tax (reflects effect of losses for which tax benefit not realized)	(9)%	4 %	(4)%
Uncertain tax positions	2 %	2 %	— %
Tax credits	1 %	(2)%	(2)%
Valuation reserve for income taxes and other	— %	— %	(3)%
Tax rate change	— %	— %	3 %
Other	(2)%	(3)%	2 %
Effective tax rate	25 %	2 %	174 %

For the year ended December 31, 2019, the Company's overall effective tax rate was different from the statutory rate of 21% primarily as a result of a permanent benefit related to the equity based stock compensation and an interested related adjustment in the United Kingdom.

For the year ended December 31, 2018, the Company's overall effective tax rate was different from the statutory rate of 21% primarily as a result of the increase in the state provision along with the permanent benefit related to the equity-based stock compensation and its related state impact.

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

	December 31, 2019	December 31, 2018
Assets and liabilities:		
Accounts receivable and inventory allowances	\$ 1,044	\$ 839
Deferred rent	1,833	1,212
Acquired intangible assets and property and equipment	(35,524)	(56,801)
Accrued expenses	7,964	7,344
Research and development	1,170	991
Stock option compensation	17,979	14,741
Capital leases	—	(38)
Cumulative translation adjustments	40	170
Deferred revenue	7,471	5,355
Derivatives	3	142
Prepaid expense	(15,569)	(13,312)
Convertible debt and capped call	(7,934)	—
Net operating loss carryforwards	149,848	165,732
	128,325	126,375
Valuation allowance	(19,978)	(23,815)
Deferred tax assets, net, non-current	\$ 108,347	\$ 102,560

Deferred tax assets and valuation allowance

Net deferred tax balance. As of December 31, 2019 and 2018, we recorded a net deferred tax asset, net of valuation allowance of \$108,347 and \$102,560, respectively. The Company believes that the net operating losses related to one of its United Kingdom subsidiaries, Vonage Limited, and certain U.S. states 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, 2019, the Company has U.S. Federal and state NOL carryforwards of \$509,313 and \$237,667, respectively, which expire at various times through 2037. We have Non-US NOLs of \$165,104 primarily related to the United Kingdom which has 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, 2019, there were no limitations on the use of our NOLs except for certain of the NOLs of Vocalocity, which the Company has reflected in the deferred tax asset.

Valuation allowance. As of December 31, 2019 and 2018, the Company's valuation allowance was \$19,978 and \$23,815, respectively, primarily consisting of NOLs associated with Vonage Limited, NVM and state NOLs for certain legal entities.

Uncertain tax benefits

The Company had uncertain tax benefits of \$914 and \$1,107 as of December 31, 2019 and 2018, respectively. The Company recognizes interest and penalties related to uncertain tax benefits in income tax expense. The Company incurred interest expense or penalties of \$60, \$68, and \$61 for the years ended December 31, 2019, 2018, and 2017, respectively.

The following table reconciles the total amounts of uncertain tax benefits:

	As of December 31,	
	2019	2018
Balance as of January 1	\$ 1,107	1,086
Increase due to current year positions	155	1,107
Decrease due to prior year positions	(243)	(1,086)
Decrease due to settlements and payments	(86)	—
Decrease due to lapse of applicable statute of limitations	(71)	—
Increase due to foreign currency fluctuation	52	—
Uncertain tax benefits as of December 31	\$ 914	\$ 1,107

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 to audit 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 2015. With few exceptions, state and local income tax examinations are no longer open for years before 2014.

Note 8. Long-Term Debt

A schedule of long-term debt, excluding current portion, at December 31, 2019 and 2018 is as follows:

	December 31, 2019	December 31, 2018
Term note - due 2023	\$ —	\$ 95,000
Revolving credit facility - due 2023	220,500	425,000
Convertible senior notes - due 2024	345,000	—
Long-term debt including current maturities	\$ 565,500	\$ 520,000
Less current maturities	—	10,000
Less unamortized discount	61,234	—
Less debt issuance cost	7,108	772
Total long-term debt	\$ 497,158	\$ 509,228

As of December 31, 2019, future payments under long-term debt obligations over each of the next five years are as follows:

	Long-term debt
2020	\$ —
2021	—
2022	—
2023	220,500
2024	345,000
Minimum future payments of principal	\$ 565,500

