CIENA CORP
Form 10-K
December 20, 2013
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(Mark One)

þ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended October 31, 2013

OR

o 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 0-21969
Ciena Corporation
(Exact name of registrant as specified in its charter)

Delaware	23-2725311
(State or other jurisdiction of Incorporation or organization)	(I.R.S. Employer Identification No.)
7035 Ridge Road, Hanover, MD	21076
(Address of principal executive offices)	(Zip Code)

(410) 694-5700
(Registrant's telephone number, including area code)

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value	The NASDAQ Stock 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 þ NO o

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 o NO þ

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 þ NO o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.4-5 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES þ NO o

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

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

Accelerated filer o Non-accelerated filer o

Large accelerated filer		Smaller reporting company
þ		o
	(Do not check if a smaller reporting company)	

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act) YES o NO þ

The aggregate market value of the Registrant's Common Stock held by non-affiliates of the Registrant was approximately $1.1 billion based on the closing price of the Common Stock on the NASDAQ Global Select Market on May 1, 2013.

The number of shares of Registrant's Common Stock outstanding as of December 12, 2013 was 103,708,240.

DOCUMENTS INCORPORATED BY REFERENCE

Part III of the Form 10-K incorporates by reference certain portions of the Registrant's definitive proxy statement for its 2014 Annual Meeting of Stockholders to be filed with the Commission not later than 120 days after the end of the fiscal year covered by this report.

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CIENA CORPORATION
ANNUAL REPORT ON FORM 10-K
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PART I

The information in this annual report contains certain forward-looking statements, including statements related to our business prospects and strategies, the markets for our products and services, and trends in our business and markets that involve risks and uncertainties. Our actual results may differ materially from the results discussed in these forward-looking statements. Factors that might cause such a difference include those discussed in “Business,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and elsewhere in this annual report.

Item 1. Business

Overview

We are a network specialist focused on networking solutions that enable converged, next-generation architectures, optimized to handle the broad array of high-bandwidth communications services relied upon by business and consumer end users. We provide equipment, software and services that support the transport, switching, aggregation, service delivery and management of voice, video and data traffic on communications networks.

Our Converged Packet Optical, Packet Networking, Optical Transport and Software products are used, individually or as part of an integrated, programmable solution, in networks operated by communications service providers, cable operators, governments, enterprises, research and education institutions, content service providers and other network operators across the globe. Our products allow network operators to scale capacity, increase transmission speeds, allocate network traffic and deliver services to end users. Our network solutions also include an integrated software suite that provides network and service management capabilities that unify our product portfolio, facilitating automation and software-defined programmability to enable efficient service delivery. To complement our product portfolio, we offer a broad range of Network Transformation Solutions and related support services that help our customers design, optimize, deploy, manage and maintain their networks. We believe that the close, collaborative partnership with customers enabled by our engagement model and services offering is an important component of our network specialist approach and a significant differentiator for Ciena with our customers.

Rapid proliferation of and reliance by end users upon communications services and devices, increased mobility and growth in cloud-based services have fundamentally affected the demands placed upon communications networks and how they are designed. Network operators face a challenging and rapidly changing environment that requires that their network infrastructures be robust enough to address increasing capacity needs and be flexible enough to adapt to new application and service offerings. Network operators are competing to distinguish their service offerings to end users and generate revenue, while managing the costs required to implement and maintain their networks. To address these business, infrastructure and service delivery challenges, we believe network operators need a flexible infrastructure that can be adapted to support a variety of applications and controlled through the use of software.

Our OP^n Architecture is designed to meet these challenges by providing increased scalability and programmability, as well as network-level software applications to control and configure the network dynamically. Through this network approach, we seek to enable high-capacity, configurable infrastructures that can adapt to the changing needs of end-users and the applications that they require, while providing flexible interfaces for the integration of computing, storage and network resources. By increasing network flexibility for service delivery, reducing required network elements and enabling increased scale at reduced cost, our solutions simplify networks. At the same time, our approach facilitates the creation of new service offerings, creating business and operational value for our customers. Our OP^n Architecture, which underpins our solutions offering and guides our research and development strategy, is described more fully in “Strategy” below.

