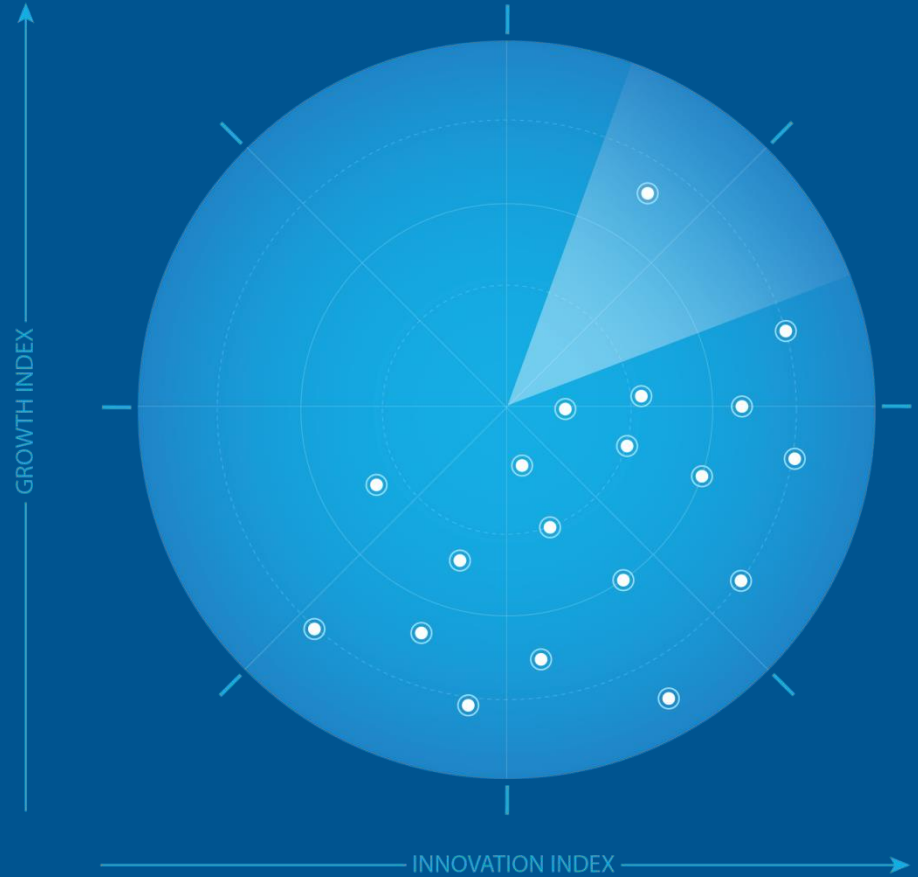# FROST & SULLIVAN

Frost Radar™: Dedicated Internet Access in North America, 2023

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A Benchmarking System to Spark Companies to Action - Innovation That Fuels New Deal Flow and Growth Pipelines

June 2023

Strategic Imperative

- Dedicated, uninterrupted high-speed connectivity is at the core of digital transformation and lays the foundation for enterprises to leverage existing technologies and embrace emerging ones. Dedicated internet access (DIA) service is the solution to meet the increasing demand for dedicated high-bandwidth connectivity. DIA is an unshared internet connection that provides symmetrical upload and download speeds backed by service level agreements (SLAs). DIA services inherently provide network reliability, packet delivery, and network throughput not available from broadband links. Although broadband links are inexpensive and widely available, they lack the SLAs that DIA circuits offer. Broadband services are primarily delivered via over-subscribed networks, without performance guarantees. An important distinction is that some broadband services available in the market are termed business internet services and offer symmetrical speeds, but they do not come with the same performance guarantees and SLAs that are included in DIA services.

- DIA is a more expensive solution than broadband but cheaper than multiprotocol label switching (MPLS); therefore, DIA is an excellent alternative for businesses looking to substitute MPLS links with more cost-effective solutions. Essentially, DIA is the new MPLS. Businesses are replacing MPLS ports with cost-effective DIA links. Network service providers (NSPs) with a large base of MPLS customers are now helping these customers migrate to DIA services, thus retaining them.

Source: Frost & Sullivan

Strategic Imperative (continued)

- Frost & Sullivan observes that NSPs are seeing demand for 10 megabits per second (Mbps) phasing out and demand for 100 Mbps slowing whereas 1 Gigabit per second (Gbps) has become the most common speed option among most businesses. Demand for 1 Gbps to 10 Gbps speeds on DIA circuits comes mainly from financial services, healthcare, retail, and manufacturing business customers. Furthermore, content delivery network (CDN) providers, video conferencing companies, cloud service providers, content providers, and gaming companies are driving demand for 100 Gbps and above speeds. NSPs note growing demand for 400 Gbps and above ports, mainly from large cloud service providers (hyper scalers).