Convertible Senior Notes

In June 2019, the Company issued \$300.0 million aggregate principal amount of 1.75% convertible senior notes due 2024 in a private placement and an additional \$45.0 million aggregate principal amount of such notes pursuant to the exercise in full of the over-allotment option of the initial purchasers. The Convertible Senior Notes are the Company's senior unsecured obligations. The Convertible Senior Notes bear interest at a rate of 1.75% per year, payable semiannually in arrears on June 1 and December 1 of each year, beginning on December 1, 2019. The Convertible Senior Notes will mature on June 1, 2024, unless earlier redeemed, repurchased or converted. We may not redeem the notes prior to June 5, 2022. On or after June 5, 2022, we may redeem for cash all or a portion of the notes if the last reported sale price of the Company's common stock has been at least 130% of the conversion price then in effect on (i) each of at least 20 trading days (whether or not consecutive) during the 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date the Company provides notice of redemption and (ii) the trading day immediately preceding the date the Company provides such notice. The total net proceeds from the offering, after deducting initial purchase discounts and expenses payable by the Company, were \$334.8 million.

Each \$1,000 principal amount of the Convertible Senior Notes is initially convertible into 59.8256 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately \$16.72 per share. The conversion rate is subject to adjustment upon the occurrence of certain specified events but will not be adjusted for any accrued and unpaid interest. In addition, upon the occurrence of a make-whole fundamental change or a redemption period, each as defined in the indenture setting forth the terms of the Convertible Senior Notes, the Company will, in certain circumstances, increase the conversion rate by a number of additional shares for a holder that elects to convert its Convertible Senior Notes in connection with such make-whole fundamental change or during the relevant redemption period.

The Company used the net proceeds from the offering to (i) pay the cost of the capped call transactions described below, (ii) to repurchase approximately \$10 million in shares of its common stock from purchasers of the Convertible Senior Notes in privately negotiated transactions effected through one of the initial purchasers or an affiliate thereof concurrently with the pricing of the Convertible Senior Notes described below, and (iii) to repay the outstanding principal balance under its credit facility.

Prior to December 1, 2023, the notes will be convertible only upon satisfaction of certain conditions and during certain periods, and thereafter, at any time until the close of business on the second scheduled trading day immediately preceding the maturity date. We will satisfy any conversion election by paying or delivering, as the case may be, cash, shares of common stock or a combination of cash and shares of common stock. The Convertible Senior Notes and shares of common stock issuable upon conversion, if any, have not been registered under the Securities Act, or under any U.S. state securities laws or other jurisdiction and may not be offered or sold in the United States absent registration or an applicable exemption from registration requirements.

During the year ended December 31, 2019, the conditions allowing holders of the Convertible Senior Notes to convert were not met.

In accounting for the issuance of the Convertible Senior Notes, the Company separated the Convertible Senior Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The fair value was determined utilizing a discounted cash flow model that includes assumptions such as implied credit spread, expected volatility, and the risk-free rate for notes with a similar term. The carrying amount of the equity component representing the conversion option was determined by deducting the fair value of the liability component from the par value of the Convertible Senior Notes. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount ("debt discount") is amortized to interest expense at an effective interest rate of 6.4% over the contractual terms of the Convertible Senior Notes.

In accounting for the transaction costs related to the Convertible Senior Notes, the Company allocated the total amount incurred to the liability and equity components of the Convertible Senior Notes based on the proportion of the proceeds allocated to the debt and equity components. Issuance costs attributable to the liability component of \$7,973 were recorded as additional debt discount and will be amortized to interest expense using the effective interest method over the contractual terms of the Convertible Senior Notes. Issuance costs attributable to the equity component were netted with the equity component in stockholders' equity.

The net carrying amount of the liability component of the Convertible Senior Notes was as follows:

	December 31, 2019
Principal	\$ 345,000
Unamortized discount	(61,234)
Unamortized issuance cost	(7,108)
Net carrying amount	<u>\$ 276,658</u>

The net carrying amount of the equity component of the Convertible Senior Notes was as follows:

	December 31, 2019
Proceeds allocated to the conversion option (debt discount)	\$ 67,664
Issuance cost	(1,944)
Income tax expense	(15,597)
Net carrying amount	<u>\$ 50,123</u>

The following table sets forth the interest expense recognized related to the Convertible Senior Notes:

	For the years ended December 31, 2019
Contractual interest expense	\$ 3,304
Amortization of debt discount	6,430
Amortization of debt issuance costs	865
Total interest expense related to the Convertible Senior Notes	<u>\$ 10,599</u>