Certain Financial Information and Segment Data

We generated revenue of $2.1 billion in fiscal 2013, as compared to $1.8 billion in fiscal 2012. For more information regarding our results of operations, see “Management's Discussion and Analysis of Financial Condition and Results of Operations” in Item 7 of Part II of this annual report. During the first quarter of fiscal 2013, Ciena reorganized its internal organization structure and the management of its business into new operating segments. See Note 18 to the Consolidated Financial Statements found in Item 8 of Part II of this annual report. As a result of this reorganization, our operations are currently organized into four separate operating segments: “Converged Packet Optical,” “Packet Networking,” “Optical Transport,” and “Software and Services.”

The matters discussed in this “Business” section should be read in conjunction with the Consolidated Financial Statements found in Item 8 of Part II of this annual report, which include additional financial information about our operating segments, total assets, revenue, measures of profit and loss, and financial information about geographic areas and customers representing greater than 10% of revenue.

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Corporate Information and Access to SEC Reports

We were incorporated in Delaware in November 1992 and completed our initial public offering on February 7, 1997. Our principal executive offices are located at 7035 Ridge Road, Hanover, Maryland 21076. Our telephone number is (410) 694-5700, and our website address is www.ciena.com. We make our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports, available free of charge in the "Investors" section of our website as soon as reasonably practicable after we file these reports with the Securities and Exchange Commission (the "SEC"). We routinely post the reports above, recent news and announcements, financial results and other important information about our business on our website at www.ciena.com. Information contained on our website is not a part of this annual report.

On December 12, 2013 we announced our intention to transfer the listing of our common stock from the NASDAQ Global Select Market to the New York Stock Exchange, effective on or about December 23, 2013. Ciena common stock will continue to trade under the stock symbol “CIEN.”

Industry Background

The markets in which we sell our communications networking solutions have been subject to significant changes in recent years, including rapid growth in network traffic, increased mobility, expanded service offerings, and evolving end user demands. These conditions have created market opportunities and business challenges, and they have changed competitive landscapes for Ciena and its customers. Existing and emerging network operators are competing to distinguish their service offerings and rapidly introduce differentiated, revenue-generating services. At the same time, network operators continue to seek to manage network expense and operate their businesses profitably. These dynamics are driving technology convergence of network features, functions and layers, virtualization of certain network functions, and increasing demand for software-based network programmability. We believe these market dynamics will cause network operators to adopt communications network infrastructures that are increasingly more automated, robust and configurable.

Network Traffic Growth Driving Increased Capacity Requirements and Transmission Speeds

Optical networks, which carry voice, video and data traffic using multiple wavelengths of light across fiber optic cables, have experienced a multi-year period of strong traffic growth, and industry analysts project continued growth for the foreseeable future. Increasing network traffic is being driven by growing use of, and reliance upon, a broad range of communications services by consumer and business end users, as well as the expansion of bandwidth-intensive wireline and wireless services. Mobile applications, including Internet, video and data services from the proliferation of smartphones, tablets and other wireless devices are further increasing network traffic. Business customers seeking to improve automation and productivity are increasingly dependent upon bandwidth-intensive communications services that facilitate global operations, employee mobility and seamless access to critical business applications and data. Enterprise technology trends such as virtualization, cloud computing and machine-to-machine connections are placing new capacity requirements on networks. At the same time, an increasing portion of network traffic is being driven by growth of consumer-oriented applications and adoption of mobile and broadband technologies. These include peer-to-peer Internet applications, video services, multimedia downloads, cloud-based consumer services and online gaming. We believe that this traffic growth will require that network operators add capacity or transition to higher capacity networks with increased transmission speeds.

Multiservice Traffic and Transition to Software-Defined Programmable Network Architectures

We expect that the broadening mix of high-bandwidth, data and video communications services will require upgrades to existing network infrastructures, including wireless and wireline networks. We believe that this mix of high-bandwidth and latency-sensitive data traffic, and an increased focus on controlling network costs, are driving a transition from multiple, purpose-built and disparate SONET/SDH-based networks to a more efficient, converged, multi-purpose packet-optical network architecture. The industry has previously experienced such network technology transitions, and these upgrade and investment cycles tend to happen over multi-year periods. For instance, from the mid 1980s to the mid 1990s, service providers focused network upgrades on the transition required to digitize voice traffic. From the mid 1990s to the mid 2000s, service providers focused network upgrades on the transition to SONET/SDH networks designed to reliably handle substantially more network traffic. We believe that the industry is currently experiencing a network transition to flexible, multi-purpose OTN/Ethernet packet-based network architectures that more efficiently handle a growing mix of high-bandwidth communications services and a greater concentration of data traffic.

