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RECOGNIZED FOR BEST PRACTICES IN THE NORTH AMERICAN DEDICATED INTERNET ACCESS (DIA) INDUSTRY

FROST & SULLIVAN

Best Practices Criteria for World-class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each recognition category before determining the final recognition recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Lumen Technologies excels in many of the criteria in the North American DIA space.

| RECOGNITION CRITERIA | |
|--|-------------------------------|
| Visionary Innovation & Performance | Customer Impact |
| Addressing Unmet Needs | Price/Performance Value |
| Visionary Scenarios Through Megatrends | Customer Purchase Experience |
| Leadership Focus | Customer Ownership Experience |
| Best Practices Implementation | Customer Service Experience |
| Financial Performance | Brand Equity |

The Strategic Imperative 8: Factors Creating Pressure on Growth



• Innovative Business Models: A new revenue model that defines how a company creates and capitalizes economic value, typically impacting its value proposition, product offering, operational strategies, and brand positioning

• **Customer Value Chain Compression**: Customer value chain compression as a result of advanced technologies, internet platforms, and other direct-to-consumer models that enables the reduction of friction and the number of steps in customer journeys

• **Transformative Megatrends**: Global forces that define the future world with their far-reaching impact on business, societies, economies, cultures, and personal lives

- **Disruptive Technologies:** New, disruptive technologies that are displacing the old, and significantly altering the way consumers, industries, or businesses operate
- Internal Challenges: The internal organizational behaviors that prevent a company from making required changes

- **Competitive Intensity**: A new wave of competition from start-ups and digital business models that challenge the standing conventions of the past, compelling established industries to re-think their competitive stance
- **Geopolitical Chaos**: Chaos and disorder arising from political discord, natural calamities, pandemics, and social unrest that impact global trade, collaboration, and business security
- Industry Convergence: Collaboration between previously disparate industries to deliver on whitespace cross-industry growth opportunities

The Transformation of the DIA Industry

Dedicated, uninterrupted high-speed connectivity is at the core of digital transformation and lays the foundation for enterprises to leverage well-known technologies and embrace emerging ones. Moreover, enterprises are increasingly embracing SD-WAN solutions as the next-generation networking technology that supports their digital transformation initiatives and cloud-first strategies. SD-WAN adoption is increasing the demand for DIA services, as it is the leading underlay solution choice. According to the 2024

"Lumen offers flexible billing options and enhances the digital purchasing experience by allowing customers to easily configure, quote, and acquire its DIA solution through Lumen Marketplace. Despite the longstanding presence of marketplaces in the IT sector, only a few service providers developed them, highlighting Lumen's capacity for innovation."

- Leandro Agion Industry Director Frost & Sullivan Global Network Decision-Maker Survey, DIA is the favorite transport technology for companies, with 85% of enterprises in North America currently using this technology. This trend is costeffective for companies from operational and connectivity standpoints in retiring multiprotocol label switching (MPLS) connections.

The North American DIA services market is mature. However, Frost & Sullivan expects growth to pick up in the future, thanks to these trends: businesses speeding up their digital transformation efforts, more people using video collaboration tools that use a lot of bandwidth, more people connecting to the cloud and

data centers, businesses incorporating AI tools, and more businesses using SD-WAN, where DIA is the main connection method. DIA market revenue exceeded \$10.5 billion in 2024, with a year-over-year (YoY) growth of 4.2%. The market is forecast to increase at a compound annual growth rate (CAGR) of 4.3% from 2024 to 2028.

Historically, Lumen has been a DIA market leader, and though it underwent a couple of years of restructuring and major changes, its new strategy has paid off. Frost & Sullivan thinks it deserves the Company of the Year award as it achieved excellent performance in the DIA market. It was the service provider with the highest growth, far outpacing its competitors, and it grew at 16% YoY in 2024.