- Enterprises prefer a single NSP to accommodate their connectivity and network requirements. With DIA, NSPs offer a range of network services, including distributed denial of service (DDoS) mitigation, software-defined wide area network (SD-WAN), managed services, managed router, secure access service edge (SASE), consulting, and managed Wi-Fi. DDoS is the most common security service offered with DIA services, registering an attach rate of close to 5%.

- SD-WAN has been the key driver for DIA services in the last few years. SD-WAN solution allows multiple connectivity links, and businesses often choose a mix of connectivity options with DIA as the primary link plus broadband or wireless, or even MPLS links from different providers. An SD-WAN solution optimizes site connectivity by leveraging real-time performance monitoring of transport networks to make application-aware and policy-based network link selection, thereby ensuring bandwidth optimization for applications to run smoothly.

Source: Frost & Sullivan

Strategic Imperative (continued)

- Frost & Sullivan finds that dual DIA links with SD-WAN solutions have become a common practice among businesses that rely heavily on low-latency connectivity and high availability. Furthermore, small businesses such as retail stores (using point of sale [PoS] devices), prefer a DIA service to achieve the right balance of security, performance, and cost. Also, small businesses that were using cheaper broadband links are migrating to DIA links for reliable and high-bandwidth connectivity.

- Bandwidth pricing pressure and product commoditization are encouraging NSPs to focus on value-added services to complement their DIA products and offset bandwidth pricing declines. To differentiate DIA services, NSPs have started providing additional features that enhance the customer experience, which still includes 24/7 proactive monitoring, flexible billing options, reduced installation times, an interactive customer portal to view bandwidth usage reports, and wireless backup for automatic failover in the event of connectivity failure.

Growth Environment

- The North American DIA services market is mature but has been growing rapidly in the past few years. The main market drivers are enterprises accelerating digital transformation initiatives, growing adoption of the remote working model, increased use of bandwidth-intensive collaboration tools, demand for data center and cloud connectivity, and the rising adoption of SD-WAN where businesses use DIA as a primary link in the mix of connectivity options. Frost & Sullivan estimates revenue for the North American DIA services market reached $9.75 billion in 2022 and expects it to increase at a CAGR of 4.3% from 2022 to 2027.

- With the increased adoption of the remote working model, the need for high-speed bandwidth has also risen and is driving spending on high-speed DIA services. DIA is critical for various enterprises that provide remote employees access to cloud-based applications, including online collaboration tools, such as Zoom and Microsoft Teams; customer relationship management (CRM) tools; and voice over internet protocol (VoIP)/unified communications (UC) solutions. Additionally, businesses are demanding DIA services because they need high bandwidth to connect their data centers and cloud data centers so users (employees) can easily access applications.

Growth Environment (continued)

- Businesses are embracing cloud-based applications, including the Internet of Things (IoT), robotics, artificial intelligence (AI), and Big Data analytics as part of their digital transformation initiatives, which is also driving demand for DIA services. These business applications are latency-sensitive and require high-bandwidth connectivity to function efficiently. A related trend is that enterprises are increasingly implementing hybrid and multi-cloud configurations as part of their distributed information technology (IT) infrastructure. With this, robust connectivity to data centers has become a priority so that distributed users can seamlessly access cloud applications for efficient business operations. Enterprises increasingly depend on DIA services, a private and reliable underlay transport to connect to their cloud environments

