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Frost Radar™: Carrier Managed Network Services, 2024

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

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Strategic Imperative and Growth Environment

Source: Frost & Sullivan

Strategic Imperative

- Carrier managed network services (MNS) refer to network services offered and managed by a carrier (telecommunication) company. A carrier MNS provider offers design, implementation, maintenance, and ongoing management of network operations, including hardware, software, and services, for the whole or part of the business network or branches or regions.
- A carrier MNS provider offers a range of network services to accommodate business needs, including a network framework, diverse connectivity services, voice and collaboration services, cloud connectivity, edge compute, remote access, virtual private network, artificial intelligence for IT operations (AIOps), contact solutions, installation and configuration of network equipment, monitoring and maintenance, network analytics and reporting, technical and customer support, network security services, and troubleshooting. Furthermore, ownership of the customer's devices and circuits may be transferred to the service provider depending on the MNS contract terms.
- The standard network product and service encompasses wide area network (WAN) connectivity, application optimization, managed local area network (LAN) and Wi-Fi, software-defined wide area network (SD-WAN), managed security, managed secure access service edge (SASE), managed remote access, managed multi-cloud connectivity, on-demand services including network as a service (NaaS), and consulting and professional services.
- MNS providers have distributed network operation centers (NOCs) and security operation centers (SOCs) locally and globally, enabling them to provide reliable and secure network services where their customers are located.

Source: Frost & Sullivan

Strategic Imperative (continued)

- Two MNS models are prevalent in the market:
  - Co-managed services: The enterprise buys service from a service provider, who deploys the solution and related network services and co-manages the solution along with the customer's internal IT team
  - Fully-managed services: The customer buys a service from the service provider, who deploys and manages the solution and related network services end-to-end, without direct customer participation
- Consulting (or advisory) and professional services teams (usually expert network or sales engineers) play a critical role in the sale of managed services. These teams are the first to initiate discussions with potential customers to understand the broad business and network picture, including their network requirements, business needs, and existing network infrastructure. After analyzing these aspects, they suggest the design/architecture, network service, or services that best fit.
- Alternatively, a potential customer may seek a specific service or solution type, and the consulting or design team, upon analysis, offers the best solution. This will likely be the case where a customer has an in-house IT team but requires additional support or expertise and therefore turns to MNS for assistance.
- Carriers interviewed for this study stated that a customer's average MNS contract period usually varies between 3 and 5 years, depending upon individual requirements. The 3- to 5-year contracts are more feasible for both parties as transitioning ownership (devices and circuits) is a complex and time-consuming process. Once done, it takes additional time to streamline processes and network operations. Only then does the customer realize the promised benefits in terms of cost efficiency, risk mitigation, stability, and performance.

Source: Frost & Sullivan

Strategic Imperative (continued)

- A contract between the customer and MNS provider defines and explains the terms and conditions of how the network services will be managed, including but not limited to the scope and service description, service level agreements (SLA), pricing and payment terms, term duration and termination date, customer responsibilities (e.g., providing necessary network access), liability limitations, warranty and guarantee, troubleshooting and disaster recovery, dispute resolution (procedure for resolving dispute), and amendments (terms of modification or changes).
- The co-managed model is becoming more popular, as noted by the carriers interviewed. From a customer perspective, they like to leverage the experience and resources of the carrier but hold direct control over certain aspects of the network. For carriers, it is resource optimization as they leverage the customer's network setup (e.g., equipment, devices) and add limited network capabilities apart from their personnel's skill and experience in network management. The co-managed model is a continuous partnership, which provides the provider with a recurring revenue stream.
- The reason to engage with an MNS provider varies among business sizes. Small businesses partner with MNS providers because they do not have an in-house IT team to deploy and manage their network services. Mid-size and large businesses partner with MNS providers because it is difficult to handle multiple vendors for software, hardware, and services, manage various software versions, and ensure alignment and coordination between network and security teams.
- Other common drivers for businesses to partner with an MNS provider include cost efficiency, improved network security, a full suite of products and services in one place, access to advanced technologies, improved service delivery (enhanced performance/SLAs), greater network flexibility and scalability, proactive maintenance and support, improved network reliability and performance, and time and resource savings.