Drivers for Network Transformation

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We believe the following areas are illustrative of the significant transition in the services, applications and performance required from today's networks, and we believe that transition will fundamentally change how communications networks are designed and managed.

- Mobility. The emergence of smart mobile devices and tablets that deliver integrated voice, audio, photo, video, email and mobile Internet capabilities is rapidly changing the service type and magnitude of data traffic carried by wireless networks. The increase in availability and improved ease of use of mobile web-based applications expands the reach of virtualized services beyond a wireline connection. For instance, consumer-driven video and gaming are being virtualized, allowing broad access, regardless of the device or the network used. Because most wireless traffic ultimately travels over a wireline network in order to reach its destination, growth in mobile communications continues to place demands upon wireline networks.

- “Cloud” Services. Cloud services are characterized by the sharing of computing, storage and network resources to improve economics through higher utilization of networked elements. IT and network service providers are centralizing these resources in order to offer usage-based and metered services that are hosted remotely across a network. Prevalent cloud-based services include Platform as a Service (PaaS), Software as a Service (SaaS) and Infrastructure as a Service (IaaS). As a result, smaller enterprises and consumers can subscribe to an expanding range of cloud services to replace local computing and storage requirements. Larger enterprises and data center operators may use private clouds to consolidate their own resources and public clouds to accommodate peak demand situations, sometimes in combination. Today, infrastructures exist to dynamically allocate centralized storage and computing resources. As a result, network architectures must be capable of adapting in real time to changing capacity requirements and locations.

- Network Virtualization. Virtualization is the process of decoupling physical IT or communications assets from the logical services or capabilities they can provide. This approach has many appealing attributes, such as minimizing expensive resources while adding flexibility and scale. The virtualization of computing, storage and network resources elevates the value of connectivity and drives demand for network infrastructures that offer greater programmability, scale, and flexibility. Now, these virtualization principles are being applied to communications networks. Network operators are seeking to virtualize costly, single-function or dedicated network appliances, such as firewalls and WAN-accelerators, by deploying their functionality on centralized, generic servers. Consequently, fewer devices are needed and those devices can be reconfigured to serve a variety of network functions.

- Machine-to-Machine (M2M) Applications. In the past, communications services largely related to the connection of locations. With the growth of and increasing reliance upon mobile applications, this model has shifted to connectivity of people-to-people or people-to-content. As the number of networked connections between devices and servers grows, M2M-related traffic is expected to represent an increasing portion of Internet traffic. Today, we are beginning to see growth in device-to-device connection requirements. In addition to increasing network capacity requirements, this trend also dramatically increases the complexity of connectivity and the number of connections the network must accommodate and manage. These connections provide value-added services and allow users to share data that can be monitored and analyzed by applications residing on various devices. We expect service traffic relating to the interconnection of machines or devices to grow as Internet and cloud content delivery, smartgrid applications, health care and safety monitoring, resource/inventory management, home entertainment, consumer appliances and other mobile data applications become more widely adopted.

Strategy

We believe that the shift that is underway in network architectures to next-generation, converged infrastructures represents significant, long-term opportunities for our business. We believe that market trends underlying this shift, including the proliferation of devices running mobile web applications, the prevalence of video applications, the

increase in machine-to-machine connections, and the shift of enterprise and consumer applications to cloud-based or virtualized network environments, are indicative of increasing use and dependence by consumers and enterprises upon a growing variety of broadband applications and services. We expect that these services will continue to require network operators to invest in converged next-generation network infrastructures that are more automated, open and software programmable.

Our corporate strategy to capitalize on these market dynamics, promote operational efficiency and drive profitable growth of our business includes the following initiatives:

Promotion of our OP^{n} Architecture for Next-Generation Networks. The services and applications running on communications networks require that more of the traffic on these networks be packet-oriented. The traditional approach to this

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problem has been to add IP routing capability at many points of intersection in the network. As capacity needs grow, this approach becomes unnecessarily complex and costly. We reduce the cost and complexity of growing networks with a programmable infrastructure that brings together the reliability and capacity of optical networking with the flexibility and economics of packet networking technologies. Combining these attributes with network level applications creates an approach we call our "OP^n Architecture". Our OP^n Architecture leverages the convergence of optical and packet networking to enable network scale, applies advanced control plane software for network programmability, and enables cloud-level applications to integrate and optimize network resources — along with computing and storage resources — in a virtualized environment. The software-driven aspects of this architecture become increasingly important as our service provider customers seek to rapidly create new, differentiated services based on next-generation architectures. We intend to promote the scalability, programmability, flexibility and cost-effectiveness attributes of our OP^n Architecture, and we see opportunities in offering a portfolio of carrier-class solutions that facilitates the transition to converged, next-generation networks.