- North America will continue to see a rapid deployment of DIA services across both the retail and wholesale segments as leading service providers strengthen their offerings. The wholesale segment includes IP transit and wholesale DIA, wherein the local loop and transit are sold to carriers, system integrators, and resellers that resell DIA services to enterprises. Enterprise market trends continue to fuel demand for wholesale IP transit services as carriers look to expand their IP backbone.
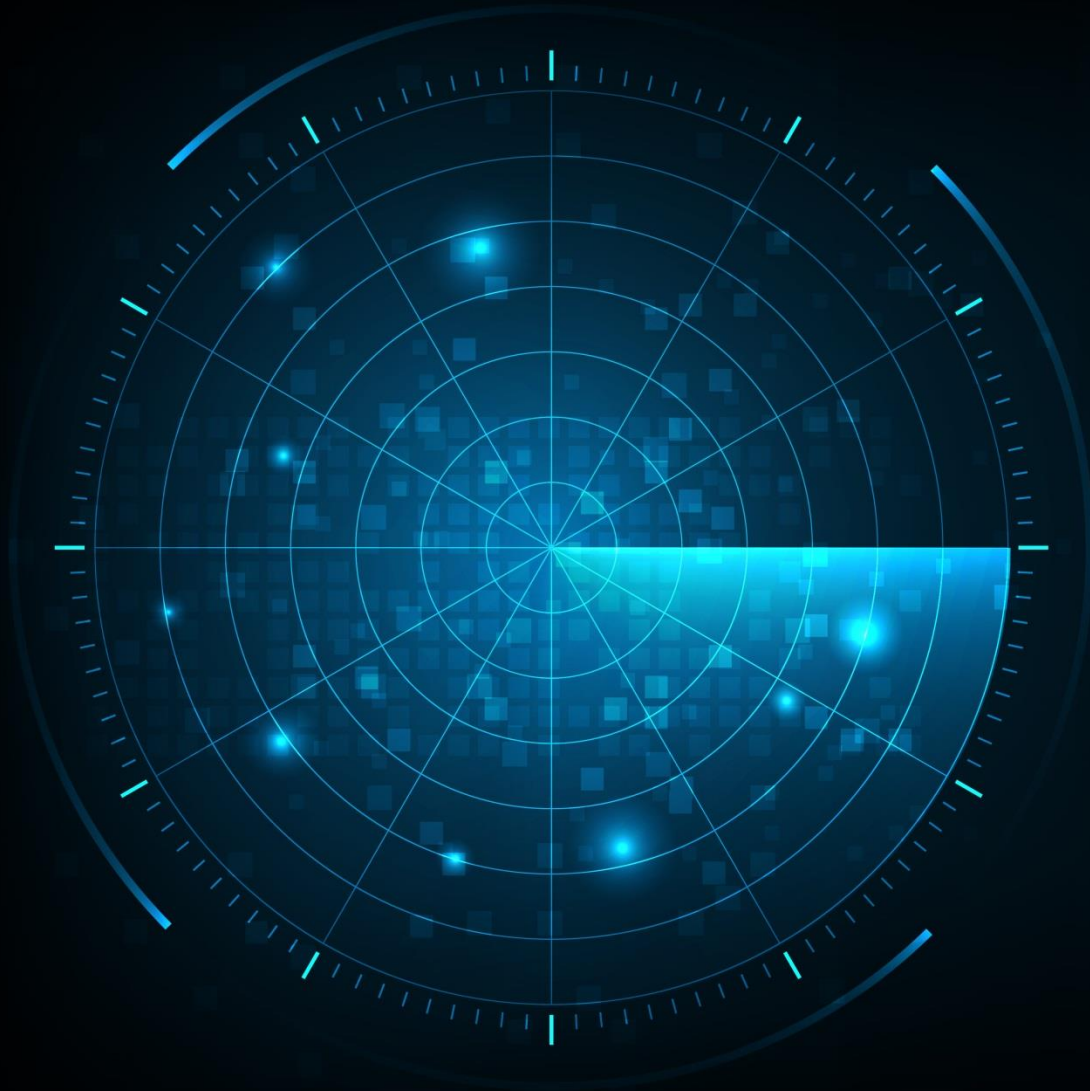
Source: Frost & Sullivan

Growth Environment (continued)

- Cable multi-system operators (MSOs) have emerged as key competitors to incumbent local exchange carriers (ILECs) and competitive local exchange carriers (CLECs) in the DIA services market. MSOs' investment in Ethernet delivered over fiber and hybrid fiber-coaxial cable (HFC) networks has paid off with MSOs moving up market in terms of offerings. NSPs and MSOs promote their DIA services based on the SLAs they offer, which include service availability, data availability, latency, and jitter.

- IP transit or wholesale DIA includes internet service providers (ISPs) that depend on each other's networks to carry traffic across the internet. IP transit services are paid network interconnections that come with SLAs and enable ISPs (e.g., ILEC, RLEC, CLEC, Cable MSO), content providers, and web 2.0 companies to move traffic from their network to the broader internet. IP transit services are sold through carrier-neutral central offices and, generally, in bulk and as metered bandwidth.