Source: Frost & Sullivan

Strategic Imperative (continued)

- Partnering with MNS providers may have limitations, including loss of direct control, integration challenges, security and compliance, provider dependency, and long-term commitments. However, ensuring that every aspect of network operations is clearly defined and included in the contract could ensure these limitations are effectively managed, providing a sense of security and reassurance in the partnership.

Source: Frost & Sullivan

Growth Environment

- The global carrier MNS market is in the mature stage of the product life cycle and has steadily grown over the past few years. The main market drivers are increased network complexity, cost efficiency, the need for network security, lack of skilled professionals managing network and security, prevalent hybrid network models, adoption of cloud services as part of digital transformation, managing different connectivity protocols, demand for high bandwidth connectivity, and the rising adoption of SASE and SD-WAN. Frost & Sullivan estimates that the revenue for the global carrier MNS market reached $15.10 billion in 2023 and projects it to increase at a CAGR of 5.1% from 2024 to 2029.
- Carriers interviewed for this report stated that the most commonly demanded MNS solutions are managed SD-WAN, followed by managed security, managed multi-cloud connectivity, managed WAN connectivity, managed LAN/Wi-Fi, and managed SASE.
- While these are the most common MNS, managed security is gaining traction with the growing cybersecurity threat landscape. In Frost & Sullivan's 2023 Global Network and Wireless survey, 75% of global respondents stated they currently partner with a third-party provider for managed security services.
- Additionally, increasing network security threats are prompting businesses to partner with MNS providers that have expert and dedicated teams to respond to the ever-changing technological landscape, allowing them to focus on other aspects of the business.
- MNS are supported by SLAs, which specify operational parameters for the service. Though these vary from service to service, some carriers offer SLAs holistically at the site level or a single SLA that covers all service components under one umbrella. It is appropriate to say that the MNS model is shifting from service-or component-based SLAs to more holistic coverage that better reflects the enterprise perspective of services.

Source: Frost & Sullivan

Growth Environment (continued)

- SLAs are offered per service or component (network uptime or availability). MNS providers usually offer SLAs end-to-end for the entire service delivery chain across multiple services. End-to-end SLAs provide a comprehensive view of service quality from a customer's perspective; however, from a managed service provider's view, with various stakeholders determining the metrics and targets, it is complicated to roll up different metrics (e.g., uptime standards) into a reasonable end-to-end SLA.
- Customers typically begin with a single service, such as connectivity or security, before eventually transitioning into an MNS customer. The transitioning (attach) percentage ranges from 25% to 30%.
- Carriers strengthen their MNS portfolios by expanding their fiber routes and enabling higher port speeds across their footprint, onboarding multivendor or best-of-breed SD-WAN/SASE vendors to accommodate a range of customers, investing in AI/ML technologies for network automation and enhanced portal capabilities, and integrating generative AI (GenAI) capabilities in network applications.
- Frost & Sullivan observes that many carriers have International Organization for Standardization (ISO) certifications for information security (ISO27001), process quality (ISO9001), service management (ISO20000), business continuity (ISO22301), and environment (ISO14001). These certifications exhibit carriers' commitment to quality and operational efficiency, which may win them contracts from customers operating under stringent policies and regulations. Additionally, customers may be less concerned about compliance if their providers have ISO and other regulatory compliance certifications.
- Private wireless networks and Low Earth Orbit (LEO) satellite connectivity are differentiating factors for MNS providers since only a few carriers offer these services. Private wireless networks are gaining traction due to their enhanced security, data ownership, and privacy features, among others. On the other hand, LEO satellite connectivity strengthens the MNS portfolio, but it is not expected to gain significant growth in the next few years.