In connection with the pricing of the Convertible Senior Notes and subsequently in connection with the exercise of the initial purchasers option to purchase additional notes, the Company entered into privately negotiated capped call transactions with certain counterparties (the "Capped Calls"). The Capped Calls each have a strike price of \$16.72 per share, subject to certain adjustments, which corresponds to the initial conversion price of the Convertible Senior Notes. The Capped Calls have initial cap prices of \$23.46 per share, subject to certain adjustments. The Capped Calls are expected generally to reduce potential dilution to the Company's common stock upon any conversion of notes and/or offset any cash payments the Company is required to make in excess of the aggregate principal amount of converted notes, as the case may be, with such reduction and/or offset subject to a cap. The initial cap price of the Capped Call transactions was \$23.46. The net cost of \$28,325 incurred to purchase the Capped Calls and related income tax benefit of \$6,772 was recorded as a reduction to additional paid-in capital on the Company's consolidated balance sheet and are not accounted for as derivatives.

Concurrently with the issuance of the Convertible Senior Notes, the Company's board of directors approved the repurchase of an aggregate of 852,515, or \$10,000 of, shares of the Company's outstanding common stock in privately negotiated transactions at a price of \$11.73 per share, which was equal to the closing price per share of the Company's common stock on June 11, 2019, the date of the pricing of the offering of the Convertible Senior Notes. The share repurchase was recorded to treasury stock on the Company's consolidated balance sheet.

2018 Term Note and Revolving Credit Facility

On July 31, 2018, the Company replaced its 2016 Credit Facility previously consisting of a \$125 million term loan and a \$325 million revolving credit facility with the 2018 Credit Facility consisting of a \$100 million senior secured term loan and a \$500 million revolving credit facility. The co-borrowers under the 2018 Credit Facility are the Company and Vonage America Inc., the Company's wholly owned subsidiary. Obligations under the 2018 Credit Facility are guaranteed, fully and unconditionally, by the Company's other United States subsidiaries and are secured by substantially all of the assets of each borrower and each guarantor.

The company used \$232,000 of the proceeds available under our 2018 Credit Facility plus cash on hand to retire all of the debt outstanding under our 2016 Credit Facility and to cover transaction fees and expenses. Total transaction fees and expenses incurred were \$3,376, of which \$474 was allocated to the term note and \$2,813 was allocated to the revolving credit facility to be amortized over the term of 2018 Credit Facility. The remaining \$89 of transaction fees and expenses were expensed during the year ended December 31, 2018. The Company recognized a loss on extinguishment of debt of \$14 which primarily consisted of the write off of previously deferred financing costs partially offset by the realization of a portion of gains associated with the interest rate swaps included in accumulated other comprehensive income. Remaining proceeds available from the undrawn revolving credit facility under our 2018 Credit Facility will be used for general corporate purposes and to fund potential additional acquisitions.

2018 Credit Facility Terms

The following description summarizes the material terms of the 2018 Credit Facility:

The loans under the 2018 Credit Facility mature on July 31, 2023. The unused portion of the Company's revolving credit facility incurs a 0.30% per annum commitment fee.

Outstanding amounts under the 2018 Credit Facility, at the Company's option, will bear interest at:

- LIBOR (applicable to one-, two-, three-, six-, or twelve-month periods) plus an applicable margin equal to 2.00% up to 2.75% per annum 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 rate of interest last quoted by the Wall Street Journal as the "Prime Rate" in the U.S., (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 1.00% up to 1.75% per annum payable on the last business day of each March, June, September, and December and the maturity date of the 2018 Credit Facility.

In 2019, we made repayments of \$95 million under the 2018 term loan and made discretionary repayments of \$348.5 million under the 2018 revolving credit facility, and borrowed \$144 million under the revolving credit facility. In addition, the effective interest rate was 4.56% as of December 31, 2019.

In 2018, we made mandatory repayments of \$5 million under the 2018 term loan and made discretionary repayments of \$42 million under the 2018 revolving credit facility.

As of December 31, 2019, we were in compliance with all covenants, including financial covenants, for the 2018 Credit Facility.

2016 Financing

In 2018, we made mandatory repayments of \$9.4 million under the term note and made discretionary repayments of \$35 million under the revolving credit facility and borrowed \$40 million 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 from 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, 2019 and 2018, the fair market value of the swaps was \$18 and \$1,859, respectively, which is included in other assets on our consolidated balance sheet. The following table summarizes the effects of ASC 815 on the Company's accumulated OCI balance attributable to cash flow derivatives:

	Years Ended December 31	
	2019	2018
Accumulated OCI beginning balance	\$ 975	\$ 965
Reclassified from accumulated OCI to income:		
Due to reclassification of previously deferred gain	(531)	(469)
Change in fair value of cash flow hedge accounting contracts, net of tax	(1,445)	479
Accumulated OCI ending balance, net of tax (expense) benefit of (\$4) and \$393, respectively	\$ (1,001)	\$ 975
Gains expected to be realized from accumulated OCI during the next 12 months	\$ 531	\$ —

NOTE 9. 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, 2019 and December 31, 2018:

	December 31, 2019	December 31, 2018
Level 2 Measurements		
Interest rate swaps ⁽¹⁾	\$ 18	\$ 1,859

(1) Included in other assets on our consolidated balance sheets.

