



Lumen Recognized for

2021

Market Leadership

United States Business Carrier

Ethernet Services Industry

Excellence in Best Practices

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each Award category before determining the final Award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Lumen excels in many of the criteria in the United States business carrier Ethernet services space.

AWARD CRITERIA	
Growth Strategy Excellence	Technology Leverage
Implementation Excellence	Price/Performance Value
Brand Strength	Customer Purchase Experience
Product Quality	Customer Ownership Experience
Product Differentiation	Customer Service Experience

Supporting the Need for Bandwidth with an Extensive Global Network

The network is at the core of digital transformation and serves as the foundation empowering enterprises' information technology (IT) strategy. As such, bandwidth provisioning must be accompanied by reliability, security, visibility, control, performance, and availability. Lumen Technologies (Lumen)'s business carrier Ethernet services deliver on all these attributes, assisted by a global network consisting of 180,000 fiber-connected buildings across 60 countries, more than 2,200 data centers, and approximately 450,000 fiber route miles, including 42,000 subsea cables. Its terrestrial network includes 3 diverse nationwide coast-to-coast routes in the United States, and its subsea network includes 4 transatlantic routes and diverse east and west routes around South America.

Frost & Sullivan notes that Lumen's expanded metro and long-haul footprints are unmatched in the market. Lumen currently has more than 500 external network-to-network interfaces (ENNIs), with 70 vendors in North America and more than 700 ENNIs worldwide. The company works with approximately 200 partners (e.g., incumbent local exchange carriers, competitive local exchange carriers, and multiple systems operators) to extend coverage to off-net customer locations. Not surprisingly, Lumen is the revenue leader in the US retail Ethernet services sector with a market share of 27%; 9% more than its closest competitor.

Lumen continuously invests in infrastructure expansion. While other competitors in the market are continually expanding on-net locations to increase fiber density and thus rapidly turn on capacity, Frost & Sullivan points out that over the past year, Lumen added an average of more than 3,000 on-net buildings per quarter, significantly more than other market participants.

Offering Much More than Bandwidth through Superior Network Reach and Diversity Options

Enterprises typically consume Ethernet services to support the growth in bandwidth-hungry business applications, provide connectivity to third-party cloud service providers, and interconnect corporate data centers. While the need for connectivity continues to drive demand for Ethernet services, enterprises are not only looking for bandwidth, but require diversity in networking services configurations, flexibility, security, and reliability.

Lumen has a well-established, global, and continually evolving Ethernet product portfolio. As a result, it can offer enterprises point-to-point, point-to-multipoint, or multipoint-to-multipoint connectivity to link company headquarters with office branches, data centers, cloud locations, or any location in the world. The company offers a broad range of port speeds (more than 30) on its expansive E-LINE and E-LAN available network footprint.

In addition to network density, Frost & Sullivan notes that route diversity is a distinguishing factor in the market. Lumen's North American network architecture is an important differentiator because of its dual gateways, including three or four gateways in major markets. Such an approach provides customers with route diversity not only in inter-city routes, but also in metro areas. Frost & Sullivan's own research confirms that this is a capability that other carriers simply cannot offer.

Providing Flexible Bandwidth, Built-in Security, and Technical Expertise

Bandwidth-on-demand and application-aware networking functionalities increasingly give customers more control of their network and enable bandwidth optimization. Lumen was able to quickly and efficiently integrate assets from its acquisition of Level 3 Communications, helping it focus on dynamic networking capabilities to address the on-demand bandwidth needs of businesses for cloud and data

center networking. The company has evolved its offering with software-defined networking (SDN)-based capabilities to provide the dynamic capacity, enabling clients to instantly scale bandwidth-on-demand up to 3X with predictable billing. Moreover, dynamic connections and a self-service functionality allow clients to speedily add or remove connections, considerably improving customers' digital experience. Frost & Sullivan recognizes that such an approach is another key aspect differentiating Lumen from its other competitors.