Alignment of Research and Development Investment with Growth Opportunities. We seek to ensure that our product development initiatives and investments are closely aligned with our market growth opportunities, shifts in network architectures and the changing dynamics faced by network operators. We are investing in our OP^n Architecture with current development efforts focused on expanding packet capabilities in our Packet Networking and Converged Packet Optical products for metro and service aggregation applications and on optimizing our core network solutions for application in metro networks. Our research and development efforts seek to extend and converge our existing technologies, including our WaveLogic coherent optical processor for 40G and 100G optical transport, and introduce 400G and greater transmission speeds. In the packet area, we are increasing the scale and capability of our packet offerings and integrating standards-based open control interfaces. In the software area, we are enhancing our network management and planning applications. We are also focusing on initiatives to increase software-defined programmability and control of networks and to develop network-level software applications that configure networks and support new service introduction.

Evolution of our Go-to-Market Model. We seek to evolve our go-to-market sales model, from both coverage and engagement perspectives.

Coverage. Through direct sales resources as well as our strategic channel relationships, our coverage model is focused on penetrating high-growth geographic markets, selling into key customer segments and addressing additional network applications with our solutions. We seek to enhance our brand internationally, expand our geographic reach and increase market share in international markets, including Brazil, the Middle East, Russia, Japan and India. We intend to pursue opportunities to diversify our customer base beyond our traditional customers. We are expanding our sales efforts to: capture opportunities arising from enterprise migration to, and increased reliance upon, cloud-based services; build upon our reputation with government agencies and research and educational institutions as a trusted network equipment supplier; and target content service providers and other network operators emerging as a result of network modernization drivers and the adoption of new communication services. We seek to expand the application of our solutions, including metro aggregation and submarine networks, and in support of cloud-based services, business Ethernet services and mobile backhaul. We intend to pursue selling initiatives and strategic channel opportunities, including relationships with key resellers. We also intend to sell into enterprise end users through our service provider customers, systems integrators and value-added resellers.

Engagement. Our strategy is to leverage our close, collaborative relationships with customers in the design, development, implementation and support of their networks and to promote a close alignment of our solutions with customer network priorities. We believe that this engagement model is a key differentiator for our business and provides us with unique insight into the business and network needs of our customers. We seek to expand our Network Transformation Solutions offering to address the network modernization and service delivery demands of our customers, as well as their desire to derive additional value from their network infrastructures. We believe this

services-oriented solutions offering shifts our value proposition beyond the sale of our next-generation communications networking equipment and allows us to play a key role in the design and evolution of our customers' networks to support their strategic business objectives. By understanding our customers' infrastructure and business needs, and the evolving markets in which they compete, we believe our engagement approach creates additional business and operational value for our customers.

Business optimization to yield operating leverage. We seek to improve the operational efficiencies in our business and gain additional operating leverage. We are focused on the transformation and redesign of certain business processes, systems, and resources. These initiatives include additional investments, re-engineering and automation of certain key business processes, including the engagement of strategic partners or resources to assist with select business functions. In addition, we are focused on optimizing our supply chain, including efforts to reduce our material and overhead costs in an effort to increase efficiency and reduce the cost to produce our product solutions. These initiatives include portfolio and process optimization, reducing our

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fulfillment, shipping and logistics expense, and identifying ways to drive improved efficiencies in the design and development of our solutions. We seek to leverage these opportunities to promote the profitable growth of our business.

Customers and Markets

Our customer base, and the geographic markets and customer segments into which we sell our products and services, have expanded in recent years. As a result of the industry dynamics discussed above, additional network operators supporting new communications services and applications continue to emerge. The network infrastructure needs of our customers vary, depending upon their size, location, the nature of their end users and the services that they deliver and support. We sell our product and service solutions through our direct sales force and third party channel partners to end user network operators in the following customer segments.

