Cogent Communications Holdings, Inc.

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USA Canada France Germany Luxembourg Spain Singapore Sweden The Netherlands United Kingdom Ukraine

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

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the fiscal year ended December 31, 2022

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the transition period from to

Commission file number 000-51829

COGENT COMMUNICATIONS HOLDINGS, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware (State or Other Jurisdiction of Incorporation or Organization)	**46-5706863** (I.R.S. Employer Identification No.)
2450 N Street N.W. **Washington, D.C.** (Address of Principal Executive Offices)	**20037** (Zip Code)

(202) 295-4200

Registrant's Telephone Number, Including Area Code

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

Title of each class	Trading Symbol	Name of each exchange on which registered:
Common Stock, par value $0.001 per share	CCOI	NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: **None**

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 Regulation 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 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," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

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

The aggregate market value of the Common Stock held by non-affiliates of the registrant, based on the closing price of $60.76 per share on June 30, 2022 as reported by the NASDAQ Global Select Market was approximately $2.6 billion.

The number of shares outstanding of the registrant's common stock, par value $0.001 per share, as of January 31, 2023 was 48,299,092.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement on Schedule 14A for the registrant's 2023 annual stockholders meeting are incorporated by reference in Part III of this Form 10-K.

COGENT COMMUNICATIONS HOLDINGS, INC.
ANNUAL REPORT ON FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2022

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K of Cogent Communications Holdings, Inc. (the "Company," "Cogent," "we," "our" or "us") may contain forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Forward-looking statements are not statements of historical facts, but rather reflect our current expectations concerning future results and events. You can identify these forward-looking statements by our use of words such as "anticipates," "believes," "continues," "expects," "intends," "likely," "may," "opportunity," "plans," "potential," "project," "will," and similar expressions to identify forward-looking statements, whether in the negative or the affirmative, though not all forward-looking statements use these words. We cannot guarantee that we actually will achieve these plans, intentions or expectations. These forward-looking statements are subject to risks and uncertainties including those discussed in Item 1A "Risk Factors" and other factors, some of which are beyond our control, which could cause actual results to differ materially from those forecasts or anticipated in such forward-looking statements.

You should not place undue reliance on these forward-looking statements, which reflect our view only as of the date of this report. We undertake no obligation to update these statements or publicly release the result of any revisions to these statements to reflect events or circumstances after the date of this report or to reflect the occurrence of unanticipated events.

PART I

ITEM 1. BUSINESS

We are a facilities-based provider of low-cost, high-speed Internet access, private network services, and data center colocation space. Our network is specifically designed and optimized to transmit packet switched data. We deliver our services primarily to small and medium-sized businesses, communications service providers and other bandwidth-intensive organizations in 51 countries across North America, Europe, Asia, South America, Oceania and Africa. We are a Delaware corporation, and we are headquartered in Washington, DC.

We offer on-net Internet access services exclusively through our own facilities, which run from our network to our customers' premises. We offer our on-net services to customers located in buildings that are physically connected to our network. As a result, we are not dependent on local telephone companies or cable TV companies to serve our customers for our on-net Internet access and private network service. Our on-net service consists of high-speed Internet access and private network services offered at speeds ranging from 100 megabits per second ("Mbps") to 400 gigabits per second ("Gbps").

We provide our on-net Internet access and private network services to our corporate and net-centric customers. Our corporate customers are located in multi-tenant office buildings ("MTOBs") and typically include law firms, financial services firms, advertising and marketing firms, as well as health care providers, educational institutions and other professional services businesses. Our net-centric customers include bandwidth-intensive users that leverage our network to either deliver content to end users or to provide access to residential or commercial Internet users. Content delivery customers include over the top ("OTT") media service providers, content delivery networks, web hosting companies, and commercial content and application software providers. Our net-centric customers include 7,792 access networks comprised of other Internet service providers ("ISPs"), telephone companies, mobile phone operators and cable television companies that collectively provide internet access to a substantial number of broadband subscribers and mobile phone subscribers across the world. These net-centric customers generally receive our services in carrier neutral colocation facilities and in our data centers. We operate data centers throughout North America and Europe that allow our customers to collocate their equipment and access our network.

In addition to providing our on-net services, we provide Internet access and private network services to customers that are not located in buildings directly connected to our network. We provide these off-net services primarily to corporate customers using other carriers' circuits to provide the "last mile" portion of the link from the customers' premises to our network.

We also provide certain non-core services as a result of certain acquisitions. We continue to support but do not actively sell these non-core services. We expect revenue from non-core services to continue to decline or to remain flat.

Acquisition of Sprint Communications

On September 6, 2022, Cogent Infrastructure, Inc., a Delaware corporation (the "Buyer") and a wholly owned subsidiary of the Company, entered into a Membership Interest Purchase Agreement (the "Purchase Agreement") with Sprint Communications LLC, a Kansas limited liability company ("Sprint Communications") and an indirect wholly owned subsidiary of T-Mobile US, Inc., a Delaware corporation ("T-Mobile"), and Sprint LLC, a Delaware limited liability company and a direct wholly owned subsidiary of T-Mobile (the "Seller"), pursuant to which the Company will acquire the U.S. long-haul fiber network (including the non-U.S. extensions thereof) of Sprint Communications and its subsidiaries (the "Wireline Business"). The Purchase Agreement provides that, upon the terms and conditions set forth therein, the Company will purchase from the Seller all of the issued and outstanding membership interests of a Delaware limited liability company that holds Sprint Communications' assets and liabilities relating to the Wireline Business (such transactions contemplated by the Purchase Agreement, collectively, the "Transaction"). In connection with our pending acquisition of the Wireline Business, we will begin to provide optical wavelength services over our fiber network. We will sell these wavelength services to our existing customers, customers of Sprint Communications and to new customers who require dedicated optical transport connectivity without the capital and ongoing expenses associated with owning and operating network infrastructure.

Competitive Advantages

We believe we address many of the data communications needs of small and medium-sized businesses, communications service providers and other bandwidth-intensive organizations by offering them high-quality, high-speed Internet access and private network services at attractive prices. After our acquisition of the Wireline Business we will be offering services to larger enterprise customers. We believe that our organization has the following competitive advantages:

Low Cost of Operation: We believe that the wireline telecom industry is undergoing, and will continue to face, significant price deflation for its applications and services. This price deflation is a result of a variety of factors including increased competition, enhanced substitutability of certain products and services and the continued impact of Moore's Law, which has driven down the cost of technology, particularly for fiber optic Wavelength Division Multiplexing ("WDM") equipment and optically interfaced routers. Faced with the backdrop of continued price deflation in our industry, we have made a series of discreet choices around our network design, operating strategy and product offerings that are consistent with our objective of becoming the low cost operator in our industry. Since our initiation of operations, this strategy has resulted in a rapid decline in our cost to transmit bits, which has increased our margins and decreased our capital intensity as measured by our capital expenditures per total revenues. Over the last five fiscal years, our cost of goods sold per bit delivered for our customers has declined at a compounded annual rate of 21.0%. Important components of our low cost operating strategy include:

- One Network Protocol. Upon our founding, we selected to operate our network solely using Ethernet protocol. We made this selection in order to take advantage of the significantly greater installed base and lower cost of Ethernet network equipment versus other protocols, the substantially lower costs associated with operating and maintaining one network protocol and the continued benefits of the rapid price performance ratio improvements of Ethernet-related equipment. Our single network design allows us to avoid many of the costs that our competitors who operate circuit-switched, TDM and hybrid fiber coaxial networks incur related to provisioning, monitoring and maintaining multiple transport protocols. Selecting one operating protocol has also had positive effects in terms of our operating overhead and the simplicity of our organization. We believe the vast majority of our competition currently operates their networks with multiple protocols and we believe that attempts to upgrade their networks to one protocol would be operationally challenging and costly.

- Widespread Access to Fiber on a Cost Effective, Long-Term Basis. We have acquired a large portfolio of dark fiber leases from around the world sourced from the excess inventory of existing networks. This choice to lease rather than build reduces our capital intensity and the operating costs of our intercity and metro networks. The nature of this portfolio and the individual leases provide us long-term access to dark fiber at attractive rates and the opportunity in many cases to extend these leases for multiple terms. On average, a modest number of our dark fiber leases come up for renewal each year. We have relationships with 308 dark fiber vendors across the globe, enabling us to lease dark fiber on a long-term, cost-effective basis to virtually any geographic route or facility we require.

- Narrow and Focused Product Set. Since our founding, we have strategically focused on delivering a very narrow product set to our customers. The vast majority of our revenue is driven or related to our high-capacity, bi-directional, symmetric internet access services which can be accessed on-net in MTOBs and carrier neutral data centers ("CNDCs") or off-net through other carriers' "last mile" connections to customer facilities. There are significant cost advantages as a result of this narrow product set. We believe that the relative size of our salesforce training, support and overhead is lower than comparable telecom providers which tend to offer a broader, one-stop shop product set to their client base.

- Scalable Network Equipment and Hub Configurations. Due to our single network protocol and narrow product set, our transmission and network operations rely mainly on two sets of equipment for operation. In order to further scale our operating leverage, we have systematically reused older equipment in less dense portions of our network. Due to interoperability between the generations of products, we are able to transfer older equipment from our core, high-traffic areas to newer, less congested routes. The result of this dynamic grooming process is that we are able to utilize our equipment for materially longer time frames than the expected life of this equipment, thereby reducing our capital investment in our network. We design and build all of our network hubs to the same standards and configurations. This replication strategy provides us scale benefits in equipment purchases, training, and maintenance.

Greater Control and Superior Delivery. Our on-net service does not rely on circuits that must be provisioned by a third-party carrier. In our on-net MTOBs we provide our customers the entire network, including the "last mile" and the in-building wiring connecting to our customer's suite. In our CNDCs we are collocated with our customers. As a result, only a cross-connection within the data center is required to provide our services to our customers. The structure of our on-net service provides us more control over our service, quality and pricing. It also allows us to provision services more quickly and efficiently than provisioning services on a third-party carrier network. The vast majority of our on-net services can be installed in less than two weeks, which is materially faster than the installation times for some of our incumbent competitors.

High-Quality, Reliable Service. We are able to offer high-quality Internet service due to our network design and composition. We believe that we deliver a high level of technical performance because our network is optimized for packet switched traffic. Its design increases the speed and throughput of our network and reduces the number of data packets dropped during transmission compared to traditional circuit-switched networks. We believe that our network is more reliable and carries traffic at lower cost than networks built as overlays to traditional circuit-switched, or TDM networks.

Large Addressable Market. We have systematically evaluated and chosen our network extensions to buildings, data centers and markets based upon a rigorous set of criteria to evaluate the economic opportunity of network locations. Additional factors relevant to our pursuit of new buildings include the willingness of building owners to grant us access rights, the availability of optical fiber networks to serve those buildings, the costs to connect buildings to our network and equipment availability. We have also begun to evaluate the sustainability of new locations by evaluating the LEED Green Rating of Buildings, the potential to source renewable energy at potential locations and the potential impact of climate change on a location including access to water and the risk of flooding. Our network is connected to 3,155 total buildings located in 219 metropolitan markets. These buildings include 1,837 large MTOBs (totaling 1.0 billion square feet of office space) in major North American cities where we offer our services to a diverse set of high-quality corporate customers within close physical proximity of each other. These buildings also include 1,458 CNDCs located in 1,264 buildings in North America, Europe, Asia, South America, Oceania and Africa where our net-centric customers directly interconnect with our network. We also operate 54 of our own data centers across the United States and in Europe, which comprise over 606,000 square feet of floor space and are directly connected to our network. Our anticipated acquisition of the Wireline Business will add approximately 45 data centers to our network. We believe that these network points of presence strategically position our network to attract high levels of Internet traffic and maximize our revenue opportunities and profitability.

Balanced, High-Traffic Network. Since its inception, our network has grown significantly in terms of its geographic reach, customer connections, and traffic. We currently serve 7,792 access networks as well as numerous large and small content providers and 44,844 corporate customer connections. As a result of these growing bases of customers who distribute (content providers) and receive (access networks) content on our network, we believe that the majority of all the traffic remains “on-net” by both originating and terminating on our network. This control of traffic is an important differentiator as it increases our service reliability and speed of traffic delivery. The increasing share of traffic delivered from content providers to access networks also enhances our margins as we are compensated by both the originating customer and terminating customer. The breadth of our network, extensive size of our customer base, and the volume of our traffic enables us to be one of a handful of Tier 1 networks that are interconnected on a settlement-free basis. This Tier 1 network peering status broadens our geographic delivery capability and materially reduces our network costs.

Proven and Experienced Management Team. Our senior management team is composed of seasoned executives with extensive expertise in the telecommunications industry as well as knowledge of the markets in which we operate. The members of our senior management team have an average of over 20 years of experience in the telecommunications industry and many have been working together at the Company for several years. Several members of the senior management team have been working together at the Company since 2000. Our senior management team has designed and built our network and, during our formative years, led the integration of network assets we acquired through 13 significant acquisitions, excluding the pending acquisition of the Wireline Business, and managed the expansion and growth of our business. We anticipate that our management team will successfully manage the integration of the Wireline Business into our current operations.

Our Strategy

We intend to become the leading provider of high-quality, high-speed Internet access and private network services and to continue to improve our profitability and cash flow. The principal elements of our strategy include:

Grow our Corporate Customer Base. Our on-net corporate customers are typically small to medium-sized businesses connected to our network through MTOBs or connected to our network through one of our CNDCs. We generally sell two types of services to our corporate customers: dedicated internet access and private network services. We typically sell dedicated internet access at the same price per connection as our competitors, but our customers benefit from our significantly faster speeds and rapid installation times. These customers are increasingly integrating off-site data centers and cloud services into their IT infrastructure in order to take advantage of the safety, security and redundancy that is offered by locating company processing power, storage and software at a data center. An important part of this new infrastructure is a high-speed, dedicated internet connection from the corporate premises to the data center and the Internet and from one corporate premises to another corporate premises. We believe that the importance of data centers will increasingly lead tenants to reconfigure their communications infrastructure to include dedicated internet access across their locations. After our acquisition of the Wireline Business we will be offering services to larger enterprise customers.

Increase our Share of the Net-Centric Market. We are currently one of the leading providers of high-speed internet access to a variety of content providers and access networks across the world. We intend to further load our high-capacity network as a result of the growing demand for high-speed internet access generated by these types of bandwidth-intensive applications such as over-the-top ("OTT") media services, online gaming, video, Internet of Things ("IoT"), voice over IP ("VOIP"), remote data storage, and other services. We expect that we will continue to grow our shares of these segments by offering our customers a series of attractive features including:

- Geographic breadth – We have the broadest CNDC footprint in the industry and currently offer network services in 51 countries – as net-centric customers seek a more international audience this footprint is a significant advantage;

- High capacity and reliability – We offer 100 Mbps to 100 Gbps ports in all of the CNDCs and 400 Gbps in selected locations on our network, which differentiates the capacity choices we provide our net-centric clients;

- Balanced customer base – Our leading share of content providers and access networks increases the amount of traffic that originates and terminates on our network thereby reducing latency and enhancing reliability;

- Large and dedicated salesforce – Our team of 216 net-centric sales professionals is one of the largest salesforces in this industry segment and enables us to better serve this customer segment while also identifying new sales opportunities and gaining new business and customers.

- The customers of the Wireline Business will include a number of large enterprise customers, a type of customer that we have not traditionally served.

Develop a Worldwide Peering Platform. In late 2020 we introduced a new product, Global Peer Connect, targeted at the growing demand for certain net-centric customers to dynamically peer traffic anywhere on our global platform. Our Global Peer Connect product provides access to our Global Peer Exchange which is a worldwide connectivity platform for the exchange of peering traffic destined for the Internet. Similar product offerings in the marketplace offer a materially smaller geographic footprint configuration and require a higher fixed cost for customers. We currently serve over 400 connections via our Global Peer Exchange.

Pursue On-net Customer Growth. Our high-capacity network provides us with the ability to add a significant number of customers to our network with minimal direct incremental costs. We intend to increase usage of our network and operational infrastructure by adding customers in our existing on-net buildings, as well as developing additional markets and connecting more MTOBs and CNDCs to our network. We emphasize our on-net services because they generate greater profit margins and we have more control over service levels, quality and pricing, and our on-net services are provisioned in considerably less time than our off-net services. Our fiber network connects directly to our on-net customers' premises and we pay no local access ("last mile") charges to other carriers to provide our on-net services.

Continue to Improve our Sales Efforts and Productivity. A critical factor in our success has been our investment and focus on our sales and marketing efforts. We seek to maintain a consistent level of sales productivity as measured by the number of connections sold per salesperson per month, taking into account adjustments to the changing mix of products sold and installed. In order to gain market share in our targeted businesses, we expect to continue our sales efforts including introducing strategies and tools to optimize and improve our sales productivity. We have developed several training programs that are directed toward increasing our sales representative tenure and increasing our sales representative productivity.

Expand our Off-net Corporate Internet Access Business. We have agreements with over 500 national and international carriers providing us last mile network access to over 4 million commercial buildings that are lit by fiber optic cable across North America and that are not currently served by our network. We believe these agreements broaden our addressable market for corporate dedicated internet access and enhances our competitive position through the ability to provide enterprise-wide connectivity for corporate customers. In order to take advantage of this large set of commercial buildings we have developed an automated process to enable our salesforce to identify opportunities in the off-net market for dedicated internet access and to quickly offer pricing proposals to potential customers. We continue to negotiate reduced pricing under our numerous carrier agreements that enable us to reduce our cost of off-net services which enhances our competitive position in the marketplace.

Expand our Product Offerings to Include Wavelength and Optical Transport Services. In connection with our pending acquisition of the Wireline Business of Sprint Communications, we will begin to provide optical wavelength and optical transport services, initially in the United States, over our fiber network. We will sell these services to our existing customers, customers of Sprint Communications and to new customers who require dedicated optical transport connectivity without the capital and ongoing expenses associated with owning and operating network infrastructure.

Our Network

Our network is comprised of in-building riser facilities, metropolitan optical networks, metropolitan traffic aggregation points and inter-city transport facilities. We believe that we deliver a high level of technical performance because our network is optimized for packet switched traffic. We believe that our network is more reliable and carries packet switched traffic at lower cost than networks built as overlays to traditional circuit-switched telephone networks.

Our network is comprised of 3,155 buildings which are on-net and we serve 219 metropolitan markets in North America, Europe, Asia, South America, Oceania and Africa. Important strategic components of our network include:

- 1,837 MTOBs strategically located in commercial business districts;
- 1,458 CNDCs located in 1,264 buildings offering our customers the largest portfolio of CNDCs of any carrier;
- 54 Cogent Data Centers;
- 1,120 intra-city networks, or rings, consisting of 42,491 fiber miles and 17,616 fiber route miles;
- an inter-city network of 61,292 terrestrial fiber route miles; and
- 197 high-capacity transoceanic circuits that connect the North American, European, Asian, South American, Oceanic and African portions of our network.

We have created our network by leasing on a long-term basis optical fiber from carriers with large amounts of unused fiber and directly connecting Internet routers to our existing optical fiber national backbone. We have expanded our network through key acquisitions of financially distressed companies or their assets at a significant discount to their original cost. Due to our network design and acquisition strategy, we believe we are positioned to grow our revenue and increase our profitability with limited incremental capital expenditures.

Inter-city Network.

Our inter-city network consists of optical fiber, including transoceanic capacity circuits for undersea portions, connecting major cities in North America, Europe, Asia, South America, Australia and Africa. Our network was built by acquiring from various owners of fiber optic networks the right to use typically two strands of optical fiber out of the multiple fibers owned by the cable operator. We install the optical and electronic equipment necessary to amplify, regenerate, and route the optical signals along these networks. We have the right to use the optical fiber under long-term agreements. We pay these providers our annual pro rata fees for the operation and maintenance of the optical fiber and we provide our own equipment maintenance.

Intra-city Networks.

In each metropolitan area in which we provide our high-speed on-net Internet access services, our backbone network is connected to one or more routers that are connected to one or more of our metropolitan optical networks. We created our intra-city networks by obtaining the right to use optical fiber from carriers with optical fiber networks in those cities. These metropolitan networks consist of optical fiber that runs from the central router in a market into routers located in our on-net buildings. Our metropolitan fiber runs in a ring architecture, which provides redundancy so that if the fiber is cut, data can still be transmitted to the central router by directing traffic in the opposite direction around the ring. The router in the building provides the connection to each of our on-net customers.

Within the cities where we offer our off-net Internet access services, we lease circuits from telecommunications carriers, primarily local telephone companies and cable TV companies, to provide the "last mile" connection to our customer's premises. Typically, these circuits are aggregated at various locations in those cities onto higher-capacity leased circuits that ultimately connect the local aggregation router to our network.

Multi-Tenant Office Buildings ("MTOBs"). We have network access to a portfolio of 1,837 MTOBs which provide us access to a highly attractive base of bandwidth intensive tenants. In MTOBs where we provide service to multiple tenants, we connect our routers to a cable typically containing 12 to 288 optical fiber strands that run from our equipment that is generally located in the basement of the building through the building riser to the customer location. Our service is initiated by connecting a fiber optic cable from our customer's local area network in their suite to the infrastructure in the building riser giving our customer dedicated and secure access to our network using an Ethernet connection. We believe that Ethernet is the lowest cost network connection technology and is almost universally used for the local area networks that businesses operate.

Carrier Neutral Data Centers ("CNDCs"). Our network is collocated in and can provide connectivity to customers in 1,458 CNDCs located in 1,264 buildings across our footprint. CNDCs are an integral component of the Internet infrastructure where content providers, application service providers, carriers and corporate customers locate their server and service infrastructure. CNDCs offer highly reliable, secure, cost effective and convenient space for these operators to access important services including connectivity, power, rack space and security all on a 24-hour basis in order to support their Internet activities, and after our anticipated acquisition of the Wireline Business, wavelength services. We believe we are connected to more CNDCs than any other IP transit provider, enabling us to offer greater coverage, more network configuration choices and increased reliability for our net-centric customers.

Cogent Data Centers. We operate 54 data centers across the United States and in Europe. These facilities comprise over 606,000 square feet of floor space and are directly connected to our network. Each location is equipped with secure access, uninterruptable power supplies ("UPS"), and backup generators. Our customers typically purchase bandwidth, rack space, and power within these facilities.

Internetworking. The Internet is an aggregation of interconnected networks. Larger ISPs exchange traffic and interconnect their networks by means of direct private connections referred to as private peering. We interconnect with the networks of our customers, which represents the majority of our interconnections and network traffic, through the sale of our transit services. We currently interconnect with 7,769 networks who pay to exchange traffic with us as customers. We supplement our customer network interconnections with settlement-free peering to our non-customer ISPs. We have settlement-free private peering interconnections between our network and 23 other major ISPs who are not our customers.

Tier 1 ISP Status. We directly connect with 7,792 total networks. As a result of the size and breadth of our customer base and the extensive footprint and scale of our network we are a Tier 1 ISP. We currently exchange traffic with 23 other Tier 1 ISPs on a settlement free basis. The remaining networks are customers whom we charge for Internet access. We believe our standing as a Tier 1 ISP provides us with a reputation for size, breadth and reliability. These relationships also reduce our cost of operating the network versus non-Tier 1 ISP peer networks who must compensate other networks in order to deliver a significant portion of their traffic. Peering agreements between ISPs enable them to exchange traffic.Without settlement-free peering agreements, each ISP backbone would have to buy Internet access from every other ISP backbone in order for its customer's traffic to reach and be received from customers of other ISP backbones. We are considered a Tier 1 ISP with a large customer base and, as a result, we have settlement-free peering arrangements with other providers with which we wish to peer. We do not purchase transit services or paid peering to reach any portion of the Internet. This allows us to exchange traffic with those ISPs without payment by either party. In such arrangements, each party exchanging traffic bears its own cost of delivering traffic to the point at which it is handed off to the other party. We do not treat our settlement-free peering arrangements as generating revenue or expense related to the traffic exchanged. We do not sell or purchase paid peering on our transit network.

Network Management and Customer Care. Our primary network operations centers are located in Washington, D.C. and Madrid, Spain. These facilities provide continuous operational support for our network. Our network operations centers are designed to immediately respond to any problems in our network. Our customer care call centers are located in Washington, D.C., Herndon, Virginia, Madrid, Spain, Paris, France, and Frankfurt, Germany. To ensure the quick replacement of faulty equipment in the intra-city and long-haul networks, we have deployed field engineers across North America and Europe. In addition, we have maintenance contracts with third-party vendors that specialize in maintaining optical and routed networks. In connection with our acquisition of the Wireline Business we will be adding network operations centers in Kansas City, Kansas, Atlanta, Georgia, Dallas, Texas and Orlando, Florida.

Our Customers

We offer our high-speed Internet access and IP connectivity services to two sets of customers: corporates customers, which primarily include small and medium-sized businesses located in North America, and net-centric customers, which include, content providers, applications service providers and access networks, comprised of ISPs, cable operators, mobile operators and phone companies located in North America, Europe, Asia, South America, Oceania and Africa.

Our corporate customers primarily purchase direct internet access from us on-net in MTOBs and CNDCs or off-net through other carriers' "last mile" connections to those customer facilities in metropolitan markets in North America. This service enables these customers to access the Internet with a high-speed, bi-directional, symmetric circuit with a very high degree of reliability and 100% access to that contractual capacity at all times. Depending upon the geographic breadth of our customers' footprint and their communications requirements, we also sell these corporate customers private network services. Private network services provide connectivity on a point to point or point to multi-point basis. This service allows customers to connect geographically dispersed local area networks in a seamless manner. We primarily offer these corporate customers speeds ranging from 100 Mbps per second to 1 Gbps per second and in some cases up to 10 Gbps per second. The continued growth in demand for increased bandwidth has led to a rapid shift towards higher capacity circuits.

We have agreements with multiple national, international and regional carriers providing us "last mile" network access to over 4 million buildings across North America that are not currently served by our network. We believe these agreements broaden our addressable market for corporate dedicated internet access and VPN services and enable us to better leverage the skills and capacity of our direct salesforce. As our sales of off-net services has increased, the pricing in our carrier agreements has commensurately decreased in light of our increased volume.

Our net-centric customers purchase IP connectivity and other services in our 1,458 CNDCs as well as our 54 data centers for a total of 1,512 data centers. We support these services in 219 metropolitan markets in 51 countries across the world. These bandwidth intensive organizations typically purchase circuits ranging from 10 Gbps up to 400 Gbps, designed to provide them high-speed, bi-directional, symmetric circuits with a high degree of reliability and 100% access to the contractual capacity at all times. In addition to contractual capacity, certain net-centric customers also purchase metered service that enables customers to pay for actual volume of bits delivered on a per bit per second basis. We also offer a burst product that allows net-centric customers to utilize capacity when they exceed their contractual capacity. The per bit charge for this burst capacity typically exceeds the rate for contractual services. Overall, we believe that, on a per megabit basis, our service offering is one of the lowest priced in the marketplace. We also offer colocation services in our data centers. This service offers Internet access combined with rack space and power in our facilities, allowing the customer to locate a server or other equipment at that location and connect to our Internet access service.

We offer lower prices for longer term and volume commitments. We emphasize the sale of our on-net services over our off-net services, as on-net services generate higher gross margins, and we believe we can offer faster installation and greater reliability with our on-net offerings.