- Presently, service providers largely offer Ethernet-based DIA services. SONET-based and TDM-based DIA services are no longer in demand and are offered by just a few service providers; these services will likely sunset in the next two years.

Source: Frost & Sullivan
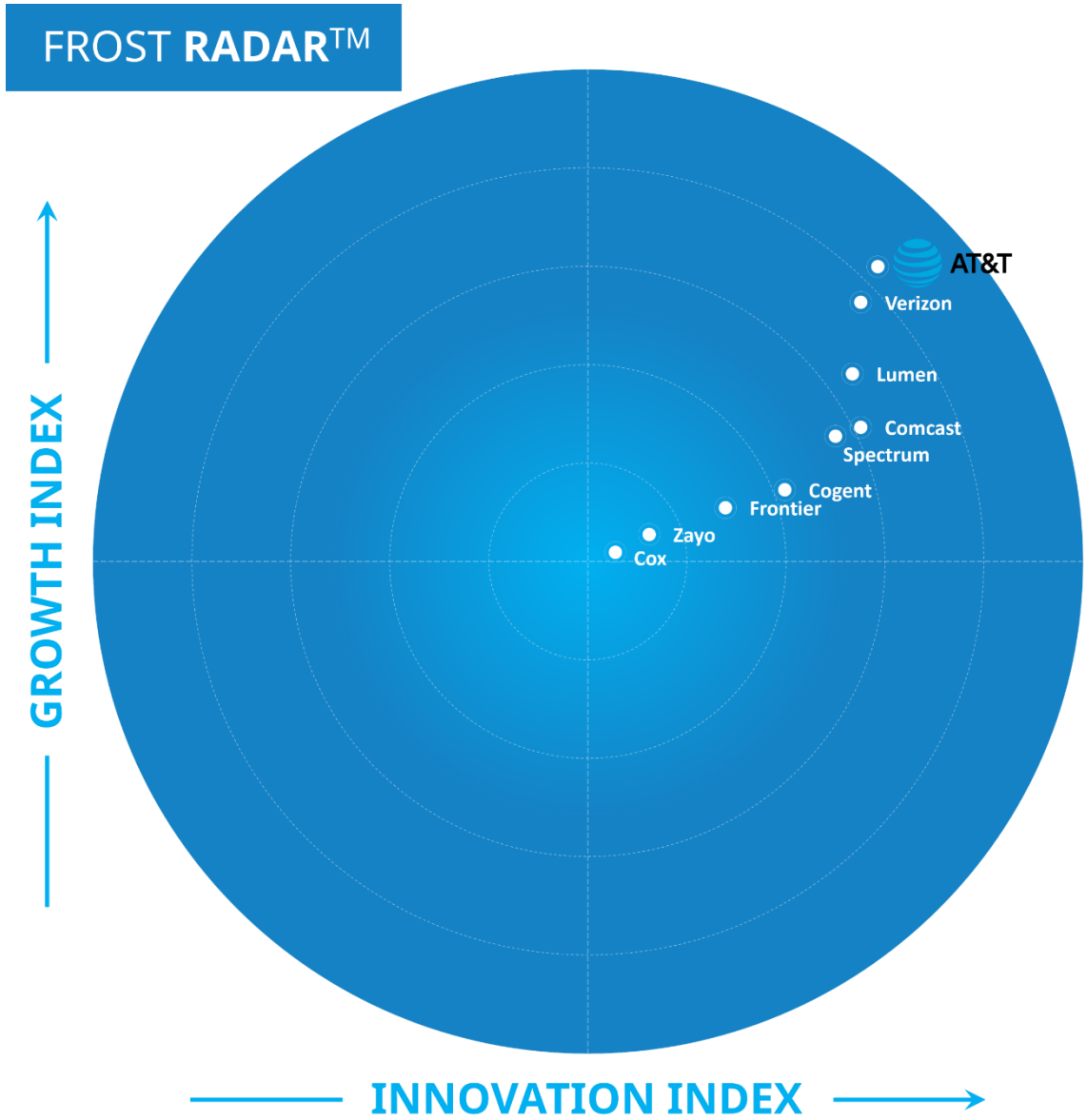
Growth Environment (continued)

- In the midst of the growing DIA market, certain key challenges still affect the demand for DIA services, including high deployment costs, price-sensitive customers, and stiff competition from broadband providers that offer attractive overall packages.