As of December 31, 2019, the fair value of the 1.75% Convertible Senior Notes was approximately \$309,641. The fair value was determined based on the quoted price for the Convertible Senior Notes in an inactive market on the last trading day of the reporting period and is classified as Level 2 in the fair value hierarchy.

Fair Value of Other Financial Instruments

The carrying amounts of our other 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. We believe the fair value of our 2018 Credit Facility at December 31, 2019 and December 31, 2018 was approximately the same as its carrying amount as market conditions, including available interest rates, credit spread relative to our credit rating, and illiquidity, remain relatively unchanged from the issuance date of our debt obligations for a similar debt instrument and are classified as Level 3 within the fair value hierarchy.

As of December 31, 2019, we did not have any other assets or liabilities that are measured and recognized at fair value on a recurring basis.

Note 10. Common Stock

As of December 31, 2019 and December 31, 2018, the Company had 596,950 shares of common stock authorized. For a detailed description of our share-based compensation programs refer to Note 11, *Employee Stock Benefit Plans*.

The following table reflects the changes in the Company's common stock issued and outstanding:

For the Year Ended

(in thousands)

	Issued	Treasury	Outstanding
Balance at December 31, 2016	282,318	(63,317)	219,001
Shares issued under the 2015 Equity Incentive Plan	15,856	—	15,856
Employee taxes paid on withholding shares	—	(2,319)	(2,319)
Common stock repurchases	—	(1,599)	(1,599)
Balance at December 31, 2017	298,174	(67,235)	230,939
Shares issued under the 2015 Equity Incentive Plan	11,562	—	11,562
Employee taxes paid on withholding shares	—	(2,758)	(2,758)
Balance at December 31, 2018	309,736	(69,993)	239,743
Shares issued under the 2015 Equity Incentive Plan	5,832	—	5,832
Employee taxes paid on withholding shares	—	(2,113)	(2,113)
Assets acquisition	240	—	240
Common stock repurchases (Note 8)	—	(853)	(853)
Balance at December 31, 2019	315,808	(72,959)	242,849

Common Stock Repurchases

On June 11, 2019, concurrently with the issuance of the Convertible Senior Notes, the Company repurchased the Company's outstanding common stock in privately negotiated transactions. For additional information, refer to Note 8. *Long-Term Debt*.

We repurchased the following shares of common stock during the year ended December 31, 2019:

	December 31, 2019
Shares of common stock repurchased	852,515
Value of common stock repurchased	\$ 10,000

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 set to expire on June 30, 2019, unless extended by our board of directors. On June 6, 2019, at the Vonage 2019 annual meeting of stockholders, stockholders ratified the continued extension of the Preservation Plan through June 30, 2021.

Note 11. Employee Stock Benefit Plans

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 ten years expiration period.

The fair value for these options was estimated at the date of grant using a Black-Scholes option-pricing model. The company did not grant options in 2019 and 2018. The assumptions used to value options in 2017 is as follows:

	2017
Risk-free interest rate	1.95-2.18%
Expected stock price volatility	46.19-47.59%
Dividend yield	0.00%
Expected life (in years)	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 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, 2019 and 2018, 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:

	2019	2018	2017
Risk-free interest rate	2.40%	2.38%	1.54%
Expected stock price volatility	39.95%	36.72%	35.99%
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, 2019 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	296	219	
2006 Incentive Plan	71,669		3,650	34
2015 Incentive Plan	42,731	23,145	1,077	10,355
Total as of December 31, 2019	116,627	23,441	4,946	10,389

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, 2019, there are 23,145 shares 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, 2018	5,935	\$ 3.79
Stock options granted	—	—
Stock options exercised	(948)	2.62
Stock options canceled	(41)	4.04
Outstanding at December 31, 2019	4,946	\$ 4.01
Exercisable at December 31, 2019	4,425	\$ 3.73

There were no options granted in 2019 and 2018. The weighted average exercise price of options granted was \$6.46 for the years ended December 31, 2017. The aggregate intrinsic value of exercised stock options for the years ended December 31, 2019, 2018, and 2017 was \$7,616, \$38,248, and \$38,958, respectively.