Our People – Human Capital Management

We strive to become a leading employer in our industry by creating a workplace where employees have the tools and resources they need to hone their talents, advance in their careers and be rewarded for their hard work. We also seek to create a diverse workplace that is respectful of all employees, as we believe this is critical to fostering an employee culture that can deliver the best service in our industry to our customers. Our human capital objectives and initiatives are overseen by the Compensation Committee of our Board of Directors.

Workforce.

As of December 31, 2022, we had 1,076 employees located in 16 different countries in a variety of different roles. Approximately 82.2% of our employees are located in the United States and Canada, 16.8% are located in Europe and 0.9% are located in Asia. As of December 31, 2022, 51% of our employees were quota-bearing sales representatives, 14% were in sales management or sales support roles and 35% were in operational or administrative functions. Unions represent 27 of our employees in France. The employees of the Wireline Business that operates in Germany are governed by a works council. We believe that we have a satisfactory relationship with our employees.

Diversity and Inclusion. We strive to maintain a diverse and inclusive workforce everywhere we operate. We recruit the best people for the job without regard to gender, race, ethnicity or other protected traits, and it is our policy to comply fully with all domestic, foreign and local laws relating to discrimination in the workplace. At the direction of our Board of Directors, we mandated training for all of our employees on topics of diversity and inclusion. All employees were required to complete online training in unconscious bias, and managers were further required to complete additional training in inclusion. We intend to continually reinforce our commitment to global inclusion and diversity.

Employee Retention. We compete in an industry that is highly competitive for talent. Attracting, developing and retaining skilled people in sales, technical and other positions is crucial to executing our strategy and our ability to compete effectively. While we monitor overall employee retention, we focus in particular on sales representative retention, as our new sales and revenue growth are driven almost entirely by the sales generated by our direct sales force. As a complement to our sales representative retention metric, we also closely track the pace of hiring new sales representatives.

Our sales and marketing organization comprises 66% of our employees and our sales representatives comprise 51% of our employees. For the year ending December 31, 2022, we averaged a 5.8% monthly churn rate within our sales representatives. This churn was caused primarily by failures to meet sales performance goals as well as departures precipitated, we believe, by our decision to require all employees to adhere to a full-time, in office work environment as well as a tightening labor market creating increased competition when hiring. During 2022, we hired 401 new sales representatives and ended the year with 548 sales representatives, a net increase of 58 sales representatives from our total sales representatives at the beginning of 2022. Our ability to recruit and retain all of our employees depends on a number of factors, including professional development, compensation and benefits, and employee engagement.

Professional Development. We recognize the importance of retaining our sales personnel, and we continually strive to improve the performance of our sales personnel to reduce turnover. To that end, we have invested heavily in professional development as a means for improving performance.

As part of our commitment to professional development, we established a sales training and enablement department that provides both online and in-person training. Our 13 regional learning managers and management development trainers are located around the world and are available for intensive, in-person group training as well as individual training with sales representatives who may need extra assistance. In 2022, our average ratio of sales representatives with less than 12 months of tenure to regional learning managers was 21 to 1.

Our training group includes two additional trainers dedicated exclusively to training sales management, one technical trainer and one on-line curriculum trainer. Our trainers also conduct training at our annual sales meeting, during which our entire sales force gathers to learn new skills and reinforce existing skills.

All sales personnel receive four weeks of live, interactive training during their first month, which focuses on developing both general and Cogent-specific sales skills. New sales personnel are also encouraged to, and rewarded for, completing a self-paced, online curriculum led by their manager during their first six months. Both recent and tenured sales personnel have access to online, on-demand training modules and the opportunity to obtain certification in specialized services. Our CEO addresses each new hire class in an interactive training session.

Compensation and Benefits. We are committed to rewarding, supporting, and developing our employees. To that end, we offer a comprehensive compensation program that includes market-competitive pay, stock options or restricted stock grants to all employees, healthcare benefits, a retirement savings plan, and paid time off and family leave.

Employee Engagement. To foster and reinforce a company culture where employee concerns are heard, our Chief Executive Officer conducts biweekly town hall meetings to respond to employee questions, which may be submitted anonymously. On alternate weeks, we conduct online town hall chats during which a rotating member of the executive team is available to answer questions from our employees. We believe these open and unfiltered channels of communication lead to honest feedback from our employees to our management team.

Health and Safety. The health and safety of our employees is of utmost important to us, and we take all necessary precautions to safeguard our employees. While nearly all of our employees work solely in office environments, for our field personnel, we provide safety gear as appropriate given employee job duties. With respect to our decision to require all employees to work in an in-office environment, we continue to mandate that all employees in the United States and Canada, except those with legal exemptions, be vaccinated against the against the COVID-19 virus.

Sales and Marketing

Direct Sales. We employ a direct sales and marketing approach. As of December 31, 2022, our sales force included 698 full-time employees. Our quota bearing sales force includes 548 employees with 332 employees focused primarily on the corporate market and 216 employees focused primarily on the net-centric market. As of December 31, 2021, our sales force included 633 full-time employees including 490 quota bearing sales force employees with 283 employees focused primarily on the corporate market and 207 employees focused primarily on the net-centric market. Our sales personnel work through direct contact with potential customers in, or intending to locate in, our on-net buildings. Through agreements with building owners, we are able to initiate and maintain personal contact with our customers by staging various promotional and social events in our MTOBs and CNDCs. Sales personnel are compensated with a base salary plus quota-based commissions and incentives. We use a customer relationship management system to efficiently track sales activity levels and sales productivity.

Indirect Sales. We also have an indirect sales program. Our indirect sales program includes several master agents with whom we have a direct relationship. Through our agreements with our master agents we are able to sell through thousands of sub agents. All agents have access to selling to potential corporate customers and may sell all of our products. We have an indirect channel team who manages these indirect relationships. The indirect channel team is compensated with a base salary plus quota-based commissions and incentives. We use our customer relationship management system to efficiently track indirect sales activity levels and the sales productivity of our agents under our indirect sales program.

Marketing. Because of our historical focus on a direct sales force that utilizes direct contact, we have not spent funds on television, radio or print advertising. We use a limited amount of web-based advertising. Our marketing efforts are designed to drive awareness of our products and services, to identify qualified leads through various direct marketing campaigns and to provide our sales force with product brochures, collateral materials, in building marketing events and relevant sales tools to improve the overall effectiveness of our sales organization. In addition, we conduct building events and public relations efforts focused on cultivating industry analyst and media relationships with the goal of securing media coverage and public recognition of our Internet access and private network services.

Competition

We face competition from incumbent telephone and cable companies, and facilities-based network operators, many of whom are much larger than us, have significantly greater financial resources, sales and marketing capabilities, better-established brand names and large, existing installed customer bases in the markets in which we compete. We also face competition from new entrants to the communications services market. Many of these companies offer products and services that are similar to our products and services.

Unlike some of our competitors, we generally do not have title to most of the dark fiber that makes up our network. Our interests in that dark fiber are in the form of long-term leases under indefeasible rights of use, or IRUs, with providers, some of which also compete with us. We rely on the owner of the fiber to maintain the fiber. We are also dependent on third-party providers, some of which compete with us, to provide intercity and intracity fiber as well as the lateral fiber connections required to add buildings to our network and to provide the local loop facilities for the provision of connections to our off-net customers.

We believe that competition is based on many factors, including price, transmission speed, ease of access and use, length of time to provision service, breadth of service availability, reliability of service, customer support, billing simplicity and brand recognition. Because our fiber optic networks have been recently installed compared to those of the incumbent carriers, our state-of-the-art technology may provide us with cost, capacity, and service quality advantages over some existing incumbent carrier networks; however, our network may not support some of the services supported by these legacy networks, such as circuit-switched voice, ATM, MPLS, frame relay, wireless and shared hybrid fiber coax networks. While the Internet access speeds offered by traditional ISPs serving MTOBs using DSL or cable modems typically do not match our on-net offerings in terms of throughput or quality, these slower services are usually priced lower than our offerings and thus provide competitive pressure on pricing, particularly for more price-sensitive customers. These and other downward pricing pressures particularly CNDCs have diminished, and may further diminish, the competitive advantages that we have enjoyed as the result of the pricing of our services. Increasingly, traditional ISPs are upgrading their services using optical fiber and cable technology so that they can match our transmission speed and quality.

Regulation

Our services are subject to the regulatory authority of various agencies in the jurisdictions in which we operate. As a provider of only Internet access and private networks to businesses, regulation is generally not significant. This benefits us in that we have flexibility in offering our services and ease of entry into new markets. However, this level of regulation generally extends to our competitors, some of whom are incumbent telephone and cable companies with whom we need to interconnect and from whom we acquire circuits for our off-net services. The extent of regulation can change. For example, in 2017, the U.S. Federal Communications Commission ("FCC") rescinded regulations applicable to mass market Internet access providers. In all jurisdictions regulations continue to evolve. We also enter into new markets with their own regulations. The regulations with which we need to comply include obtaining the proper licenses to provide our services, data privacy, and interception of communications by law enforcement, blocking of websites, net-neutrality in California and other states in the U.S. and other regulations. We believe that we comply with all regulations in the jurisdictions in which we operate.

The laws related to Internet telecommunications are unsettled and there may be new legislation and court decisions that may affect our services and expose us to burdensome requirements and liabilities.

Available Information

We maintain an Internet website at www.cogentco.com. We make available free of charge through our Internet website our annual report on Form 10-K, our quarterly reports on Form 10-Q, our current reports on Form 8-K, and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act. The reports are also made available through a link to the SEC's Internet website at *www.sec.gov*. You can find these reports and request a copy of our Code of Conduct on our website at *www.cogentco.com* under the "About Cogent" tab at the "Investor Relations" link.

ITEM 1A. RISK FACTORS

Market Risks

The COVID-19 pandemic has had, and may continue to have, an adverse impact on our business, financial condition and results of operations.

We offer our services in 51 countries, most of which were significantly impacted by the COVID-19 pandemic. The extent of the impact of the COVID-19 pandemic on our business and financial results will continue to depend on numerous evolving factors that we are not able to accurately predict and which will vary by market. Such future uncertain and unpredictable developments include the ultimate duration and scope of the pandemic, the rise and spread of new COVID-19 variants, the availability and efficacy of vaccines and therapeutic treatments and the willingness of the public to accept such vaccines and treatments, governmental actions that have been taken, or may be taken in the future, in response to the pandemic, and global economic conditions during and after the pandemic.

Approximately 57.1% of our revenue for the year ended December 31, 2022 was from our corporate customers. Corporate customers are located in MTOBs, almost exclusively in the United States and Canada. Authorities in many of these markets implemented numerous measures in response to the pandemic, such as travel bans and restrictions, quarantines, curfews, shelter-in-place and stay-at-home orders and business shutdowns and closures, and also implemented multi-step polices with the goal of re-opening these markets. While many of these measures have been lifted, the business shutdowns and closures due to the COVID-19 pandemic and the accompanying shift to remote or hybrid work schedules continues to have an impact on business activity in the central business districts in which many of our MTOBs are located. This lingering impact and the impact of any new mandates, restrictions, laws or regulations could have a material adverse impact on our operations and the operations of our customers or others with whom we do business.

In addition, a significant number of our corporate customers have continued remote work policies instituted at the beginning of the COVID-19 pandemic, slowed the pace of opening new offices and closed offices due to global economic conditions. We believe the rapid spread of the Delta and Omicron variants during 2021 influenced corporate customers to delay or rescind their plans to end their remote work policies. In addition, the prevalence of hybrid or fully remote work environments during the pandemic has caused some companies to transition to such environments on a permanent basis, and we do not know what impact this may have on demand for commercial office space and for our services. As a result, through much of 2022, we saw corporate customers continue to take a cautious approach to adding new services and upgrading existing services as well as reduced demand for connecting smaller satellite offices. Since the beginning of the pandemic, we have experienced a deteriorating real estate market in the buildings we serve. Vacancy rates for many of our MTOBs have risen as a result of many tenants terminating leases and exiting buildings and as a result

of lower new leasing activity. The impact of this greater level of vacancy rates was more pronounced in Northern cities and in the California market and less impactful in our Southern markets.

In addition, the shift of our office workers working remotely at certain times during the past few years has amplified certain risks to our business, including increased demand on our information technology resources and systems, increased phishing and other cybersecurity attacks as cybercriminals try to exploit the uncertainty surrounding the COVID-19 pandemic, and an increase in the number of points of potential attack, such as laptops and mobile devices (both of which are now being used in increased numbers), to be secured. Any failure to effectively manage these risks, including to timely identify and appropriately respond to any cyberattacks, may adversely affect our business.

We may find it difficult to retain existing employees or to hire new employees because we have required all employees to return to the office on a full-time basis and in the United States to receive the COVID-19 vaccine and boosters.

In the second half of 2021, we notified our employees worldwide that they would be required to return to the office on a full-time basis when permitted by local regulations. For employees in the United States, our return to office began in September 2021. As other countries relaxed their COVID regulations, our employees in those countries returned to the office as well. . Except for a brief period at the beginning of 2022 when we temporarily shifted a portion of our workforce to remote work, by the end of the spring of 2022, the overwhelming majority of all employees were working full-time in our offices.

In August 2021, we also notified employees in the United States that they would be required to attest that they were fully vaccinated against the COVID-19 virus unless they received a medical or religious exemption. We subsequently mandated that all U.S. employees receive a COVID-19 booster vaccine no later than six weeks after first becoming eligible for such vaccine. Our employees have largely complied with our vaccine mandate in the United States.

However, we experienced an increase in employee departures, particularly within our sales department, beginning in the second half of 2021 and continuing into 2022. We believe that this rise in departures was attributable, in part, to the unwillingness of some employees to work in a full-time, in-office environment. In the United States, we believe the rise in departures was also attributable to the unwillingness of some employees to be vaccinated. If we continue to require employees to work in the office on a full-time basis and/or to mandate COVID-19 vaccinations in the United States, we may find it difficult to retain existing employees or hire new employees. Further, a resurgence of COVID-19 due to immunity-resistant variants may cause employees to be more reluctant to continue in, or make new employees more reluctant to accept, a full-time, in-office position due to concerns about COVID-19. If this occurs, this may impact our revenue growth and profitability.

We will require also that the employees of the Wireline Business also attest that they are fully vaccinated against the COVID-19 virus unless they received a medical or religious exemption. Certain of these employees are not vaccinated against the COVID-19 virus and as a result, may elect not to join our organization.

We are experiencing delays in the delivery of networking equipment and other services from certain of our vendors.

During the pandemic we experienced a slowdown in the delivery of network equipment and delays in the projected delivery time of network equipment orders, and those delays have continued to the present. In addition, we have experienced delays in the delivery of services from vendors who supply us with dark fiber or lit circuits. We believe these delays are caused by supply chain issues due to component shortages and scarcity of raw materials as well as labor shortages, and that these supply chain issues have their origin in the responses to the COVID-19 pandemic. While we believe that we can adequately manage the operation, maintenance, upgrading and growth of our network, a worsening or prolonged slowdown of the delivery of network equipment, dark fiber and lit circuits may impact our ability to expand and augment our network and service offerings. If this occurs, this may impact our revenue growth and profitability.

Our growth and financial health are subject to a number of economic risks.

A downturn in the world economy, especially the economies of North America and Europe, would negatively impact our growth. Our net-centric business would be particularly impacted by a decline in the development of new applications and businesses that make use of the Internet. Our corporate business would be particularly impacted by an increase in vacancy rates in the MTOBs that we serve. Our total revenue growth is predicated on growth in the use of the Internet that makes up for the declining prices of Internet service. An economic downturn could impact the Internet business more significantly than other businesses that are less dependent on new applications and growth in the use of those applications and less susceptible to increases in office vacancy rates resulting from the retrenchment by consumers and businesses that typically occurs in an economic downturn.

Our historical reductions in our prices are expected to continue in an inflationary economy even as our costs may increase.

Many of the regions in which we operate are experiencing an increase in inflation rates. Due to the nature of our product offerings and the industry in which we operate, which is deflationary, we may be unable to raise our prices. We expect that our historical pricing patterns will continue for the foreseeable future.

These historical pricing patterns are occurring against the backdrop of a general increase in prices due to inflation. In particular, the cost of electricity has increased greatly in all countries where we purchase power. While we have negotiated contracts that cap price increases due to inflation or that have fixed the price of electricity, we may experience increases in the costs of electricity and other services that we cannot pass on to our customers or may only be able to pass on partially to our customers. If these price increases continue, this may impact our profitability.

Events beyond our control may impact our ability to provide our services to our customers or increase the costs or reduce the profitability of providing our services.

Catastrophic events, such as major natural disasters, extreme weather, fire, flooding or similar events as well as the continued threat of terrorist activity and other acts of war or hostility have had, and may continue to have, an adverse effect on our headquarters, other offices, our network, infrastructure or equipment or our customers and prospective customers, which could adversely affect our business. These events may also have an adverse impact on business, financial and general economic conditions around the world. We have certain locations through which a large amount of our Internet traffic passes. Examples are facilities in which we exchange traffic with other carriers, the facilities through which our transoceanic traffic passes, and certain of our network hub sites. We are particularly vulnerable to acts of terrorism because our largest customer concentration is located in New York, our headquarters is located in Washington, D.C., and we have significant operations in Paris, Madrid and London, cities that have historically been targets for terrorist attacks and vulnerable to pandemics.

If these or any other of our key facilities were destroyed or seriously damaged, a significant amount of our network traffic could be disrupted. Because of the large volume of traffic passing through these facilities our ability (and the ability of carriers with whom we exchange traffic) to quickly restore service would be challenged. There could be parts of our network or the networks of other carriers that could not be quickly restored or that would experience substantially reduced service for a significant time. If such a disruption occurs, our reputation could be negatively impacted which may cause us to lose customers and adversely affect our ability to attract new customers, resulting in an adverse effect on our business and operating results.

Risks Relating to Our Proposed Acquisition of the Wireline Business of Sprint Communications

Regulatory approvals necessary for our acquisition of the Wireline Business of Sprint Communications may not be received, may take longer than expected or may impose conditions that are not presently anticipated or that could have an adverse effect on the combined company following closing of the Transaction.

In September 2022, we announced our acquisition of the Wireline Business of Sprint Communications. Subject to the satisfaction of the required closing conditions, we expect the Transaction to close in 2023. Any failure to close or an extended delay in closing the Transaction may have an adverse effect on us.

Our acquisition of the Wireline Business of Sprint Communications requires us to obtain certain regulatory approvals, waivers or consents. Regulators may impose conditions on these approvals. Such conditions could have the effect of delaying or preventing the completion of the Transaction, causing us to incur additional costs or limiting the competitive position of the combined company following the Transaction. Any of these conditions may have an adverse effect on the combined company following the Transaction. Additionally, any delay in closing the Transaction may adversely affect our business, the business of Sprint Communications or the business of the combined company, including an adverse effect on Sprint Communications' ability to retain key employees during the transition period or on Sprint Communications' relationship with its customers or vendors if such parties attempt to terminate, or negotiate changes in, their existing business relationships, consider entering into business relationships with competitors of Sprint Communications or otherwise delay or defer decisions concerning their business with Sprint Communications.

We may not realize the anticipated benefits of the acquisition of the Wireline Business of Sprint Communications, and the integration of the Wireline Business of Sprint Communications may disrupt our business and management.

The success of our acquisition of the Wireline Business of Sprint Communications, including the realization of anticipated benefits and cost savings, will depend, in part, on our ability to successfully combine our business and the Wireline Business. The

integration may be more difficult, costly or time consuming than expected. The integration process involves numerous risks. These risks include:

- inability to achieve the financial and strategic goals for the Wireline Business and the combined businesses;
- inability to achieve the projected cost savings for the Wireline Business and the combined businesses and the resulting impact on profitability;
- difficulty in, and the cost of, effectively integrating the operations, technologies, products or services, and personnel of the Wireline Business;
- entry into markets in which we have minimal prior experience and where competitors in such markets have stronger market positions;
- disruption of our ongoing business and distraction of our management and other employees from other opportunities and challenges;
- inability to retain personnel of the Wireline Business;
- inability to retain key customers, vendors and other business partners of the Wireline Business or to migrate customers from legacy services;
- any non-occurrence of anticipated tax benefits;
- incurring acquisition-related costs or amortization costs for acquired intangible assets that could impact our operating results;
- elevated delinquency or bad debt write-offs related to receivables of the Wireline Business we assume;
- difficulty in maintaining internal controls, procedures and policies during the transition and integration;
- impairment of our relationships with employees, customers, partners, distributors or third-party providers of our technologies, products or services;
- failure of our due diligence processes to identify significant problems, liabilities or other challenges of the Wireline Business or technology;
- exposure to litigation or other claims in connection with, or inheritance of claims or litigation risk as a result of, the Transaction, such as claims from terminated employees, customers, or other third parties;
- inability to conclude that our internal control over financial reporting is effective;
- delay in customer purchasing decisions due to uncertainty about the direction of our product and service offerings;
- increased accounts receivables collection times and working capital requirements associated with business models of the Wireline Business; and
- incompatibility of business cultures.

If we experience difficulties during the integration process and are unable to integrate the Wireline Business successfully or in a timely manner, we may not realize the benefits of the Transaction to the extent anticipated. These integration matters could have an adverse effect on us during the transition period and on the combined company for an undetermined period after completion of the Transaction.

Business Risks

We need to retain existing customers and continue to add new customers in order to become consistently profitable and cash flow positive.

In order to be consistently profitable and consistently cash flow positive, we need to both retain existing customers and continue to add a large number of new customers. The precise number of additional customers required is dependent on a number of factors, including the turnover of existing customers, the pricing of our product offerings and the revenue mix among our customers. We may not succeed in adding customers if our sales and marketing efforts are unsuccessful. In addition, many of our targeted customers are businesses that are already purchasing Internet access services from one or more providers, often under a contractual commitment. It has been our experience that such targeted customers are often reluctant to switch providers due to costs and effort associated with switching providers. Further, as some of our customers grow larger they may decide to build their own Internet backbone networks or enter into direct connection agreements with telephone and cable companies that provide Internet service to consumers. A migration of a few very large Internet users to their own networks, or to special networks that may be offered by major telephone and cable providers of last mile broadband connections to consumers, or the loss or reduced purchases from several significant customers could impair our growth, cash flow and profitability.

The customers of the Wireline Business include a number of large enterprise customers, a type of customer that we have not traditionally served. We may encounter difficulties retaining such customers or in converting such customers from their legacy services to newer technologies. Our inability to retain such customers or are unable to convert them to our services, could impair our growth, cash flow and profitability.

We have customers who depend on the U.S. government's E-rate program for funding. There can be no assurance that the E-rate program will continue or that other governmental programs that fund governments and organizations that are or might become customers will continue. A failure of such programs to continue could result in a loss of customers and impair our growth, cash flow and profitability.

A substantial and long-term shift to remote work may impact our ability to add new customers and to retain existing customers.

Through much of 2021 and 2022, we saw corporate customers continue their remote work policies and take a cautious approach to new services and upgrades, as well as a reduced demand for connecting smaller satellite offices. We also witnessed a deteriorating real estate market in and around the buildings we service, with rising vacancy levels and falling lease initiations or renewals resulting in fewer sales opportunities for our salesforce. As a result, we experienced a slowdown in new sales to our corporate customers which negatively impacted our corporate revenue growth. If, after the end of the COVID-19 pandemic, a significant number of our corporate customers or potential customers decide to retain remote work policies, we may experience increased customer turnover, fewer upgrades of existing customer configurations and fewer new tenant opportunities. These trends may negatively impact our revenue growth, cash flows and profitability.

Lower vacancy rates as a result of diminished lease terminations and increased leasing and subleasing activity will be a key factor in driving renewed growth in our corporate business.

During the pandemic, we saw increasing vacancy rates in many of our buildings due to higher lease terminations and lower leasing activity. This reduction in tenancy levels was particularly challenging in our Northern and Californian markets. As a result, our level of activity in our corporate business has been adversely affected. In order to see a growing level of corporate activity, we believe there will need to be an improvement in the tenancy levels of our buildings through a reduction in tenant exits and increased leasing activity.

Our business and operations are growing rapidly, and we may not be able to efficiently manage our growth.

We have grown our Company rapidly through network expansion and by obtaining new customers through our sales efforts. Our expansion places significant strains on our management, operational and financial infrastructure. Our ability to manage our growth will be particularly dependent upon our ability to:

- expand, develop and retain an effective sales force and qualified personnel;
- maintain the quality of our operations and our service offerings;

- maintain and enhance our system of internal controls to ensure timely and accurate compliance with our financial and regulatory reporting requirements; and

- expand our accounting and operational information systems in order to support our growth.

If we fail to implement these measures successfully, our ability to manage our growth will be impaired.

Demand from certain employees to work remotely may reduce the attractiveness of our business as an employer versus some competitors who are allowing employees to work remotely.

In the fall of 2021, we began to implement an in-office work policy designed to return the vast majority of our employees to an in-office work environment. Except for a brief return to remote work at the beginning of 2022 for a portion of our workforce, we have maintained our requirement that all employees work in our offices wherever possible. A small minority of our workforce declined to return to full-time in-office employment and left our employment. We are experiencing modest competitive challenges versus some competitors who are offering some employees a hybrid work option. Increasing demands to work in a hybrid work style may reduce our ability to attract and retain employees, in particular attracting and retaining salespeople.

We may not successfully make or integrate acquisitions or enter into strategic alliances.

As part of our growth strategy, we may pursue selected acquisitions and strategic alliances. To date, we have completed 13 significant acquisitions, not including our pending acquisition of the Wireline Business. However, we are very selective with respect to such acquisitions and alliances and, prior to the acquisition of the Wireline Business, we had not undertaken either for more than 17 years. We compete with other companies for acquisition opportunities and we cannot assure you that we will be able to execute future acquisitions or strategic alliances on commercially reasonable terms, or at all. Even if we enter into these transactions, we may experience:

- delays in realizing or a failure to realize the benefits we anticipate;

- difficulties or higher-than-anticipated costs associated with integrating any acquired companies, products or services into our existing business;

- attrition of key personnel from acquired businesses;

- unexpected costs or charges; and

- unforeseen operating difficulties that require significant financial and managerial resources that would otherwise be available for the ongoing development or expansion of our existing operations.

In the past, our acquisitions have often included assets, service offerings and financial obligations that are not compatible with our core business strategy. We have expended management attention and other resources to the divestiture of assets, modification of products and systems as well as restructuring financial obligations of acquired operations. In most acquisitions, we have been successful in renegotiating the agreements that we have acquired. If we are unable to satisfactorily renegotiate such agreements in the future or with respect to future acquisitions, we may be exposed to large claims for payment for services and facilities we do not need.

Consummating these transactions could also result in the incurrence of additional debt and related interest expense, as well as unforeseen contingent liabilities, all of which could have a material adverse effect on our business, financial condition and results of operations. Because we have typically purchased financially distressed companies or their assets, and may continue to do so in the future, we have not had, and may not have, the opportunity to perform extensive due diligence or obtain contractual protections and indemnifications that are customarily provided in acquisitions. As a result, we may face unexpected contingent liabilities arising from these acquisitions. We may also issue additional equity in connection with these transactions, which would dilute our existing shareholders.

Following an acquisition, we have experienced a decline in revenue attributable to acquired customers as these customers' contracts have expired and they have entered into our standard customer contracts at generally lower rates or have chosen not to renew service with us. We anticipate that we would experience similar revenue declines with respect to customers we may acquire in the future.

Competitive Risks

Our connections to the Internet require us to establish and maintain relationships with other providers, which we may not be able to maintain.

