Magic Quadrant pour les services réseau, à l'échelle mondiale

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Les fournisseurs mondiaux de services réseau répondent aux exigences de transformation WAN de leurs clients afin de renforcer l'agilité et la fiabilité des initiatives commerciales numériques. Les responsables de l'I&O peuvent utiliser cette recherche pour évaluer et sélectionner les meilleurs partenaires de services réseau mondiaux.

Hypothèses de planification stratégique

- D'ici 2025, 50 % des nouveaux achats de SD-WAN (Software-Defined WAN) feront partie d'une offre SASE (Secure Access Service Edge) d'un seul fournisseur, ce qui représente une augmentation importante par rapport aux 10 % de 2022.
- D'ici la fin de l'année 2025, au moins 30 % des entreprises utiliseront des services d'interconnexion cloud définie par logiciel (SDCI) pour se connecter aux fournisseurs de services de communication publics (CSP), ce qui représente une augmentation par rapport à environ 10 % en 2020.
- D'ici 2026, 70 % des entreprises auront mis en œuvre des réseaux étendus définis par logiciel (SD-WAN), contre environ 45 % en 2021.
- D'ici2026, 45 % des sites d'entreprise n'utiliseront que des services Internet pour leur connectivité WAN.

Définition/description du marché

Gartner définit le marché mondial des services réseau comme la fourniture de services de réseau d'entreprise fixes avec une couverture mondiale. Les principaux services de réseau mondiaux actuellement requis pour l'évaluation dans ce Magic Quadrant sont les suivants :

- **Services de transport WAN :** il s'agit de la commutation d'étiquettes multiprotocole (MPLS) et des services Internet, à la fois haut débit/DSL et accès Internet dédié (DIA), disponibles dans le monde entier. Le DIA doit être proposé en tant que service propre au fournisseur, qui peut être

complété par le DIA des partenaires. L'Internet haut débit peut être une solution de revente, mais doit être disponible à l'échelle mondiale.

- **Accès WAN cellulaire 4G/LTE et 5G :** le cellulaire peut être utilisé comme type de transport WAN, en particulier dans les réseaux SD-WAN, ce qui permet le déploiement rapide de nouveaux emplacements, la prise en charge d'emplacements temporaires et la fourniture de liaisons de secours diversifiées.

- **Interconnexion cloud basée sur l'opérateur (CBCI) :** il s'agit d'une connexion privée entre les services de réseau d'entreprise d'un fournisseur de services, tels que les services MPLS et/ou Ethernet, et l'option de connexion privée d'un ou de plusieurs fournisseurs de services de communication (CSP). Le CBCI doit être établi directement entre le fournisseur de services réseau (NSP) et le fournisseur de cloud, et doit être disponible à l'échelle mondiale pour les principaux fournisseurs de cloud.

- Services SD-WAN gérés : la gestion du SD-WAN d'entreprise peut être fournie soit par des périphériques périphériques, soit par le biais de passerelles SD-WAN basées sur le réseau des fournisseurs à l'échelle mondiale. Les passerelles SD-WAN peuvent améliorer les performances par rapport au trafic parcourant de longues distances sur Internet, et elles facilitent des interconnexions plus évolutives entre les réseaux SD-WAN et non-SD-WAN.

Les services de réseau mondiaux émergents facultatifs qui sont évalués, mais qui ne sont pas obligatoires, sont les suivants :

- **Network on demand (NoD) —** NoD services from NSPs enable enterprises to make near-real-time changes to access/port bandwidth, change the WAN service types delivered over a network port, and in some cases, add and remove endpoints (for example, connections to cloud providers). This occurs under software control via the provider's web portal or APIs.

- **Enhanced internet services —** Enhanced internet backbone services or other approaches — including (but not limited to) deterministic routing, ISP federations and network-based SD-WAN gateways — are offerings designed to improve and stabilize the performance of purely internet-based global networks.

- **Network function virtualization (NFV) —** NFV is an architecture to deliver multiple network functions — including routing, firewall, SD-WAN, WAN optimization and visibility — as software, called virtual network functions (VNFs). NFV can be implemented on universal customer premises equipment (uCPE) — typically via industry-standard x86 devices used in place of function-specific appliances and in NFV service nodes — that is located in the provider's network or in colocation facilities. NFV enables network functions to be activated on demand, deactivated when no longer required and consumed on an as-a-service basis.

- **Managed SASE —** Managed secure access service edge (SASE) offerings provide a single source for SASE services, most often with a single-vendor sourcing approach and support experience for the enterprise. The network service provider may use a single-vendor SASE or multivendor SASE approach to build its offering.