Source: Frost & Sullivan

Frost Radar™: Dedicated Internet Access in North America, 2023

FROST **RADAR**™

GROWTH INDEX

INNOVATION INDEX

AT&T
Verizon
Lumen
Comcast
Spectrum
Cogent
Frontier
Zayo
Cox

Source: Frost & Sullivan

Frost Radar™
Competitive Environment

- The North American DIA services market is in the mature phase of the product life cycle. To distinguish their offerings, companies have supplemented DIA with additional services, including wireless backup, a service portal to view and manage bandwidth usage, and 24-7 customer support.

- The market consists of a mix of long-time NSPs with an extensive network footprint and cable companies leveraging their coax and fiber footprint to offer DIA services. Out of close to 20 service providers in the space, Frost & Sullivan independently plotted the top 9 in this Frost Radar analysis, selected primarily based on their comprehensive DIA offerings and presence in retail and wholesale segments.

- On a more granular level, Frost Radar scores each company based on its extensive network footprint, overall product and services portfolio, competitive pricing, ease-of-doing business, and approach to particular business tiers. On the Innovation Index, companies compete based mainly on how they market their products, including bundled services; the ability to offer services integration; and most importantly, the provision of a range of services through the customer portal. Additionally, companies compete on the Growth Index based on their network footprint and how they approach small, mid-market, and large businesses (such as distributed enterprises and cloud service providers).

- AT&T, Verizon, and Lumen score highest on the Growth and Innovation Indexes based on revenues, sheer size, and geographic reach. These leading nationwide carriers have robust offerings in terms of service portfolio, bundled and integrated services, backup, and failover solutions, optional services, self-service portals, and performance guarantees (e.g., SLAs, quality of service [QoS]).

Frost Radar™
Competitive Environment (continued)

- A subsidiary of Comcast, Comcast Business, and a part of Charter Communications, Spectrum Enterprise, are both cable companies that leverage their nationwide coax footprint and score highest after the 3 leaders on the Growth Index based on their ability to offer differentiated services focused on small and mid-sized markets. Both companies have invested billions of dollars in the last few years on network upgrades to offer connectivity speeds of up to 100 Gbps.

- Cogent Communications has a decent network footprint in the United States, and its DIA customers include Fortune 100 companies. Cogent recently announced the acquisition of T-Mobile's wireline business, which will strengthen its market presence. Cogent ranks higher on the Growth and Innovation Indexes than Zayo, Frontier Communications, and Cox Business due to its solid service portfolio and network footprint. However, reaching among the top 5 DIA competitors is a long-term possibility.

- Zayo has a compelling network service portfolio and is largely focused on the mid-market. In 2022, Zayo invested in network upgrades to offer up to 400 Gbps connectivity speeds, enabling it to compete for high-speed deals where only large service providers operate. Zayo holds the potential to improve its positioning in future iterations of the Frost Radar.

Frost Radar™
Competitive Environment (continued)

- Frontier Communications achieved moderate scores on the Growth and Innovation Indexes as it does not have as strong of a service offering and still operates with a mix of Ethernet, TDM, and SONET ports. However, its recent launch of the Fiber Innovation Lab and investment in network upgrades will prepare it to compete with other companies.

- Cox Business has established a respectable network footprint and is offering DIA services of up to 100 Gbps, which aligns with the market trend. However, the company scores lowest on the Innovation and Growth Indexes due to its relatively smaller port count and revenue growth.

Significance of Being on the Frost Radar™

Companies plotted on the Frost Radar™ are the leaders in the industry for growth, innovation, or both. They are instrumental in advancing the industry into the future.

GROWTH POTENTIAL

Your organization has significant future growth potential, which makes it a Company to Action.

BEST PRACTICES

Your organization is well positioned to shape Growth Pipeline™ best practices in your industry.

COMPETITIVE INTENSITY

Your organization is one of the key drivers of competitive intensity in the growth environment.

CUSTOMER VALUE

Your organization has demonstrated the ability to significantly enhance its customer value proposition.

PARTNER POTENTIAL

Your organization is top of mind for customers, investors, value chain partners, and future talent as a significant value provider.

Source: Frost & Sullivan

Companies to Action: AT&T Business

INNOVATION

- **AT&T's fiber-based DIA service** is the most comprehensive offering in the market. It includes a managed router with a wireless backup, a personalized portal with 24/7 network management, automatic ticketing, a flexible billing option, cyber threat reporting, traffic prioritization, and attractive SLAs.

- **AT&T's cyber threat reporting** included with its DIA service is a unique offering. The company also offers an optional **Enterprise Traffic Protector (ETP)** service with its DIA, which creates, deploys, and enforces unified security and custom-acceptable use policies to proactively check security threats from malware, ransomware, and data exfiltration.

