

# Global Cloud Connectivity Provider Deploys Advanced Optical Technology with Transformation Partner Ciena Services



The service provider brought in Ciena Services to plan and implement a networkwide upgrade—accelerating time to market for service delivery, increasing network bandwidth, and lowering the cost per bit.

**Key challenge: Upgrading optical infrastructure to deliver high-capacity bandwidth and improve spectral efficiency, with minimum downtime**

Service providers must satisfy their customers' accelerating demands for high-capacity bandwidth and keep their eye on future demands. While modern networks can keep up today, operators need to continually look for ways to stay ahead of the curve—delivering high-performing, innovative services at competitive prices.

The challenge stems from the market's enthusiasm for new technologies such as 5G, the Internet of Things (IoT), Artificial Intelligence (AI), and machine learning. Mobile data alone is expected to increase four-fold by 2025.\* Older systems were not designed to adjust to such massive and unpredictable aggregated demands. Inherent inefficiencies in spectrum utilization also compromise a network's ability to take on additional traffic.

Providers are upgrading their systems to flexible grids to support next-generation coherent optics, which can significantly increase bandwidth on demand and support automation features that speed time to market for new services. Despite

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**Rafael Vera Paz**  
Services Delivery Leader  
Ciena

\* GSMA Intelligence

these vital benefits, however, many service providers need help to accomplish the upgrade. They also fear the process will consume staff time and resources, adversely impacting their day-to-day business operations.

This was the case for a Ciena customer who provides high-bandwidth services connecting enterprises, carriers, and content providers to businesses and data centers around the world. The service provider was facing multiple interrelated challenges. Fundamentally, it needed to increase bandwidth capacity for its fiber assets networkwide to satisfy demands from organizations seeking enhanced services for data-intensive applications. To meet these needs and maintain its competitive advantages, the provider required a future-proof network that could scale capacity on demand for higher-bandwidth services today and position the company to take on even more traffic over time. It needed assurance it could deliver advanced services without any disruptions, anytime, anywhere, even during the network upgrade process.

Cost was an equally important strategic concern. The service provider needed to reduce the costs to deliver services in its markets. High transport costs and pricing pressures from the market were already impacting margins, and customers expected enhanced services at lower prices. The provider needed a solution that would lower the cost per bit.

As if those were not enough challenges, the provider was working within a very tight timeframe. It recognized that network transformation is a complex undertaking, and realized it needed assistance to meet these ambitious challenges.

### **Solution: Engaging Ciena Services, a trusted services partner, to ensure a successful and efficient network transformation project**

Like an increasing number of operators today, the service provider decided to engage a network partner to support its transformation journey. The company wanted a trusted partner to determine the networking 'end-state' that would best address its challenging business and technology requirements. It also wanted its partner to assume responsibility for the entire project, from beginning to end.

The service provider selected Ciena Services to take on this work. A key factor in this decision was Ciena's commitment to work closely with the provider's internal management and teams every step of the way to implement a project of this size and scope. Ciena came to the project with in-depth knowledge of all network layers and domains; multi-vendor experience; specialized transformation tools and methods; a proven track record deploying and transforming hundreds of networks around the world; and a tried and tested [network transformation methodology](#) that can guide the largest and most complex network transformation projects.

In partnership with Ciena Services, the service provider decided it could address its many challenges by upgrading its legacy fixed-grid network to a flex-grid architecture that supports next-generation coherent optical technology. The solution would deliver high-capacity bandwidth and improved levels of spectral efficiency for the lifetime of the provider's fiber assets networkwide. The technology would ensure the provider's ability to deliver enhanced, competitive services while reducing costs. And Ciena could ensure project completion on the tight timeline.

## **Summary**

### **Challenges**

- Increased demand for higher bandwidth and capacity
- Need to provide enhanced services
- Need for lower cost per bit

### **Solution**

- Upgrade to flex-grid architecture to enable next-generation coherent optical technology
- WaveLogic™ Ai technology deployment to support bandwidth requirements
- Ciena's network transformation methodology, driven by Ciena Consulting and Implementation Services

### **Benefits**

- Future-proofed the network
- Delivered scalable capacity
- Gained a competitive advantage
- Reduced costs

The Ciena Services team crafted a business plan that would enable the service provider to realize immediate benefits from modernizing the network. The plan offered:

1. A flexible grid architecture, laying the foundation for next-generation coherent optics that improve spectral efficiency
2. A significant uplift in core network capacity, enabled by Ciena's WaveLogic Ai coherent technology
3. Compact, power-efficient equipment that minimizes facility space and power consumption to reduce operational costs
4. A network that allows faster provisioning of optical services and dynamic programming of network bandwidth

The Ciena Services team performed the necessary network assessments and engineering activities to plan the technology migration. The team determined which parts of the network could be upgraded, and when, to minimize any impact on customers' day-to-day business. The team then implemented the upgrade, ensuring that each step in the deployment was implemented properly and that all systems operated as they should to allow a speedy and low risk rollout across the network.

WaveLogic coherent optics  
Get insights



Just as the service provider looked to Ciena Services as its trusted partner, Ciena says the partnership helped its teams deliver a successful, efficient transformation project that achieved all of the customer's business objectives.

"We worked closely with the customer and employed very deliberate planning and preparation to achieve this effective upgrade," said Rafael Vera Paz, Services Delivery Leader at Ciena. "We drew on our extensive expertise, tools, and methodology to carry out the work, completing the ambitious project within the aggressive timeframe, with minimal downtime."

### **Result: A future-proof network that maximizes network efficiency and capacity and easily scales to meet customers' networking needs**

By partnering with Ciena Services, the provider has future-proofed its network with infrastructure that can accommodate increased traffic demands on higher-bandwidth channels, now and for years to come.

The new flex-grid architecture and coherent optical platform allow the service provider to provision capacity from 100G to 400G in granular increments and optimize the maximum capacity across any link in the network. This optimizes spectral efficiency, ensuring the provider's capability to scale capacity to meet its customers' demands for more bandwidth and enhanced services, while bolstering its competitiveness. The highly instrumented and intelligent solution also gives the provider the ability to directly view network performance and available capacity so it can make well-informed decisions when planning future capacity requirements across its footprint.

Since it is no longer constrained by the fixed-grid architecture, the company can now deliver bandwidth to its end-customers with agility, on demand. The convenient, high-capacity, higher-bandwidth services enrich the customer experience and increase customer satisfaction, which helps reduce churn.

The advantages of the new architecture are also helping the provider manage costs. In addition to improved spectral efficiency, the upgraded infrastructure reduces costs due to the hardware's small and power-efficient form factor. These benefits enable the provider to deliver high-bandwidth services to customers while reducing the cost of its services per 100G, fulfilling its customers' requests for higher-bandwidth services at lower prices.

Ciena Services completed this complex project within the aggressive timeframe enabling the provider to quickly launch commercial services on the upgraded network. It is now offering enhanced, market-differentiating, high-capacity bandwidth services for its data-intensive customers around the world.

The Adaptive Network™  
What is it?



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No