In addition, it is highly desirable for providers to offer related network services, including managed WAN optimization, managed application visibility, managed network services and cloud delivered security.

What's Changed?

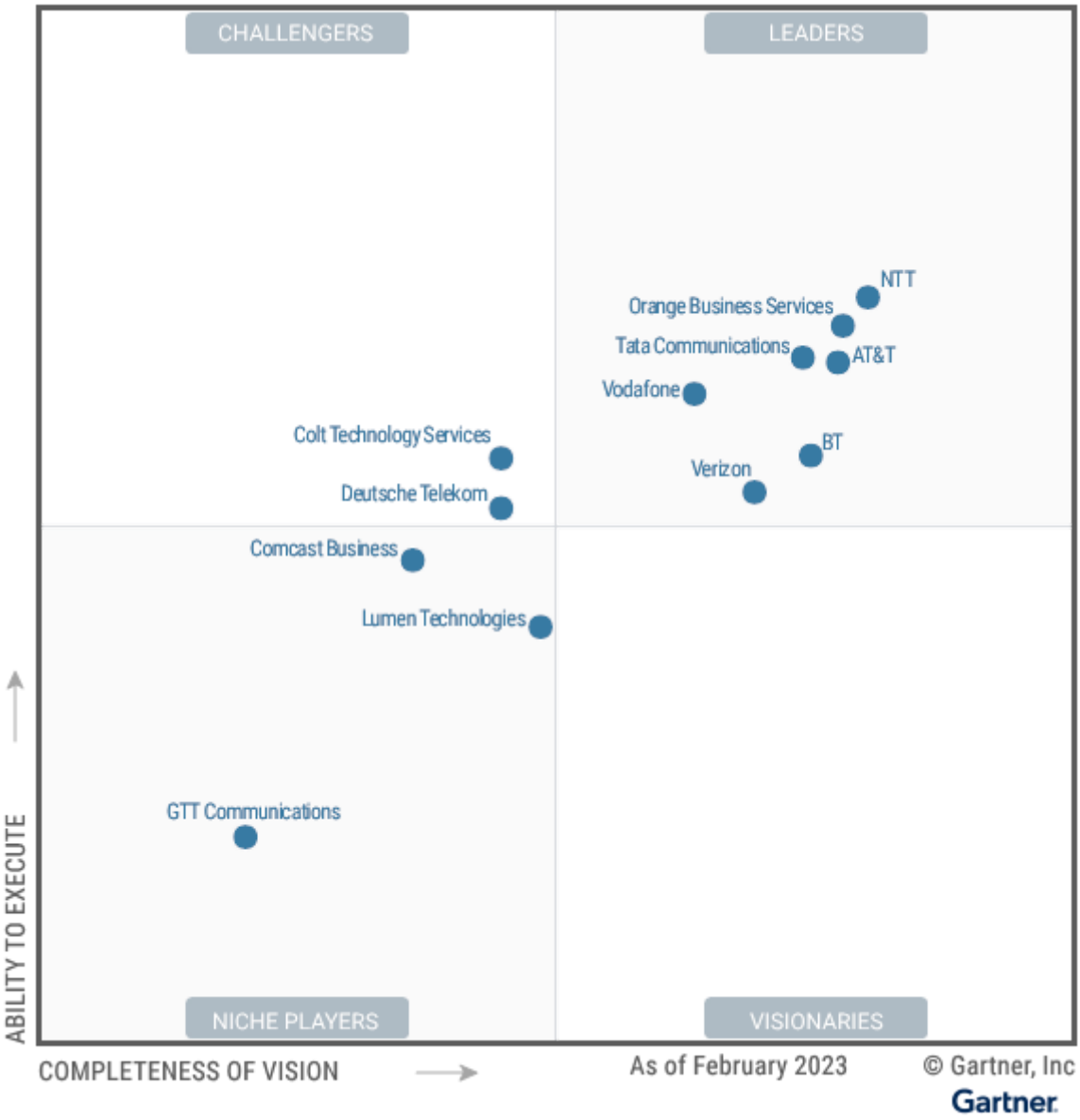
Gartner has observed modest changes in enterprise networking requirements and buying criteria for global networks in the past 12 months:

- Growing interest in services like managed SD-WAN and SASE are transforming the enterprise networking market. These are additional ways, rapidly deployed, that organizations can help improve the agility of providers' network solutions and differentiate themselves to the enterprise audience.
- Enhancements to flexible networking technologies, such as NoD and bring your own (BYO) access, offer greater support for self-service. They also offer the rapid accommodation of new endpoints and new applications (including cloud services and the Internet of Things [IoT]) while controlling the organization's WAN expenditure.
- Flexible sourcing approaches, such as network as a service (NaaS), are gaining interest, although offers are still emerging and should be closely examined against alternatives.
- The growing use of internet services for WAN transport remains strong and has forced providers to reevaluate their own internet service offerings as well as the extent they partner to peer with local ISPs for greater geographic reach and differentiation.
- Gartner has also observed an increased demand for Ethernet and wavelength services to effectively address regional requirements for data center connectivity and very high bandwidth circuits, which are integral to the hybrid solution.

The inclusion and evaluation criteria for this Magic Quadrant and its companion Critical Capabilities research have been modified to reflect these trends.

Magic Quadrant

Figure 1: Magic Quadrant for Network Services, Global



Source: Gartner (February 2023)

Vendor Strengths and Cautions

AT&T

AT&T is a Leader in this Magic Quadrant. Based in Dallas, Texas, AT&T is a major provider of U.S. fixed and mobile network services and global enterprise network services.

AT&T's MPLS network covers 63 countries, while its internet backbone reaches 41 countries. It offers direct cloud connectivity to 13 major cloud providers in 83 cities, though only five CSPs are available in most cities. AT&T offers managed SD-WAN solutions from VMware, Hewlett Packard Enterprise (HPE), Cisco, Fortinet and Palo Alto Networks, with 62 network-based gateways for its VMware offer, plus many partner gateways. The FlexWare NFV platform includes a broad range of VNFs, including edge compute options, available from both uCPE devices and 44 NFV service nodes.

AT&T should be considered for global networking requirements for all sizes — and particularly large multinational enterprises — regardless of home country.

Strengths

- AT&T's Total Access Orchestration (TAO) platform offers a broad range of VNFs and connectivity options to cloud services, Session Initiation Protocol (SIP) trunking, and connectivity from AT&T and other telcos.
- AT&T expanded its SASE offerings to include Palo Alto Networks, Cisco and VMware to better address most customer SD-WAN and security needs.
- AT&T has enhanced its digital portal, AT&T Business Center, to create a common platform across all services, including bandwidth utilization alerts; AT&T Dynamic Exchange (ADX); multigig, third-party SD-WAN portal integration; and ebonding APIs.

Cautions

- AT&T's SD-WAN and NFV/uCPE offerings remain fragmented, with its network-based SD-WAN gateways limited to its VMware solution and with Cisco Viptela SD-WAN delivered on a separate hardware platform.
- Some Gartner clients have expressed dissatisfaction with its network services support, including time to respond/repair, sales quoting and customer support communications. Enterprise pricing proposals lack full transparency, and therefore, detailed pricing must be requested in order to avoid prolonged sales cycles, often for expired contracts.
- AT&T's footprint in the Middle East and Africa is below average for MPLS and internet points of presence (POPs). It also has only one direct cloud connection in Latin America and relies on exchanges to serve the region.

BT

BT is a Leader in this Magic Quadrant. Headquartered in London, BT is a major provider of U.K. fixed and mobile network services, through BT Enterprise, and global enterprise network services, through BT Global. BT announced it will be combining these two units into a B2B unit called BT Business. With this move, it intends to enhance value for its B2B customers, strengthen its competitive position, and deliver material synergies companywide.

BT has MPLS POPs in 75 countries, and its internet backbone reaches 26 countries. Direct cloud connectivity is available in 15 cities to 13 leading cloud providers. BT offers managed SD-WAN based on Cisco, Nokia (Nuage Networks), VMware, Fortinet, Versa Networks and Palo Alto Prisma SASE, with 42 network-based SD-WAN gateways for Nuage Networks and VMware. BT has an NFV offer with a very broad range of VNFs that is available from uCPE devices and 36 NFV service nodes.

Large global enterprises should consider BT for global networking services.

Strengths

- BT has a strong offer of SD-WAN technologies based on six vendors, which is the highest among providers in this research. Its tiered internet services allow its customers to mix and match to accommodate their specific use cases.

- Co-management options are supported through web portals, APIs or a BT application in ServiceNow's marketplace.
- BT has also launched a single-vendor SASE offering, based on VMware, that enterprises can augment with additional network security services.