The Internet is composed of various network providers who operate their own networks that interconnect at public and private interconnection points. Our network is one such network. In order to obtain Internet connectivity for our network, we must establish and maintain relationships with other ISPs and certain of our larger customers. These providers may be customers (who connect their network to ours by buying Internet access from us) or may be other large ISPs to whom we connect on a settlement-free peering basis as described below. Both customers and settlement-free peers may be competitors of ours.

By entering into what are known as settlement-free peering arrangements, providers agree to exchange traffic between their respective networks without charging each other. Our ability to avoid the higher costs of acquiring paid dedicated network capacity (transit or paid peering) and to maintain high network performance is dependent upon our ability to establish and maintain settlement-free peering relationships and to increase the capacity or to add additional locations of the interconnections provided by these relationships. The terms and conditions of our settlement-free peering relationships may also be subject to adverse changes, which we may not be able to control. If we are not able to maintain or increase our settlement-free peering relationships in all of our markets on favorable terms or to upgrade the capacity of our existing settlement-free peering relationships, we may not be able to provide our customers with high performance, affordable or reliable services, which could cause us to lose existing and potential customers, damage our reputation and have a material adverse effect on our business. Additionally, certain of our current customers may seek to become settlement-free peers with us.

We cannot assure you that we will be able to continue to establish and maintain relationships with other ISPs, favorably resolve disputes with such providers, or increase the capacity of our interconnections with such providers.

The sector in which we operate is highly competitive, and we may not be able to compete effectively.

We face significant competition from incumbent carriers, Internet service providers and facilities-based network operators. Relative to us, many of these providers have significantly greater financial resources, more well established brand names, larger customer bases, and more diverse strategic plans and service offerings. A number of these providers also have large bases of consumers, which makes their networks particularly attractive to content providers as they can provide a direct connection to their customers.

Intense competition from these traditional and new communications companies has led to declining prices and margins for many communications services, and we expect this trend to continue as competition intensifies in the future. Decreasing prices for high-speed Internet services have somewhat diminished the competitive advantage that we have enjoyed as a result of our service pricing.

Our business is premised on the idea that customers want simple Internet access and private networks rather than a combination of such services with other services such as voice services and complex managed services. Our competitors offer such services. Should the market come to favor such services our ability to acquire and keep customers would be impaired. Our competitors may also upgrade their existing services or introduce new technologies or services, such as satellite-based Internet or 5G services that could make our services less attractive to potential customers.

Our business could suffer because telephone companies and cable companies may provide better delivery of certain Internet content, including content originating on their own networks, than content on the public Internet.

Broadband connections provided by cable TV, telephone, and fixed and mobile companies have become the predominant means by which consumers connect to the Internet. The providers of these broadband connections may treat Internet content or other broadband content delivered from different sources differently. The possibility of this has been characterized as an issue of "net neutrality." As many of our customers operate websites and services that deliver content to consumers our ability to sell our services would be negatively impacted if Internet content delivered by us was less easily received by consumers than Internet content delivered by others. The FCC had promulgated rules that would have banned practices such as blocking and throttling of Internet traffic, but those rules were rescinded by the FCC in December 2017. Some US states have either issued or are considering their own net neutrality rules. Also, the European Union and other countries in which we operate have issued similar net neutrality rules. We also do not know the extent to which the providers of broadband Internet access to consumers may favor certain content or providers in ways that may disadvantage us.

Operational Risks

Our network may be the target of potential cyber-attacks and other security breaches that could have significant negative consequences.

Our business depends on our ability to limit and mitigate interruptions to or degradation of the security of our network. We are considered a critical infrastructure provider and therefore may be more likely to be the target of cyber-attacks. Our network, systems, applications, and routers may be vulnerable to unauthorized access, computer viruses, cyber-attacks, distributed denial of service ("DDOS"), and other security breaches. We experience such cyber-attacks and other security incidents of varying degrees from time to time, though none which individually or in the aggregate has led to costs or consequences which have materially impacted our operations or business. An attack on or security breach of our network could result in theft of trade secrets, intellectual property, or other company confidential information, the interruption, degradation, or cessation of services, an inability to meet our service level commitments or our financial reporting obligations, and potentially compromise customer data stored on or transmitted over our network. We have experienced cyber-attacks of increasing sophistication which suggest an increase in cyber-attacks that may be state-sponsored or conducted by other well-financed organizations. Moreover, as cyber warfare becomes a tool in asymmetric conflicts between the United States and other nations, we, as a US provider, may be targeted with increasing frequency. We cannot guarantee that our security measures will not be circumvented, thereby resulting in security events, network failures or interruptions that could impact our network security or availability and have a material adverse effect on our business, our ability to meet our financial reporting obligations, financial condition and operational results. We may be required to expend significant resources to protect against such threats, and may experience a reduction in revenues, litigation, and a diminution in goodwill, caused by a compromise of our cybersecurity. Although our customer contracts limit our liability, affected customers and third parties may seek to recover damages from us under various legal theories. In response to past attacks, we have implemented further controls and taken and planned for other preventative actions to further strengthen our systems against future attacks. However, we cannot assure you that such measures will provide absolute security, that we will be able to react in a timely manner, or that our remediation efforts following any past or future attacks will be successful.

If the information systems that we depend on to support our customers, network operations, sales, billing and financial reporting do not perform as expected, our operations and our financial results may be adversely affected.

We rely on complex information systems to operate our network and support our other business functions. Our ability to track sales leads, close sales opportunities, provision services, bill our customers for our services and prepare our financial statements depends upon the effective integration of our various information systems. In 2020, we developed and deployed our own customer relationship management software for our sales force. We may have difficulty maintaining this software and adding features that our sales representatives require. If our information systems, individually or collectively, fail or do not perform as expected, our ability to make sales, to process and provision orders, to make timely payments to vendors, to ensure that we collect amounts owed to us and prepare and file our financial statements would be adversely affected. Such failures or delays could result in increased capital expenditures, customer and vendor dissatisfaction, loss of business or the inability to add new customers or additional services, and the inability to prepare accurate and timely financial statements all of which would adversely affect our business and results of operations.

Network Augmentation and Maintenance Risks

Our network is comprised of a number of separate components, and we may be unable to obtain or maintain the agreements necessary to augment or maintain our network.

Our network is primarily composed of (i) leased capacity on transoceanic optical fiber; (ii) terrestrial inter-city dark optical fiber; (iii) intra-city dark optical fiber; and (iv) the buildings that we serve and the associated optical fiber connecting those buildings. We lease our optical fiber and obtain access to the buildings on our network, both CNDCs and MTOBs, from a number of vendors. A number of our leases, both for fiber and building access, are up for renewal in any given year. A deterioration in our existing relationship with these operators could impact our network, harm our sales and marketing efforts and could substantially reduce our potential customer base. In addition, portions of our long-haul optical fiber and metro optical fiber are nearing the end of their original projected useful life. While we believe that this fiber will remain usable beyond the projected end date, we face the risk that portions of our network may need to be replaced in the future.

We expect to enter additional agreements with carriers and operators to obtain additional facilities, whether optical fiber or buildings, for our network in order to add capacity to our network and to expand our addressable market. However, we cannot assure you that we will be able to enter into such agreements in the future, be able to do so on economically attractive terms or find an adequate substitute if we are unable to reach an agreement. Failure to acquire new facilities to augment our network could keep us from adding new markets, capacity or buildings to our network and negatively impact our growth opportunities.

Our off-net business could suffer delays and problems due to the actions of "last mile" providers on whom we are partially dependent.

Our off-net customers are connected to our network by means of fiber optic capacity that are provided as services by local telephone and cable companies and others. We may experience problems with the installation, maintenance and pricing of these lines which could adversely affect our results of operations and our plans to add additional off-net customers to our network using such services. We have historically experienced installation and maintenance delays when the network provider is devoting resources to other services, such as traditional telephony, cable TV services and private network services. We have also experienced pricing problems when a lack of alternatives allows a provider to charge high prices for capacity in a particular area or to a particular building. We attempt to reduce this problem by using many different providers so that we have alternatives for linking an off-net customer to our network. Competition among the providers tends to improve installation intervals, maintenance and pricing. Additionally, these providers are often competing with us for the same customers, and have marketed their own service to our off-net customers when our initial contract with our customer nears the end of its term.

Our business could suffer from an interruption of service from our fiber providers.

The optical fiber cable owners from whom we have obtained our inter-city and intra-city dark fiber maintain that dark fiber. We are contractually obligated under the agreements with these carriers to pay maintenance fees, and if we are unable to continue to pay such fees we would be in default under these agreements. If these carriers fail to maintain the fiber or disrupt our fiber connections due to our default or for other reasons, such as business disputes with us, bankruptcy, and governmental takings, our ability to provide service in the affected markets or parts of markets would be impaired unless we have or can obtain alternative fiber routes. Some of the companies that maintain our inter-city dark fiber and some of the companies that maintain our intra-city dark fiber are also competitors of ours in portions of our business. Consequently, they may have incentives to act in ways unfavorable to us. While we have successfully mitigated the effects of prior service interruptions and business disputes in the past, we may incur significant delays and costs in restoring service to our customers in connection with future service interruptions, and as a result we may lose customers.

Substantially all of our network infrastructure equipment is manufactured or provided by a single network infrastructure vendor.

We purchase from Cisco Systems, Inc. ("Cisco") the routers and transmission equipment used in our network. We have recently experienced delays in obtaining certain network equipment from Cisco due to supply chain issues. If Cisco fails to provide equipment on a timely basis or fails to meet our performance expectations, including in the event that Cisco fails to enhance, maintain, upgrade or improve its products, hardware or software we purchase from them when and how we need them, we may be delayed or unable to provide services as and when requested by our customers. We also may be unable to upgrade our network and face greater difficulty maintaining and expanding our network.

Transitioning from Cisco to another vendor would be disruptive because of the time and expense required to learn to install, maintain and operate the new vendor's equipment and to operate a multi-vendor network. Any such disruption could increase our costs, decrease our operating efficiencies and have an adverse effect on our business, results of operations and financial condition.

Cisco may also be subject to litigation with respect to the technology on which we depend, including litigation involving claims of patent infringement. Such claims have been growing rapidly in the communications industry. Regardless of the merit of these claims, they can result in the diversion of technical and management personnel, or require us to obtain non-infringing technology or enter into license agreements for the technology on which we depend. There can be no assurance that such non-infringing technology or licenses will be available on acceptable terms and conditions, if at all.

In 2023, we entered into an agreement to purchase routers and transmission equipment used in our network from Ciena Corporation that will begin to diversify the suppliers of our network equipment. The Wireline Business also includes additional equipment vendors.

International Operations Risks

Our international operations expose us to numerous risks.

We have expanded our network into 51 countries worldwide on every continent other than Antarctica. We continue to explore expansion opportunities. We have experienced difficulties, ranging from lack of dark fiber, to regulatory issues, to slower revenue growth rates from our operations in these markets. If we are not successful in developing our market presence in these regions, our operating results and revenue growth could be adversely impacted.

Our international operations involve a number of risks, including:

- fluctuations in currency exchange rates, particularly those involving the Euro as we are required to fund certain of our cash flow requirements of our operations outside of the United States;
- exposure to additional regulatory and legal requirements, including laws that may make it difficult or costly to enforce our contracts, import restrictions and controls, exchange controls, tariffs and other trade barriers and privacy and data protection regulations;
- compliance with laws regarding corruption and bribery, including the United States Foreign Corrupt Practices Act;
- difficulties in staffing and managing our foreign operations;
- changes in political and economic conditions; and
- exposure to additional and potentially adverse tax regimes.

As we continue to expand into other countries, our success will depend, in part, on our ability to anticipate and effectively manage these and other risks. Our failure to manage these risks and grow our operations outside the United States may have a material adverse effect on our business and results of operations.

Litigation Risks

As an Internet service provider, we may incur liabilities for the content disseminated through our network or for network failures, delays or errors in transmissions.

The law relating to the liabilities of ISPs for information carried on or disseminated through their networks is unsettled. As the law in this area develops and as we expand our international operations, the potential imposition of liabilities upon us for the behavior of our customers or the information carried on and disseminated through our network could require us to implement measures to reduce our exposure to such liabilities, which may require the expenditure of substantial resources or the discontinuation of certain products or service offerings. Any costs that are incurred as a result of such measures or the imposition of liabilities could have a material adverse effect on our business.

Regulatory Risks

Existing and proposed privacy regulations may impact our business.

Many countries, including the United States, are considering adopting, or have already adopted, privacy regulations or laws that would govern the way an Internet user's data is used. The primary impact of these rules are on businesses that collect personal information about consumer users of their services. We do not provide services to individual consumers and do not collect such personal information. However, we transmit data across the Internet, which data may include personal information collected by our customers. As the applicability of privacy regulations to the types of services we provide remains unsettled, we may be required to adopt additional measures in the future.

Privacy regulations, such as the General Data Protection Regulation ("GDPR") in the European Union and the California Consumer Privacy Act ("CCPA") in California vary in scope and in the obligations they impose on us. As new laws are implemented or existing structures are declared insufficient, such as the Privacy Shield program in place between the US and EU, we may find it difficult to comply with such regulations or find it costly to do so. Moreover, for our customers who collect personal information, increased regulation of the collection, processing and use of personal data may impact their business and their use of services in unknown ways.

Changes in laws, rules, and enforcement could adversely affect us.

We are not subject to substantial regulation by the FCC or the state public utilities commissions in the United States. Internet service is also subject to minimal regulation in Western Europe and in Canada. Elsewhere the regulation is greater, though not as extensive as the regulation for providers of voice services. However, governmental authorities may decide to impose additional regulation and taxes upon providers of Internet access and private network services. All of these matters could inhibit our ability to remain a low-cost carrier and could have a material adverse effect on our business, financial condition and our results of operations.

As with the privacy laws described earlier, much of the laws related to the liability of Internet service providers for content on the network and the behavior of our customers and their end users remains unsettled. Some jurisdictions have laws, regulations, or court decisions that impose obligations upon ISPs to restrict access to certain content. Other legal issues, such as the sharing of copyrighted information, data protection, trans-border data flow, unsolicited commercial email ("spam"), universal service, and liability for software viruses could become subjects of additional legislation and legal development and changes in enforcement policies. We cannot predict the impact of these changes on us. They could have a material adverse effect on our business, financial condition and our results of operations.

Changes in laws, rules and enforcement may also adversely affect our customers. For example, a possible repeal or curtailing of Section 230 of the Communications Decency Act in the United States could have an adverse impact on our customers and, consequently, on us. While our top 25 customers represented approximately 6.0% of our revenue for the year ended December 31, 2022, several large net-centric customers are or may be the subject of increased regulatory scrutiny, which may impact their businesses and, consequently, their use of our services in unknown ways.

We may be required to censor content on the Internet, which we may find difficult to do and which may impact our ability to provide our services in some countries as well as impact the growth of Internet usage, upon which we depend.

Some governments attempt to limit access to certain content on the Internet. It is impossible for us to filter all content that flows across the Internet connections we provide. For example, some content is encrypted when a secure website is accessed. It is difficult to limit access to websites by blocking a fixed set of Internet addresses when the website operators engage in practices that make it difficult to block them. Should any government require us to perform these types of blocking procedures we could experience difficulties ranging from incurring additional expenses to ceasing to provide service in that country. We could also be subject to penalties if we fail to implement the censorship.

Tax Risks

Governments may assert that we are liable for taxes which we have not collected from our customers or paid to our vendors and we may have to begin collecting a multitude of taxes if Internet services become subject to taxation similar to the taxation of telephone service.

In the United States, Internet services are generally not subject to taxes. Consequently, in the United States we collect few taxes from our customers even though most telecommunications services are subject to numerous taxes. Various local jurisdictions have asserted or may assert that some of our operations or services should be subject to local taxes. If such jurisdictions assess taxes on prior years we may be subject to a liability for unpaid taxes that we may be unable to collect from our customers or former customers. If the taxation of Internet service is expanded we will need to collect those taxes from our customers. The process of implementing a system to properly bill and collect such taxes may require significant resources. In addition, the FCC is considering changes to its Universal Services Fund that could result in its application to Internet services. This too would require that we expend resources to collect this tax. Finally, the cumulative effect of these taxes levied on Internet services could discourage potential customers from using Internet services to replace traditional telecommunication services and negatively impact our ability to grow our business.

Our private network services, such as our VPN services, are subject to taxes and fees in various jurisdictions including the Universal Service Contribution tax in the US. We believe we collect all required taxes, however, a jurisdiction may assert we have failed to collect certain taxes. The expense of paying any unpaid taxes could be substantial and we might not be able to collect such back taxes from our customers.

We are subject to value-added taxes and other taxes in many jurisdictions outside of the United States. We are also subject to audit of our tax compliance in numerous jurisdictions. These may result in the assessment of amounts due that are material and therefore would have an adverse effect on us.

The utilization of certain of our net operating loss carryforwards is limited and depending upon the amount of our taxable income we may be subject to paying income taxes earlier than planned.

Section 382 of the Internal Revenue Code in the United States limits the utilization of net operating losses when ownership changes, as defined by that section, occur. We have performed an analysis of our Section 382 ownership changes and have determined that the utilization of certain of our net operating loss carryforwards in the United States is limited. Further, recent changes to the tax law in the United States and changes to tax laws in other jurisdictions in which we operate may impact our utilization of our net operating losses.

Risk Factors Related to Our Indebtedness

We have substantial debt which we may not be able to repay when due.

Our total indebtedness, at par, at December 31, 2022 was $1.3 billion and includes $500.0 million of our 3.50% senior secured notes due in May 2026 ("2026 Notes") and $450.0 million of our 7.00% senior unsecured notes due in June 2027 ("2027 Notes"). Our 2026 Notes require annual interest payments of $17.5 million per year and our 2027 Notes require interest payments of $31.5 million per year, each paid semi-annually. All of our noteholders have the right to be paid the principal upon default and upon certain designated events, such as certain changes of control. Our total indebtedness at December 31, 2022 included $304.2 million of finance lease obligations for dark fiber primarily under 15 to 44 year IRUs. Our total indebtedness at December 31, 2022 excludes $106.6 million of operating lease liabilities which were required to be recorded as right-to-use assets and operating lease liabilities in connection with the adoption of ASU No. 2016-02 *Leases* on January 1, 2019. The amount of our IRU finance lease obligations may be impacted due to our expansion activities, the timing of payments and fluctuations in foreign currency rates. We may not have sufficient funds to pay the interest and principal related to these obligations at the time we are obligated to do so, which could result in bankruptcy, or we may only be able to raise the necessary funds on unfavorable terms.

We have assumed the risk associated with variable interest rates under our interest rate swap agreement.

We are party to an interest rate swap agreement (the "Swap Agreement") that has the economic effect of modifying the fixed interest rate obligation associated with our 2026 Notes to a variable interest rate obligation based on the Secured Overnight Financing Rate ("SOFR") so that the interest payable on the 2026 Notes effectively became variable based on overnight SOFR. The critical terms of the Swap Agreement match the terms of the 2026 Notes, including the notional amount and the optional redemption date on February 1, 2026. Under the Swap Agreement, we pay the counterparty a semi-annual payment based upon overnight SOFR plus a contractual interest rate spread, and the counterparty pays us a semi-annual fixed 3.50% interest payment. The settlement payment is made each November and May until the Swap Agreement expires in February 2026. By entering into the Swap Agreement, we have assumed the risk associated with variable interest rates. Changes in interest rates affect the valuation of the Swap Agreement that we recognize in our consolidated statements of comprehensive income.

Our substantial level of indebtedness could adversely affect our financial condition and prevent us from fulfilling our obligations under our notes and our other indebtedness.

We have substantial indebtedness. Our substantial debt may have important consequences. For instance, it could:

- make it more difficult for us to satisfy our financial obligations, including those relating to our debt;
- require us to dedicate a substantial portion of any cash flow from operations to the payment of interest and principal due under our debt, which will reduce funds available for other business purposes, including the growth of our operations, capital expenditures, dividends, purchases of our common stock and acquisitions;

- place us at a competitive disadvantage compared with some of our competitors that may have less debt and better access to capital resources; and

- limit our ability to obtain additional financing required to fund working capital and capital expenditures, for strategic acquisitions and for other general corporate purposes.

Our ability to satisfy our obligations including our debt depends on our future operating performance and on economic, financial, competitive and other factors, many of which are beyond our control. Our business may not generate sufficient cash flow, and future financings may not be available to provide sufficient net proceeds, to meet these obligations or to successfully execute our business strategy.

Despite our leverage we may still be able to incur more debt. This could further exacerbate the risks that we and our subsidiaries face.

We and our subsidiaries may incur additional indebtedness, including additional secured indebtedness, in the future. The terms of our debt indentures restrict, but do not completely prohibit, us from doing so. In addition, the indentures allow us to issue additional notes and other indebtedness secured by the collateral under certain circumstances. Moreover, we are not prevented from incurring other liabilities that do not constitute indebtedness as defined in the indentures, including additional operating leases obligations and finance lease obligations in the form of IRUs. These liabilities may represent claims that are effectively prior to the claims of our note holders. If new debt or other liabilities are added to our debt levels the related risks that we and our subsidiaries now face could intensify.

The agreements governing our various debt obligations impose restrictions on our business and could adversely affect our ability to undertake certain corporate actions.

The agreements governing our various debt obligations include covenants imposing significant restrictions on our business. These restrictions may affect our ability to operate our business and may limit our ability to take advantage of potential business opportunities as they arise. These covenants place restrictions on our ability to, among other things:

- incur additional debt;

- create liens;

- make certain investments;

- enter into certain transactions with affiliates;

- declare or pay dividends, redeem stock or make other distributions to stockholders; and

- consolidate, merge or transfer or sell all or substantially all of our assets.

Our ability to comply with these agreements may be affected by events beyond our control, including prevailing economic, financial and industry conditions. These covenants could have an adverse effect on our business by limiting our ability to take advantage of financing, merger and acquisition or other corporate opportunities. The breach of any of these covenants or restrictions could result in a default under the agreements governing our debt obligations.

To service our indebtedness, we will require a significant amount of cash. However, our ability to generate cash depends on many factors, many of which are beyond our control.

Our ability to make payments on and to refinance our indebtedness and to fund planned capital expenditures will depend on our ability to generate cash in the future, which, in turn, is subject to general economic, financial, competitive, regulatory and other factors, many of which are beyond our control.

Our business may not generate sufficient cash flow from operations and we may not have available to us future borrowings in an amount sufficient to enable us to pay our indebtedness or to fund our other liquidity needs. In these circumstances, we may need to refinance all or a portion of our indebtedness on or before maturity. We may not be able to refinance any of our indebtedness on commercially reasonable terms or at all. Without this financing, we could be forced to sell assets or secure additional financing to make up for any shortfall in our payment obligations under unfavorable circumstances. However, we may not be able to secure additional financing on terms favorable to us or at all and, in addition, the terms of the indentures governing our notes limit our ability to sell assets and also restrict the use of proceeds from such a sale. We may not be able to sell assets quickly enough or for sufficient amounts to enable us to meet our obligations, including our obligations under our notes.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease space for offices, data centers, colocation facilities, and points-of-presence.

Our headquarters facility consists of 43,117 square feet located in Washington, D.C. The lease for our headquarters is with an entity controlled by our Chief Executive Officer and expires in May 2025. The lease may be cancelled by us upon 60 days' notice.

On January 6, 2023, we entered into two lease agreements (the "New Leases"), one with Thorium LLC and one with Germanium LLC, entities owned by our Chief Executive Officer. The first of the New Leases is with Thorium LLC for approximately 54,803 square feet of office space, which will serve as office space replacing a portion of our current office space in the Northern Virginia area. The second of the New Leases is with Germanium LLC for approximately 1,587 square feet of technical space, in the building which will serve as network operations space. The term for each of the New Leases is five years beginning March 1, 2023 (or an actual later date of occupancy). Both of the New Leases are cancellable by us without penalty upon 60 days written notice.

We lease a total of approximately 755,000 square feet of space for our data centers, offices and operations centers. Certain of these leases are with entities controlled by our Chief Executive Officer. We believe that these facilities are generally in good condition and suitable for our operations.

ITEM 3. LEGAL PROCEEDINGS

We are involved in legal proceedings in the ordinary course of our business that we do not expect to have a material adverse effect on our business, financial condition or results of operations. For a discussion of the significant proceedings in which we are involved, see Note 6 to our consolidated financial statements.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

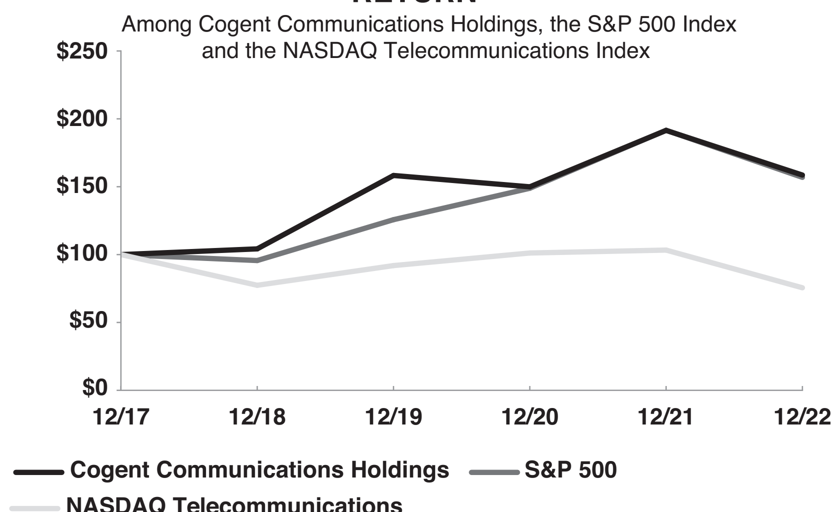
ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our sole class of common equity is our common stock, par value $0.001, which is currently traded on the NASDAQ Global Select Market under the symbol "CCOI." Prior to March 6, 2006, our common stock traded on the American Stock Exchange under the symbol "COI." Prior to February 5, 2002, no established public trading market for our common stock existed.

As of February 1, 2023, there were 127 holders of record of shares of our common stock holding 47,028,650 shares of our common stock.

Performance Graph

Our common stock currently trades on the NASDAQ Global Select Market. The chart below compares the relative changes in the cumulative total return of our common stock for the period from December 31, 2017 to December 31, 2022, against the cumulative total return for the same period of the (1) The Standard & Poor's 500 (S&P 500) Index and (2) the NASDAQ Telecommunications Index. The comparison below assumes $100 was invested on December 31, 2017 in our common stock, the S&P 500 Index and the NASDAQ Telecommunications Index, with dividends, if any, reinvested.



	12/17	12/18	12/19	12/20	12/21	12/22
Cogent Communications Holdings	**$ 100.00**	**$ 104.21**	**$ 158.28**	**$ 149.93**	**$ 191.49**	**$ 158.59**
S&P 500	**100.00**	**95.62**	**125.72**	**148.85**	**191.58**	**156.89**
NASDAQ Telecommunications	**100.00**	**77.39**	**91.90**	**101.16**	**103.32**	**75.55**

The stock price performance included in this graph is not necessarily indicative of future stock price performance.