Source: Frost & Sullivan

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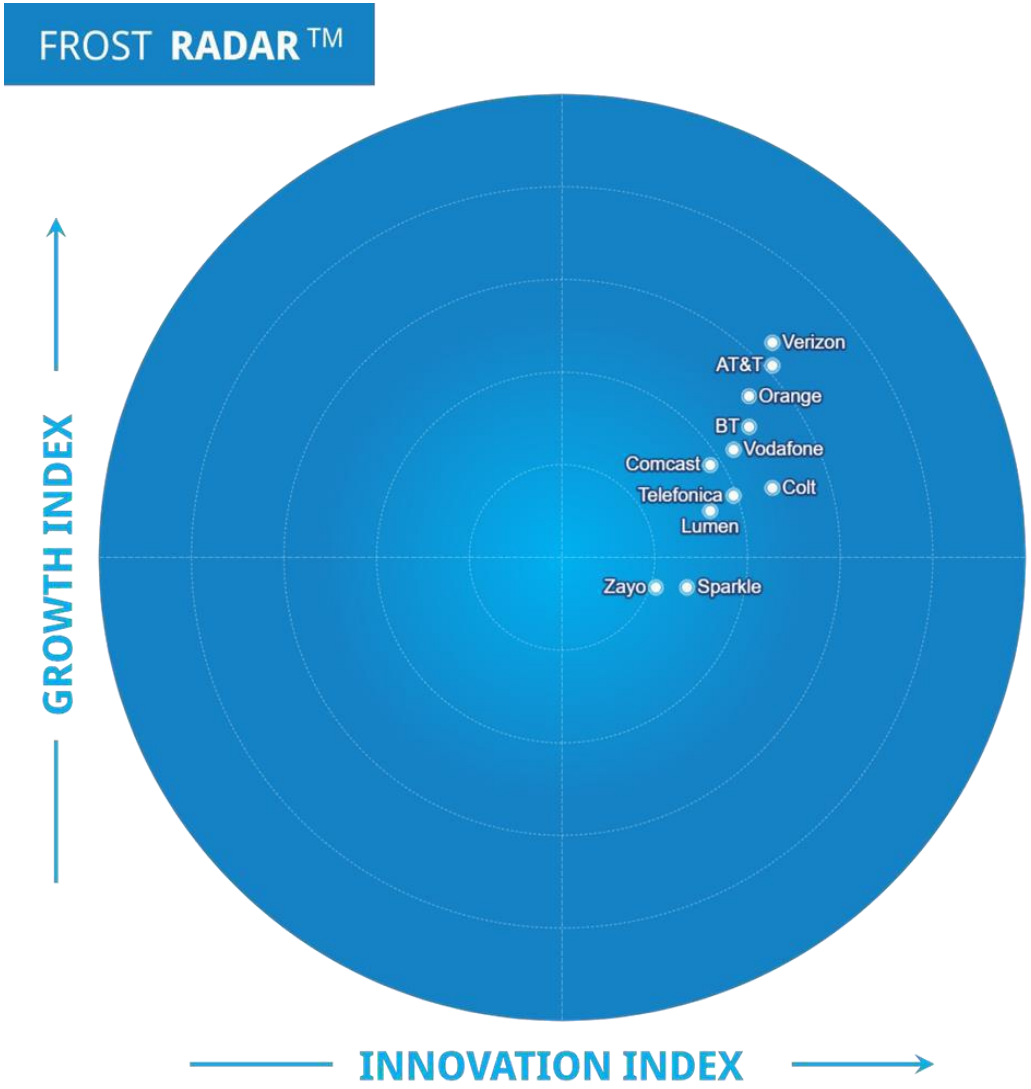
Frost Radar™: Carrier Managed Network Services, 2024

