

# ENABLING ENTERPRISE NETWORK TRANSFORMATION AT SCALE

WAVELENGTHS AND OTHER MODERN CONNECTIVITY SERVICES OFFER A BETTER WAY  
FORWARD

## SUMMARY

Without question, higher network bandwidth and lower latency within enterprise networks improve both business operations and customer experiences. But where should one start with a network transformation journey? Most organizations focus on an assessment process to define critical infrastructure requirements, then create plans based on the findings. While this is a logical process, it often results in a proliferation of equipment and applications that forces IT staff into reactive, swivel-chair management, higher operational expense, and complexity. Reaching the best answer requires a delicate balance: infrastructure should not be overprovisioned, yet it should provide headroom for future application and workload needs.

Thanks to factors ranging from globalization to hybrid work, business operations have become highly distributed. The challenges this creates are compounded by the need to accommodate bandwidth-hungry applications such as generative AI that burden networking infrastructure. In this context, enterprises require simpler ways to deploy, manage, and transition the connectivity infrastructure to handle current and future needs. Infrastructure changes come with significant transition costs, and it is often difficult to calculate the return on investment for future use cases with costs that may be unknown. Organizations must also account for enhanced security in an ever-evolving threat landscape, as well as guidance in risk analysis, planning, implementation, and ongoing management of network and security operations. Given these complexities and the many networking choices available, it is no surprise that enterprises do not know where to start.

Moor Insights & Strategy believes that Zayo delivers the optimal balance of support and connectivity that enterprises require to meet their network transformation needs. Besides providing scalable wavelengths, dark fiber, and private networking services tailored to customer use cases and workloads, Zayo can also serve as a trusted advisor throughout the entire lifecycle. The result is a highly engineered set of connectivity services that are easy to plan for, deploy, and manage.

## WAVELENGTHS CONNECTIVITY TAILORED TO APPLICATION AND WORKLOAD NEEDS

There are a myriad of network connectivity options available to organizations, and one size does not fit all. Typically, applications and workloads dictate specific requirements for latency and throughput. For example, an overnight batch processing workload might require only an Ethernet connection to a data processing system, whereas real-time video distributed companywide would require a deployment scheme that offers much more headroom.

Ethernet has been a stalwart network connectivity standard for fifty years, and ongoing efforts across decades have only improved its performance. However, the adoption of newer wavelength connectivity services is accelerating, driven by the need for greater bandwidth and scale to support modern applications and organizations' digital transformation initiatives. Although it is impossible to know exactly how much impact AI will ultimately have within the enterprise, most organizations are actively investing in next-generation applications of AI, including GenAI. These bandwidth-intensive use cases and workloads can take advantage of wavelengths' 400G capacity and ease of provisioning, making it attractive to cloud providers, financial and professional services, media companies, and many others that wish to future-proof connectivity infrastructure. [In fact, some estimate that the global market for wavelength services could surpass \\$12 billion by 2032.](#)

Wavelength technology uses light to transmit data at high speeds through fiber optic cable. This provides predictable point-to-point high-bandwidth connectivity that is determinant, dedicated, and highly secure. These benefits make wavelength technology ideally suited for regulated industries such as finance and healthcare. Financial transactions require plenty of bandwidth, while sharing patient data requires the security that wavelengths provide. Wavelength technology is also optimized for media production and streaming; this supports content delivery networks and public and private mobile network operators that serve large numbers of subscribers who count on ultra-low latency and high bandwidth.

Zayo has a long history of delivering both robust connectivity and operational flexibility to meet organizations where they are in terms of IT and OT infrastructure investment and deployment. The company takes a customer-centered approach with its service delivery, investing heavily in fiber engineering and product management to ensure that its customers' application needs are served. Consequently, Zayo's wavelengths service is resilient, highly automated, and highly available—delivered in 24 hours or less on

some of the company's highest-demand routes. It is also architected to ensure the fastest delivery of data based on intelligent routing and route transparency.

Regarding 400G, beyond its massive capacity, Zayo has engineered faster scalability, fewer handoffs for improved reliability, and reduced circuit monitoring and tracking for higher bandwidth support within its wavelengths offering. All of these capabilities are designed to bolster service delivery and mitigate cross-connect fee impact. Additionally, Zayo has significantly expanded its reach, adding nearly half a million fiber miles to its network in the first half of 2024 alone.