Issuer Purchases of Equity Securities

Our Board of Directors authorized a plan to permit the repurchase of up to $50.0 million of our common stock in negotiated and open market transactions through December 31, 2023. As of December 31, 2022, $30.4 million remained available for such negotiated and open market transactions concerning our common stock. We may purchase shares from time to time depending on market, economic, and other factors. We did not purchase shares of our common stock during 2022.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis together with our consolidated financial statements and related notes included in this report. The discussion in this report contains forward-looking statements that involve risks and uncertainties, such as statements of our plans, objectives, expectations and intentions. The cautionary statements made in this report should be read as applying to all related forward-looking statements wherever they appear in this report. Factors that could cause or contribute to these differences include those discussed in "Item 1A. Risk Factors," as well as those discussed elsewhere. You should read "Item 1A. Risk Factors" and "Special Note Regarding Forward-Looking Statements." Our actual results could differ materially from those discussed here. Factors that could cause or contribute to these differences include, but are not limited to:

Our pending acquisition of the Wireline Business of Sprint Communications, including delays in or conditions on obtaining necessary regulatory approvals, our failure to close the Transaction or difficulties integrating our business with the acquired Sprint Communications business; the COVID-19 pandemic and accompanying government policies worldwide; vaccination and in-office requirements, delays in the delivery of network equipment and optical fiber; future economic instability in the global economy, including the risk of economic recession, which could affect spending on Internet services; the impact of changing foreign exchange rates (in particular the Euro to US dollar and Canadian dollar to US dollar exchange rates) on the translation of our non-US dollar denominated revenues, expenses, assets and liabilities into US dollars; legal and operational difficulties in new markets; the imposition of a requirement that we contribute to the US Universal Service Fund on the basis of our Internet revenue; changes in government policy and/or regulation, including rules regarding data protection, cyber security and net neutrality; increasing competition leading to lower prices for our services; our ability to attract new customers and to increase and maintain the volume of traffic on our network; the ability to maintain our Internet peering arrangements on favorable terms; our ability to renew our long-term leases of optical fiber that comprise our network; our reliance on an equipment vendor, Cisco Systems Inc., and the potential for hardware or software problems associated with such equipment; the dependence of our network on the quality and dependability of third-party fiber providers; our ability to retain certain customers that comprise a significant portion of our revenue base; the management of network failures and/or disruptions; our ability to make payments on our indebtedness as they become due and outcomes in litigation, risks associated with variable interest rates under our Swap Agreement, as well as other risks discussed from time to time in our filings with the Securities and Exchange Commission, including, without limitation, this Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q.

Ukraine & Russia

Following the Russian invasion of Ukraine in February 2022, we terminated services to customers based in Russia and customer linked to the Russian government. These customers represented less than 0.3% of our consolidated revenues for the three months ended March 31, 2022. We do not provide services within Russia but we do provide services in Ukraine via our Ukrainian subsidiary, TOV Cogent Communications Ukraine ("Cogent Ukraine"). As a result of the damage to facilities caused by the war, our services in Ukraine have experienced periodic outages which our third-party fiber provider repairs for us. We have taken steps to enhance our network security, provide financial flexibility to our Ukrainian customers and assist our Ukrainian employees. We do not believe that the termination of services to certain Russian customers or the impact of the war on our ability to provide services in Ukraine will have, taken together, a material impact on our network, financial statements or operating results. Cogent Ukraine represented less than 0.3% of our consolidated revenues for the year ended December 31, 2022 and less than 0.6% of our consolidated assets as of December 31, 2022.

Sprint Acquisition

On September 6, 2022, Cogent Infrastructure, Inc., a Delaware corporation (the "Buyer") and a wholly owned subsidiary of the Company, entered into a Membership Interest Purchase Agreement (the "Purchase Agreement") with Sprint Communications LLC, a Kansas limited liability company ("Sprint Communications") and an indirect wholly owned subsidiary of T-Mobile US, Inc., a Delaware corporation ("T-Mobile"), and Sprint LLC, a Delaware limited liability company and a direct wholly owned subsidiary of T-Mobile (the "Seller"), pursuant to which the Company will acquire the U.S. long-haul fiber network (including the non-U.S. extensions thereof) of Sprint Communications and its subsidiaries (the "Wireline Business"). The Purchase Agreement provides that, upon the terms and conditions set forth therein, the Company will purchase from the Seller all of the issued and outstanding membership interests of a Delaware limited liability company that holds Sprint Communications' assets and liabilities relating to the Wireline Business (such transactions contemplated by the Purchase Agreement, collectively, the "Transaction").

Results of Operations

Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021

In this section, we discuss the results of our operations for the year ended December 31, 2022 compared to the year ended December 31, 2021. For a discussion of the year ended December 31, 2021 compared to the year ended December 31, 2020, please refer to Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2021.

Our management reviews and analyzes several key financial measures in order to manage our business and assess the quality and variability of our service revenue, operating results and cash flows. The following summary tables present a comparison of our results of operations with respect to certain key financial measures. The comparisons illustrated in the tables are discussed in greater detail below.

	Year Ended December 31,		Percent
	2022	2021	Change
	(in thousands)		
Service revenue	$ 599,604	$ 589,797	1.7 %
On-net revenues	452,779	442,838	2.2 %
Off-net revenues	146,152	146,383	(0.2)%
Network operations expenses (1)	228,154	226,337	0.8 %
Selling, general, and administrative expenses (2)	163,021	162,380	0.4 %
Acquisition costs - Sprint (T-Mobile Wireline)	2,248	—	NM
Depreciation and amortization expenses	92,222	89,240	3.3 %
Gains on foreign exchange - 2024 Notes	31,561	32,522	(3.0)%
Loss on debt extinguishment and redemption – 2024 Notes	(11,885)	—	NM
Loss on debt extinguishment and redemption – 2022 Notes	—	(14,698)	NM
Change in valuation expense - interest rate swap agreement	(43,113)	(9,015)	378.2 %
Interest expense	67,584	58,059	16.4 %
Income tax expense	21,230	23,235	(8.6)%

(1) Includes non-cash equity-based compensation expense of $553 and $2,521 for 2022 and 2021, respectively.

(2) Includes non-cash equity-based compensation expense of $23,886 and $24,301 for 2022 and 2021, respectively.

NM - not meaningful

	Year Ended December 31,		Percent
	2022	2021	Change
Other Operating Data			
Average Revenue Per Unit (ARPU)			
ARPU—on-net	$ 462	$ 467	(1.1)%
ARPU—off-net	$ 930	$ 990	(6.1)%
Average price per megabit	$ 0.28	$ 0.35	(19.4)%
Customer Connections—end of period			
On-net	82,620	80,723	2.4 %
Off-net	13,531	12,669	6.8 %

Service Revenue. We continually work to grow our total service revenue by increasing the number of potential customers that we can reach on our network. We do this by investing capital to expand the geographic footprint of our network, increasing the number of buildings that we are connected to, including CNDCs and MTOBs, and increasing our penetration rate into our existing buildings. These efforts broaden the global reach of our network and increase the size of our potential addressable market. We also seek to grow our service revenue by investing in our sales and marketing team. We typically sell corporate connections at similar pricing to our competitors, but our clients benefit from our significantly faster speeds, enhanced service level agreements and rapid installation times. In the net-centric market, we offer comparable services in terms of capacity but typically at significantly lower prices.

Our service revenue increased by 1.7% from 2021 to 2022. Exchange rates negatively impacted our increase in service revenue by $13.1 million. All foreign currency comparisons herein reflect results for 2022 translated at the average foreign currency exchange rates for 2021. We increased our total service revenue by expanding our network, by adding additional buildings to our network, by increasing our penetration into the buildings connected to our network and by gaining market share by offering our services at lower prices than our competitors.

Revenue recognition standards include guidance relating to any tax assessed by a governmental authority that is directly imposed on a revenue-producing transaction between a seller and a customer and may include, but is not limited to, gross receipts taxes, Universal Service Fund fees and certain state regulatory fees. We record these taxes billed to our customers on a gross basis (as service revenue and network operations expense) in our consolidated statements of comprehensive income. The impact of these taxes including the Universal Service Fund resulted in a decrease to our revenues from 2021 to 2022 of $3.1 million.

Our corporate customers generally purchase their services on a price per connection basis. Our net-centric customers generally purchase their services on a price per megabit basis. Revenues from our corporate and net-centric customers represented 57.1% and 42.9% of total service revenue, respectively, for 2022 and represented 60.8% and 39.2% of total service revenue, respectively, for 2021. Revenues from corporate customers decreased by 4.4% to $342.6 million for 2022 from 2021. Revenues from our net-centric customers increased by 11.1% to $257.0 million for 2022 from 2021. Exchange rates negatively impacted our increase in our net-centric service revenue by approximately $13.1 million.

Our corporate customers take advantage of our superior speeds, service levels and installation times versus our competitors. The growing trend of customers installing second lines for redundancy in order to construct virtual private networks ("VPNs") has also led to our ability to increase our corporate revenues. However, beginning in the second quarter of 2020, we saw corporate customers take a more cautious approach to new configurations and upgrades as well as a reduction in demand for connecting smaller satellite offices as a result of the challenges and uncertainties of the COVID-19 pandemic. We also witnessed a deteriorating real estate market in and around the buildings we service, with rising vacancy levels and falling lease initiations or renewals resulting in fewer sales opportunities for our salesforce. As a result, we have experienced a slowdown in new sales to our corporate customers which negatively impacted our corporate revenue results. While we believe that demand for office space in the buildings in which we operate will remain among the strongest in our markets, we may experience increased corporate customer turnover, fewer upgrades of existing corporate customer configurations and fewer new tenant opportunities which would negatively impact our corporate revenue growth.

Our revenue from our net-centric customers increased primarily due to an increase in our number of net-centric customers and growth in network traffic from these customers partly offset by a decline in our average price per megabit. Our net-centric customers purchase our services on a price per megabit basis. The net-centric market exhibits significant pricing pressure due to the continued introduction of new technology which lowers the marginal cost of transmission and routing, and the commodity nature of the service where price is typically the only differentiating factor for these customers. Our average price per megabit of our installed base of customers declined by 19.4% from 2021 to 2022. We expect that our average price per megabit will continue to decline at similar rates. The impact of foreign exchange rates has a more significant impact on our net-centric revenues.

Our on-net revenues increased by 2.2% from 2021 to 2022. Our on-net revenues increased as we increased the number of our on-net customer connections. On-net customers increased at a greater rate than on-net revenues primarily due to a decrease in our on-net ARPU from 2021 to 2022 and the negative impact of foreign exchange. ARPU is determined by dividing revenue for the period by the average customer connections for that period.

Our off-net revenues decreased by 0.2% from 2021 to 2022. Our off-net revenues decreased primarily from the decrease in our off-net ARPU from 2021 to 2022, partly offset by the increase in the number of our off-net customer connections.

Network Operations Expenses. Network operations expenses include the costs of personnel associated with service delivery, network management and customer support, network facilities costs, fiber and equipment maintenance fees, leased circuit costs, access and facilities fees paid to building owners and excise taxes billed to our customers and recorded on a gross basis. Non-cash equity-based compensation expense is included in network operations expenses consistent with the classification of the employee's salary and other compensation. Our network operations expenses, including non-cash equity-based compensation expense, increased by 0.8% from 2021 to 2022. The increase in network operations expense is primarily attributable to an increase in costs related to our network and facilities international expansion activities, partly offset by a reduction in taxes billed to our customers recorded on a gross basis (as service revenue and network operations expense) and price reductions obtained in certain of our domestic leased circuit costs.

Selling, General, and Administrative ("SG&A") Expenses. Our SG&A expenses, including non-cash equity-based compensation expense, increased by 0.4% for 2022 from 2021. Non-cash equity-based compensation expense is included in SG&A expenses consistent with the classification of the employee's salary and other compensation. SG&A expenses increased primarily from an increase in salaries and related costs required to support our expansion and increases in our sales efforts, partly offset by a reduction in bad debt expense. Our sales force headcount was 633 at December 31, 2021 and 698 at December 31, 2022, and our total headcount was 1,001 at December 31, 2021 and 1,076 at December 31, 2022.

Acquisition Costs – Sprint (T-Mobile Wireline). In connection with the Transaction and the negotiation of the Purchase Agreement, we incurred $2.2 million of professional fees in 2022. Subject to the satisfaction or waiver of certain conditions and the other terms and conditions of the Purchase Agreement, the Transaction is expected to close in 2023.

Depreciation and Amortization Expenses. Our depreciation and amortization expense increased by 3.3% for 2022 from 2021. The increase is primarily due to the depreciation expense associated with the increase in deployed fixed assets.

Interest Expense and Losses on Debt Extinguishment and Redemption. Our interest expense resulted from interest incurred on our $445.0 million of 5.375% 2022 Notes until these notes were fully extinguished in May 2021, interest incurred on our €350.0 million of 4.375% 2024 Notes until these notes were fully extinguished in June 2022, interest incurred on our $500.0 million of 3.50% 2026 Notes that we issued in May 2021, interest incurred on our $450.0 million of 7.00% 2027 Notes that we issued in June 2022, interest incurred on our finance lease obligations and net interest paid on our Swap Agreement. Our interest expense increased by 16.4% from 2021 to 2022. The increase was primarily due to the increase in interest rates on our 7.00% 2027 Notes as compared to our 4.375% 2024 Notes, net interest paid in 2022 under our Swap Agreement, partially offset by the reduction in interest expense from the lower interest rate on our 3.50% 2026 Notes as compared to our 5.375% 2022 Notes.

In March 2021, we redeemed and extinguished $115.9 million of our 5.375% 2022 Notes at 103.24% of par value resulting in a loss on debt extinguishment and redemption of $3.9 million and reduced the par value from $445.0 million to $329.1 million. In May 2021, we extinguished the remaining $329.1 million of our 2022 Notes at par value resulting in a loss on debt extinguishment and redemption of $10.8 million. In June 2022, we extinguished our 4.375% 2024 Notes at 101.094% of par value resulting in a loss on debt extinguishment and redemption of $11.9 million.

Change in Valuation – Interest Rate Swap Agreement. As of December 31, 2022, the fair value of our Swap Agreement was a net liability of $52.1 million, and we recorded an unrealized loss for the non-cash change in the valuation of the Swap Agreement of $43.1 million in 2022 and $9.0 million in 2021.

Under the Swap Agreement settlement payment made in November 2021, we received $0.6 million from the counterparty for a net cash savings of $0.6 million for the period from August 9, 2021 (the Swap Agreement inception date) to October 31, 2021, in May 2022, we received $1.2 million from the counterparty for a net cash savings of $1.2 million for the period from November 1, 2021 to April 30, 2022. Under the Swap Agreement settlement payment made in November 2022, we paid $3.4 million to the counterparty for a net cash interest cost of $3.4 million for the period from May 1, 2022 to October 31, 2022.

Gains on Foreign Exchange – 2024 Notes. Our 2024 Notes were issued in Euros and were reported in our reporting currency, US dollars, until they were extinguished and redeemed in June 2022. Our 2024 Notes were issued in June 2019 and June 2020 when the Euro to USD exchange rate was approximately $1.13 and they were extinguished in June 2022 at a Euro to USD exchange rate of $1.06. Our gains on foreign exchange on our 2024 Notes from converting Euros into US dollars was $31.6 million for 2022 and was $32.5 million for 2021. We have not entered into hedging arrangements for our foreign currency obligations.

Income Tax Expense. Our income tax expense was $23.2 million for 2021 and $21.2 million for 2022 that includes deferred income taxes of $18.2 million for 2021 and $16.5 million for 2022. The decrease in our income tax expense is primarily related to the decrease in our income before income taxes.

Buildings On-net. As of December 31, 2022 and 2021, we had a total of 3,155 and 3,035 on-net buildings connected to our network, respectively. The increase in our on-net buildings was a result of our disciplined network expansion program. We anticipate adding a similar number of buildings to our network for the next several years.

Liquidity and Capital Resources

In assessing our liquidity, management reviews and analyzes our current cash balances, accounts receivable, accounts payable, accrued liabilities, capital expenditure commitments, and required finance lease and debt payments and other obligations. As our business has grown as a result of an increasing customer base, broader geographic coverage and increased traffic on our network, we have produced a growing level of cash provided by operating activities. As a result of the operating leverage of our network, our annual capital expenditures as measured as a percentage of revenues has fallen over the last decade. Increasing our cash provided by operating activities is, in part, dependent upon expanding our geographic footprint and increasing our network capacity. Recent supply chain issues may adversely impact our ability to grow our network and revenue.

We have also had increasing success in raising capital by issuing notes and arranging financing and leases that have had a lower cost and more flexible terms. The combination of this improved operating performance and access to capital has enhanced our financial flexibility and increased our ability to make distributions to stockholders in the form of cash dividends or through share repurchases. Since our initial public offering, we have returned over $1.2 billion to our stockholders through share repurchases and dividends. We will continue to assess our capital and liquidity needs and, where appropriate, return capital to stockholders.

Over the next several years, we have significant contractual and anticipated cash outlays including our indicative dividend payments on our common stock, our maturing debt obligations, interest payments on our debt obligations and our projected capital expenditure requirements in order to help execute our business plan. Based upon our historical growth rate of our dividend, we expect that we would have to provide approximately $363 million in order to meet our expected quarterly dividend payments over the next two years. In March 2021, we redeemed and extinguished $115.9 million of our 2022 Notes. In April 2021, we redeemed $45.0 million of our 2022 Notes, and in May 2021, we redeemed the remaining $284.1 million of our 2022 Notes with the proceeds from our issuance of $500.0 million of our 2026 Notes. Our 2022 Notes accrued interest at 5.375% and our 2026 Notes accrue interest at 3.50%. Our $500.0 million of 2026 Notes mature in May 2026 and include annual interest payments of $17.5 million until maturity. In June 2022, we redeemed our 2024 Notes with the proceeds from our issuance of $450.0 million of our 2027 Notes. Our 2024 Notes accrued interest at 4.375% and our 2027 Notes accrue interest at 7.00%. Our $450.0 million of 2027 Notes mature in June 2027 and include annual interest payments of $31.5 million until maturity.

Under our Swap Agreement, we pay the counterparty a semi-annual payment based upon overnight SOFR plus a contractual interest rate spread, and the counterparty pays us a semi-annual fixed 3.50% interest payment. These settlement payments are made in November and May of each year until the Swap Agreement expires in February 2026. Under the first Swap Agreement settlement payment made in November 2021, we received $0.6 million from the counterparty for a net cash savings of $0.6 million for the period from August 9, 2021 (the Swap Agreement inception date) to October 31, 2021. Under the Swap Agreement settlement payment made in May 2022, we received $1.2 million from the counterparty for a net cash savings of $1.2 million for the period from November 1, 2021 to April 30, 2022. Under the Swap Agreement the settlement payment made in November 2022, the Company paid $3.4 million to the counterparty for a net cash interest cost of $3.4 million for the period from May 1, 2022 to October 31, 2022. As of December 31, 2022, the fair value of the Swap Agreement was a liability of $52.1 million. We have made a $61.7 million deposit with the counterparty to our Swap Agreement. If the fair value of our Swap Agreement exceeds a liability of $61.7 million we will be required to deposit additional funds with the counterparty equal to the liability fair value. As of December 31, 2022, $52.1 million of our deposit was restricted and $9.6 million was unrestricted.

Any future acquisitions or other significant unplanned costs or cash requirements in excess of amounts we currently hold may require that we raise additional funds through the issuance of debt or equity. We cannot assure you that such financing will be available on terms acceptable to us or our stockholders, or at all. Insufficient funds may require us to delay or scale back the number of buildings and markets that we add to our network, reduce our planned increase in our sales and marketing efforts, or require us to otherwise alter our business plan or take other actions that could have a material adverse effect on our business, results of operations and financial condition. If issuing equity securities raises additional funds, substantial dilution to existing stockholders may result.

We may need to, or elect to, refinance all or a portion of our indebtedness at or before maturity and we cannot provide assurances that we will be able to refinance any such indebtedness on commercially reasonable terms or at all. In addition, we may elect to secure additional capital in the future, at acceptable terms, to improve our liquidity or fund acquisitions or for general corporate purposes. In addition, in an effort to reduce future cash interest payments as well as future amounts due at maturity or to extend debt maturities, we may, from time to time, issue new debt, enter into interest rate swap agreements, enter into debt for debt, or cash transactions to purchase our outstanding debt securities in the open market or through privately negotiated transactions. We will evaluate any such transactions in light of the existing market conditions. The amounts involved in any such transaction, individually or in the aggregate, may be material.

We or our affiliates may, at any time and from time to time, seek to retire or purchase our outstanding debt through cash purchases and/or exchanges for equity or debt, in open-market purchases, privately negotiated transactions or otherwise. Such repurchases or exchanges, if any, will be upon such terms and at such prices as we may determine, and will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors. The amounts involved may be material.

Any future acquisitions or other significant unplanned costs or cash requirements in excess of amounts we currently hold may require that we raise additional funds through the issuance of debt or equity. We cannot assure you that such financing will be available on terms acceptable to us or our stockholders, or at all. Insufficient funds may require us to delay or scale back the number of buildings and markets that we add to our network, reduce our planned increase in our sales and marketing efforts, or require us to otherwise alter our business plan or take other actions that could have a material adverse effect on our business, results of operations and financial condition. If issuing equity securities raises additional funds, substantial dilution to existing stockholders may result.

In light of the economic uncertainties associated with the COVID-19 pandemic, our executive officers and Board have continued to carefully monitor our liquidity and cash requirements. Based on current circumstances, we plan to continue our current dividend policy. Given uncertainties regarding the duration of the pandemic and timing for economic recovery, we will continue to monitor our capital spending. As we do each year, we will continue to monitor our future sources and uses of cash, and anticipate that we will make adjustments to our capital allocation strategies when, as and if determined by our Board of Directors.

Impact of COVID-19 on Our Liquidity and Operating Performance

We continue to operate with a high level of liquidity, and as of December 31, 2022, we had cash, cash equivalents and restricted cash of $275.9 million. The COVID-19 pandemic has not impacted our credit rating to date, nor do we believe that it has materially changed our cost of capital. We believe we are able to timely service our debt obligations and will not require any concessions to do so. We believe we will have access to additional capital from a variety of sources and the public capital markets for debt and equity.

In late March 2020, we adopted a mandatory policy through which we required all employees to work from home and follow shelter in place guidelines issued by state and local authorities. In July 2021, we allowed all employees to return voluntarily to all offices in the United States. In August 2021, we notified our employees that they would be required to return to the office on a full-time basis in the United States beginning in September 2021 and that they would be required to attest that they were fully vaccinated against the COVID-19 virus to do so. Employees had until October 11, 2021 to provide their vaccine self-attestation. Fully vaccinated employees in the United States returned to our offices on a full-time basis in early September 2021. In October 2021, we opened most of our non-US offices for employees to return on a voluntary basis and, where permitted, on a mandatory basis in November 2021.

The spread of the Omicron variant around the world in December 2021 caused us to modify further our office environment. First, we mandated that all U.S. employees receive a COVID-19 booster vaccine no later than six weeks after first becoming eligible for such vaccine. Second, we mandated that all U.S. employees provide proof of vaccination to us. Third, for offices around the world that had not been closed by government order, we shifted much of our workforce to fully remote status on a temporary basis at the end of 2021 in order to reduce the density of our offices. Sales representatives with less than 12 months tenure, sales representatives on performance improvement plans and their managers remained working in our offices on a full-time basis, as we believe that the training and coaching required by new and underperforming sales representatives is significantly more effective when provided in an in-office environment. In March 2022, all of our US employees returned to our offices on a full-time basis, and our employees around the world have returned to the office as and when permitted by local regulations.

Our employees have largely complied with our vaccine mandate in the United States. However, we experienced an increase in both voluntary and involuntary employee departures, particularly within our sales department, beginning in the second half of 2021 and continuing into 2022. We believe this rise in departures is attributable both to an increased focus on managing underperforming sales representatives and to the unwillingness of some employees to be vaccinated and/or to return to a full-time, in-office environment. As a result of our decisions to mandate COVID vaccination and to require employees to return to our offices on a full-time basis, we may find it difficult to retain existing employees or hire new employees. Further, a resurgence of COVID-19 due to immunity-resistant variants may cause employees to be more reluctant to continue in, or make new employees more reluctant to accept, a full-time, in-office position due to concerns about COVID-19. If this occurs, we may experience lower sales, revenue and profitability.

We have experienced certain corporate customers taking a more cautious approach to new configurations and upgrades as well as a reduction in demand for connecting smaller satellite offices as a result of the challenges and uncertainties of the COVID-19 pandemic. We also have witnessed a deteriorating real estate market in and around the buildings we service with rising vacancy levels and falling lease initiations or renewals which resulted in fewer sales opportunities for our salesforce and a reduction in VPN opportunities. As a result, we experienced a slowdown in new sales to our corporate customers which negatively impacted our corporate revenue growth. Moreover, with the spread of the Delta variant of COVID-19 in the summer of 2021 and then the Omicron variant in December of 2021, we believe many companies delayed the return of their employees to in-office work. As the pandemic has continued, and the return of employees to their offices has been delayed, a greater number of corporate customers with contracts that reached their termination date have elected not to renew their service with us. As such, we began to see increased corporate customer turnover. We also experienced a reduction in new sales to corporate customers. While we believe that demand for office space in the buildings in which we operate will remain among the strongest in our markets, and that most employers will eventually require their employees to return to their offices, the timing and scope of a return to office, particularly in a number of key markets we serve, remains uncertain. As a result, we may experience increased customer turnover, fewer upgrades of existing customer configurations and fewer new tenant opportunities. A potential resurgence of COVID-19 due to new immunity-resistant variants could cause companies to continue to delay the return of their employees to the office, to cause companies to shift workers in the office back to remote work and to delay further opening new offices. These trends may negatively impact our revenue growth, cash flows and profitability. We continue to experience a slowdown in the availability and delivery of networking equipment and optical fiber. While we believe we can adequately manage the operation, maintenance, upgrading and growth of our network, a worsening or prolonged slowdown may impact our ability to expand and augment our network.

Shortly after COVID-19 began its rapid spread around the world, domestic and worldwide capital markets ceased normal operations for a short period. While worldwide capital markets have remained unstable or unpredictable since then, particularly for non-investment grade issuers, legislative bodies and reserve banks have taken various actions in response to the pandemic that have impacted the capital markets, and we expect that these efforts may continue. We cannot predict whether new COVID-19 variants will arise and spread widely, the impact of the spread of new COVID-19 variants on the global economy, how national and local governments may react to the spread of new variants nor predict the impact the variants and any measures taken in response may have on our operations, employee retention, revenue growth, cash flows and our profitability.

Cash Flows

The following table sets forth our consolidated cash flows.

	Year Ended December 31,		
	2022	**2021**	**2020**
		(in thousands)	
Net cash provided by operating activities	$ 173,707	$ 170,257	$ 140,320
Net cash used in investing activities	(78,971)	(69,916)	(55,952)
Net cash used in financing activities	(144,849)	(140,825)	(116,002)
Effect of exchange rates on cash	(2,599)	(2,193)	3,513
Net decrease in cash, cash equivalents and restricted cash during the year	$ (52,712)	$ (42,677)	$ (28,121)

Net Cash Provided By Operating Activities. Our primary source of operating cash is receipts from our customers who are billed on a monthly basis for our services. Our primary uses of operating cash are payments made to our vendors and employees and interest payments made to our finance lease vendors and our note holders. Our changes in cash provided by operating activities are primarily due to changes in our operating profit and changes in our interest payments. Cash provided by operating activities for 2022, 2021 and 2020 included interest payments on our note obligations of $40.6 million, $50.1 million and $48.8 million, respectively.

Net Cash Used In Investing Activities. Our primary use of investing cash is for purchases of property and equipment. These amounts were $79.0 million, $69.9 million and $56.0 million for 2022, 2021 and 2020, respectively. The annual changes in purchases of property and equipment are primarily due to the timing and scope of our network expansion activities, including geographic expansion and adding buildings to our network.