The weighted average grant date fair market value of stock options granted was \$3.04 for the years ended December 31, 2017.

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, 2018	9,906	\$ 8.81
Restricted stock and restricted stock units granted	7,696	11.29
Restricted stock and restricted stock units vested	(4,917)	6.69
Restricted stock and restricted stock units canceled	(2,296)	10.31
Non-vested at December 31, 2019	10,389	\$ 10.58

The weighted average grant date fair market value of restricted stock and restricted stock units granted was \$11.29, \$10.55, and \$6.79 per unit during the year ended December 31, 2019, 2018, and 2017, respectively. The fair value of restricted stock and restricted stock units that vested during the years ended December 31, 2019, 2018, and 2017 was \$32,872, \$44,812, and \$41,057, respectively. The aggregate intrinsic value of restricted stock units outstanding was \$76,986 as of December 31, 2019.

Supplemental Information

Total share-based compensation expense recognized for the years ended December 31, 2019, 2018, and 2017 was \$45,242, \$33,799, and \$37,482, respectively, which were recorded to cost of services and general and administrative expense in the consolidated statement of income. As of December 31, 2019, total unamortized share-based compensation was \$51,602, accounting for forfeitures when they occur, which is expected to be amortized over the remaining weighted average recognition period of 2.1 years. 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, 2019 is summarized below:

Range of Exercise Prices	Stock Options Outstanding			Stock Options Exercisable				
	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)
\$0.69 to \$1.99	268		1.22		264		1.22	
\$2.00 to \$4.00	3,337		3.41		3,337		3.41	
\$4.01 to \$7.25	1,341		6.06		824		5.83	
	<u>4,946</u>	5.13	<u>4.01</u>	\$ 16,804	<u>4,425</u>	4.87	<u>3.73</u>	\$ 16,281

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 2017, 2018, and 2019. Our expense related to the Retirement Plan was \$8,750, \$6,756, and \$5,411 in 2019, 2018, and 2017, respectively.

Note 12. Leases

The Company entered into various non-cancelable operating lease arrangements for certain of our existing office and telecommunications co-location space as well as operating leases for certain equipment. The operating leases expire at various times through 2026, some of which provide the Company options to extend the leases for terms up to 5 years beyond the original term. We are committed to pay a portion of the buildings' operating expenses as required under the arrangements which we will separate as a non-lease component when readily determinable.

During the year ended December 31, 2019, the Company incurred operating lease expense of \$14,390, related to its operating leases and \$1,272 of sub-lease income. Under ASC 840, the Company had rent expense net of sub-lease income of \$22,706 and \$11,429 for the years ended December 31, 2018 and 2017, respectively. Additionally, the remaining weighted average lease term for our operating leases was 6.88 years and the weighted average discount rate utilized to measure the Company's operating leases was 5.18% as of December 31, 2019.

Supplemental cash flow related to the Company's operating leases is as follows:

	The Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities	\$ 16,972
Right-of-use assets obtained in exchange for lease obligations	7,718

Maturities of lease liabilities as of December 31, 2019 were as follows:

2020	\$	15,017
2021		11,663
2022		7,599
2023		7,197
2024		6,592
Thereafter		21,178
Total lease payments	\$	69,246
Less imputed interest		(11,047)
Total	\$	58,199

Rental commitments under non-cancelable operating leases in effect as of December 31, 2018 were as follows (as calculated under ASC 840, Leases):

2019	\$	17,204
2020		14,209
2021		10,378
2022		8,206
2023		8,154
Thereafter		9,908
Total minimum payments required	\$	68,059

Note 13. Property and Equipment

	December 31, 2019	December 31, 2018
Network equipment and computer hardware	\$ 88,360	\$ 91,901
Leasehold improvements	37,522	36,464
Customer premise equipment	28,022	18,280
Furniture	4,113	7,616
	158,017	154,261
Less accumulated depreciation	(109,646)	(104,999)
Property, plant and equipment	\$ 48,371	\$ 49,262

Note 14. Accrued Liabilities

	December 31, 2019	December 31, 2018
Compensation and benefits, related taxes and temporary labor	\$ 40,101	\$ 33,249
Marketing	15,294	10,238
Taxes and fees	22,922	11,189
Telecommunications	40,498	21,403
Interest	873	65
Customer credits	2,772	3,325
Professional fees	4,482	2,049
Inventory	871	1,188
Other accruals	9,776	4,664
	<u>\$ 137,589</u>	<u>\$ 87,370</u>