MI&S recognizes Zayo's wavelengths leadership, considering the service's dedicated bandwidth of up to 800G, immediate provisioning, ability to add capacity on demand, and round-the-clock support provided through dedicated NOCs. All of these considerations make Zayo services ideally suited for demanding, data-intensive workloads as well as broader enterprise network transformation projects.

## DARK FIBER AND PRIVATE NETWORKS

Beyond Zayo's leadership in wavelengths, the company offers other capabilities with dark fiber and private networking that round out a complete set of connectivity solutions for organizations. Zayo's dark fiber services provide unique route diversity for long-haul and metro connections. This flexibility supports many use cases including mobile telecommunications backhaul, hyperscaler-delivered services, and a range of functions for large enterprises with global operational needs. This dark fiber service can also easily expand connectivity coverage on an as-needed basis with high reliability and massive scale.

Zayo's managed private network service offers dedicated fiber, hardware, and concierge-level support to provide a highly tailored solution for specific use cases. It is designed to facilitate network management consistency and predictability, freeing IT teams to focus on other value-added tasks for the lines of business they support. Encryption provisions and physical segmentation also ensure that Zayo's private network services are highly secure. Widespread adoption serves as a strong proof point, and the company states that a majority of global banks, U.S. financial services firms, and hospitals use its private network service to safeguard their sensitive data.

MI&S believes that Zayo's dark fiber and private network services strongly complement its wavelengths offering, providing customers with a broad and deep set of connectivity solutions to meet today's application and workload needs.

## WHY ZAYO?

The bar for providing long-haul fiber services is extremely high, given the technical challenges as well as the extensive capital and operational expense investments tied to their deployment and ongoing management. This makes the pool of providers small. Zayo rises to the top among them based on its ongoing investments, deployment flexibility, and scale. The company continues to improve the performance and resiliency of its global network and has grown its footprint significantly through acquisition. From a deployment diversity standpoint, Zayo supports standard transport, mesh, IP transit, and dedicated private internet access. In doing so, it provides nearly 600 points of presence globally and more than 1,500 on-net datacenters, ensuring that performance keeps pace with network expansion.

It is also worth highlighting that Zayo was an early leader in the transition to 400G, a process started in 2021 that has led to greater than 90% 400G enablement for its 18-million-fiber-mile backbone network today. Significant learnings have flowed from its experience in that transition, and Zayo is able to draw on this knowledge to enhance its recommendations about connectivity service for customers and prospects.

Dropbox is an excellent example of a company that has taken advantage of Zayo's 400G Waves service. As Dropbox has grown from a cloud storage startup to more than 700 million SaaS users in the past decade, it has relied on a dedicated team at Zayo for highly performant communications infrastructure that weaves together an extensive metro and long-haul fiber network to support such a large user base. This began at 100G capacity levels, but that is quickly shifting to 400G as Zayo assists Dropbox in its future capacity planning. Scalability will be key, given the anticipated growth of high-resolution video file-sharing and the storage requirements of other data-intensive applications. Dropbox cites scalability as a key consideration, along with Zayo's extensive fiber footprint, customer-focused service, and always-on network support.

## CALL TO ACTION

Organizations must navigate many obstacles along the journey of transforming enterprise communications and underlying operations. Globalization, modern hybrid work, and next-generation applications are all taxing the limits of traditional networks.

Zayo is rising to meet these challenges, as demonstrated by its early investments in wavelengths 400G, dark fiber, and private networking services, as well as its successes with customers from multiple industries that face great demands on their connectivity

solutions. This is all buoyed by Zayo's continued investments in network engineering and customer support, which bolster its commitment to delivering the highest levels of performance, scalability, resilience, and security for its connectivity services.

For all of these reasons, MI&S recommends that organizations engaged in network transformation strongly consider Zayo.

For more information, visit <https://www.zayo.com/contact/>.

## IMPORTANT INFORMATION ABOUT THIS PAPER

### *CONTRIBUTOR*

[Will Townsend](#), Vice President and Principal Analyst, Carriers & Enterprise Networking, Security

### *PUBLISHER*

[Patrick Moorhead](#), CEO, Founder and Chief Analyst at [Moor Insights & Strategy](#)

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