Net Cash Used In Financing Activities. Our primary uses of cash for financing activities are for payments to redeem and extinguish our debt, dividend payments, stock purchases and principal payments under our debt and finance lease obligations. During 2022, 2021 and 2020, we paid $169.9 million, $150.3 million and $129.4 million, respectively, for our quarterly dividend payments. Our quarterly dividend payments have increased due to regular increases in our quarterly dividend per share amounts. Amounts paid under our stock buyback program were $4.5 million for 2020. There were no stock purchases during 2022 or 2021. Principal payments under our finance lease obligations were $45.5 million, $23.1 million and $24.0 million for 2022, 2021 and 2020, respectively, and are impacted by the timing and extent of our network expansion activities, including geographic expansion and adding buildings to our network. Total installment payment agreement principal payments were $0.8 million, $6.9 million and $10.5 million for 2022, 2021 and 2020, respectively.

We completed a series of debt redemptions and issuances in 2022, 2021 and 2020. In June 2022, we paid $375.4 million to redeem and extinguish our 2024 Notes at 101.094% of par value, and we issued $450.0 million of our 2027 Notes for net proceeds of $446.0 million. In March 2021, we paid $119.7 million to redeem and extinguish $115.9 million of our 2022 Notes at 103.24% of par value. In May 2021, we redeemed and extinguished the remaining $329.1 million of our 2022 Notes at par value and deposited funds with the trustee to pay $11.5 million of interest through December 1, 2021. The total payments to redeem our 2022 Notes were $459.3 million. In May 2021, we issued $500.0 million of our 2026 Notes for net proceeds of $496.9 million. In June 2020, we redeemed our $189.2 million of our 2021 Notes at par value and completed an offering of €215.0 million of our 2024 Notes for net proceeds of $240.3 million.

Indebtedness

Our total cash, cash equivalents and restricted cash at December 31, 2022 were $275.9 million. We believe this level of liquidity reduces our exposure to refinancing risk, potential underperformance of the business or other unforeseen challenges and enhances our ability to pursue acquisitions or operating opportunities. We intend to hold levels of cash and cash equivalents sufficient to maintain our ability to fund operations, refinance indebtedness and make dividend payments to our stockholders.

Our total indebtedness at December 31, 2022, at par value, was $1.3 billion. Our total indebtedness at December 31, 2022 includes $304.2 million of finance lease obligations for dark fiber under long-term IRU agreements.

On May 15, 2014, pursuant to the Agreement and Plan of Reorganization (the "Merger Agreement") by and among Cogent Communications Group, Inc. ("Group"), a Delaware corporation, Cogent Communications Holdings, Inc., a Delaware corporation ("Holdings") and Cogent Communications Merger Sub, Inc., a Delaware corporation ("Merger Sub"), Group adopted a new holding company organizational structure whereby Group is now a wholly owned subsidiary of Holdings. Holdings is a "successor issuer" to Group pursuant to Rule 12g-3(a) under the Exchange Act.

Senior unsecured 2027 notes—$450.0 million

In June 2022, Group issued $500.0 million of 2027 Notes. The 2027 Notes were sold in private offerings for resale to qualified institutional buyers pursuant to SEC Rule 144A and mature on June 15, 2027. Interest accrues at 7.00% and is paid semi-annually in arrears on June 15 and December 15 of each year. Holdings provided a guarantee of the 2027 Notes, but Holdings is not subject to the covenants under the indenture.

Senior secured 2026 notes—$500.0 million

In May 2021, Group issued $500.0 million of 2026 Notes. The 2026 Notes were sold in private offerings for resale to qualified institutional buyers pursuant to SEC Rule 144A and mature on May 1, 2026. Interest accrues at 3.50% and is paid semi-annually in arrears on May 1 and November 1 of each year. Holdings provided a guarantee of the 2026 Notes, but Holdings is not subject to the covenants under the indenture.

Senior unsecured 2024 notes—€350.0 million

In June 2019, Group completed an offering of €135.0 million of 2024 Notes. In June 2020, Group completed an offering of €215.0 million of 2024 Notes. The 2024 Notes were sold in private offerings for resale to qualified institutional buyers pursuant to SEC Rule 144A and were scheduled to mature on June 30, 2024. Interest accrued at 4.375% and was paid semi-annually in arrears on June 30 and December 30 of each year. In June 2022, the 2024 Notes were redeemed with the proceeds from our 2027 Notes.

Limitations under the Indentures

The 2027 Notes Indenture and the 2026 Notes Indenture (the "Indentures"), among other things, limit the Company's ability to incur indebtedness; to pay dividends or make other distributions; to make certain investments and other restricted payments; to create liens; to consolidate, merge, sell or otherwise dispose of all or substantially all of its assets; to incur restrictions on the ability of a subsidiary to pay dividends or make other payments; and to enter into certain transactions with its affiliates. There are certain exceptions to the limitations on the Company's ability to incur indebtedness under the Indentures, including IRU agreements incurred in the normal course of business and any additional indebtedness if the Company's consolidated leverage ratio, as defined in the Indentures, is less than 6.0 to 1.0 or the Company's fixed charge coverage ratio, as defined in the Indentures, is 2.0 to 1.0 or greater. The Company can also incur unlimited liens (which can be used, together with capacity under the debt covenant, to incur additional secured indebtedness) if the Company's consolidated secured leverage ratio, as defined in the Indentures, is less than 4.0 to 1.0. Under the Indentures, the Company can pay dividends, make other distributions, make certain investments and make other restricted payments under certain circumstances, including if, after giving pro forma effect to such restricted payment, the Company could still incur $1 of indebtedness, as defined (i.e., either its consolidated leverage ratio is less than 6.0 to 1.0 or its fixed charge coverage ratio is 2.0 to 1.0 or greater). As of December 31, 2022, the Company's consolidated leverage ratio was below 6.0, the Company's consolidated secured leverage ratio was below 4.0, and the Company's fixed charge coverage ratio was above 2.0. As of December 31, 2022, a total of $442.2 million (inclusive of a $250.0 general basket) was unrestricted and permitted for restricted payments, including dividends and stock purchases.

Summarized Financial Information of Holdings

Holdings is a guarantor under the 2027 and 2026 Notes. Under the Indentures, we are required to disclose financial information of Holdings including its assets, liabilities and its operating results ("Holdings Financial Information"). The Holdings Financial Information as of and for the year ended December 31, 2022 is detailed below (in thousands).

	December 31, 2022 (Unaudited)
Cash and cash equivalents	$ 42,298
Accrued interest receivable	40
Total assets	$ 42,338
Investment from subsidiaries	$ 469,551
Common stock	48
Accumulated deficit	(427,261)
Total equity	$ 42,338

	Year Ended December 31, 2022 (Unaudited)
Equity-based compensation expense	$ 26,716
Interest income	1,040
Net loss	$ (25,676)

Common Stock Buyback Program

Our Board of Directors has approved through December 31, 2023, purchases of our common stock under a buyback program (the "Buyback Program"). We purchased 79,056 shares of our common stock for $4.5 million during the year ended December 31, 2020 at an average price per share of $56.85. There were no purchases of common stock during the years ended December 31, 2022 and December 31, 2021. As of December 31, 2022, there was a total of $30.4 million available under the Buyback Program.

Dividends on Common Stock

Dividends are recorded as a reduction to retained earnings. Dividends on unvested restricted shares of common stock are paid as the awards vest. Our initial quarterly dividend payment was made in the third quarter of 2012. On February 22, 2023, our Board of Directors approved the payment of our quarterly dividend of $0.925 per common share. The dividend for the first quarter of 2023 will be paid to holders of record on March 10, 2023. This estimated $43.3 million dividend payment is expected to be made on March 24, 2023. The payment of any future dividends and any other returns of capital, including stock buybacks, will be at the discretion of our Board of Directors and may be reduced, eliminated or increased and will be dependent upon our financial position, results of operations, available cash, cash flow, capital requirements, limitations under our debt indentures and other factors deemed relevant by the our Board of Directors. We are a Delaware Corporation and under the General Corporate Law of the State of Delaware distributions may be restricted including a restriction that distributions, including stock purchases and dividends, do not result in an impairment of a corporation's capital, as defined under Delaware Law. The indentures governing our notes limit our ability to return cash to our stockholders. See Note 4 to our consolidated financial statements for additional discussion of limitations on distributions.

Future Capital Requirements

We believe that our cash on hand and cash generated from our operating activities will be adequate to meet our working capital, capital expenditure, debt service, dividend payments and other cash requirements for the next twelve months if we execute our business plan.

Any future acquisitions or other significant unplanned costs or cash requirements in excess of amounts we currently hold may require that we raise additional funds through the issuance of debt or equity. We cannot assure you that such financing will be available on terms acceptable to us or our stockholders, or at all. Insufficient funds may require us to delay or scale back the number of buildings and markets that we add to our network, reduce our planned increase in our sales and marketing efforts, or require us to otherwise alter our business plan or take other actions that could have a material adverse effect on our business, results of operations and financial condition. If issuing equity securities raises additional funds, substantial dilution to existing stockholders may result.

We may need to, or elect to, refinance all or a portion of our indebtedness at or before maturity and we cannot provide assurances that we will be able to refinance any such indebtedness on commercially reasonable terms or at all. In addition, we may elect to secure additional capital in the future, at acceptable terms, to improve our liquidity or fund acquisitions or for general corporate purposes. In addition, in an effort to reduce future cash interest payments as well as future amounts due at maturity or to extend debt maturities, we may, from time to time, issue new debt, enter into debt for debt, or cash transactions to purchase our outstanding debt securities in the open market or through privately negotiated transactions. We will evaluate any such transactions in light of the existing market conditions. The amounts involved in any such transaction, individually or in the aggregate, may be material.

Off-Balance Sheet Arrangements

We do not have relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. In addition, we do not engage in trading activities involving non-exchange traded contracts. As such, we are not materially exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in these relationships.

Income Taxes

Section 382 of the Internal Revenue Code in the United States limits the utilization of net operating losses when ownership changes, as defined by that section, occur. We have performed an analysis of our Section 382 ownership changes and have determined that the utilization of certain of our net operating loss carryforwards in the United States is limited.

Critical Accounting Policies and Significant Estimates

Our discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and the related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The accounting policies we believe to be most critical to understanding our financial results and condition or that require complex, significant and subjective management judgments are discussed below.

Finance Lease Obligations

We record assets and liabilities under finance leases at the lesser of the present value of the aggregate future minimum lease payments or the fair value of the assets under lease. We establish the number of renewal option periods used in determining the lease term, if any, based upon our assessment at the inception of the lease of the number of option periods for which failure to renew the lease imposes a penalty on us in such amount that renewal appears to be reasonably certain. Useful lives are determined based on historical usage with consideration given to technological changes and trends in the industry that could impact the asset utilization. We estimate the fair value of leased assets primarily using estimated replacement cost data for similar assets. We determine the incremental borrowing rate for each lease using our current borrowing rate adjusted for various factors including the level of collateralization and term to align with the term of the lease.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to certain market risks. These risks, which include interest rate risk and foreign currency exchange risk, arise in the normal course of business rather than from trading activities.

Interest Rate Risk

Interest Expense and Restricted Cash

Our cash flow exposure due to changes in interest rates related to our 2027 Notes is limited as our 2027 Notes have a fixed interest rate. Beginning in August 2021, we used a derivative financial instrument to manage our interest rate risk on our 2026 Notes. As of December 31, 2022, we were counterparty to our Swap Agreement that has the economic effect of modifying our fixed-interest rate obligation associated with our 2026 Notes to a variable interest rate obligation based on SOFR. The Swap Agreement is recorded at its fair value at each reporting period and we incur gains and losses due to changes in market interest rates. The values that we report for the Swap Agreement as of each reporting date are recognized as additional non-cash interest expense or a reduction to interest expense with the corresponding amount included in liabilities or assets, respectively, in our consolidated balance sheets. By entering into this Swap Agreement, we have assumed the risk associated with variable interest rates based upon SOFR related to our 2026 Notes. We have not entered into hedge agreements related to our 2027 Notes, and we do not use derivative financial instruments for trading purposes. We have a $61.7 million interest-bearing deposit with the counterparty to the Swap Agreement. If the fair value of the Swap Agreement exceeds a net liability of $61.7 million, we will be required to deposit additional funds with the counterparty equal to the net liability that is in excess of $61.7 million. As of December 31, 2022, the fair value of the Swap Agreement was a liability of $52.1 million, as a result, $52.1 million of the $61.7 million deposit was restricted and $9.6 million was unrestricted. A 1.0% change in interest rates as of December 31, 2022 would impact the change in our valuation of our Swap Agreement by approximately $15.3 million.

Interest Income

Our interest income is sensitive to changes in the general level of interest rates. However, based upon the nature and current level of our investments, which consist of cash, cash equivalents and restricted cash, we believe that there is no material interest rate exposure related to our investments.

Foreign Currency Exchange Risk

Our operations outside of the United States expose us to potentially unfavorable adverse movements in foreign currency rate changes. We have not entered into forward exchange contracts related to our foreign currency exposure. While we record financial results and assets and liabilities from our international operations in the functional currency, which is generally the local currency, these results are reflected in our consolidated financial statements in US dollars. Therefore, our reported results are exposed to fluctuations in the exchange rates between the US dollar and the local currencies, in particular the Euro and the Canadian dollar. In addition, we may fund certain cash flow requirements of our international operations in US dollars. Accordingly, in the event that the local currencies strengthen versus the US dollar to a greater extent than planned, the revenues, expenses and cash flow requirements associated with our international operations may be significantly higher in US-dollar terms than planned. During the year ended December 31, 2022, our foreign activities accounted for 24.7% of our consolidated revenue. A 1.0% change in foreign exchange rates would impact our consolidated annual revenue by approximately $1.2 million. Changes in foreign currency rates could adversely and materially affect our operating results and cash flow.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Ernst & Young LLP, Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Cogent Communications Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Cogent Communications Holdings, Inc. and subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of comprehensive (loss) income, shareholders' deficit and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and financial statement schedule listed in the Index at Item 15(a)2 (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have 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, 2022, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 24, 2023 expressed an unqualified opinion thereon.

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) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated 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.

Determining the presentation and disclosure requirements for Indefeasible Right of Use Lease Assets and Liabilities

Description of the Matter	As described in Notes 1 and 2 to the consolidated financial statements, as of December 31, 2022, the Company has $345.1 million and $304.2 million of indefeasible right of use (IRU) finance lease assets, net, and liabilities, respectively, and recorded $107.9 million of IRU finance lease assets and liabilities additions during the year ended December 31, 2022. The Company makes certain judgments and estimates to determine whether a lease is classified as an operating lease versus a financing lease at the lease commencement date. Auditing the classification of IRU lease agreements involved subjectivity due to the application of judgment in management's determination of the economic life of the underlying asset (the optical fiber) because there is relatively limited publicly available information about the optical fiber market on which to base those judgements. Changes in this assumption may have a material effect on the presentation and disclosure of the Company's leasing activities within the financial statements due to the volume of the IRU lease agreements executed each period.
How We Addressed the Matter in Our Audit	We tested the design and operating effectiveness of the Company's controls over the process to determine the economic life of the underlying asset (the optical fiber) of the IRU leases. To test the classification of IRU lease agreements, our audit procedures included among others, assessing the Company's assumptions by evaluating industry practices and the Company's experience as a lessee of IRU leases, in estimating the economic life of optical fiber, compared to those assumptions selected by management.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2002
Tysons, VA
February 24, 2023

COGENT COMMUNICATIONS HOLDINGS, INC., AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

AS OF DECEMBER 31, 2022 AND 2021

(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)

	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	$ 223,783	$ 319,609
Restricted cash	52,129	9,015
Accounts receivable, net of allowance for credit losses of $2,303 and $1,510, respectively	44,123	41,938
Prepaid expenses and other current assets	45,878	39,015
Total current assets	365,913	409,577
Property and equipment:		
Property and equipment	1,714,906	1,619,515
Accumulated depreciation and amortization	(1,170,476)	(1,161,635)
Total property and equipment, net	544,430	457,880
Right-of-use leased assets	81,601	101,687
Deposits and other assets	18,238	15,413
Total assets	$ 1,010,182	$ 984,557
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 27,208	$ 11,923
Accrued and other current liabilities	63,889	39,057
Current maturities, operating lease liabilities	12,005	12,197
Installment payment agreement, current portion, net of discount of $6	—	785
Finance lease obligations, current maturities	17,182	17,048
Total current liabilities	120,284	81,010
Senior unsecured 2024 notes, net of unamortized debt costs of $2,121 and net of discount of $772	—	394,112
Senior secured 2026 notes, net of unamortized debt costs of $905 and $1,156, respectively, and discount of $1,203 and $1,536, respectively	497,892	497,308
Senior unsecured 2027 notes, net of unamortized debt costs of $1,173 and discount of $2,456	446,371	—
Operating lease liabilities, net of current maturities	94,587	111,794
Finance lease obligations, net of current maturities	287,044	228,822
Other long-term liabilities	82,636	44,609
Total liabilities	1,528,814	1,357,655
Commitments and contingencies		
Stockholders' deficit:		
Common stock, $0.001 par value; 75,000,000 shares authorized; 48,013,330 and 47,674,189 shares issued and outstanding, respectively	48	48
Additional paid-in capital	575,064	547,734
Accumulated other comprehensive loss	(19,156)	(11,003)
Accumulated deficit	(1,074,588)	(909,877)
Total stockholders' deficit	(518,632)	(373,098)
Total liabilities and stockholders' deficit	$ 1,010,182	$ 984,557

The accompanying notes are an integral part of these consolidated balance sheets.

COGENT COMMUNICATIONS HOLDINGS, INC., AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

FOR EACH OF THE THREE YEARS ENDED DECEMBER 31, 2022

(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)

	2022	2021	2020
Service revenue	$ 599,604	$ 589,797	$ 568,103
Operating expenses:			
Network operations (including $553, $2,521 and $1,219 of equity-based compensation expense, respectively), exclusive of amounts shown separately	228,154	226,337	219,157
Selling, general, and administrative (including $23,886, $24,301 and $22,306 of equity-based compensation expense, respectively)	163,021	162,380	158,476
Acquisition costs – Sprint (T-Mobile Wireline) (Note 1)	2,248	—	—
Depreciation and amortization	92,222	89,240	83,477
Total operating expenses	485,645	477,957	461,110
Gains on equipment transactions	—	18	352
Gains (losses) on lease terminations	—	7,375	(423)
Operating income	113,959	119,233	106,922
Interest expense	(67,584)	(58,059)	(62,486)
Change in valuation – interest rate swap	(43,113)	(9,015)	—
Realized foreign exchange gain on 2024 Notes	—	—	2,533
Foreign exchange gain (loss) on 2024 Notes	31,561	32,522	(36,997)
Loss on debt extinguishment and redemption – 2021 Notes	—	—	(638)
Loss on debt extinguishment and redemption – 2022 Notes	—	(14,698)	—
Loss on debt extinguishment and redemption – 2024 Notes	(11,885)	—	—
Interest income and other	3,438	1,437	978
Income before income taxes	26,376	71,420	10,312
Income tax expense	(21,230)	(23,235)	(4,096)
Net income	$ 5,146	$ 48,185	$ 6,216
Comprehensive (loss) income:			
Net income	$ 5,146	$ 48,185	$ 6,216
Foreign currency translation adjustment	(8,153)	(9,697)	11,020
Comprehensive (loss) income	$ (3,007)	$ 38,488	$ 17,236
Basic net income per common share	$ 0.11	$ 1.04	$ 0.14
Diluted net income per common share	$ 0.11	$ 1.03	$ 0.13
Dividends declared per common share	$ 3.555	$ 3.170	$ 2.780
Weighted-average common shares-basic	46,875,992	46,419,180	45,947,772
Weighted-average common shares -diluted	47,207,298	46,963,920	46,668,198

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

COGENT COMMUNICATIONS HOLDINGS, INC., AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' DEFICIT

FOR EACH OF THE THREE YEARS ENDED DECEMBER 31, 2022

(IN THOUSANDS, EXCEPT SHARE AMOUNTS)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholder's Deficit
	Shares	Amount				
Balance at December 31, 2019	**46,840,434**	**$ 47**	**$ 493,178**	**$ (12,326)**	**$ (684,578)**	**$ (203,679)**
Forfeitures of shares granted to employees	(53,428)	—	—	—	—	—
Equity-based compensation	—	—	25,802	—	—	25,802
Foreign currency translation	—	—	—	11,020	—	11,020
Issuances of common stock	476,030	—	—	—	—	—
Exercises of options	30,097	—	1,382	—	—	1,382
Common stock purchases and retirement	(79,056)	—	(4,495)	—	—	(4,495)
Dividends paid	—	—	—	—	(129,412)	(129,412)
Net income	—	—	—	—	6,216	6,216
Balance at December 31, 2020	**47,214,077**	**$ 47**	**$ 515,867**	**$ (1,306)**	**$ (807,774)**	**$ (293,166)**
Forfeitures of shares granted to employees	(47,436)	—	—	—	—	—
Equity-based compensation	—	—	30,044	—	—	30,044
Foreign currency translation	—	—	—	(9,697)	—	(9,697)
Issuances of common stock	471,080	1	—	—	—	1
Exercises of options	36,468	—	1,823	—	—	1,823
Dividends paid	—	—	—	—	(150,288)	(150,288)
Net income	—	—	—	—	48,185	48,185
Balance at December 31, 2021	**47,674,189**	**$ 48**	**$ 547,734**	**$ (11,003)**	**$ (909,877)**	**$ (373,098)**
Forfeitures of shares granted to employees	(77,079)	—	—	—	—	—
Equity-based compensation	—	—	26,716	—	—	26,716
Foreign currency translation	—	—	—	(8,153)	—	(8,153)
Issuances of common stock	401,036	—	—	—	—	—
Exercises of options	15,184	—	614	—	—	614
Dividends paid	—	—	—	—	(169,857)	(169,857)
Net income	—	—	—	—	5,146	5,146
Balance at December 31, 2022	**48,013,330**	**$ 48**	**$ 575,064**	**$ (19,156)**	**$ (1,074,588)**	**$ (518,632)**

COGENT COMMUNICATIONS HOLDINGS, INC., AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

FOR EACH OF THE THREE YEARS ENDED DECEMBER 31, 2022

(IN THOUSANDS)

	2022	2021	2020
Cash flows from operating activities:			
Net income	$ 5,146	$ 48,185	$ 6,216
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	92,222	89,240	83,477
Amortization of debt discount and premium	1,464	1,759	1,894
Equity-based compensation expense (net of amounts capitalized)	24,439	26,822	23,525
Foreign currency exchange (gain) loss on 2024 Notes	(31,561)	(32,522)	36,997
Realized foreign currency exchange gain on 2024 Notes	—	—	(2,533)
Loss on extinguishment & redemption of 2024 notes	11,885	—	—
Loss on extinguishment & redemption of 2022 notes	—	14,698	—
Loss on extinguishment & redemption of 2021 notes	—	—	638
Gain – lease termination	—	(7,375)	—
Gains—equipment transactions and other, net	372	69	(546)
Deferred income taxes	16,539	18,159	282
Changes in operating assets and liabilities:			
Accounts receivable	(2,838)	1,385	(2,702)
Prepaid expenses and other current assets	(7,427)	(17)	(2,771)
Change in valuation – interest rate swap agreement	43,113	9,015	—
Deposits and other assets	(282)	(12)	(873)
Accounts payable, accrued liabilities and other long-term liabilities	20,635	851	(3,284)
Net cash provided by operating activities	173,707	170,257	140,320
Cash flows from investing activities:			
Purchases of property and equipment	(78,971)	(69,916)	(55,952)
Net cash used in investing activities	(78,971)	(69,916)	(55,952)
Cash flows from financing activities:			
Net proceeds from issuance of 2027 Notes, net of debt costs of $1,290	446,010	—	—
Net proceeds from issuance of 2026 Notes, net of debt costs of $1,317	—	496,933	—
Net proceeds from issuance of 2024 Notes, net of debt costs of $2,137	—	—	240,285
Redemption and extinguishment of 2024 Notes	(375,354)	—	—
Redemption and extinguishment of 2022 Notes	—	(459,317)	—
Redemption and extinguishment of 2021 Notes	—	—	(189,225)
Dividends paid	(169,857)	(150,288)	(129,412)
Principal payments of finance lease obligations	(45,472)	(23,054)	(23,990)
Principal payments of installment payment agreement	(790)	(6,922)	(10,547)
Purchases of common stock	—	—	(4,495)
Proceeds from exercises of common stock options	614	1,823	1,382
Net cash used in financing activities	(144,849)	(140,825)	(116,002)
Effect of exchange rate changes on cash	(2,599)	(2,193)	3,513
Net decrease in cash and cash equivalents & restricted cash	(52,712)	(42,677)	(28,121)
Cash and cash equivalents & restricted cash, beginning of year	328,624	371,301	399,422
Cash and cash equivalents & restricted cash, end of year	$ 275,912	$ 328,624	$ 371,301
Supplemental disclosures of cash flow information:			
Cash paid for interest	$ 66,479	$ 59,497	$ 62,917
Cash paid for income taxes	7,156	4,452	3,446
Non-cash investing and financing activities:			
Finance lease obligations incurred	107,875	50,831	71,622
PP&E obtained for installment payment agreement	—	—	5,771
Fair value of equipment acquired in leases	1,969	—	536
Non-cash component of network equipment obtained in exchange transactions	—	—	320

1. Description of the business and summary of significant accounting policies:

Reorganization and merger

On May 15, 2014, pursuant to the Agreement and Plan of Reorganization (the "Merger Agreement") by and among Cogent Communications Group, Inc. ("Group"), a Delaware corporation, Cogent Communications Holdings, Inc., a Delaware corporation ("Holdings" or the "Company") and Cogent Communications Merger Sub, Inc., a Delaware corporation, Group adopted a new holding company organizational structure whereby Group is now a wholly owned subsidiary of Holdings. Holdings is a "successor issuer" to Group pursuant to Rule 12g-3(a) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Cogent Communications, Inc. is wholly owned by Group and the vast majority of Group's assets, contractual arrangements, and operations are executed by Cogent Communications, Inc. and its subsidiaries.

Description of business

The Company is a facilities-based provider of low-cost, high-speed Internet access, private network services, and data center colocation space and power. The Company's network is specifically designed and optimized to transmit packet switched data. The Company delivers its services primarily to small and medium-sized businesses, communications service providers and other bandwidth-intensive organizations in 51 countries across North America, Europe, Asia, South America, Oceania and Africa. The Company is a Delaware corporation and is headquartered in Washington, DC.

The Company offers on-net Internet access services exclusively through its own facilities, which run from its network to its customers' premises. The Company offers its on-net services to customers located in buildings that are physically connected to its network. As a result, the Company is not dependent on local telephone companies or cable TV companies to serve its customers for its on-net Internet access and private network services. The Company's on- net service consists of high-speed Internet access and private network services offered at speeds ranging from 100 megabits per second to 400 gigabits per second.