Source: Frost & Sullivan

Frost Radar™: Carrier Managed Network Services



Source: Frost & Sullivan

Frost Radar™ Competitive Environment

- Carrier MNS is a mature and competitive industry with products and services that continue to evolve, pushing carrier companies to innovate and integrate newer technologies that increase operational efficiency and offer enhanced services to customers.
- The market consists of global MNS players with regional dominance. Out of nearly 30 global carrier MNS providers in the space, Frost & Sullivan independently plotted the top 11 in this Frost Radar™ analysis, selected primarily based on their comprehensive MNS offerings and the ability to serve local and global businesses.
- Carriers compete based on the network infrastructure facilities they own and operate, global reach and presence, comprehensive MNS portfolio (e.g., wireless, SDN, security), advanced technologies and innovation, and strategic partnerships.
- Since MNS delivery varies from provider to provider, on the Innovation Index, we consider the breadth of competitors' network services portfolio, including private wireless networks, LEO satellite connectivity, their regional presence, and vendor ecosystem, with the assumption that these underlie the provider's ability to serve the needs of the largest number of enterprises.
- Additionally, we consider the carrier's focus on AI, automation, and next-generation technologies as evidence of innovation. As every company on this Radar can be considered an early adopter of automated customer-facing platforms, the mere presence of such a platform was not sufficient to claim leadership in innovation; instead, we looked for evidence of new or differentiated ways to use these platforms to enhance customer value and operational efficiency.

Source: Frost & Sullivan

Frost Radar™ Competitive Environment (continued)

- On the Growth Index, carriers compete based on their network footprint (miles of fiber) to reach customers, partner strategy, the number of devices and customers under management, and Net Promoter Score (NPS) and retention/churn rate (as reported by providers) to assess the quality of service delivery.
- AT&T Business ranks as one of the highest on the Innovation and Growth Indexes due to their comprehensive MNS portfolio, partner ecosystem, and extensive footprint and presence, with over 1 million fiber route miles, managing thousands of customers, and integrated AI/ML in network operations providing better observability tools and higher global revenues.

Source: Frost & Sullivan

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Frost Radar™: Companies to Action

Source: Frost & Sullivan

AT&T Business (AT&T)

INNOVATION

- AT&T offers a comprehensive suite of network services, including diverse underlay, security services, cloud services, unified communications, private wireless networks, and LEO satellite connectivity, supported by managed and professional services.
- AT&T offers MNS in over 200+ countries by deploying VNFs on the on-premises x86 white box to extend its services.
- Focusing on simplifying the portfolio by reducing the number of vendors, AT&T now partners with 3 vendors to offer 5 SD-WAN and LAN/Wi-Fi solutions. This includes Aruba with Edge Connect and SD-Branch, Cisco Catalyst, Cisco Meraki, and VMware VeloCloud as a fully managed or co-managed solution. On the security side, a single stack for SASE via Cisco and a multivendor/best-of-breed approach for SSE through Palo Alto Prisma and Zscaler provide flexible options that fit varied customer needs.
- For its cloud voice solution, AT&T became the first carrier to integrate its 5G network with MS Teams and utilize the Azure Communications Gateway to offer an enriched experience, including AI-driven communication, enhanced calling, compliance, and end-to-end security.
- AT&T operates a global multi-service edge platform that supports managed solutions for multi-cloud connectivity, SD-WAN, security, and cloud voice. The platform integrates AT&T's network capabilities with the deployment of customer virtual network functions (VNFs) and connections to public cloud and data center ecosystems.

Source: Frost & Sullivan

AT&T Business (AT&T) (continued)

INNOVATION

- AT&T's proof-of-concept labs provide MNS customers with the experience of showcasing current network operations versus how effectively the network performs after the transition. The AT&T lab enables customer-specific use case testing and develops migration strategies while allowing customers to evaluate the value of transition on its network services.