Communications Service Providers

Our service provider customers include regional, national and international wireline and wireless carriers, as well as service provider consortia offering services over submarine networks. Our customers include AAPT, Allstream, AT&T, Australia Japan Cable, Bell Canada, BT, Cable & Wireless, CenturyLink, France Telecom, Japan-US Cable, Korea Telecom, PLDT, Rascom, Reliance, SEA-ME-WE 4, SingTel, Southern Cross, Sprint, Tata Communications, Telefonica, Telmex, Telus, Verizon, Vimpelcom, Vodafone and XO Communications. Communications service providers are our historical customer base and continue to represent a significant majority of our revenue. We provide service providers with products from the wireline network core to its edge where end users gain access. Our service provider solutions address growing bandwidth demand from multiservice traffic growth and support key service provider offerings, including carrier-managed services, wide area network ("WAN") consolidation, data center and inter-site connectivity, wireless backhaul and business Ethernet services.

Cable & Multiservice Operators (MSO)

Our customers include leading cable and multiservice operators in the United States and internationally. These customers include Comcast, Cox, RCN, Rogers, Time Warner Cable and Virgin Media. Our cable and multiservice operator customers rely upon us for carrier-grade, Ethernet transport and switching products and high-capacity coherent optical transport. Our platforms allow cable operators to integrate voice, video and data applications over a converged infrastructure and to scale their networking infrastructure to keep ahead of the bandwidth and application demands of their subscribers. Our products support key cable applications including business Ethernet services, wireless backhaul, broadcast and digital video, voice over IP, and video on demand.

Enterprise

Our enterprise customers include large, multi-site commercial organizations, including participants in the financial, health care, transportation, utilities and retail industries. Our solutions enable enterprises to leverage network resources to achieve operational improvements, increased automation and information technology cost reductions. Our products enable inter-site connectivity between data centers, sales offices, manufacturing plants, retail stores and research and development centers, using an owned or leased private fiber network or a carrier-managed service. Our products facilitate key enterprise applications including IT virtualization, cloud computing, business Ethernet services, business continuity, online collaboration, video conferencing, low latency networking and WAN encryption. Our products also enable our enterprise customers to prevent unexpected network downtime and ensure the safety, security and availability of their data.

Content Service Providers

Our customers include global providers of a diverse range of Internet content services and applications such as search, social media, video, real-time communications and cloud-based offerings to consumers and enterprises. Our customers require massive scale, low latency, reliability and performance to interconnect critical data centers and connect end-users to network resources and content. Our customers leverage high-capacity coherent optics, packet switching, automated service provisioning and software-based network control to deliver flexible, high-performance connectivity services on demand in a virtualized network environment.

Government, Research and Education

Our government customers include federal and state agencies in the United States as well as international government entities. Our government and research and education customers seek to take advantage of technology innovation, improve their information infrastructure and facilitate increased collaboration. Our solutions feature ultra-high capacity and service flexibility

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to meet the requirements of supercomputing systems. Our solutions offering promotes network assurance, security and reliability while improving network performance, capacity and flexibility. We collaborate with leading institutions to provide government, research and education communities with optimized networks that minimize cost and complexity, through initiatives that support intelligent control plane technologies, interoperability and scalability.

Products and Services

Our product portfolio consists of our Converged Packet Optical, Packet Networking and Optical Transport products. Our network solutions also include an integrated software suite, which provides network management capabilities that unify our product portfolio and provide automation, software-defined programmability and management features that enable efficient service delivery. These products, together with our network transformation solutions and support services offerings, allow us to offer customers comprehensive solutions to address their communications network priorities.

Converged Packet Optical

Our Converged Packet Optical portfolio includes networking solutions optimized for the convergence of coherent optical transport, OTN switching and packet switching.

Utilizing our coherent 40G and 100G optical transport technology, our 6500 Packet-Optical Platform provides a flexible, scalable dense wavelength division multiplexing (DWDM) solution that adds capacity to core, regional and metro networks and enables efficient transport at high transmission speeds. Our 6500 Packet-Optical Platform features our WaveLogic coherent optical processors. Our third generation of this custom silicon chipset facilitates deployment over existing fiber plant (terrestrial and submarine), scales capacity to 40G, 100G and greater transmission speeds, and minimizes the need for certain network equipment, such as amplifiers, regenerators and dispersion compensating devices. Our 6500 Packet-Optical Platform also includes certain integrated switching elements, addressing market demand for converged network features, functions and layers to drive more robust and cost-effective network infrastructures. This platform — which includes several chassis sizes and a comprehensive set of line cards — can be utilized from the customer premises, where space and power are limited, to the metropolitan/regional core, where the need for high capacity and carrier-class performance is essential.