The Company provides its on-net Internet access and private network services to its corporate and net-centric customers. The Company's corporate customers are located in multi-tenant office buildings ("MTOBs") and typically include law firms, financial services firms, advertising and marketing firms, as well as health care providers, educational institutions and other professional services businesses. The Company's net-centric customers include bandwidth-intensive users that leverage its network to either deliver content to end users or to provide access to residential or commercial internet users. Content delivery customers include over the top ("OTT") media service providers, content delivery networks, web hosting companies, and commercial content and application software providers. Access customers include access networks comprised of other Internet Service Providers ("ISPs"), telephone companies, mobile phone operators and cable television companies that collectively provide internet access to a substantial number of broadband subscribers and mobile phone subscribers across the world. These net-centric customers generally receive the Company's services in carrier neutral colocation facilities and in the Company's own data centers. The Company operates data centers throughout North America and Europe that allow its customers to collocate their equipment and access the Company's network.

In addition to providing on-net services, the Company provides Internet access and private network services to customers that are not located in buildings directly connected to its network. The Company provides these off-net services primarily to corporate customers using other carriers' circuits to provide the "last mile" portion of the link from the customers' premises to the Company's network. The Company also provides certain non-core services that resulted from acquisitions. The Company continues to support but does not actively sell these non-core services.

In connection with the Company's Sprint acquisition (discussed below), the Company will begin to provide optical wavelength services over the Company's fiber network. The Company will sell these wavelength services to its existing customers, Sprint customers and to new customers who require dedicated optical transport connectivity without the capital and ongoing expenses associated with owning and operating network infrastructure.

Acquisition of Sprint Communications

On September 6, 2022, Cogent Infrastructure, Inc., a Delaware corporation (the "Buyer") and a wholly owned subsidiary of the Company, entered into a Membership Interest Purchase Agreement (the "Purchase Agreement") with Sprint Communications LLC, a Kansas limited liability company ("Sprint Communications") and an indirect wholly owned subsidiary of T-Mobile US, Inc., a Delaware corporation ("T-Mobile"), and Sprint LLC, a Delaware limited liability company and a direct wholly owned subsidiary of T-Mobile (the "Seller"), pursuant to which the Company will acquire the U.S. long-haul fiber network (including the non-U.S. extensions thereof) of Sprint Communications and its subsidiaries (the "Wireline Business"). The Purchase Agreement provides that, upon the terms and conditions set forth therein, the Company will purchase from the Seller all of the issued and outstanding membership interests (the "Purchased Interests") of a Delaware limited liability company that holds Sprint Communications' assets and liabilities relating to the Wireline Business (such transactions contemplated by the Purchase Agreement, collectively, the "Transaction").

The parties have agreed to a $1 purchase price in consideration for the Purchased Interests, subject to customary adjustments set forth in the Purchase Agreement. In addition, at the consummation of the Transaction (the "Closing"), a T-Mobile affiliate will enter into an agreement for IP transit services, pursuant to which T-Mobile will pay the Company an aggregate of $700 million, consisting of (i) $350 million in equal monthly installments during the first year after the Closing and (ii) $350 million in equal monthly installments over the subsequent 42 months.

The Purchase Agreement includes customary representations, warranties, indemnities and covenants, including regarding the conduct of the Wireline Business prior to the Closing. In addition, the Closing is subject to customary closing conditions, including as to the receipt of certain required regulatory approvals and consents. Subject to the satisfaction or waiver of certain conditions and the other terms and conditions of the Purchase Agreement, the Transaction is expected to close in 2023.

The Purchase Agreement contains certain termination rights for the Buyer and Seller, including that, subject to certain limitations, either the Buyer or the Seller may terminate the Purchase Agreement if the Transaction is not consummated by September 6, 2023, subject to two automatic six-month extensions if certain regulatory approvals have not been obtained. The Purchase Agreement also provides that each party may specifically enforce the other party's obligations under the Purchase Agreement.

The Company has agreed to guarantee the obligations of the Buyer under the Purchase Agreement pursuant to the terms of a Guaranty, dated as of September 6, 2022, by and between the Company and the Seller (the "Parent Guaranty"). The Parent Guaranty contains customary representations, warranties and covenants of the Company and the Seller.

Acquisition Related Costs

In connection with the Transaction and negotiation of the Purchase Agreement, the Company incurred $2.2 million of professional fees in the year ended December 31, 2022.

Principles of consolidation

The consolidated financial statements have been prepared in accordance with United States generally accepted accounting principles and include the accounts of the Company and all of its wholly-owned and majority-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Use of estimates

The preparation of consolidated financial statements in conformity with United States generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from these estimates.

Allowance for credit losses

The Company establishes an allowance for credit losses and other sales credit adjustments related to its trade receivables. Trade receivables are recorded at the invoiced amount and can bear interest. Allowances for sales credits are established through a reduction of revenue, while allowances for credit losses are established through a charge to selling, general, and administrative expenses as bad debt expense. The Company assesses the adequacy of these reserves by evaluating factors, such as the length of time individual receivables are past due, historical collection experience, and changes in the credit worthiness of its customers. The Company also assesses the ability of specific customers to meet their financial obligations and establishes specific allowances related to these customers. If circumstances relating to specific customers change or economic conditions change such that the Company's past collection experience and assessment of the economic environment are no longer appropriate, the Company's estimate of the recoverability of its trade receivables could be impacted. Accounts receivable balances are written off against the allowance for credit losses after all means of internal collection activities have been exhausted and the potential for recovery is considered remote. The Company uses third-party collection services to continue to seek collection for it's written off accounts receivable.

Effective January 1, 2020, the Company adopted Accounting Standards Update ("ASU") No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13") later codified as Accounting Standards Codification ("ASC") 326 ("ASC 326"), using the modified retrospective transition approach. This guidance introduces a revised approach to the recognition and measurement of credit losses, emphasizing an updated model based on expected losses rather than incurred losses. As of January 1, 2020, the Company maintained an allowance for credit losses to cover its current expected credit losses on its trade receivables arising from the failure of customers to make contractual payments. The Company estimates credit losses expected over the life of its trade receivables based on historical information combined with current conditions that may affect a customer's ability to pay and reasonable and supportable forecasts. While the Company uses various credit quality metrics, it primarily monitors collectability by reviewing the duration of collection pursuits on its delinquent trade receivables. Based on the Company's experience, the customer's delinquency status is the strongest indicator of the credit quality of the underlying trade receivables, which is analyzed monthly. Adoption of ASU 2016-13 did not have a material impact on the Company's consolidated financial statements and related disclosures, and no cumulative adjustment was recorded.

Description	Balance at Beginning of Period	Current-period Provision for Expected Credit Losses	Write offs Charged Against Allowance	Balance at End of Period
Allowance for credit losses (deducted from accounts receivable)				
Year ending December 31, 2022	$ 1,510	$ 4,318	$ (3,525)	$ 2,303
Year ending December 31, 2021	$ 1,921	$ 5,595	$ (6,006)	$ 1,510
Year ending December 31, 2020	$ 1,771	$ 4,997	$ (4,847)	$ 1,921

The current-period provision for expected credit losses is net of bad debt recoveries of $1.9 million, $2.2 million and $1.2 million for the years ended December 31, 2022, 2021 and 2020, respectively.

Leases

In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"). ASU 2016-02 replaced most existing lease accounting guidance. In July 2018, the FASB approved an Accounting Standards Update which, among other changes, allowed a company to elect to adopt ASU 2016-02 using the modified retrospective method applying the transition provisions at the beginning of the period of adoption, rather than at the beginning of the earliest comparative period presented in these financial statements. ASU 2016-02 was effective for the Company beginning on January 1, 2019 and required the Company to record a right-of-use asset and a lease liability for most of its facilities leases. These leases were previously treated as operating leases. The Company adopted ASU 2016-02 using the optional transition method whereby the new lease requirements under ASU 2016-02 were recorded through a cumulative-effect adjustment, which after completing the implementation analysis, did not result in an adjustment to the Company's January 1, 2019 beginning retained earnings balance. The effect of ASU 2016-02 was to record a cumulative-effect adjustment on January 1, 2019 as a right-of-use asset and an operating lease liability totaling $97.3 million. The operating lease liability is not considered a liability under the consolidated leverage ratio calculations in the indentures governing the Company's senior unsecured and senior secured note obligations. The Company has made an accounting policy election to not apply the recognition requirements of ASU 2016-02 to its short-term leases — leases with a term of one year or less. The Company has also elected to apply certain practical expedients under ASU 2016-02 including not separating lease and non-lease components on its finance and operating leases,

not reassessing whether any existing contracts contained leases, not reconsidering lease classification, not reassessing initial direct costs and using hindsight in determining the lease reasonably certain term of its leases.

	Year Ended December 31, 2022	Year Ended December 31, 2021
Finance lease cost amortization of right-of-use assets	$ 28,915	$ 26,424
Interest expense on finance lease liabilities	23,317	19,419
Operating lease cost	18,331	18,382
Total lease costs	70,563	64,225
Other lease information		
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows from finance leases	(23,317)	(17,366)
Operating cash flows from operating leases	(18,836)	(20,194)
Financing cash flows from finance leases	(45,472)	(23,054)
Right-of-use assets obtained in exchange for new finance lease liabilities	107,875	50,831
Right-of-use assets obtained in exchange for new operating lease liabilities	11,168	17,853
Weighted-average remaining lease term — finance leases (in years)	13.5	12.6
Weighted-average remaining lease term — operating leases (in years)	16.6	18.7
Weighted average discount rate — finance leases	8.6 %	9.0 %
Weighted average discount rate — operating leases	5.4 %	5.4 %

Finance leases—fiber lease agreements

The Company has entered into lease agreements with numerous providers of dark fiber under indefeasible-right-of-use agreements ("IRUs"). These IRUs typically have initial terms of 15-20 years and include renewal options after the initial lease term. The Company establishes the number of renewal option periods used in determining the lease term based upon its assessment at the inception of the lease of the number of option periods for which failure to renew the lease imposes a penalty in such amount that renewal appears to be reasonably certain. The option to renew may be automatic, at the option of the Company or mutually agreed to between the dark fiber provider and the Company. Once the Company has accepted the related fiber route, leases that meet the criteria for treatment as finance leases are recorded as a finance lease obligation and an IRU asset. The interest rate used in determining the present value of the aggregate future minimum lease payments is the Company's incremental borrowing rate for the reasonably certain lease term. The determination of the Company's incremental borrowing rate requires some judgment. Finance lease assets are included in property and equipment in the Company's consolidated balance sheets. As of December 31, 2022, the Company had committed to additional dark fiber IRU lease agreements totaling $70.3 million in future payments to be paid over periods of up to 20 years. These obligations begin when the related fiber is accepted, which is generally expected to occur in the next 12 months.

Operating leases

The Company leases office space and certain data center facilities under operating leases. In certain cases the Company also enters into short-term operating leases for dark fiber. Right-of-use assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments under the lease. Operating lease right-of-use assets and liabilities are recognized at the lease commencement date based on the present value of lease payments over the reasonably certain lease term. The implicit rates within the Company's operating leases are generally not determinable and the Company uses its incremental borrowing rate at the lease commencement date to determine the present value of its lease payments. The determination of the Company's incremental borrowing rate requires some judgment. The Company determines its incremental borrowing rate for each lease using its current borrowing rate, adjusted for various factors including level of collateralization and term to align with the term of the lease. Certain of the Company's leases include options to extend or terminate the lease. The Company establishes the number of renewal option periods used in determining the operating lease term based upon its assessment at the inception of the operating lease of the number of option periods for which failure to renew the lease imposes a penalty in such amount that renewal appears to be reasonably certain. The option to renew may be automatic, at the option of the Company or mutually agreed to between the landlord or dark fiber provider and the Company. Once the Company has accepted the related fiber route or the facility lease term has begun, the present value of the aggregate future minimum operating lease payments is recorded as an operating lease liability and a right-of-use leased asset. Lease incentives and deferred rent liabilities for facilities operating leases are presented with, and netted against, the right-of-use leased asset. Lease expense for lease payments is recognized on a straight-line basis over the term of the lease.

The future minimum payments under these operating lease and finance lease agreements are as follows (in thousands):

For the twelve months ending December 31,	Operating Leases	Finance Leases
2023	$ 17,181	$ 40,425
2024	16,658	42,686
2025	14,255	37,458
2026	12,285	34,685
2027	10,900	35,521
Thereafter	87,702	333,836
Total minimum lease obligations	158,981	524,611
Less—amounts representing interest	(52,389)	(220,385)
Present value of minimum lease obligations	106,592	304,226
Current maturities	(12,005)	(17,182)
Lease obligations, net of current maturities	$ 94,587	$ 287,044

Revenue recognition

The Company recognizes revenue under ASU No. 2014-09, *Revenue from Contracts with Customers* ("ASC 606"), which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. Under ASC 606 installation fees for contracts with terms longer than month-to-month are recognized over the contract term. The Company believes that the installation fee does not give rise to a material right as defined by ASC 606 for contracts with terms longer than month-to-month. The Company recognizes revenue over the estimated average customer life for installation fees associated with month-to-month contracts, because the installation fee represents a material right as defined by ASC 606. The Company capitalizes certain contract acquisition costs that relate directly to a customer contract, including commissions paid to its sales team and sales agents and amortizes these costs on straight-line basis over the period the services are transferred to the customer for commissions paid to its sales team (estimated customer life) and over the remaining original contract term for agent commissions. Management assesses these costs for impairment at least quarterly and as "triggering" events occur that indicate it is more likely than not that an impairment exists. These contract costs were $23.7 million as of December 31, 2022 and were $21.4 million as of December 31, 2021.

The Company's service offerings consist of on-net and off-net telecommunications services. Fixed fees are billed monthly in advance and usage fees are billed monthly in arrears. Amounts billed are due upon receipt and contract lengths range from month to month to 60 months. The Company satisfies its performance obligations to provide services to customers over time as the services are rendered. In accordance with ASC 606, revenue is recognized when a customer obtains the promised service. The amount of revenue recognized reflects the consideration to which the Company expects to be entitled to receive in exchange for these services. The Company has adopted the practical expedient related to certain performance obligation disclosures since it has a right to consideration from its customer in an amount that corresponds directly with the value to the customer of the Company's performance completed to date.

To achieve this core principle, the Company follows the following five steps:

1) Identification of the contract, or contracts with a customer;

2) Identification of the performance obligations in the contract;

3) Determination of the transaction price;

4) Allocation of the transaction price to the performance obligations in the contract; and

5) Recognition of revenue when, or as, the Company satisfies a performance obligation.

Fees billed in connection with customer installations are deferred (as deferred revenue) and recognized as noted above. To the extent a customer contract is terminated prior to its contractual end the customer is subject to termination fees. The Company vigorously seeks payment of termination fees. The Company recognizes revenue for termination fees as they are collected. Service revenue recognized from amounts in deferred revenue (contract liabilities) at the beginning of the period during the years ended December 31, 2022, 2021 and 2020 was $5.0 million, $4.6 million and $4.4 million, respectively. Amortization expense for contract costs for the years ended December 31, 2022, 2021 and 2020 was $19.4 million, $18.4 million and $17.1 million, respectively.

Gross receipts taxes, universal service fund and other surcharges

Revenue recognition standards include guidance relating to taxes or surcharges assessed by a governmental authority that are directly imposed on a revenue-producing transaction between a seller and a customer and may include, but are not limited to, gross receipts taxes, excise taxes, Universal Service Fund fees and certain state regulatory fees. Such charges may be presented gross or net based upon the Company's accounting policy election. The Company records certain excise taxes and surcharges on a gross basis and includes them in its revenues and costs of network operations. Excise taxes and surcharges billed to customers and recorded on a gross basis (as service revenue and network operations expense) were $15.4 million, $18.5 million, and $15.1 million for the years ended December 31, 2022, 2021 and 2020, respectively.

Network operations

Network operations expenses include the costs of personnel and related operating expenses associated with service delivery, network management, and customer support, network facilities costs, fiber and equipment maintenance fees, leased circuit costs, access fees paid to building owners and certain excise taxes and surcharges recorded on a gross basis. The Company estimates its accruals for any disputed leased circuit obligations based upon the nature and age of the dispute. Network operations costs are impacted by the timing and amounts of disputed circuit costs. The Company generally records these disputed amounts when billed by the vendor and reverses these amounts when the vendor credit has been received or the dispute has otherwise been resolved. The Company does not allocate depreciation and amortization expense to its network operations expense.

Foreign currency translation adjustment and comprehensive income

The consolidated financial statements of the Company's non-US operations are translated into US dollars using the period-end foreign currency exchange rates for assets and liabilities and the average foreign currency exchange rates for revenues and expenses. Gains and losses on translation of the accounts are accumulated and reported as a component of other comprehensive income in stockholders' equity. The Company's only components of "other comprehensive income" are currency translation adjustments for all periods presented. The Company considers the majority of its investments in its foreign subsidiaries to be long-term in nature. The Company's foreign exchange transaction gains (losses) are included within interest income and other on the consolidated statements of comprehensive income.

Financial instruments

The Company considers all highly liquid investments with an original maturity of three months or less at purchase to be cash equivalents. The Company determines the appropriate classification of its investments at the time of purchase and evaluates such designation at each balance sheet date.

At December 31, 2022 and December 31, 2021, the carrying amount of cash and cash equivalents, restricted cash, accounts receivable, prepaid and other current assets, accounts payable, and accrued expenses approximated fair value because of the short-term nature of these instruments. The Company measures its cash equivalents and restricted cash at amortized cost, which approximates fair value based upon quoted market prices (Level 1). Based upon recent trading prices (Level 2—market approach), at December 31, 2022, the fair value of the Company's $500.0 million senior secured notes due 2026 was $452.5 million, the fair value of the Company's $450.0 million senior unsecured notes due 2027 was $441.0 million and the estimated fair value of the Company's Swap Agreement was $52.1 million.

Restricted cash and interest rate swap agreement

Restricted cash represents amounts held in segregated bank accounts by our clearing broker as margin in support of our Swap Agreement, as discussed in Note 4, and was $52.1 million as of December 31, 2022. Additional cash may be further restricted to maintain our interest rate swap instrument as interest rates fluctuate and margin requirements change. The Company does not use derivative financial instruments for trading purposes.

Concentrations of credit risk

The Company's assets that are exposed to credit risk consist of its cash and cash equivalents, other assets and accounts receivable. As of December 31, 2022 and 2021, the Company's cash equivalents were invested in demand deposit accounts, overnight investments and money market funds. The Company places its cash equivalents in instruments that meet high-quality credit standards as specified in the Company's investment policy guidelines. Accounts receivable are due from customers located in major metropolitan areas in the United States, Europe, Canada, Mexico, Asia, South America, Oceania and Africa. Receivables from the Company's net-centric (wholesale) customers are generally subject to a higher degree of credit risk than the Company's corporate customers.

The Company relies upon an equipment vendor for the majority of its network equipment and is also dependent upon many third-party fiber providers for providing its services to its customers.

Property and equipment

Property and equipment are recorded at cost and depreciated once deployed using the straight-line method over the estimated useful lives of the assets. Useful lives are determined based on historical usage with consideration given to technological changes and trends in the industry that could impact the asset utilization. System infrastructure costs include the capitalized compensation costs of employees directly involved with construction activities and costs incurred by third-party contractors.

Assets and liabilities under finance leases are recorded at the lesser of the present value of the aggregate future minimum lease payments or the fair value of the assets under lease. Leasehold improvements include costs associated with building improvements and customer installation costs. The Company determines the number of renewal option periods, if any, included in the lease term for purposes of amortizing leasehold improvements and the lease term of its finance leases based upon its assessment at the inception of the lease for which the failure to renew the lease imposes a penalty on the Company in such amount that a renewal appears to be reasonably assured. Expenditures for maintenance and repairs are expensed as incurred.

Depreciation and amortization periods are as follows:

Type of asset	Depreciation or amortization period
Indefeasible rights of use (IRUs)	Shorter of useful life or the IRU lease agreement; generally 15 to 20 years
Network equipment	3 to 8 years
Leasehold improvements	Shorter of lease term, including reasonably assured renewal periods, or useful life
Software	5 years
Owned buildings	40 years
Office and other equipment	3 to 7 years
System infrastructure	5 to 10 years

Long-lived assets

The Company's long-lived assets include property and equipment. These long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Impairment is determined by comparing the carrying value of these long-lived assets to management's probability weighted estimate of the future undiscounted cash flows expected to result from the use of the assets. In the event an impairment exists, a loss is recognized based on the amount by which the carrying value exceeds the fair value of the asset, which would be determined by using quoted market prices or valuation techniques such as the discounted present value of expected future cash flows, appraisals, or other pricing models. In the event there are changes in the planned use of the Company's long-term assets or the Company's expected future undiscounted cash flows are reduced significantly, the Company's assessment of its ability to recover the carrying value of these assets could change.

Equity-based compensation

The Company recognizes compensation expense for its share-based payments granted to its employees based on their grant date fair values with the expense being recognized on a straight-line basis over the requisite service period. The Company begins recording equity-based compensation expense related to performance awards when it is considered probable that the performance conditions will be met and for market-based awards compensation cost is recognized if the service condition is satisfied even if the market condition is not satisfied. Equity-based compensation expense is recognized in the statements of comprehensive income in a manner consistent with the classification of the employee's salary and other compensation.

Income taxes

The Company's deferred tax assets or liabilities are computed based upon the differences between financial statement and income tax bases of assets and liabilities using the enacted marginal tax rate. Deferred income tax expenses or benefits are based upon the changes in the assets or liability from period to period. At each balance sheet date, the Company assesses the likelihood that it will be able to realize its deferred tax assets. Valuation allowances are established when management determines that it is "more likely than not" that some portion or all of the deferred tax asset may not be realized. The Company considers all available positive and negative evidence in assessing the need for a valuation allowance including its historical operating results, ongoing tax planning, and forecasts of future taxable income, on a jurisdiction by jurisdiction basis. The Company reduces its valuation allowance if the Company concludes that it is "more likely than not" that it would be able to realize its deferred tax assets.

Management determines whether a tax position is more likely than not to be sustained upon examination based on the technical merits of the position. Once it is determined that a position meets this recognition threshold, the position is measured to determine the amount of benefit to be recognized in the financial statements. The Company adjusts its estimated liabilities for uncertain tax positions periodically because of ongoing examinations by, and settlements with, the various taxing authorities, as well as changes in tax laws, regulations and interpretations. The Company's policy is to recognize interest and penalties accrued on any unrecognized tax benefits as a component of its income tax expense.

Basic and diluted net income per common share

Basic earnings per share ("EPS") excludes dilution for common stock equivalents and is computed by dividing net income or (loss) available to common stockholders by the weighted-average number of common shares outstanding for the period. Diluted EPS is based on the weighted-average number of shares of common stock outstanding during each period, adjusted for the effect of dilutive common stock equivalents.

Shares of restricted stock are included in the computation of basic EPS as they vest and are included in diluted EPS, to the extent they are dilutive, determined using the treasury stock method.

The following details the determination of the diluted weighted average shares:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Weighted average common shares—basic	46,875,992	46,419,180	45,947,772
Dilutive effect of stock options	16,064	34,007	80,849
Dilutive effect of restricted stock	315,242	510,733	639,577
Weighted average common shares—diluted	47,207,298	46,963,920	46,668,198

The following details unvested shares of restricted common stock as well as the anti-dilutive effects of stock options and restricted stock awards outstanding:

	December 31, 2022	December 31, 2021	December 31, 2020
Unvested shares of restricted common stock	1,164,021	1,253,321	1,339,596
Anti-dilutive options for common stock	105,556	45,809	32,324
Anti-dilutive shares of restricted common stock	541,608	86,619	223,118

2. Property and equipment:

Property and equipment consisted of the following (in thousands):

	December 31,	
	2022	2021
Owned assets:		
Network equipment	$ 673,479	$ 650,634
Leasehold improvements	263,861	250,623
System infrastructure	171,694	160,376
Software	11,277	11,028
Office and other equipment	22,071	20,999
Building	6,140	1,273
Land	101	107
	1,148,623	1,095,040
Less—Accumulated depreciation and amortization	(949,277)	(912,579)
	199,346	182,461
Assets under finance leases:		
IRUs	566,283	524,475
Less—Accumulated depreciation and amortization	(221,199)	(249,056)
	345,084	275,419
Property and equipment, net	$ 544,430	$ 457,880

Depreciation and amortization expense related to property and equipment and finance leases was $92.2 million, $89.2 million and $83.5 million, for 2022, 2021 and 2020, respectively.

The Company capitalizes the compensation cost of employees directly involved with its construction activities. In 2022, 2021 and 2020, the Company capitalized compensation costs of $12.6 million, $13.4 million and $12.1 million, respectively. These amounts are included in system infrastructure costs.

Installment payment agreement

The Company had entered into an installment payment agreement (“IPA”) with a vendor. Under the IPA the Company was able to purchase network equipment in exchange for interest free note obligations each with a twenty-four month term. There were no payments under each note obligation for the first six months followed by eighteen equal installment payments for the remaining eighteen month term. As of December 31, 2021, there was $0.8 million of note obligations outstanding under the IPA, secured by the related equipment. The Company recorded the assets purchased and the present value of the note obligation utilizing an imputed interest rate. The resulting discounts under the note obligations were amortized over the note term using the effective interest rate method. The IPA was fully repaid in 2022.

3. Accrued and other liabilities:

Accrued and other current liabilities consist of the following (in thousands):

	December 31,	
	2022	2021
Operating accruals	$ 19,488	$ 16,360
Interest rate swap agreement - current portion	20,267	—
Deferred revenue—current portion	4,911	4,894
Payroll and benefits	11,880	8,466
Taxes—non-income based	2,687	4,291
Interest	4,656	5,046
Total	$ 63,889	$ 39,057

4. Long-term debt:

As of December 31, 2022, the Company had outstanding $450.0 million aggregate principal amount of Senior Unsecured Notes due 2027 (the "2027 Notes") and $500.0 million aggregate principal amount of Senior Secured Notes due 2026 (the "2026 Notes"). The 2027 Notes were issued in June 2022, are due on June 15, 2027 and bear interest at a rate of 7.00% per year. Interest on the 2027 Notes is paid semi-annually on June 15 and December 15 of each year. The 2026 Notes were issued in May 2021, are due on May 1, 2026 and bear interest at a rate of 3.50% per year. Interest on the 2026 Notes is paid semi-annually on May 1 and November 1 of each year. In June 2022, the Company redeemed and extinguished its €350.0 million aggregate principal amount of Senior Unsecured Euro Notes due 2024 (the "2024 Notes"). The 2024 Notes were due on June 30, 2024 and bore interest at a rate of 4.375% per year. Interest on the 2024 Notes was paid semi-annually on June 30 and December 30 of each year.

Issuance of 2027 Notes and redemption of 2024 Notes

On June 22, 2022 (the "2027 Notes Closing Date"), Group completed its offering of $450.0 million aggregate principal amount of its 2027 Notes for issuance in a private placement not registered under the Securities Act of 1933, as amended (the "Securities Act"). The 2027 Notes were offered and sold only to persons reasonably believed to be qualified institutional buyers in an unregistered offering pursuant to Rule 144A under the Securities Act and to certain non-U.S. persons in transactions outside the United States in compliance with Regulation S under the Securities Act. The 2027 Notes were issued pursuant to, and are governed by, an indenture (the "2027 Notes Indenture"), dated the 2027 Notes Closing Date by and among Group, Holdings, the other guarantors named therein and the trustee. The 2027 Notes are jointly and severally guaranteed on a senior unsecured basis by each of the Company's existing and future material domestic subsidiaries, subject to certain exceptions, and by the Company. Under certain circumstances, the Guarantors may be released from these Guarantees without the consent of the holders of the 2027 Notes.