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- Gina Sánchez, Industry Principal

Understanding that security is at the top of enterprises' priorities, Lumen's IP product portfolio has an integrated secure key management tool that strengthens the security of Ethernet services. It includes built-in threat protection, proactive network monitoring, full network visibility, and 24X7 support from Lumen's network operations center.

Lumen's technical expertise is made available to enterprises beyond the pre-sales and post-sales phase, with a solutions architect team dedicated towards designing optical solutions for customers. The technical advisory starts at the planning stage and goes all the way to service assurance at the end of network deployment. This support goes beyond a regular product service offering, nicely showcasing Lumen's commitment to supporting enterprises' digital transformation initiatives.

From a Single Product to a Comprehensive Portfolio

Customers' evolving needs go beyond a single networking product. While enterprises are on the lookout for the most cost-effective networking solution, combining public and private network services has never been easy, resulting in the need for hybrid networking.

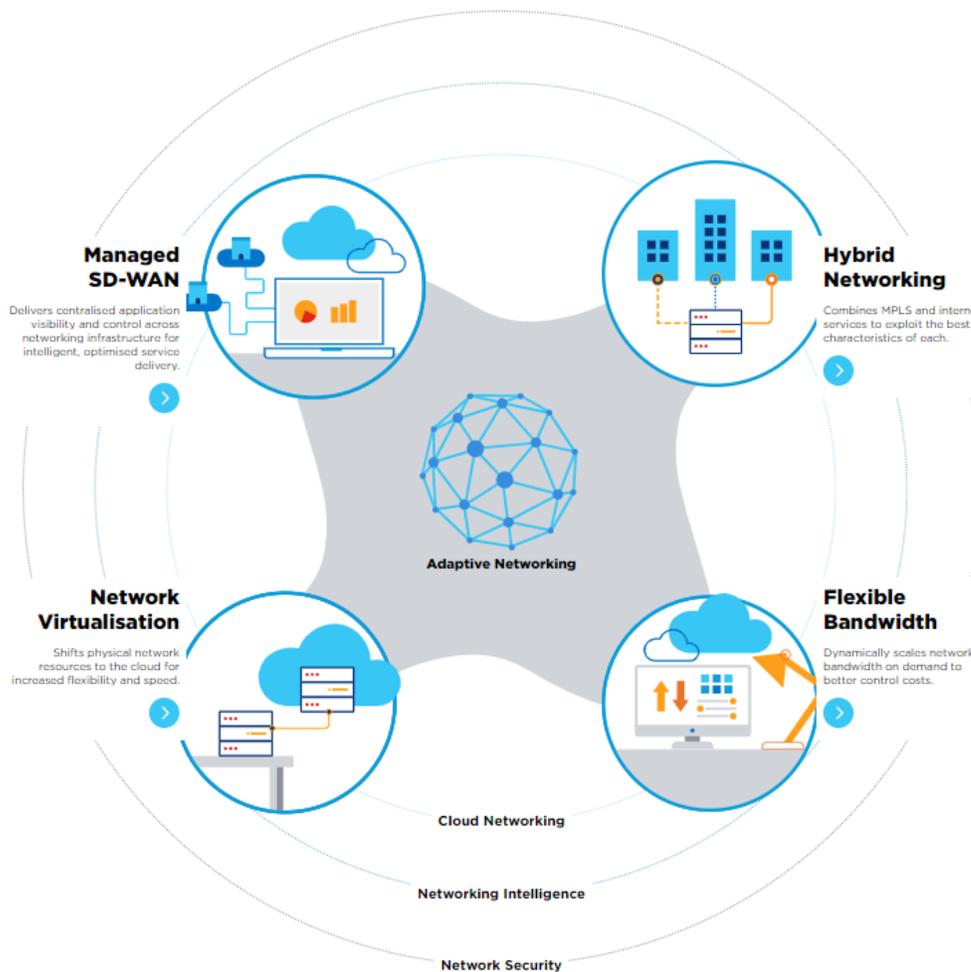
Lumen's transport and infrastructure group, a subset of the company's business segment, offers a comprehensive networking portfolio that provides a superior advantage in hybrid networking. Ethernet services are complemented by software-defined wide area network services, adaptive virtual services, cloud connect, IP VPN MPLS, dedicated Internet access, fiber-based Internet, content delivery solutions, professional services, and managed services.