- The company provides a dynamic overlay fabric that enables application-aware intelligent connectivity from cloud to the edge, primarily driven by SD-WAN technologies.

GROWTH

- AT&T uses its vast network of more than 750,000 fiber-lit buildings (as of Q4, 2022) with more than 10 million customer locations in the United States that are within 1,000 feet of AT&T's fiber. In addition, the company is present in more than 500 data centers across the United States and 250 cloud data centers outside of the country, offering speeds up to 1 Tbps.

- AT&T caters to all sizes of business tiers, offering a range of speeds to match customer needs. The company accommodates high-speed demand of up to 1 Tbps from large enterprises, including CDN companies, streaming companies, gaming companies, and hyper scalers. AT&T is a major NSP for Fortune 1000 companies, and its customer base is continually growing.

FROST PERSPECTIVE

- Frost & Sullivan recognizes AT&T as the leader in the North American DIA market due to its brand strength, large client base, and competitive market position. The company has the largest MPLS customer base, which presents an opportunity to capitalize on SD-WAN growth by actively marketing its migration services among mid-sized and large enterprises. Additionally, from a connectivity perspective, AT&T helps its MPLS customers migrate to its DIA service, thus retaining this client base.

- AT&T offers customers installation of new DIA services within 10 days of ordering at its 3 million fiber-lit business locations in the United States. AT&T should use its shorter-than-average installation window to compete more aggressively in the market.