Our Converged Packet Optical portfolio also includes products that provide packet switching capability to allocate network capacity efficiently and enable rapid service delivery. Our 5430 Reconfigurable Switching System includes a family of multi-terabit reconfigurable switching systems that utilize intelligent mesh networking to provide resiliency and feature an integrated optical control plane to automate the provisioning and bandwidth control of high-capacity services. These platforms flexibly support a mix of Carrier Ethernet/MPLS, OTN, WDM, and SONET/SDH switching to facilitate the transition to a service-enabling infrastructure. Our CoreDirector® Multiservice Optical Switch and 5430 Reconfigurable Switching System offer multiservice, multi-protocol switching systems that consolidate the functionality of an add/drop multiplexer, digital cross-connect and packet switch into a single, high-capacity intelligent switching system. These products address both core and metro segments of communications networks and support key managed services, including Ethernet/TDM Private Line and IP services.

Packet Networking

Our Packet Networking products allow customers to utilize the automation and capacity created by our Converged Packet Optical products in core and metro networks and to deliver new, revenue-generating services to consumers and enterprises. These products have applications from the edge of metro and core networks, where they aggregate traffic, to the access tiers of networks where they can be deployed to support wireless backhaul infrastructures and deliver business data services. As a key element of our OP^{n} Architecture, our Packet Networking products facilitate network

simplicity and cost effectiveness, including reduced costs associated with power and space, as compared to traditional IP routing network designs. Our Packet Networking products also enable a flexible and open architecture that reduces the complexity of growing networks and adding services.

Our Packet Networking products principally include our 3000 family of service delivery switches and service aggregation switches, the 5000 series of service aggregation switches, and our Ethernet packet configuration for the 5410 Service Aggregation Switch. These products support the access and aggregation tiers of communications networks and have principally been deployed to support wireless backhaul infrastructures and business data services. Employing sophisticated, carrier-grade Ethernet switching technology, these products deliver "quality of service" capabilities, virtual local area networking and switching functions, and carrier-grade operations, administration, and maintenance features. This segment also includes stand-alone broadband products that transition voice networks to support Internet-based telephony, video services and DSL.

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Our Packet Networking products utilize our Service-Aware Operating System ("SAOS") in conjunction with our network management software suite to reduce customer operating expense and accelerate network operators' time-to-revenue for business, mobile and consumer data services. We have also integrated key features and attributes of SAOS on our Converged Packet-Optical products to ensure seamless service delivery and operations between our Packet Networking and Converged Packet-Optical portfolios.

Optical Transport

Our Optical Transport products include stand-alone WDM and SONET/SDH-based optical transport solutions that add capacity to core, regional and metro networks and enable cost-effective and efficient transport of voice, video and data traffic at high transmission speeds. The products in this segment principally include the 4200 Advanced Services Platform, Corestream® Agility Optical Transport System, 5100/5200 Advanced Services Platform, Common Photonic Layer (CPL), and 6100 Multiservice Optical Platform. Our Optical Transport portfolio includes our traditional SONET/SDH transport and data networking products, as well as certain enterprise-oriented transport solutions that support storage and LAN extension, interconnection of data centers, and virtual private networks.

Software and Services

Network Management and Network Control Software

Our integrated software offering includes our OneControl Unified Management System, an integrated network and service management software that unifies our product portfolio, provides automated management features and enables efficient service delivery. Our network management tools offer a comprehensive set of functions, from monitoring network performance and provisioning the network, to full service level management across a variety of network layers and domains. These software solutions can track individual services across multiple product suites, facilitating planned network maintenance, outage detection and identification of customers or services affected by network performance. Our integrated software suite is a robust, service aware framework that improves network utilization and availability, while delivering enhanced performance monitoring and reliability. By increasing network automation, minimizing network downtime and monitoring network performance and service metrics, our software tools enable customers to improve cost effectiveness, while increasing the performance and functionality of their network operations. This software suite also includes Ciena OnePlanner, a suite of planning tools that helps network operators utilize their networks more efficiently, and our ON-Center® Network & Service Management Suite, Ethernet Services Manager, Optical Suite Release and network level applications.