The net proceeds from the 2027 Notes offering were $446.0 million after deducting the $2.7 million discount and $1.3 million of offering expenses. The Company used a portion of the net proceeds from the 2027 Notes offering to redeem its 2024 Notes. The Company expects to use the remaining net proceeds from the 2027 Notes offering for general corporate purposes, and/or to repurchase the Company's common stock or for special or recurring dividends to the Company's stockholders. In connection with full redemption of its 2024 Notes, Group issued a conditional notice of full redemption to holders of the 2024 Notes, specifying June 30, 2022 as the redemption date (the "Redemption Date"). On the 2027 Notes Closing Date, Group satisfied and discharged its obligations under the 2024 Notes by depositing with a designee of the trustee for the 2024 Notes sufficient funds to pay the principal of the Premium (defined below) and accrued and unpaid interest on the Euro Notes to the Redemption Date. The 2024 Notes were issued in Euros and were reported in the Company's reporting currency, US dollars, until they were extinguished and redeemed. Prior to the redemption of the 2024 Notes, the gain (loss) on foreign exchange on the 2024 Notes from converting Euros into US dollars was $31.6 million, $32.5 million and ($37.0) million for 2022, 2021 and 2020, respectively.

Unless earlier redeemed or repurchased, the 2027 Notes will mature on June 15, 2027. Group may redeem some or all of the 2027 Notes at any time prior to June 15, 2024 at a price equal to 100% of the principal amount of the 2027 Notes, plus a "make-whole" premium, as set forth in the 2027 Notes Indenture, plus accrued and unpaid interest, if any, to, but not including, the date of redemption, or may redeem up to 40.0% of the 2027 Notes using proceeds of certain equity offerings completed prior to June 15, 2024 at 107.0% of the principal amount plus accrued and unpaid interest, if any. Thereafter, Group may redeem the 2027 Notes, in whole or in part, at a redemption price ranging from 103.5% of the aggregate principal amount of the 2027 Notes redeemed to par (depending on the year), in each case, as set forth in the 2027 Notes Indenture, plus accrued and unpaid interest, if any.

On the Redemption Date, Group redeemed its €350.0 million of 2024 Notes at a price of 101.094% (€353.8 million or $375.2 million) of the principal amount (the "Premium") plus €7.7 million ($8.1 million) of interest paid through June 30, 2022, the Redemption Date where the Premium reduced to 101.094%, for a total payment of €361.5 million ($383.4 million). Group entered into a short-term USD to Euro forward purchase agreement to mitigate the risk of foreign currency fluctuations. As a result of these transactions, the Company incurred a loss on debt extinguishment and redemption of $11.9 million. On the Redemption Date the 2024 Notes were valued at $365.8 million, resulting in a gain on foreign exchange of $31.6 million for the year ended December 31, 2022.

Issuance of the 2026 Notes and redemption of 2022 Notes

On May 7, 2021 (the "2026 Notes Closing Date"), Group completed an offering of $500.0 million aggregate principal amount of its 2026 Notes for issuance in a private placement exempt from registration under the Securities Act. The 2026 Notes were offered and sold only to persons reasonably believed to be qualified institutional buyers pursuant to Rule 144A under the Securities Act and to certain non-U.S. persons in transactions outside the United States in compliance with Regulation S under the Securities Act. The 2026 Notes were issued pursuant to, and are governed by, an indenture (the "2026 Notes Indenture"), dated the 2026 Notes Closing Date by

and among Group, Holdings, the other guarantors named therein, the trustee and the collateral agent. The 2026 Notes are guaranteed on a senior secured basis, jointly and severally, by Group's material domestic subsidiaries, subject to certain exceptions (the "Subsidiary Guarantors"). In addition, the 2026 Notes are guaranteed on a senior unsecured basis by Holdings (together with the Subsidiary Guarantors, the "Guarantors"). Under certain circumstances, the Guarantors may be released from these guarantees without the consent of the holders of the 2026 Notes. The net proceeds from the 2026 Notes offering were $496.9 million after deducting the $1.8 million discount and $1.3 million of offering expenses.

Unless earlier redeemed or repurchased, the 2026 Notes will mature on May 1, 2026. Group may redeem some or all of the 2026 Notes at any time prior to February 1, 2026 at a price equal to 100% of the principal amount of the 2026 Notes, plus a "make-whole" premium as set forth in the 2026 Notes Indenture, plus accrued and unpaid interest, if any, to, but not including, the date of redemption. Thereafter, Group may redeem the 2026 Notes, in whole or in part, at a price equal to 100% of the principal amount of the 2026 Notes, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

In March 2021, Group redeemed $115.9 million aggregate principal amount of its 5.375% Senior Secured Notes due 2022 (the "2022 Notes") at an average price of 103.2% of the principal amount plus $0.4 million of accrued and unpaid interest. As a result of this transaction, the Company incurred a loss on debt extinguishment and redemption of $3.9 million from the premium payment above par value, the amortization of the remaining unamortized notes cost and certain transaction expenses. In May 2021, Group redeemed $45.0 million aggregate principal amount of its 2022 Notes at par plus the "make-whole amount" as defined in the 2022 Notes indenture of $1.9 million ($41.41533 per $1,000 aggregate principal amount) plus accrued interest to, but excluding, the redemption date of $0.4 million ($9.70486 per aggregate principal amount). Following the $115.9 million and the $45.0 million redemptions there was $284.1 million aggregate principal amount of 2022 Notes remaining. On the 2026 Notes Closing Date, Group used the net proceeds from the offering of its 2026 Notes to fully satisfy and discharge its remaining obligations under its 2022 Notes. As a result of these transactions, the Company incurred an additional loss on debt extinguishment and redemption of $10.8 million from the payment of $11.5 million of interest on the 2022 Notes through December 1, 2021 and the amortization of the remaining unamortized notes costs and debt premium.

Senior unsecured notes - €350.0 million 2024 Notes

In June 2019, Group completed an offering of €135.0 million of 2024 Notes. The net proceeds from the June 2019 offering, after deducting offering expenses, were $152.1 million. In June 2020, Group completed an offering of €215.0 million of 2024 Notes. The net proceeds from the June 2020 offering, after deducting offering expenses, was $240.3 million. The 2024 Notes were guaranteed (the "Guarantees") on a senior unsecured basis, jointly and severally, by the Company's material domestic subsidiaries, subject to certain exceptions, and by the Company (collectively, the "Guarantors"). Under certain circumstances, the Guarantors could be released from these Guarantees without the consent of the holders of the 2024 Notes.

The 2024 Notes bore interest at a rate of 4.375% per annum and was paid semi-annually in arrears on June 30 and December 30 of each year. The 2024 Notes were scheduled to mature on June 30, 2024. The 2024 Notes were issued in Euros and were reported in the Company's reporting currency — US dollars. As of December 31, 2020, the Company's €350.0 million of 2024 Notes were valued at $429.3 million resulting in a loss on foreign exchange of $37.0 million for the year ended December 31, 2020. As of December 31, 2021, the 2024 Notes were valued at $397.0 million, resulting in a gain on foreign exchange of $32.5 million for the year ended December 31, 2021.

In June 2022, Group redeemed the 2024 Notes, as noted above.

Senior secured notes - $445.0 million 2022 Notes

In February 2015, Group issued $250.0 million of 2022 Notes. In December 2016, the Company issued an additional $125.0 million par value of its 2022 Notes at a premium of 100.375% of par value. In August 2018, the Company issued an additional $70.0 million par value of its 2022 Notes at a premium of 101.75% of par value. The 2022 Notes were sold in private offerings for resale to qualified institutional buyers pursuant to SEC Rule 144A and were scheduled to mature on March 1, 2022. Interest accrued at 5.375% and was paid semi-annually in arrears on March 1 and September 1 of each year.

The 2022 Notes were redeemable prior to December 1, 2021 (three months prior to the maturity date of the Notes) in whole or from time to time in part, at a redemption price equal to the sum of (1) 100% of the principal amount plus accrued and unpaid interest, if any, to, but not including, the redemption date, and (2) a make-whole premium, if any. The make-whole premium is the excess of (1) the net present value, on the redemption date, of the principal being redeemed or paid and the amount of interest (exclusive of interest accrued to the date of redemption) that would have been payable if such redemption had not been made, over (2) the aggregate

principal amount of the notes being redeemed or paid. Net present value shall be determined by discounting, on a semi-annual basis, such principal and interest at the reinvestment rate (as determined in the indenture governing the 2022 Notes) from the respective dates on which such principal and interest would have been payable if such redemption had not been made.

In May 2021, Group redeemed the 2022 Notes, as noted above.

Senior unsecured notes—$189.2 million 2021 Notes

On April 9, 2014, Cogent Communications Finance, Inc. ("Cogent Finance"), a newly formed financing subsidiary of Group, completed an offering at par of $200.0 million of 5.625% Senior Notes due 2021 (the "2021 Notes"). The 2021 Notes were sold in private offerings for resale to qualified institutional buyers pursuant to SEC Rule 144A, accrued interest at a rate of 5.625% and were scheduled to mature on April 15, 2021. Interest was paid semi-annually on April 15 and October 15. Cogent Finance merged with Group, with Group continuing as the surviving corporation (the "Finance Merger"). At the time of consummation of the Finance Merger, Group assumed the obligations of Cogent Finance under the 2021 Notes and the indenture governing the 2021 Notes (the "Indenture") and Group and each of Group's domestic subsidiaries became party to the Indenture pursuant to a supplemental indenture to the Indenture and the obligations under the Indenture became obligations solely of Group and each of Group's domestic subsidiaries. Holdings also provided a guarantee of the 2021 Notes, but Holdings was not subject to the covenants under the Indenture. In the second quarter of 2016, the Company paid $10.9 million for the purchase of $10.8 million of par value and accrued interest on its 2021 Notes reducing the principal amount to $189.2 million.

In June 2020, Group redeemed the 2021 Notes with the proceeds from its June 2020 issuance of its 2024 Notes. The Company redeemed the 2021 Notes at a redemption price of 100.00% of the $189.2 million principal amount plus $1.6 million of accrued interest. As a result of this transaction, the Company incurred a loss on debt extinguishment and redemption of $0.6 million from the amortization of the remaining unamortized notes cost and certain transaction expenses.

Limitations under the indentures

The 2027 Notes Indenture and the 2026 Notes Indenture (the "Indentures"), among other things, limit the Company's ability to incur indebtedness; to pay dividends or make other distributions; to make certain investments and other restricted payments; to create liens; to consolidate, merge, sell or otherwise dispose of all or substantially all of its assets; to incur restrictions on the ability of a subsidiary to pay dividends or make other payments; and to enter into certain transactions with its affiliates. There are certain exceptions to the limitations on the Company's ability to incur indebtedness under the Indentures, including IRU agreements incurred in the normal course of business and any additional indebtedness if the Company's consolidated leverage ratio, as defined in the Indentures, is less than 6.0 to 1.0 or the Company's fixed charge coverage ratio, as defined in the Indentures, is 2.0 to 1.0 or greater. The Company can also incur unlimited liens (which can be used, together with capacity under the debt covenant, to incur additional secured indebtedness) if the Company's consolidated secured leverage ratio, as defined in the Indentures, is less than 4.0 to 1.0. Under the Indentures, the Company can pay dividends, make other distributions, make certain investments and make other restricted payments under certain circumstances, including if, after giving pro forma effect to such restricted payment, the Company could still incur $1 of indebtedness, as defined (i.e., either its consolidated leverage ratio is less than 6.0 to 1.0 or its fixed charge coverage ratio is 2.0 to 1.0 or greater). As of December 31, 2022, the Company's consolidated leverage ratio was below 6.0, the Company's consolidated secured leverage ratio was below 4.0 and the Company's fixed charge coverage ratio was above 2.0. As of December 31, 2022, a total of $442.4 million (inclusive of a $250.0 general basket) was unrestricted and permitted for restricted payments, including dividends and stock purchases.

The aggregate future contractual maturities of long-term debt were as follows as of December 31, 2022 (in thousands):

For the year ending December 31,	
2023	$ —
2024	—
2025	—
2026	500,000
2027	450,000
Thereafter	—
Total	$ 950,000

Interest rate swap agreement

As of December 31, 2022, the Company was party to an interest rate swap agreement (the "Swap Agreement") that has the economic effect of modifying the fixed interest rate obligation associated with its 2026 Notes to a variable interest rate obligation based on the Secured Overnight Financing Rate ("SOFR") so that the interest payable on the 2026 Notes effectively became variable based on overnight SOFR. The critical terms of the Swap Agreement match the terms of the 2026 Notes, including the notional amount and the optional redemption date on February 1, 2026. The Company did not elect hedge accounting for the Swap Agreement. The Swap Agreement is recorded at its fair value at each reporting period, and the Company incurs gains and losses due to changes in market interest rates. By entering into the Swap Agreement, the Company has assumed the risk associated with variable interest rates. Changes in interest rates affect the valuation of the Swap Agreement that the Company recognizes in its consolidated statements of comprehensive income. The values that the Company reports for the Swap Agreement as of each reporting date are recognized as "change in valuation – interest rate swap" with the corresponding amounts included in assets or liabilities in the Company's consolidated balance sheets. As of December 31, 2022 the fair value of the Swap Agreement was a net liability of $52.1 million of which $20.3 million is presented with accrued and other current liabilities and $31.9 million is presented with other long-term liabilities. In 2022 and 2021, the Company recorded an unrealized loss related to the Swap Agreement of $43.1 million and $9.0 million, respectively. The Company has made a $61.7 million deposit with the counterparty to the Swap Agreement. If the fair value of the Swap Agreement exceeds a net liability of $61.7 million the Company will be required to deposit additional funds with the counterparty equal to the net liability fair value. As of December 31, 2022, $52.1 million of the deposit was restricted and $9.6 million was unrestricted.

Under the Swap Agreement, the Company pays the counterparty a semi-annual payment based upon overnight SOFR plus a contractual interest rate spread, and the counterparty pays the Company a semi-annual fixed 3.50% interest payment. The settlement payment is made each November and May until the Swap Agreement expires in February 2026. Under the first Swap Agreement settlement in November 2021, the Company received a payment of $0.6 million from the counterparty for a net cash savings of $0.6 million for the period from August 9, 2021 (the Swap Agreement inception date) to October 31, 2021. Under the settlement payment made in May 2022, the Company received a payment of $1.2 million from the counterparty for a net cash savings of $1.2 million for the period from November 1, 2021 to April 30, 2022. Under the settlement payment made in November 2022, the Company made a payment of $3.4 million to the counterparty for a net cash interest cost of $3.4 million for the period from May 1, 2022 to October 31, 2022.

5. Income taxes:

The components of income before income taxes consist of the following (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Domestic	$ 34,784	$ 73,753	$ 23,808
Foreign	(8,408)	(2,333)	(13,496)
Total income before income taxes	$ 26,376	$ 71,420	$ 10,312

The income tax expense is comprised of the following (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Current:			
Federal	$ —	$ —	$ 32
State	(4,195)	(3,116)	(2,908)
Foreign	(496)	(1,833)	(947)
Deferred:			
Federal	(16,299)	(17,959)	(1,867)
State	(143)	(2,348)	1,241
Foreign	(97)	2,021	353
Total income tax expense	$ (21,230)	$ (23,235)	$ (4,096)

Our consolidated temporary differences comprising our net deferred tax assets are as follows (in thousands):

	December 31,	
	2022	2021
Deferred Tax Assets:		
Net operating loss carry-forwards	$ 226,625	$ 246,276
Tax credits	1,936	2,119
Equity-based compensation	3,951	3,976
Operating leases	32,769	40,627
Total gross deferred tax assets	265,281	292,998
Valuation allowance	(140,895)	(132,800)
	124,386	160,198
Deferred Tax Liabilities:		
Depreciation and amortization	61,761	46,642
Accrued liabilities and other	77,690	103,705
Right-of-use assets	29,710	37,784
Gross deferred tax liabilities	169,161	188,131
Net deferred tax liabilities	$ 44,775	$ 27,933

At each balance sheet date, the Company assesses the likelihood that it will be able to realize its deferred tax assets. The Company considers all available positive and negative evidence in assessing the need for a valuation allowance. The Company maintains a full valuation allowance against certain of its deferred tax assets consisting primarily of net operating loss carryforwards related to its foreign operations in Europe, Asia, South America, Oceania and Africa.

As of December 31, 2022, the Company has combined net operating loss carry-forwards of $943.0 million. This amount includes federal net operating loss carry-forwards in the United States of $19.2 million, net operating loss carry-forwards related to its European operations of $913.7 million and $10.1 million related to its other international operations. Section 382 of the Internal Revenue Code in the United States limits the utilization of net operating losses when ownership changes, as defined by that section, occur. The Company has performed an analysis of its Section 382 ownership changes and has determined that the utilization of certain of its net operating loss carryforwards in the United States is limited based on the annual Section 382 limitation and remaining carryforward period. Of the net operating losses available at December 31, 2022 in the United States $19.2 million are limited for use under Section 382. Net operating loss carryforwards outside of the United States totaling $923.8 million are not subject to limitations similar to Section 382. The net operating loss carryforwards in the United States will expire, if unused, in 2026. The net operating loss carry-forwards related to the Company's European operations include $780.5 million that do not expire and $133.2 million that expire between 2023 and 2038.

The Company has not provided for United States deferred income taxes or foreign withholding taxes on its undistributed earnings for certain non-US subsidiaries earnings or cumulative translation adjustments because these earnings and adjustments are intended to be permanently reinvested in operations outside the United States. It is not practical to determine the amount of the unrecognized deferred tax liability on such undistributed earnings or cumulative translation adjustments.

In the normal course of business the Company takes positions on its tax returns that may be challenged by taxing authorities. The Company evaluates all uncertain tax positions to assess whether the position will more likely than not be sustained upon examination. If the Company determines that the tax position is not more likely than not to be sustained, the Company records a liability for the amount of the benefit that is not more likely than not to be realized when the tax position is settled. The Company does not have a material liability for uncertain tax positions at December 31, 2022 and does not expect that its liability for uncertain tax positions will materially increase during the twelve months ended December 31, 2023, however, actual changes in the liability for uncertain tax positions could be different than currently expected. If recognized, changes in the Company's total unrecognized tax benefits would impact the Company's effective income tax rate.

The Company or one of its subsidiaries files income tax returns in the US federal jurisdiction and various state and foreign jurisdictions. The Company is subject to US federal tax and state tax examinations for years 2005 to 2022. The Company is subject to tax examinations in its foreign jurisdictions generally for years 2005 to 2022.

The following is a reconciliation of the Federal statutory income taxes to the amounts reported in the financial statements (in thousands).

	Years Ended December 31,		
	2022	2021	2020
Federal income tax expense at statutory rates	$ (5,537)	$ (14,999)	$ (2,166)
Effect of:			
State income taxes, net of federal benefit	(1,700)	(4,123)	(1,091)
Impact of foreign operations	(651)	715	(365)
Non-deductible expenses	(2,679)	(1,365)	(411)
Tax effect of TCJA from foreign earnings	(360)	(389)	(66)
Other	—	—	32
Changes in valuation allowance	(10,303)	(3,074)	(29)
Income tax expense	$ (21,230)	$ (23,235)	$ (4,096)

6. Commitments and contingencies:

Current and potential litigation

In accordance with the accounting guidance for contingencies, the Company accrues its estimate of a contingent liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Where it is probable that a liability has been incurred and there is a range of expected loss for which no amount in the range is more likely than any other amount, the Company accrues at the low end of the range. The Company reviews its accruals at least quarterly and adjusts them to reflect the impact of negotiations, settlements, rulings, advice of legal counsel, and other information and events pertaining to a particular matter. The Company has taken certain positions related to its obligations for leased circuits for which it is reasonably possible to result in a loss of up to $3.8 million in excess of the amount accrued at December 31, 2022. The Company was engaged in litigation in Virginia in which a former provider of transoceanic capacity to the Company was seeking approximately $0.6 million for alleged unpaid fees and the Company’s early termination of the arrangement. The complaint was filed in December 2021 in the Circuit Court of Fairfax County, Virginia. The trial took place in July 2022, and in August 2022, the Circuit Court issued an order requiring the Company to pay approximately $0.4 million in damages, inclusive of attorneys’ fees. The Company paid a final payment of approximately $0.4 million, reflecting accumulated interest and additional attorneys’ fees, in October 2022.

In the ordinary course of business the Company is involved in other legal activities and claims. Because such matters are subject to many uncertainties and the outcomes are not predictable with assurance, the liability related to these legal actions and claims cannot be determined with certainty. Management does not believe that such claims and actions will have a material impact on the Company’s financial condition or results of operations. Judgment is required in estimating the ultimate outcome of any dispute resolution process, as well as any other amounts that may be incurred to conclude the negotiations or settle any litigation. Actual results may differ from these estimates under different assumptions or conditions and such differences could be material.

Network equipment sites and data center facilities

The Company enters into leases for network equipment sites and for space in data center facilities. Future minimum annual payments under these arrangements are as follows (in thousands):

For the year ending December 31,	
2023	$ 28,038
2024	16,711
2025	12,937
2026	11,104
2027	3,065
Thereafter	1,164
	$ 73,019

Expenses related to these arrangements were $21.8 million in 2022, $22.0 million in 2021 and $21.0 million in 2020.

Unconditional purchase obligations

Unconditional purchase obligations for equipment and services totaled $33.6 million at December 31, 2022. As of December 31, 2022, the Company had also committed to additional dark fiber IRU finance and operating lease agreements totaling $70.3 million in future payments to be paid over periods of up to 20 years. These obligations begin when the related fiber is accepted, which is generally expected to occur in 2023. Future minimum payments under these obligations are $6.2 million, $4.1 million, $2.8 million, $2.8 million and $3.2 million for the years ending December 31, 2023 to December 31, 2027, respectively, and $51.2 million, thereafter.

Defined contribution plan

The Company sponsors a 401(k) defined contribution plan that provides for a Company matching payment. The Company matching payments were paid in cash and were $0.9 million for 2022, $0.9 million for 2021 and $0.9 million for 2020.

7. Stockholders' equity:

Authorized shares

The Company has 75.0 million shares of authorized $0.001 par value common stock and 10,000 authorized but unissued shares of $0.001 par value preferred stock. The holders of common stock are entitled to one vote per common share and, subject to any rights of any series of preferred stock, dividends may be declared and paid on the common stock when determined by the Company's Board of Directors.

Common stock buybacks

The Company's Board of Directors has approved $50.0 million for purchases of the Company's common stock under a buyback program (the "Buyback Program"). At December 31, 2022, there was $30.4 million remaining for purchases under the Buyback Program. During 2020, the Company purchased 79,056 shares of its common stock for $4.5 million. These shares of common stock were subsequently retired.There were no purchases of common stock in 2022 or 2021.

Dividends on common stock

Dividends are recorded as a reduction to retained earnings. Dividends on unvested restricted shares of common stock are paid as the awards vest. The payment of any future dividends and any other returns of capital, including stock buybacks, will be at the discretion of the Company's Board of Directors and may be reduced, eliminated or increased and will be dependent upon the Company's financial position, results of operations, available cash, cash flow, capital requirements, limitations under the Company's debt indentures and other factors deemed relevant by the Company's Board of Directors. The Company is a Delaware Corporation and under the General Corporate Law of the State of Delaware distributions may be restricted including a restriction that distributions, including stock purchases and dividends, do not result in an impairment of a corporation's capital, as defined under Delaware Law. The indentures governing the Company's notes limit the Company's ability to return cash to its stockholders.

8. Stock option and award plan:

Incentive award plan

The Company grants restricted stock and options for common stock under its award plan, as amended (the "Award Plan"). Stock options granted under the Award Plan generally vest over a four-year period and have a term of ten years. Grants of shares of restricted stock granted under the Award Plan generally vest over periods ranging from three to four years. Compensation expense for all awards is recognized on a straight-line basis over the service period. Awards with graded vesting terms that are subject only to service conditions are recognized on a straight-line basis. Certain option and share grants provide for accelerated vesting if there is a change in control, as defined. For grants of restricted stock, when an employee terminates prior to full vesting the employee retains their vested shares and the employees' unvested shares are returned to the Award Plan. For grants of options for common stock, when an employee terminates prior to full vesting, the employee may elect to exercise their vested options for a period of ninety days and any unvested options are returned to the Award Plan. Shares issued to satisfy awards are provided from the Company's authorized shares. The vesting of certain shares granted to the Company's executives is subject to certain performance conditions determined by the Company's Board of Directors. The vesting of certain shares granted to the Company's CEO is subject to the total shareholder return of the Company's common stock compared to the total shareholder return of the Nasdaq Telecommunications Index, the Company's growth rate in revenue and the Company's growth rate in cash flow from operating activities, with each portion of the CEO's performance-based equity award subject to a cap and no shares earned if performance with respect to a target is less than zero.

The accounting for equity-based compensation expense requires the Company to make estimates and judgments that affect its financial statements. These estimates for stock options include the following.

Expected Dividend Yield—The Company uses an expected dividend yield based upon expected annual dividends and the Company's stock price.

Expected Volatility—The Company uses its historical volatility for a period commensurate with the expected term of the option.

Risk-Free Interest Rate—The Company uses the zero coupon US Treasury rate during the quarter having a term that most closely resembles the expected term of the option.

Expected Term of the Option—The Company estimates the expected life of the option term by analyzing historical stock option exercises.

Forfeiture Rates—The Company estimates its forfeiture rate based on historical data with further consideration given to the class of employees to whom the options or shares were granted.

The weighted-average per share grant date fair value of options was $10.73 in 2022, $12.22 in 2021 and $13.21 in 2020. The following assumptions were used for determining the fair value of options granted in the three years ended December 31, 2022:

	Years Ended December 31,		
Black-Scholes Assumptions	**2022**	**2021**	**2020**
Dividend yield	5.9 %	4.6 %	3.4 %
Expected volatility	33.1 %	33.4 %	31.5 %
Risk-free interest rate	3.0 %	0.6 %	1.1 %
Expected life of the option term (in years)	4.1	4.2	4.2

Stock option activity under the Company's Award Plan during the year ended December 31, 2022, was as follows:

	Number of Options	Weighted-Average Exercise Price
Outstanding at December 31, 2021	148,535	$ 58.24
Granted	84,476	$ 61.28
Cancelled and expired	(49,836)	$ 66.77
Exercised—intrinsic value $0.3 million; cash received $0.6 million	(15,184)	$ 40.44
Outstanding at December 31, 2022—$0.7 million intrinsic value and 7.3 years weighted-average remaining contractual term	167,991	$ 58.85
Exercisable at December 31, 2022—$0.7 million intrinsic value and 5.7 years weighted-average remaining contractual term	91,351	$ 55.11
Expected to vest—$0.7 million intrinsic value and 6.9 years weighted-average remaining contractual term	144,268	$ 58.29

A summary of the Company's non-vested restricted stock awards as of December 31, 2022 and the changes during the year ended December 31, 2022 are as follows:

Non-vested awards	Shares	Weighted-Average Grant Date Fair Value
Non-vested at December 31, 2021	1,253,321	$ 61.66
Granted	401,036	$ 66.08
Vested	(413,257)	$ 51.63
Forfeited	(77,079)	$ 69.72
Non-vested at December 31, 2022	1,164,021	$ 66.22

The weighted average per share grant date fair value of restricted stock granted was $66.08 in 2022 (0.4 million shares), $64.59 in 2021 (0.5 million shares) and $75.18 in 2020 (0.5 million shares). The fair value was determined using the quoted market price of the Company's common stock on the date of grant. Valuations were obtained to determine the fair value for the shares granted to the Company's CEO that are subject to the total shareholder return of the Company's common stock compared to the total shareholder return of the Nasdaq Telecommunications Index.