Note 15. Commitments and Contingencies

Commitments

Stand-by Letters of Credit

We have stand-by letters of credit totaling \$1,528 and \$1,516, as of December 31, 2019 and 2018, 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, provide software maintenance service, and license patents to us. In certain cases, we may terminate these arrangements early upon payment of specified fees. These commitments total \$94,196 as of December 31, 2019. Of this total amount, we expect to purchase \$41,807 in 2020, \$26,952 in 2021, \$21,892 in 2022, and \$3,545 in 2023, respectively. During the fourth quarter of 2019, the Company executed a contract with a vendor related to co-location and infrastructure services over the next three years which comprises a large portion of the Company's purchase commitments as of December 31, 2019. 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.

Contingencies

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 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 noted 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 condensed consolidated financial position, cash flows or results of operations.

Regulation

Telephony services are subject to a broad spectrum of state, federal and foreign regulations. Because of the uncertainty over whether VoIP 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. The Company continues to monitor federal regulations relating to net neutrality, rural call completion issues, number slamming, 911 access, access to telecommunication equipment and services by persons with disabilities, caller ID services, number portability, unwanted calls to reassigned numbers, and robocalling. As we continue to expand globally, these types of regulations are likely to be similarly enacted and enforced by the local regulatory authorities.

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. From time to time, we have received inquiries from a number of states and local taxing agencies with respect to the remittance of sales, use, telecommunications, and excise taxes. Several jurisdictions are currently conducting tax audits of the Company's records. While the Company collects or has accrued for taxes that it believes are required to be remitted, it has reviewed its positions in those various jurisdictions as well as other regulatory fees and has established appropriate reserves. As such, we have a reserve of \$3,175 as of December 31, 2019 as our best estimate of the potential tax exposure for any retroactive assessment.

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-maker reviews revenue and gross margin information for each of our reportable segments, but does 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.

Business

For our Business customers, our Applications Group provides innovative, cloud-based UCaaS and CCaaS solutions, comprised of integrated voice, text, video, data, collaboration, and mobile applications over our flexible, scalable SIP based VoIP network. The API Platform Group also offers 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 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 Software Defined Wide Area Network, or SD-WAN, UCaaS and CPaaS services for Business,

Access and product revenues. Product revenues include equipment sold to customers, shipping and handling, professional services, and broadband access, as well as revenues associated with providing access services to Business customers.

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.

Access and 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, as well as costs associated with providing access services to Business customers.

USF cost of revenues. USF cost of revenues represents contributions to the Federal USF and related fees.

Information about our segment results for the years ended December 31, 2019, 2018, and 2017 were as follows:

Year ended December 31, 2019

	Business	Consumer	Total
Revenues			
Service revenues	\$ 719,514	\$ 340,462	\$ 1,059,976
Access and product revenues (1)	46,232	264	46,496
Service, access and product revenues	765,746	340,726	1,106,472
USF revenues	38,134	44,740	82,874
Total revenues	803,880	385,466	1,189,346
Cost of revenues			
Service cost of revenues (2)	336,045	34,677	370,722
Access and product cost of revenues (1)	53,455	4,033	57,488
Service, access and product cost of revenues	389,500	38,710	428,210
USF cost of revenues	38,134	44,740	82,874
Total cost of revenues	427,634	83,450	511,084
Segment gross margin			
Service margin	383,469	305,785	689,254
Access and product margin	(7,223)	(3,769)	(10,992)
Gross margin ex-USF (Service, access and product margin)	376,246	302,016	678,262
USF margin	—	—	—
Segment gross margin	\$ 376,246	\$ 302,016	\$ 678,262
Segment gross margin %			
Service margin %	53.3%	89.8%	65.0%
Gross margin ex-USF (Service, access and product margin) %	49.1%	88.6%	61.3%
Segment gross margin %	46.8%	78.4%	57.0%

(1) Includes customer premise equipment, access, professional services, and shipping and handling.

(2) Excludes depreciation and amortization of \$33,484, \$4,683, and \$38,167, respectively.