Customer Service Experience

Organizations that require DIA services want business-grade, dedicated internet connections with symmetrical speeds, service-level agreements (SLAs) to support availability and performance (latency & packet loss), proactive network monitoring, and customer support 24 hours a day, 7 days a week. Lumen offers all these and more. The company leverages its extensive internet backbone to provide DIA with

speeds up to 400Gbps for various business sizes and proactive threat monitoring and mitigation facilitated by Black Lotus Labs, Lumen's threat research and operations arm. Moreover, to cater to various enterprise and government customers that operate in distributed environments and require low-latency connectivity, Lumen has approximately 340,000 global route miles of fiber and approximately 163,000 onnet buildings with extensive off-net access across North America and Asia-Pacific.

Lumen's North American internet network architecture is a key competitive differentiator due to its dense and distributed metro network reach, enabling diverse and tailored high-bandwidth access solutions. The company's large on-net building footprint and substantial peering capacity ensure traffic delivery from origin to destination with minimal network hops.

Customer Purchase Experience

Lumen offers flexible billing options and enhances the digital purchasing experience by allowing customers to easily configure, quote, and acquire its DIA solution through Lumen Marketplace. Despite

"To support customer connectivity requirements in digitalization journeys, Lumen recently made substantial investments to upgrade more than 24,000 route miles across its US intercity network using the latest optical technology, which now supports speeds up to 100 Gbps. This is an important competitive advantage that makes Lumen stand out among North American internet service providers (ISPs)."

- Leandro Agion Industry Director the longstanding presence of marketplaces in the IT sector, only a few service providers developed them, highlighting Lumen's capacity for innovation. This marketplace is designed for enterprise customers who prefer a self-service model, seamlessly complementing Lumen's comprehensive suite of APIs and Control Center customer portal. In Lumen Marketplace, customers can also shop and configure other network services on demand (internet, ethernet, and IP VPN). In addition, customers can acquire

other services, such as cybersecurity (DDoS Hyper, SASE with Fortinet, and SASE with Versa) and edge computing.

Visionary Scenarios Through Megatrends

Lumen recognizes the crucial role service providers play in supporting companies' digital transformation journeys, and unleashing the world's digital potential is its vision. To support customer connectivity requirements in digitalization journeys, Lumen recently made substantial investments to upgrade more than 24,000 route miles across its US intercity network using the latest optical technology, which now supports speeds up to 100 Gbps. This is an important competitive advantage that makes Lumen stand out among North American internet service providers (ISPs). Moreover, the company claims it is building the backbone of the artificial intelligence (AI) economy and investing in integrating AI to enhance its services. For instance, Lumen partnered with Google Cloud to enhance AIOps and collect proactive data insights throughout its network, aiming to improve operational efficiencies. These developments are significant for DIA clients as they enhance the visibility of network issues and facilitate quick resolution.

In addition, Lumen is enhancing security by integrating its Black Lotus Labs threat intelligence into its internet backbone. Black Lotus Labs analysts are capable of identifying and analyzing emerging threats

due to Lumen's extensive network, as well as the use of machine learning (ML). This threat intelligence is integrated into Lumen security solutions to improve organizations' defenses against the extensive threat landscape. Cybersecurity is an increasingly important aspect of a network services solution. Therefore, Lumen's products and services give it a competitive edge over rivals lacking this level of cybersecurity.

Brand Equity

Lumen is an IT and communications service provider formed after the merger of CenturyLink and Level 3 Communications in 2017, and renamed in 2020. As separate entities, both CenturyLink and Level 3 Communications were strong competitors in different segments of the business communications market. Since the merger, Lumen has worked to rationalize and streamline its network and product suite. Lumen focuses on B2B networking, edge cloud, collaboration, and managed services.

Moreover, Lumen's commitment to improving network capabilities fortifies brand loyalty. The company's strategic investments in network expansion and cutting-edge technologies position it as a trusted provider of resilient, scalable network solutions. As digital demands evolve, Lumen is well-positioned to lead in delivering future-ready services, ensuring long-term success in a rapidly changing digital environment.