Source: Frost & Sullivan

AT&T Business (AT&T) (continued)

GROWTH

- With services available in 200+ countries, AT&T has one of the largest fiber networks comprising 1.4+ million fiber route miles globally, offering up to 400 Gbps connectivity speeds, serving over 3.6 million business customer locations. Furthermore, its cloud interconnect network spans over 760 on-net buildings globally, including close to 600 carrier hotels alone in the United States and others in 59 countries. This extensive network infrastructure indicates AT&T's wider customer reach, ability to provide quality services and performance, access to its network services portfolio, and scalability and flexibility of its global MNS solution, delivering an enriched experience.
- AT&T partnered with Blackrock for the Gigapower project (building a high-capacity fiber optic network) to extend its presence outside its current footprint, including in Nevada, Arizona, Pennsylvania, Alabama, and Florida. This effort aligns with its plans to reach over 30 million consumer and business locations by the end of 2025, which includes expanding the capacity of the existing PoPs, carrier hotels, and data centers while adding new high-speed routes.
- Because the company considers consulting and advisory services critical to growth, AT&T has built a team of close to 800 consultants with over 3 decades of expertise in implementing complex network projects globally through regional offices in the United States, Europe, the Middle East, Latin America, and Asia-Pacific (APAC). Additionally, each client is assigned a single point of contact for MNS, which delivers an enriched customer experience.
- To deliver 24/7/365 customer support to global customers, AT&T practices a "follow the sun model", increasing responsiveness while reducing delays.

Source: Frost & Sullivan

AT&T Business (AT&T) (continued)

FROST PERSPECTIVE

- AT&T offers a comprehensive MNS suite, supported by its expertise in delivering end-to-end services globally, which is the key differentiator in the market.
- In 2023, Frost & Sullivan recognized AT&T as the market leader in North American Managed SD-WAN, DIA, and Ethernet services and the Innovation leader in European Managed SD-WAN, which supports its leading position in the global MNS industry based on revenue and customer success perspectives.
- AT&T is one of the most prominent MNS providers, with a large presence in North America, followed by Europe. However, APAC is one of the largest and most promising high-growth markets. AT&T should expand its partner ecosystem in the region to strengthen its service offerings while increasing its customer base.
- AT&T, a long-standing player with vast experience managing network services, could target large sports events and stadium facilities to showcase its MNS capabilities. Promoting these use cases (streaming at the time of the event and after) has greater reach from an MNS marketing perspective.

Source: Frost & Sullivan

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Best Practices & Growth Opportunities

Best Practices

1. A strong network services portfolio including diverse connectivity choices, SDN, and security supported by fiber infrastructure is crucial for competing in the market. A vendor partner ecosystem is critical to accommodate different customers' network service needs, as they may want to continue with an existing vendor for a specific service.

2. The complexity of managing different network, equipment, and service vendors pushes businesses to partner with an MNS provider. Apart from a strong MNS suite and fiber infrastructure, service providers must focus on having a strong service delivery team, service quality (SLAs), security compliance, and vertical-specific expertise.

3. To differentiate MNS offerings, service providers are innovating platforms to enhance service delivery using AI/ML models. Service providers are focusing on simplifying network management, utilizing network data to draw inferences that are further used to improve network operations while providing visibility.

Source: Frost & Sullivan

Growth Opportunities

1. Managed LAN and WAN connectivity, managed SD-WAN, and managed security services are at the top of customers' minds, wrapped up with consulting and professional services which are critical in assessing existing network infrastructure and designing of network architecture per customer needs. Carriers are focused on partnering with vendors that can accommodate diverse customer needs and fit into best-of-breed, multivendor approaches.

2. Carriers are investing in technologies to differentiate their MNS offerings. A few offer private wireless networks and LEO satellite connectivity; others are pondering the feasibility of these services before investing. As cyber threats increase, this could be an opportunity for carriers to strategize their MNS portfolio around private wireless networks.

3. Most carriers already integrate AI and GenAI capabilities in the customer portal because of the benefits of real-time monitoring and alerting, automated troubleshooting and resolution, and predictive analytics to avoid bottlenecks, and network optimization. It will be interesting to see how carriers further integrate these capabilities into their network services to offer advanced automation, AI-driven security, and AI collaboration tools.

Source: Frost & Sullivan

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Frost Radar™ Analytics

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

Growth Index

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.

Source: Frost & Sullivan

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

Innovation Index

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.

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.

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.

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

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.

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.

Source: Frost & Sullivan

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Source: Frost & Sullivan