Year ended December 31, 2018

	Business	Consumer	Total
Revenues			
Service revenues	\$ 526,707	\$ 394,389	\$ 921,096
Access and product revenues (1)	50,068	559	50,627
Service, access and product revenues	576,775	394,948	971,723
USF revenues	31,369	45,690	77,059
Total revenues	608,144	440,638	1,048,782
Cost of revenues			
Service cost of revenues (2)	239,096	47,439	286,535
Access and product cost of revenues (1)	58,081	5,289	63,370
Service, access and product cost of revenues	297,177	52,728	349,905
USF cost of revenues	31,374	45,716	77,090
Total cost of revenues	328,551	98,444	426,995
Segment gross margin			
Service margin	287,611	346,950	634,561
Access and product margin	(8,013)	(4,730)	(12,743)
Gross margin ex-USF (Service, access and product margin)	279,598	342,220	621,818
USF margin	(5)	(26)	(31)
Segment gross margin	\$ 279,593	\$ 342,194	\$ 621,787
Segment gross margin %			
Service margin %	54.6%	88.0%	68.9%
Gross margin ex-USF (Service, access and product margin) %	48.5%	86.6%	64.0%
Segment gross margin %	46.0%	77.7%	59.3%

(1) Includes customer premise equipment, access, and shipping and handling.

(2) Excludes depreciation and amortization of \$22,554, \$5,200, and \$27,754, respectively.

Year ended December 31, 2017

	Business	Consumer	Total
Revenues			
Service revenues	\$ 417,118	\$ 454,340	\$ 871,458
Access and product revenues (1)	54,971	525	55,496
Service, access 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)	184,054	80,454	264,508
Access and product cost of revenues (1)	57,906	7,208	65,114
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	233,064	373,886	606,950
Access and product margin	(2,935)	(6,683)	(9,618)
Gross margin ex-USF (Service, access and product margin)	230,129	367,203	597,332
USF margin	—	—	—
Segment gross margin	\$ 230,129	\$ 367,203	\$ 597,332
Segment gross margin %			
Service margin %	55.9%	82.3%	69.6%
Gross margin ex-USF (Service, access and product margin) %	48.7%	80.7%	64.4%
Segment gross margin %	46.1%	72.9%	59.6%

(1) Includes customer premise equipment, access, and shipping and handling.

(2) Excludes depreciation and amortization of \$20,100, \$7,208, and \$27,308, 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,		
	2019	2018	2017
Total reportable gross margin	\$ 678,262	\$ 621,787	\$ 597,332
Sales and marketing	363,111	311,433	313,251
Engineering and development	69,460	52,139	29,630
General and administrative	152,672	135,324	122,537
Depreciation and amortization	86,256	70,980	72,523
Income from operations	\$ 6,763	\$ 51,911	\$ 59,391
Interest expense	\$ (32,821)	\$ (15,068)	\$ (14,868)
Other income (expense), net	(50)	(318)	1,270
Income before income taxes	\$ (26,108)	\$ 36,525	\$ 45,793

Information about our operations by geographic location is as follows:

	For the years ended December 31,		
	2019	2018	2017
Revenues:			
United States	\$ 855,255	\$ 825,721	\$ 851,413
Canada	26,696	27,267	30,252
United Kingdom	66,723	49,430	28,309
Other Countries ⁽¹⁾	240,672	146,364	92,312
	\$ 1,189,346	\$ 1,048,782	\$ 1,002,286

(1) No individual other international country represented greater than 10% of total revenue during the periods presented.

	December 31, 2019	December 31, 2018
Long-lived assets:		
United States	\$ 640,277	\$ 596,820
United Kingdom	299,660	366,594
Israel	1,609	1,688
	\$ 941,546	\$ 965,102

Note 17. Cash Flow Information

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

(In thousands)	For the years ended December 31,		
	2019	2018	2017
Supplemental disclosures of cash flow information:			
Cash paid during the periods for:			
Interest	\$ 23,006	\$ 14,278	\$ 13,323
Income taxes	4,365	6,644	6,760
Non-cash investing and financing activities:			
Capital expenditures included in accounts payable and accrued liabilities	\$ 1,326	\$ 1,036	\$ 2,345
Issuance of shares for asset acquisition	3,000	—	—

Note 18. Quarterly Financial Information (Unaudited)

Refer to Note 12, *Acquisition and Dispositions* 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 2019				
Revenue	\$ 279,541	\$ 297,584	\$ 302,534	\$ 309,687
(Loss) income from operations	(2,592)	(167)	5,547	3,975
Net (loss) income	(534)	4,524	(21,097)	(2,375)
(Loss) earnings per common share:				
Basic earnings per share				
Basic earnings per share	\$ —	\$ 0.02	\$ (0.09)	\$ (0.01)
Diluted earnings per share				
Diluted earnings per share	\$ —	\$ 0.02	\$ (0.09)	\$ (0.01)
Year Ended 2018				
Revenue	\$ 253,573	\$ 259,875	\$ 261,531	\$ 273,803
Income from operations	17,668	13,375	14,847	6,021
Net income (loss)	24,524	8,559	9,588	(6,943)
Earnings (loss) per common share:				
Basic earnings (loss) per share				
Basic earnings (loss) per share	\$ 0.11	\$ 0.04	\$ 0.04	\$ (0.03)
Diluted earnings (loss) per share				
Diluted earnings (loss) per share	\$ 0.10	\$ 0.03	\$ 0.04	\$ (0.03)