Source: Frost & Sullivan
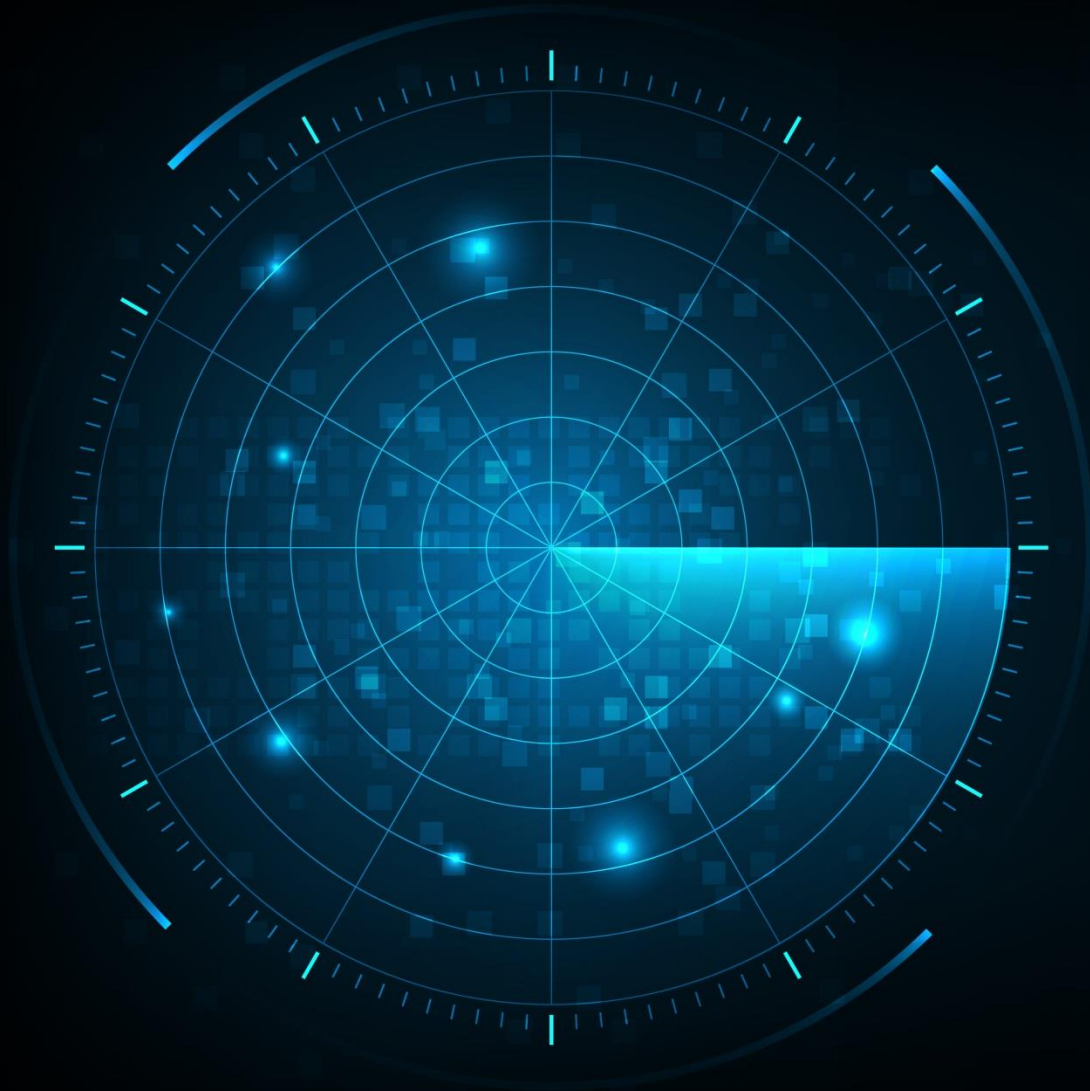
Frost Radar™

Key Takeaways

Key Takeaways

1   In the age of digital transformation, NSPs must integrate network connectivity and functionality with security to provide end-to-end inspection and encryption of data as it moves across the network and makes devices vulnerable to security threats. As such, service providers are collaborating with security companies to strengthen their DIA services with enterprise-grade network security capabilities that ensure adequate protection against threats.

2   To remain relevant, service providers should integrate the internet and security to deliver collaborative security strategies. They can also create policy settings for their enterprise customers to protect them from security-related threats

3   Bandwidth pricing pressure and product commoditization are encouraging providers to offer value-added services that will differentiate their DIA products and offset bandwidth pricing declines. NSPs have started providing additional features with their DIA services to enhance the customer experience, including 24/7 proactive monitoring, flexible billing options, reduced installation times, an interactive customer portal to view bandwidth usage reports, and wireless backup for automatic failover in the event of connectivity failure.

Source: Frost & Sullivan

Key Takeaways

4

APIs will fully drive the future of networks. At present, only a few service providers allow their customer's API-enabled design and automation of business processes such as configure, order and quote, and network discovery. As a next step, MEF has developed MEF LSO Sonata APIs to standardize business process APIs and operational APIs that enable standards-based automation between ecosystem players. MEF encourages service providers to certify with MEF LSO Sonata APIs to accelerate time to delivery, improve customer experience, and achieve faster time to revenue.

Source: Frost & Sullivan

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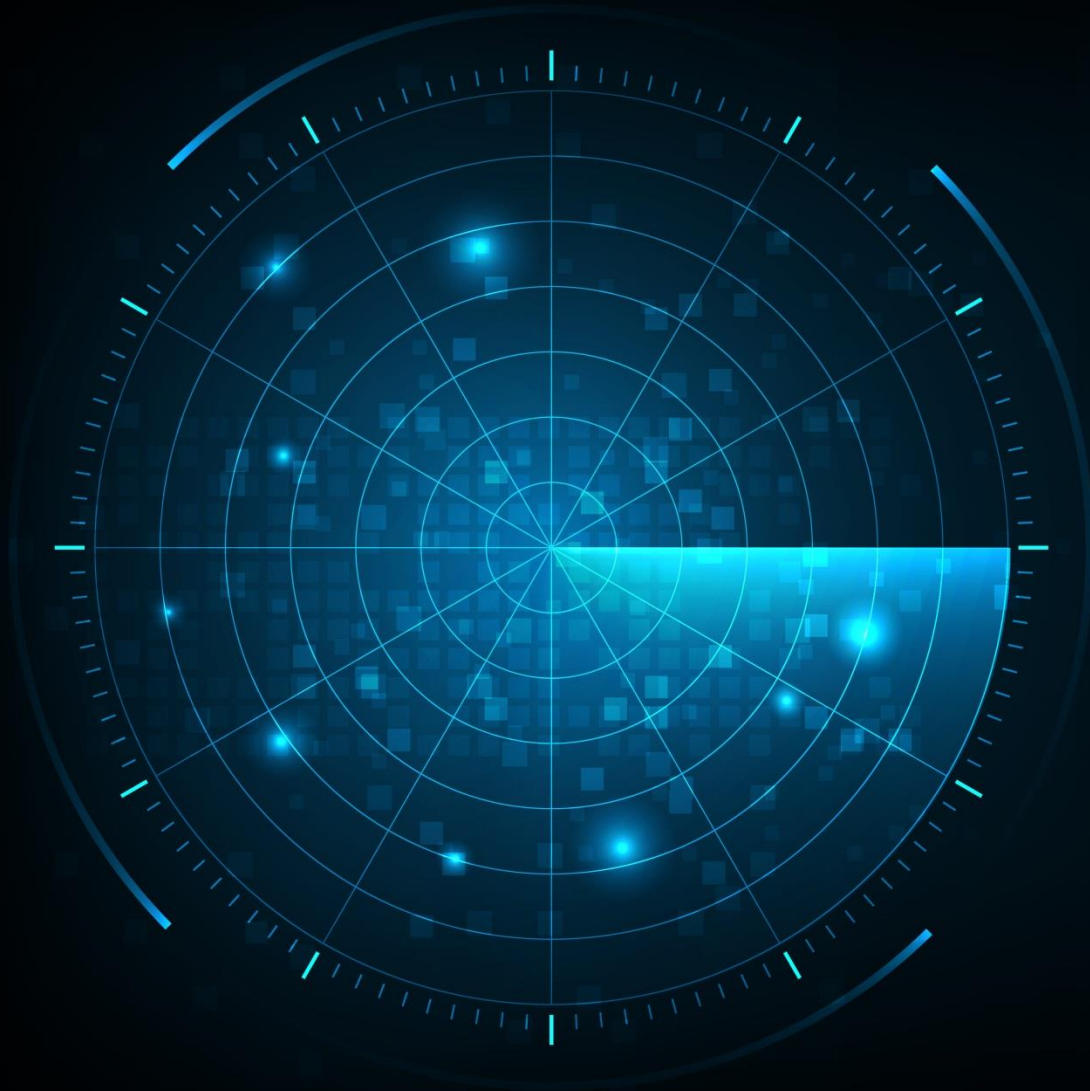
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Analytics