Network Transformation Solutions and Support Services

To complement our product portfolio, we offer a broad range of consulting and support services that help our customers design, optimize, deploy, manage and maintain their communications networks. We believe that our broad set of service offerings is an important component of our network specialist approach and a significant differentiator from our competitors. We believe that our services offering and our close collaborative engagement with customers provide us with valued insight into network and business challenges faced by our customers, enabling them to modernize and gain value from their network infrastructures. Our network transformation solutions offering enables us to work closely with our customers in the assessment, planning, deployment, and transformation of their networks. We believe that customers place significant value on the strategic, consultative engagements afforded by our services offering and on our ability to partner with them through services-oriented solutions that address their network and business needs.

Our services and support portfolio includes the following offerings:

- Network transformation solutions, including:
  Network analysis, planning and design; and
  Network optimization, migration, modernization and assurance services.
- Maintenance and support services, including:
  helpdesk and technical assistance;
  training;
  spares and logistics management;
  engineering dispatch and on-site professional services;
  equipment repair and replacement; and
  software maintenance and updates.
- Deployment services, including turnkey installation and turn-up and test services;
- Network management and operations center services; and

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- Project management services, including staging, site preparation and installation support activities.

We provide these services using a combination of internal resources and qualified third party service partners.

Product Development

Our industry is subject to rapid technological developments, evolving service delivery requirements, standards and protocols, and shifts in customer and end user network demand. To remain competitive, we must continually enhance existing product platforms by adding new features and functionality, increasing transmission speeds and capacity, and introducing new network solutions that address multiservice traffic growth and enable new service offerings. Our research and development strategy has been to pursue technology convergence. This enables us to consolidate network features and functionalities onto a single platform, helping network operators architect robust, feature-rich networks that require fewer network elements and address cost, space and power limitations. We believe these converged, next-generation networking solutions promote rapid service delivery and allow network operators to derive business and operational value from their network infrastructures.

We are investing in our OP^n Architecture, our approach to building next-generation networks. Our OP^n Architecture, which underpins our solutions offering and guides our research and development strategy, leverages the convergence of optical and packet technologies to increase network scale cost effectively, while emphasizing software-enabled programmability, automation and open interfaces. Through this network approach, we seek to enable high-capacity, configurable infrastructures that can be managed and adapted by network-level applications, and to provide flexible interfaces for the integration of computing and storage resources in a unified network. Our product development initiatives also include design and development work intended to address growing opportunities, such as metropolitan network applications, enterprise networking, cloud infrastructure and packet-based infrastructure solutions for next-generation, high-capacity networks. To address these opportunities and realize our network vision, our current development efforts are focused upon:

- Improving and converging technologies across our portfolio, including:
  - Extending our leadership in 40G, 100G, and 400G long-haul transport;
  - Continued development of our WaveLogic coherent optical processor to improve network capacity, transmission speed, spectral efficiency and reach;
  - Expanding packet networking capabilities and features for our high-capacity Ethernet aggregation switches, for metro and service aggregation applications, mobile backhaul and business Ethernet services;
- Developing products that increase software-based network programmability and control, including:
  - software-defined networking control layer;
  - network level applications that automate various network functions, support new service introduction and monetize network assets; and
  - software-based virtualization of features or functions traditionally supported by hardware network elements.
- Designing solutions that enable network operators to achieve improved cost and efficiency, including with respect to power, space and cost per bit.

Our research and development efforts are also geared toward portfolio optimization and engineering changes intended to drive cost reductions across our platforms.

To ensure that our product development investments and solutions offerings are closely aligned with market demand, we continually seek input from customers and promote collaboration among our product development, marketing and global field organizations. In some cases, we work with third parties pursuant to technology licenses, original equipment manufacturer (OEM) arrangements and other strategic technology relationships or investments, to develop

new components or products, modify existing platforms or offer complementary technology to our customers. In addition, we participate in industry and standards organizations, where appropriate, and incorporate information from these affiliations throughout the product development process.

We regularly review our existing product offerings and prospective development projects to determine their fit within our portfolio and broader corporate strategy. We assess the market demand, technology evolution, prospective return on investment and growth opportunities, as well as the costs and resources necessary to develop and support these products. In recent years, our strategy has been to pursue technology and product convergence that allows us to consolidate multiple network technologies, features or functionalities on a single platform, or to control and manage multiple elements throughout the network from a single management system, ultimately creating more robust, integrated and cost-effective network tools. We have also shifted our strategic development approach from delivering point products to providing a focused combination of networking equipment, software and service solutions that address the business and network needs of our customers.

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Within our global products group, we maintain a team of skilled engineers with extensive experience in the areas of photonics, packet and circuit switching, network system design