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Choosing the right network solution and architecture also empowers the IT strategy for enterprises. Planning networks that can support current projects and future IT developments are quite critical to support long-term business goals. Lumen understands that simply enabling hybrid networking is not enough to address such needs, hence the launch of its Adaptive Networking solution. Acting as more than a product or service, the solution is a set of tools that leverage various technologies to elevate network performance.

Specifically, Lumen's Adaptive Networking considerably improves site provisioning speed, application performance on the network, and network uptime - while at the same time improving network security and operational cost savings.



Source: Lumen

Rebranded to Reflect the Gamut of Technologies the Company Provides

Formerly CenturyLink, the company changed its brand in 2020 to Lumen Technologies. The rebrand emphasizes that Lumen is no longer solely a network services provider, but an innovative technology company with the resources to help enterprises leverage the technologies and opportunities of the fourth Industrial Revolution.

Lumen’s capabilities transcend networking services, and its combination of worldwide infrastructure and wide-ranging technology solutions creates an industry-leading platform of which networking services are only a piece. Edge computing, hybrid cloud, communications and collaboration, hybrid IT, security, and a variety of professional and managed IT services and consulting complement traditional and state-of-the-art networking services with digital and disruptive solutions that help companies manage complex hybrid IT environments and align their business transformation plans.

Conclusion

As enterprises face increasingly complex IT environments and market pressures, their needs go beyond networking, requiring flexibility, adaptability, and end-to-end solutions.

Lumen's industry-leading Ethernet services are enhanced with software-defined networking capabilities to support key features increasingly demanded by companies, including dynamic services and pay-as-you-go models. While the company's extensive global network and expanded metro and long haul footprint in the United States is a major differentiator, Frost & Sullivan believes that Lumen's ultimate distinct value may be its far-reaching vision. To that end, Lumen's Adaptive Networking offering includes hybrid networking services, software-defined wide area network solutions, network virtualization services, and dynamic, flexible bandwidth, nicely demonstrating the company's continually evolving portfolio of services that provides clients with best-in-class solutions.

With its strong overall performance, Lumen earns the 2021 Frost & Sullivan Market Leadership Award in the United States Business Carrier Ethernet Services space.

What You Need to Know about the Market Leadership Recognition

Frost & Sullivan's Market Leadership Award recognizes the company that achieved the greatest market share resulting from outstanding performance, products, and services.

Best Practices Award Analysis

For the Market Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Growth Strategy Excellence: Company demonstrates an ability to consistently identify, prioritize, and pursue emerging growth opportunities

Implementation Excellence: Company processes support efficient and consistent implementation of tactics designed to support the strategy

Brand Strength: Company is respected, recognized, and remembered

Product Quality: Products or services receive high marks for performance, functionality, and reliability at every stage of the life cycle

Product Differentiation: Products or services carve out a market niche based on price, quality, or uniqueness (or some combination of the three) that other companies cannot easily replicate

Technology Leverage: Company is committed to incorporating leading-edge technologies into product offerings to enhance product performance and value

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and of high quality

About Frost & Sullivan

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Frost & Sullivan's proprietary model to systematically create on-going growth opportunities and strategies for our clients is fuelled by the Innovation Generator™. [Learn more.](#)

Key Impacts:

- **Growth Pipeline:** Continuous flow of Growth opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



The Innovation Generator™

Our six analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- Mega Trend (MT)
- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)