Additional Award Plan Information – Related to Stock Options & Restricted Stock (thousands)	Years Ended December 31, 2022	2021	2020
Equity-based compensation expense	$ 24,439	$ 26,822	$ 23,525
Income tax benefit related to stock options and restricted stock	2,489	6,314	4,211
Capitalized compensation expense related to stock options and restricted stock	2,277	3,222	2,275
Intrinsic value of stock options exercised	305	881	841
Fair value of shares of restricted stock vested	25,792	35,749	25,439

As of December 31, 2022, there was $35.3 million of total unrecognized compensation cost related to non-vested equity-based compensation awards. That cost is expected to be recognized over a weighted average period of 2.0 years.

9. Related party transactions:

Office leases

The Company's headquarters is located in an office building owned by Sodium LLC whose owner is the Company's Chief Executive Officer. The fixed annual rent for the headquarters building is $1.0 million per year plus an allocation of taxes and utilities. The lease began in May 2015, and the lease term was for five years. In February 2020, the lease term was extended to May 2025. The lease is cancellable at no cost by the Company upon 60 days' notice. The Company's audit committee reviews and approves all transactions with related parties. The Company paid $1.7 million in 2022, $1.7 million in 2021 and $1.7 million in 2020 for rent and related costs (including taxes and utilities) for this lease.

On January 6, 2023, the Company entered into two lease agreements (the "New Leases"), one with Thorium LLC and one with Germanium LLC, entities owned by the Company's Chief Executive Officer, David Schaeffer. The Company's Audit Committee, which is responsible for reviewing any related party transactions, reviewed and approved the Company's entry into the New Leases.

The first of the New Leases is with Thorium LLC for approximately 54,803 square feet of office space, which will serve as office space for the Company replacing a portion of its current office space in the Northern Virginia area ("Office Lease"). The second of the New Leases is with Germanium LLC for approximately 1,587 square feet of technical space, in the building which will serve as network operations space for the Company ("Network Operations Lease"). The term for each of the New Leases is five years beginning March 1, 2023 (or an actual later date of occupancy). Both of the New Leases are cancellable by the Company without penalty upon 60 days written notice. The amount of fixed annual rent during the term of the Office Lease will be $1.2 million, and the Company is also responsible for paying its proportionate share of the building's operating expenses that exceed a 2023 base year. The amount of fixed annual rent during the term of the Network Operations Lease will be $34,914, and the Company is also responsible for paying its metered utility costs and a proportionate share of the building's other operating expenses that exceed a 2023 base year.

10. Geographic information:

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker in deciding how to allocate resources and in assessing the Company's performance. The Company has one operating segment. Revenues are attributed to regions based on where the services are provided. Below are the Company's service revenues and long lived assets by geographic region (in thousands):

Year Ended December 31, 2022	On-net	Off-net	Non-core	Total
North America	$ 350,256	$ 128,486	$ 619	$ 479,361
Europe	82,451	16,144	49	98,644
Oceania	13,689	1,271	3	14,963
South America	5,656	174	2	5,832
Africa	727	77	—	804
Total	$ 452,779	$ 146,152	$ 673	$ 599,604

Year Ended December 31, 2021	On-net	Off-net	Non-core	Total
North America	$ 340,107	$ 127,383	$ 502	$ 467,992
Europe	87,929	17,729	72	105,730
Oceania	10,197	1,094	1	11,292
South America	4,102	173	1	4,276
Africa	503	4	—	507
Total	$ 442,838	$ 146,383	$ 576	$ 589,797

Year Ended December 31, 2020	On-net	Off-net	Non-core	Total
North America	$ 330,924	$ 129,879	$ 474	$ 461,277
Europe	79,568	17,252	47	96,867
Oceania	6,834	949	—	7,783
South America	2,056	48	—	2,104
Africa	72	—	—	72
Total	$ 419,454	$ 148,128	$ 521	$ 568,103

	December 31, 2022	December 31, 2021
Long lived assets, net		
North America	$ 397,434	$ 331,537
Europe and other	147,005	126,355
Total	$ 544,439	$ 457,892

11. Quarterly financial information (unaudited):

	Three months ended			
	March 31, 2022	June 30, 2022	September 30, 2022	December 31, 2022
	(in thousands, except share and per share amounts)			
Service revenue	$ 149,175	$ 148,450	$ 150,000	$ 151,979
Network operations, including equity-based compensation expense	57,449	56,514	57,220	56,972
Operating income	28,784	29,566	28,095	27,311
Net income (loss) (1)	1,137	11,164	(8,007)	851
Net income (loss) per common share - basic	0.02	0.24	(0.17)	0.02
Net income (loss) per common share - diluted	0.02	0.24	(0.17)	0.02
Weighted-average number of common shares—basic	46,575,848	46,691,142	46,736,742	46,885,512
Weighted-average number of common shares—diluted	46,929,191	47,029,446	46,736,742	47,196,890

	Three months ended			
	March 31, 2021	June 30, 2021	September 30, 2021	December 31, 2021
	(in thousands, except share and per share amounts)			
Service revenue	$ 146,777	$ 147,879	$ 147,927	$ 147,208
Network operations, including equity-based compensation expense	57,092	56,180	56,645	56,418
Operating income	26,291	28,211	28,556	36,165
Net income (loss) (2)	18,851	(2,493)	13,320	18,507
Net income (loss) per common share - basic	0.41	(0.05)	0.29	0.40
Net income (loss) per common share - diluted	0.41	(0.05)	0.28	0.39
Weighted-average number of common shares—basic	46,067,096	46,229,603	46,293,524	46,420,168
Weighted-average number of common shares—diluted	46,507,258	46,229,603	46,866,929	46,992,639

(1) Included in net income for the three months ended March 31, 2022 and June 30, 2022, are unrealized gains on foreign exchange on the 2024 Notes of $8.0 million and $23.5 million, respectively. Included in net income (loss) for the three months ended June 30, 2022, is a loss on debt extinguishment and redemption on the 2024 Notes of $11.9 million. Included in net income (loss) for the three months ended March 31, 2022, June 30, 2022, September 30, 2022 and December 31, 2022 are non-cash charges (benefit) from changes in the valuation of the Swap Agreement of $21.3 million, $7.5 million, $16.9 million and ($2.6) million, respectively.

(2) Included in net income (loss) for the three months ended March 31, 2021, June 30, 2021, September 30, 2021 and December 31, 2021 are unrealized gains (losses) on foreign exchange on the 2024 Notes of $18.9 million, ($5.3) million, $10.2 million and $8.8 million, respectively. Included in net income (loss) for the three months ended March 31, 2021 and June 30, 2021, are losses on debt extinguishment and redemption on the 2022 Notes of $3.9 million and $10.8 million, respectively. Included in net income for the three months ended December 31, 2021 is a gain on lease termination of $7.4 million. Included in net income for the three months ended September 30, 2021 and December 31, 2021 are non-cash charges from changes in the valuation of the Swap Agreement of $3.1 million and $5.9 million, respectively.

12. Subsequent Events:

Dividend

On February 22, 2023, the Company's Board of Directors approved the payment of a quarterly dividend of $0.925 per common share. The dividend for the first quarter of 2023 will be paid to holders of record on March 10, 2023. This estimated $43.3 million dividend payment is expected to be made on March 24, 2023.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports 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, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As required by SEC Rule 13a-15(b), an evaluation was performed under the supervision and with the participation of our management, including our principal executive officer and our principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under Exchange Act) as of the end of the period covered by this report. Based upon that evaluation, our management, including our principal executive officer and our principal financial officer, concluded that the design and operation of these disclosure controls and procedures were effective at the reasonable assurance level.

There has been no change in our internal control over financial reporting during our most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

We are responsible for the preparation and integrity of our published financial statements. The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America and, accordingly, include amounts based on judgments and estimates made by our management. We also prepared the other information included in the annual report and are responsible for its accuracy and consistency with the financial statements.

We are responsible for establishing and maintaining a system of internal control over financial reporting, which is intended to provide reasonable assurance to our management and Board of Directors regarding the reliability of our financial statements. The system includes but is not limited to:

- a documented organizational structure and division of responsibility;
- established policies and procedures, including a code of conduct to foster a strong ethical climate which is communicated throughout the company;
- regular reviews of our financial statements by qualified individuals; and
- the careful selection, training and development of our people.

There are inherent limitations in the effectiveness of any system of internal control, including the possibility of human error and the circumvention or overriding of controls. Also, the effectiveness of an internal control system may change over time. We have implemented a system of internal control that was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles.

As required by Rule 13a-15(d) of the Exchange Act, we have assessed our internal control system in relation to criteria for effective internal control over financial reporting described in "Internal Control—Integrated Framework" issued by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission (2013 Framework). Based upon these criteria, we believe that, as of December 31, 2022, our system of internal control over financial reporting was effective.

The independent registered public accounting firm, Ernst & Young LLP, has audited our 2022 financial statements. Ernst & Young LLP was given unrestricted access to all financial records and related data, including minutes of all meetings of stockholders, the Board of Directors and committees of the Board. Ernst & Young LLP has issued an unqualified report on our 2022 financial statements as a result of the audit and also has issued an unqualified report on our internal control over financial reporting which is attached hereto.

Cogent Communications Holdings, Inc.
February 24, 2023

By: /s/ DAVID SCHAEFFER
David Schaeffer
Chief Executive Officer

Report of Ernst & Young LLP, Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Cogent Communications Holdings, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Cogent Communications Holdings, Inc., and subsidiaries' internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control— Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Cogent Communications Holdings, Inc., and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Cogent Communications Holdings, Inc. and subsidiaries as of December 31, 2022 and 2021, the related consolidated statements of comprehensive (loss) income, shareholders' deficit and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and financial statement schedule listed in the Index at Item 15(a)2 (collectively referred to as the "consolidated financial statements") and our report dated February 24, 2023 expressed an unqualified opinion thereon.

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/ Ernst & Young LLP

Tysons, VA
February 24, 2023

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item 10 is incorporated in this report by reference to the information set forth under the captions entitled “Proposal No. 1- Election of Directors,” “Executive Officers and Significant Employees,” “The Board of Directors and Committees,” and, if applicable, ”Delinquent Section 16(a) Reports” in our Proxy Statement for the 2023 Annual Meeting of Stockholders, which is expected to be filed with the Securities and Exchange Commission within 120 days after the close of our fiscal year (the “2023 Proxy Statement”).

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item 11 is incorporated in this report by reference to the information set forth under the captions entitled “The Board of Directors and Committees,” “Compensation Discussion and Analysis,” “Employment Agreements and Potential Post-Employment Compensation Arrangements,” “Compensation Committee Report” and “Compensation Committee Interlocks and Insider Participation” in the 2023 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item 12 is incorporated in this report by reference to the information set forth under the caption “Security Ownership of Certain Beneficial Owners and Management” and “Securities Authorized for Issuance Under Equity Compensation Plans” in the 2023 Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item 13 is incorporated in this report by reference to the information set forth under the caption “Certain Relationships and Related Transactions” and “The Board of Directors and Committees” in the 2023 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item 14 is incorporated in this report by reference to the information set forth under the caption “Relationship with Independent Registered Public Accountants” in the 2023 Proxy Statement.

PART IV

ITEM 15. EXHIBIT AND FINANCIAL STATEMENT SCHEDULES

(a) 1. Financial Statements. A list of financial statements included herein is set forth in the Index to Financial Statements appearing in "ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA."

2. Financial Statement Schedules. The Financial Statement Schedule described below is filed as part of the report.

Description

Schedule II—Valuation and Qualifying Accounts.

All other financial statement schedules are not required under the relevant instructions or are inapplicable and therefore have been omitted.

(b) Exhibits

2.1 Agreement and Plan of Reorganization, dated as of May 15, 2014, by and among Cogent Communications Group, Inc., Cogent Communications Holdings, Inc. and Merger Sub (previously filed as Exhibit 2.1 to our Current Report on Form 8-K, filed on May 15, 2014, and incorporated herein by reference).

2.2 * Membership Interest Purchase Agreement, dated as of September 6, 2022, by and among Cogent Infrastructure, Inc., Sprint LLC and Sprint Communications LLC (previously filed as Exhibit 2.1 to our Current Report on Form 8-K, filed on September 7, 2022 and incorporated herein by reference). *

3.1 Certificate of Incorporation of Cogent Communications Holdings, Inc. (previously filed as Exhibit 3.1 to our Current Report on Form 8-K, filed on May 15, 2014, and incorporated herein by reference).

3.2 Amended and Restated Bylaws of Cogent Communications Holdings, Inc. (as of May 4, 2022) (previously filed as Exhibit 3.1 to our Current Report on Form 8-K filed on May 4, 2022 and incorporated herein by reference).

4.1 Indenture related to the 4.375% Senior Notes due 2024, dated as of June 25, 2019, among Cogent Communications Group, Inc., the guarantors named therein, Wilmington Trust, National Association, as trustee, Deutsche Bank AG, London Branch, as paying agent, and Deutsche Bank Luxembourg S.A., as authentication agent and registrar (previously filed as Exhibit 4.1 to our Current Report on Form 8-K, filed on June 25, 2019, and incorporated herein by reference).

4.2 Form of 4.375% Senior Notes due 2024 (previously filed as Exhibit A to the Exhibit 4.1 to our Current Report on Form 8-K, filed on June 25, 2019, and incorporated herein by reference).

4.3 First Supplemental Indenture to the Base Indenture, dated as of June 10, 2020, among Cogent Communications Group, Inc., the guarantors named therein and Wilmington Trust, National Association, as trustee (previously filed as Exhibit 4.4 to our Current Report on Form 8-K, filed on June 10, 2020, and incorporated herein by reference).

4.4 Indenture related to the 4.375% Senior Notes due 2024, dated as of June 3, 2020, among Cogent Communications Finance, Inc., Wilmington Trust, National Association, as trustee, Deutsche Bank AG, London Branch, as paying agent, and Deutsche Bank Trust Company Americas, as authentication agent and registrar (previously filed as Exhibit 4.1 to our Current Report on Form 8-K, filed on June 9, 2020, and incorporated herein by reference).

4.5 Form of 4.375% Senior Notes due 2024 (previously filed as Exhibit A to the Exhibit 4.1 to our Current Report on Form 8-K, filed on June 9, 2020, and incorporated herein by reference).

4.6 First Supplemental Indenture to the Temporary Indenture, dated as of June 10, 2020, between Cogent Communications Group, Inc. and Wilmington Trust, National Association, as trustee (previously filed as Exhibit 4.1 to our Current Report on Form 8-K, filed on June 10, 2020, and incorporated herein by reference).

4.7 Description of Securities Registered under Section 12 of the Securities Exchange Act of 1934 (previously filed as Exhibit 4.10 to our Annual Report on Form 10-K for the year ended December 31, 2019, filed on February 28, 2020, and incorporated herein by reference).

4.8 Indenture related to the 3.500% Senior Secured Notes due 2026, dated as of May 7, 2021, among Cogent Communications Group, Inc., the guarantors named therein, and Wilmington Trust, National Association, as trustee and collateral agent (previously filed as Exhibit 4.1 to our Current Report on Form 8-K, filed on May 11, 2021 and incorporated herein by reference).

4.9 Form of 3.500% Senior Secured Notes due 2026 (previously filed as Exhibit A to the Exhibit 4.1 to our Current Report on From 8-K, filed on May 11, 2021 and incorporated herein by reference).

4.10 Indenture related to the 7.000% Senior Notes due 2027, dated as of June 22, 2022, among Cogent Communications Group, Inc., the guarantors named therein, and Wilmington Trust, National Association, as trustee and collateral agent (previously filed as Exhibit 4.1 to our Current Report on Form 8-K, filed on June 22, 2022 and incorporated herein by reference).

4.11 Form of 7.00% Senior Secured Notes due 2027 (previously filed as Exhibit A to the Exhibit 4.1 to our Current Report on From 8-K, filed on June 22, 2022 and incorporated herein by reference).

10.1 ** Dark Fiber IRU Agreement, dated April 14, 2000, between WilTel Communications, Inc. and Cogent Communications, Inc., as amended June 27, 2000, December 11, 2000, January 26, 2001, and February 21, 2001, filed as Exhibit 10.1 to our periodic report on Form 10-Q filed on May 5, 2022 and incorporated herein by reference. **

10.2 David Schaeffer Employment Agreement with Cogent Communications Group, Inc., dated February 7, 2000 (previously filed as Exhibit 10.6 to our Registration Statement on Form S-4, Commission File No. 333-71684, filed on October 16, 2001, and incorporated herein by reference).

10.3 Timothy G. O'Neill Employment Agreement with Cogent Communications Group, Inc., dated as of September 25, 2003 (previously filed as Exhibit 10.29 to our Annual Report on Form 10-K, filed on February 27, 2012, and incorporated herein by reference).

10.4 Brad Kummer Employment Agreement with Cogent Communications Group, Inc., dated January 11, 2000, (previously filed as Exhibit 10.23 to our Registration Statement on Form S-1, Commission File No. 333-122821, filed on February 14, 2005, and incorporated herein by reference).

10.5 David Schaeffer Amendment No. 2 to Employment Agreement with Cogent Communications Group, Inc., dated as of March 12, 2007 (previously filed as Exhibit 10.26 to our Annual Report on Form 10-K, filed on March 14, 2007, and incorporated herein by reference).

10.6 Amendment No. 3 to Employment Agreement of Dave Schaeffer, dated as of August 7, 2007 (previously filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q, filed on August 8, 2007, and incorporated herein by reference).

10.7 Amendment No. 4 to Employment Agreement of Dave Schaeffer, dated as of February 26, 2010 (previously filed as Exhibit 10.25 to our Annual Report on Form 10-K, filed on March 1, 2010, and incorporated herein by reference).

10.8 Amendment No. 5 to Employment Agreement of Dave Schaeffer, dated April 7, 2010 (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on April 7, 2010, and incorporated herein by reference).

10.9 Cogent Communications Holdings, Inc. 2004 Incentive Award Plan (as amended through April 17, 2014) (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed April 18, 2014, and incorporated herein by reference).

10.10 Assignment and Assumption Agreement, dated as of May 15, 2014, by and between Cogent Communications Group, Inc. and Cogent Communications Holdings, Inc. assuming the obligations of the 2004 Incentive Award Plan (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on May 15, 2014, and incorporated herein by reference).

10.11 Amendment No. 6 to Employment Agreement of Dave Schaeffer, dated August 6, 2014 (previously filed as Exhibit 10.4 to our Quarterly Report on Form 10-Q, filed on August 7, 2014, and incorporated herein by reference).

10.12 Lease Agreement, dated April 16, 2015, between Sodium LLC and Cogent Communications, Inc. (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on April 17, 2015, and incorporated herein by reference).

10.13 First Amendment to Lease Agreement, dated February 28, 2020, between Sodium LLC and Cogent Communications, Inc. (previously filed as Exhibit 10.2 to our Current Report on Form 8-K, filed on March 2, 2020, and incorporated herein by reference).

10.14 Restricted Stock Award, dated as of May 3, 2017, between the Company and David Schaeffer (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on May 3, 2017, and incorporated herein by reference).

10.15 Form of Restricted Stock Award, dated as of May 3, 2017, between the Company and the Vice President named executive officers (previously filed as Exhibit 10.2 to our Current Report on Form 8-K, filed on May 3, 2017, and incorporated herein by reference).

10.16 Amendment No. 7 to Employment Agreement of David Schaeffer, dated November 17, 2017 (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on November 20, 2017, and incorporated herein by reference).

10.17 Amended and Restated Cogent Communications Holdings, Inc. 2017 Incentive Award Plan (previously filed as Appendix A to the Company's Definitive Proxy Statement on Schedule 14A filed March 15, 2019, and incorporated herein by reference).

10.18 First Amendment to Cogent Communications Holdings, Inc. 2018 Incentive Award Plan (previously filed as Appendix B of the Company's Definitive Proxy Statement on Schedule 14A filed March 15, 2019, and incorporated herein by reference).

10.19 Amendment No. 8 to Employment Agreement of David Schaeffer, dated February 14, 2020 (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on February 19, 2020, and incorporated herein by reference).

10.20 Restricted Stock Award, dated as of February 14, 2020, between the Company and David Schaeffer (previously filed as Exhibit 10.2 to our Current Report on Form 8-K, filed on February 19, 2020, and incorporated herein by reference).

10.21 Employment Letter between the Company and Sean Wallace, effective April 22, 2020 (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on May 11, 2020, and incorporated herein by reference).

10.22 Restricted Stock Award, dated May 11, 2020, between the Company and Sean Wallace (previously filed as Exhibit 10.2 to our Current Report on Form 8-K, filed on May 11, 2020, and incorporated herein by reference).

10.23 Severance Agreement, dated May 11, 2020, between the Company and Sean Wallace (previously filed as Exhibit 10.3 to our Current Report on Form 8-K, filed on May 11, 2020, and incorporated herein by reference).

10.24 Restricted Stock Award, dated as of February 24, 2021, between the Company and David Schaeffer (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on February 26, 2021, and incorporated herein by reference).

10.25 John Chang Severance Agreement with Cogent Communications, Inc., dated December 18, 2012 (previously filed as Exhibit 10.25 to our Annual Report on Form 10-K filed on February 25, 2022, and incorporated herein by reference).

10.26 Raymond B. "Brad" Kummer Severance Agreement with Cogent Communications, Inc., dated September 25, 2003 (previously filed as Exhibit 10.26 to our Annual Report on Form 10-K filed on February 25, 2022, and incorporated herein by reference).

10.27 Henry Kilmer Severance Agreement with Cogent Communications, Inc., dated March 13, 2012 (filed herewith).

10.28 Lease Agreement (office space), dated January 6, 2023, between Thorium LLC and Cogent Communications, Inc. for offices at 198 Van Buren Street, Herndon, VA (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on January 11, 2023 and incorporated herein by reference).

10.29 Lease Agreement (network operations), dated January 6, 2023, between Germanium LLC and Cogent Communications, Inc. for technical space at 196 Van Buren Street, Herndon, VA (previously filed as Exhibit 10.2 to our Current Report on Form 8-K, filed on January 11, 2023 and incorporated herein by reference)..

10.30 Guaranty, dated as of September 6, 2022, by and between Cogent Communications Holdings, Inc. and Sprint LLC (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on September 7, 2022 and incorporated herein by reference).

10.31 Restricted Stock Award, dated as of January 3, 2022, between the Company and David Schaeffer (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on January 5, 2022, and incorporated herein by reference).

10.32 Restricted Stock Award, dated as of May 4, 2022, between the Company and Thaddeus G. Weed (previously filed as Exhibit 10.1 to our Current Report on Form 8-K, filed on May 5, 2022 and incorporated herein by reference).

21.1 Subsidiaries (filed herewith)

23.1 Consent of Ernst & Young LLP (filed herewith)

31.1 Certification of Chief Executive Officer (filed herewith)

31.2 Certification of Chief Financial Officer (filed herewith)

32.1 Certification of Chief Executive Officer (furnished herewith)

32.2 Certification of Chief Financial Officer (furnished herewith)

99.1 Policy Against Excise Tax Gross-ups on "Golden Parachute" Payments, with effect from April 7, 2010 (previously filed as Exhibit 99.1 to our Current Report on Form 8-K, filed on April 7, 2010, and incorporated herein by reference).

101	The following materials from the Annual Report on Form 10-K of Cogent Communications Group, Inc. for the year ended December 31, 2022, formatted in iXBRL (Inline eXtensible Business Reporting Language); (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Comprehensive Income, (iii) Consolidated Statements of Changes in Stockholders' Equity (Deficit), (iv) Consolidated Statements of Cash Flows and (v) Notes to Consolidated Financial Statements.
104	Cover Page Interactive Data File (the cover page XBRL tags are embedded within the iXBRL document).

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* In accordance with Item 601(a)(5) of Regulation S-K, certain schedules (or similar attachments) to this exhibit have been omitted. The Company will provide a copy of any omitted schedule to the Securities and Exchange Commission or its Staff upon request.

** Confidential treatment requested and obtained as to certain portions. Portions have been omitted pursuant to this request where indicated by an asterisk.

Schedule II
COGENT COMMUNICATIONS HOLDINGS, INC. AND SUBSIDIARIES
VALUATION AND QUALIFYING ACCOUNTS
(in thousands)

Description	Balance at Beginning of Period	Charged to Costs and Expenses	(Deductions)	Balance at End of Period
Deferred tax valuation allowance				
Year ended December 31, 2020	$ 131,069	$ 20,599	$ (1,079)	$ 150,589
Year ended December 31, 2021	$ 150,589	$ 4,918	$ (22,707)	$ 132,800
Year ended December 31, 2022	$ 132,800	$ 16,583	$ (8,488)	$ 140,895

ITEM 16. FORM 10-K SUMMARY

None

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

COGENT COMMUNICATIONS HOLDINGS, INC.

Dated: February 24, 2023

By: /s/ DAVID SCHAEFFER
Name: David Schaeffer
Title: *Chairman and Chief Executive Officer*

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

Signature	Title	Date
/s/ DAVID SCHAEFFER David Schaeffer	Chairman and Chief Executive Officer (Principal Executive Officer)	February 24, 2023
/s/ THADDEUS WEED Thaddeus Weed	Vice President, Chief Financial Officer and Treasurer (Principal Financial and Principal Accounting Officer)	February 24, 2023
/s/ PAUL DE SA Paul De Sa	Director	February 24, 2023
/s/ STEVEN BROOKS Steven Brooks	Director	February 24, 2023
/s/ SHERYL KENNEDY Sheryl Kennedy	Director	February 24, 2023
/s/ DAVID BLAKE BATH David Blake Bath	Director	February 24, 2023
/s/ MARC MONTAGNER Marc Montagner	Director	February 24, 2023
/s/ LEWIS H. FERGUSON III Lewis H. Ferguson III	Director	February 24, 2023
/s/ DENEEN HOWELL Deneen Howell	Director	February 24, 2023
/s/ EVE HOWARD Eve Howard	Director	February 24, 2023

Our Products

Brilliantly Fast, Elegantly Simple

Internet

Dedicated Internet Access
IP Transit
Global Peer Connect

Because the Internet is the only network that matters

VPN

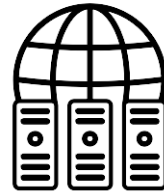
Ethernet Services
SD-WAN

Build your company's private network on top of Cogent's

Transport

Optical Wavelengths

Optical infrastructure to move your data



Colocation

Cogent Data Centers
Utility Computing

Tailor your own private cloud to your needs

Directors and Officers of Cogent Communications Holdings, Inc.

Directors

Dave Schaeffer
Chairman and Chief Executive Officer, Cogent

Marc Montagner
Lead Independent Director, Cogent

D. Blake Bath
Private Investor

Steven Brooks
Private Investor

Paul de Sa
Partner, Quadra Partners

Lewis Ferguson
Former Board Member, Public Company Accounting Oversight Board

Eve Howard
Partner, Hogan Lovells

Deneen Howell
Attorney, Private Practice

Sheryl Kennedy
Director, Private Debt Partners, Inc. and Director CLS Group Holdings AG

Executive Officers

Dave Schaeffer
Chairman and Chief Executive Officer, Cogent

Thaddeus Weed
Chief Financial Officer

James Bubeck
Chief Revenue Officer

John Chang
Chief Legal Officer

Henry Kilmer
Vice President, IP Engineering

David Kapp
Vice President of Optical Transport Engineering and Chief Technology Officer

cogent