Lumen ranked 1st in Communication & Telecom for 2024 by the American Opportunity Index, recognizing companies that have advanced in creating opportunities for their employees.

Leadership Focus

In the past 3 years, Lumen has been carrying out a complex strategy of company restructuring. It is concentrating on its primary market, the North American B2B market, and divesting into other business units. In 2022, Lumen sold its European and Latin American business units.

Moreover, in 2024, Lumen made significant progress in strengthening its balance sheet, reducing its debt, and focusing on its core businesses, which will drive long-term, profitable growth. To achieve this, Lumen is expanding its fiber footprint and enhancing its digital capabilities portfolio. A major aspect of the company's significant transformation was the appointment of Kate Johnson as president, chief executive officer, and a member of the company's board of directors in November 2022.

Financial Performance

Lumen's stock rose by more than 200% last year (from March 2024 to March 2025). The company's shares have resumed their growth trajectory following a decline in 2022 and a prolonged period of low value for nearly 2 years. For investors, the company's transformation was positive. In addition, Lumen's valuation is increasing because of continued AI-readiness investments. In particular, AWS and Microsoft's investments in Lumen Private Connectivity Fabric networking products contributed to the company's growth and stock increase. In February 2025, Lumen announced an investment of \$8.5 billion in its Private Connectivity Fabric products. This will provide substantial cash inflows in the coming years. The company's balance sheet has significantly improved compared to previous years, and though several financial indicators must improve, investors seem to be confident that with this strategic focus on becoming a significant AI network provider, Lumen will continue to grow in the future.

Conclusion

Lumen's North American internet network architecture is a key competitive differentiator due to its dense and distributed metro network reach, with approximately 340,000 global route miles of fiber and approximately 163,000 on-net buildings with extensive off-net access across North America and Asia-Pacific. This enables Lumen to offer customers diverse and tailored high-bandwidth access solutions. Frost & Sullivan applauds Lumen for its consistent progress in infrastructure, partnerships, and service innovation. The company's strategic investments in network development and cutting-edge technologies have established it as a reliable provider of resilient, scalable networking solutions. Moreover, the company had an outstanding year in the DIA market, becoming the service provider with the highest growth, significantly surpassing its competitors. For its strong overall performance, Lumen is presented with Frost & Sullivan's 2025 North American Company of the Year Recognition in the DIA market.

What You Need to Know about the Company of the Year Recognition

Frost & Sullivan's Company of the Year Recognition is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Recognition Analysis

For the Company of the Year Recognition, Frost & Sullivan analysts independently evaluated the criteria listed below.

Visionary Innovation & Performance

Addressing Unmet Needs: Customers' unmet or under-served needs are unearthed and addressed to create growth opportunities across the entire value chain

Visionary Scenarios Through Megatrends: Longrange scenarios are incorporated into the innovation strategy by leveraging mega trends and cutting-edge technologies, thereby accelerating the transformational growth journey

Leadership Focus: The company focuses on building a leadership position in core markets to create stiff barriers to entry for new competitors and enhance its future growth potential

Best Practices Implementation: Best-in-class implementation is characterized by processes, tools, or activities that generate consistent, repeatable, and scalable success

Financial Performance: Strong overall business performance is achieved by striking the optimal balance between investing in revenue growth and maximizing operating margin

Customer Impact

Price/Performance Value: Products or services offer the best ROI and superior value compared to similar market offerings

Customer Purchase Experience: Purchase experience with minimal friction and high transparency assures customers that they are buying the optimal solution to address both their needs and constraints

Customer Ownership Excellence: Products and solutions evolve continuously in sync with the customers' own growth journeys, engendering pride of ownership and enhanced customer experience

Customer Service Experience: Customer service is readily accessible and stress-free, and delivered with high quality, high availability, and fast response time

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty, which is regularly measured and confirmed through a high Net Promoter Score[®]

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company[™]. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service[™] provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at http://www.frost.com.

The Growth Pipeline Generator™

Frost & Sullivan's proprietary model to systematically create ongoing 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



Our 6 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:

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