VONAGE HOLDINGS CORP.
DESCRIPTION OF SECURITIES

DESCRIPTION OF COMMON STOCK

The common stock of Vonage Holdings Corp. (“Vonage”) is listed on the Nasdaq Global Select Market under the symbol “VG.” All outstanding shares of common stock are validly issued, fully paid, and non-assessable.

The following description of the terms of our common stock is not complete and is qualified in its entirety by reference to our Restated Certificate of Incorporation, as amended (the “Certificate of Incorporation”), and our Amended and Restated By-laws (the “Bylaws”), both of which are exhibits to our Annual Reports on Form 10-K and Quarterly Reports on Form 10-Q.

Voting Rights

The holders of the Common Stock have voting rights at all meetings of stockholders, each such holder being entitled to one vote for each share thereof held by such holder, subject to the preferences applicable to any shares of preferred stock. There is no provision for cumulative voting.

Dividend and Liquidation Rights

Subject to the preferences applicable to any shares of preferred stock outstanding at any time, holders of our common stock are entitled to receive dividends when, as, and if declared by our board of directors from funds legally available therefor.

Other Rights

The holders of our common stock have no preemptive rights and no rights to convert their common stock into any other securities, and our common stock is not subject to any redemption or sinking fund provisions.

Anti-Takeover Provisions of our Certificate of Incorporation, Bylaws, and Delaware Law

Various provisions contained in our Certificate of Incorporation, our Bylaws, and Delaware law could delay or discourage some transactions involving an actual or potential change in control of Vonage or its management.

Certificate of Incorporation and Bylaws

Provisions in our Certificate of Incorporation and our Bylaws:

- authorize our board of directors to establish one or more series of any class or classes of our stock, the terms of which can be determined by the board of directors at the time of issuance;
- do not authorize cumulative voting;
- establish a classified board structure until the annual meeting of stockholders in 2021;
- allow our directors to fill any vacancies on our board of directors, including vacancies resulting from a board of directors resolution to increase the number of directors; and
- require that stockholders wishing to nominate persons for election to our Board of Directors at an annual meeting or to propose any business to be considered by our stockholders at an annual meeting must comply with certain advance notice and other requirements set forth in our bylaws.

Vonage Holdings Corp.

List of Subsidiaries

Name	Jurisdiction of Incorporation
Vonage America LLC	Delaware
Vonage Wireless Inc.	Delaware
Vonage Business Inc.	Delaware
Vonage Worldwide 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 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
Nexmo Sweden AB	Sweden
Nexmo World Services Ltd. Sucursal en Espana	Spain
PT Nexmo International Indonesia	Indonesia
Vonage Australia PTY Limited	Australia
Vonage NVM Holding Ltd	England & Wales
NewVoiceMedia Ltd.	England & Wales
NewVoiceMedia Inc.	Delaware
NewVoiceMedia Pty Ltd.	Australia
NewVoiceMedia sP ZOO	Poland
NewVoiceMedia Germany GmbH	Germany
NewVoiceMedia Euro Holdings SARL	Luxembourg
NewVoiceMedia UK Ltd.	England & Wales
NewVoiceMedia Asia Pacific Ltd.	Hong Kong
NVM (Technology) Beijing Limited Company	Beijing

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statement Nos. 333-233685, 333-212296, 333-205224, 333-192629, 333-136227, and 333-173053 on Form S-8 of our reports dated February 20, 2020, relating to the financial statements of Vonage Holdings Corp. and subsidiaries (the "Company") and the effectiveness of the Company's internal control over financial reporting, appearing in this Annual Report on Form 10-K for the year ended December 31, 2019.

/s/ Deloitte & Touche LLP
Parsippany, New Jersey
February 20, 2020

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 20, 2020

/s/ Alan Masarek

Alan Masarek

Chief Executive Officer

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 20, 2020

/s/ David T. Pearson

David T. Pearson
Chief Financial Officer

**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, 2019 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 20, 2020

/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, 2019 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 20, 2020

/s/ David T. Pearson

David T. Pearson

Chief Financial Officer