Frost Radar™: Benchmarking Future Growth Potential
2 Major Indices, 10 Analytical Ingredients, 1 Platform

GROWTH INDEX ELEMENTS

VERTICAL AXIS

Growth Index (GI) is a measure of a company's growth performance and track record, along with its ability to develop and execute a fully aligned growth strategy and vision; a robust growth pipeline system; and effective market, competitor, and end-user focused sales and marketing strategies.

- **GI1: MARKET SHARE (PREVIOUS 3 YEARS)**
  This is a comparison of a company's market share relative to its competitors in a given market space for the previous 3 years.

- **GI2: REVENUE GROWTH (PREVIOUS 3 YEARS)**
  This is a look at a company's revenue growth rate for the previous 3 years in the market/industry/category that forms the context for the given Frost Radar™.

- **GI3: GROWTH PIPELINE**
  This is an evaluation of the strength and leverage of a company's growth pipeline system to continuously capture, analyze, and prioritize its universe of growth opportunities.

- **GI4: VISION AND STRATEGY**
  This is an assessment of how well a company's growth strategy is aligned with its vision. Are the investments that a company is making in new products and markets consistent with the stated vision?

- **GI5: SALES AND MARKETING**

- This is a measure of the effectiveness of a company's sales and marketing efforts in helping it drive demand and achieve its growth objectives.

Frost Radar™: Benchmarking Future Growth Potential
2 Major Indices, 10 Analytical Ingredients, 1 Platform

INNOVATION INDEX ELEMENTS

HORIZONTAL AXIS

Innovation Index (II) is a measure of a company's ability to develop products/services/solutions (with a clear understanding of disruptive Mega Trends) that are globally applicable, are able to evolve and expand to serve multiple markets, and are aligned to customers' changing needs.

- **II1: INNOVATION SCALABILITY**
  This determines whether an organization's innovations are globally scalable and applicable in both developing and mature markets, and also in adjacent and non-adjacent industry verticals.

- **II2: RESEARCH AND DEVELOPMENT**
  This is a measure of the efficacy of a company's R&D strategy, as determined by the size of its R&D investment and how it feeds the innovation pipeline.

- **II3: PRODUCT PORTFOLIO**
  This is a measure of a company's product portfolio, focusing on the relative contribution of new products to its annual revenue.

- **II4: MEGA TRENDS LEVERAGE**
  This is an assessment of a company's proactive leverage of evolving, long-term opportunities and new business models, as the foundation of its innovation pipeline. An explanation of Mega Trends can be found here.

- **II5: CUSTOMER ALIGNMENT**
  This evaluates the applicability of a company's products/services/solutions to current and potential customers, as well as how its innovation strategy is influenced by evolving customer needs.

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