Cautions

- BT's core network rebuild is a multiyear project, and functionality will be gradually available. Customers should be aware of new capabilities and commercial offers that enhance current service options, but they should remain cautious about possible operational disruptions on the migration to the new platform.
- BT has announced the merger of its business unit in charge of global customers with BT Enterprise. Customers must be vigilant about the possibility of service degradation during the transition.
- BT's depth of virtual network service offerings lags behind the top performers in this category in terms of unique uCPE and POP-based VNFs supported.

Colt Technology Services

Colt Technology Services is a Challenger in this Magic Quadrant. Headquartered in the U.K., Colt is a global infrastructure services company selling network and voice services to the enterprise market.

Colt's MPLS network covers 29 countries, and its internet backbone reaches 28 countries. Colt offers SD-WAN based on VMware and Versa Networks with 11 network-based SD-WAN gateways and VMware with 21 network-based SD-WAN gateways. Colt offers cloud connectivity to eight major cloud providers in 42 cities. It offers NFV services, with a more limited range of support, including six VNFs from uCPE devices and 10 VNF on its 68 NFV service nodes.

Favorable client feedback for Colt was among the highest, and Colt should be considered by global organizations with most of their locations in Europe and/or Asia/Pacific (APAC).

Strengths

- Colt has expanded its SD-WAN gateways beyond its initial offering of Versa to include VMware and allow more technology, feature and price choices for its customers.
- Colt is reinforcing and enhancing its network-on-demand capabilities for underlay connectivity services with expansion to multiple local service providers to support customers' operations and businesses by providing enhanced network agility.
- Colt has reached an agreement for the acquisition of Lumen Technologies' Europe, the Middle East and Africa (EMEA) business, which upon completion (likely by 2023 year end) will expand Colt's global presence.

Cautions

- The range of SD-WAN vendors in Colt's standard service portfolio is limited to two. Customers looking for something other than these two technologies will be supported on a customized, per-project basis, which may impact lead times and service quality. Colt also lags in terms of SASE offers compared with others in research.
- Colt's NFV and uCPE breadth of offerings are lagging behind Leaders in this Magic Quadrant in terms of the number of unique uCPE vendors and VNFs supported.
- Colt's network coverage in emerging APAC, Latin America, the Middle East and Africa is limited.

Comcast Business

Comcast Business (Comcast) is a Niche Player in this Magic Quadrant. Headquartered in the U.S., Comcast's roots have taken it from a predominantly U.S. focus to a global provider through its acquisition of Masergy Communications in October 2021. It has integrated its services and assets, cross-selling Masergy and Comcast products to its customer base.

Comcast's MPLS network covers 24 countries, and its internet backbone reaches 24 countries. Its cloud connectivity connects to 14 major cloud providers in 39 cities. Comcast offers SD-WAN based on Fortinet, Silver Peak Systems, Cisco Viptela/Meraki and Versa Networks, with 130 network-based SD-WAN gateways. Its NFV platform includes a good range of VNFs from its 65 NFV service nodes.

Organizations should consider Comcast if they require network services in the major global markets or predominantly in North and Latin America.

Strengths

- Comcast launched two new SD-WAN vendors, enhancements for SaaS automation, and the launch of endpoint detection/response and managed detection/response.
- Its on-demand POPs may help it more quickly expand its POP presence, particularly outside of the U.S.
- Comcast has embarked on its SASE/SSE (security service edge) journey by leveraging Fortinet, with additional vendors planned.

Cautions

- While Comcast supports sales worldwide and operations based in the U.S., there are no sales representatives located in the Asia/Pacific region. And despite its Masergy global footprint, Comcast's products, including wireless options and 100G connectivity, are North America-centric.
- Comcast lags other competitors in its adoption of artificial intelligence for IT operations (AIOps) and automation for customer onboarding and customer experience (CX). Similarly, its NoD and NFV/uCPE product lines are not as robust as others, while its 4G/5G fixed wireless access (FWA) strategy relies solely on partners.

- Its service-level agreements (SLAs) for internet, MPLS, cloud connectivity, NoD and SD-WAN are below average.

Deutsche Telekom

Deutsche Telekom is a Challenger in this Magic Quadrant. Headquartered in Germany, it is a major European fixed and mobile service provider, in addition to offering global network services.

Deutsche Telekom's MPLS network covers 54 countries, and its internet backbone reaches 50 countries. It offers direct cloud connectivity to Microsoft, Amazon and Google, as well as five additional cloud providers, in 46 cities. The vendor offers managed SD-WAN globally from Cisco, Juniper Networks, HPE, VMware and Versa Networks. It has 146 network-based SD-WAN gateways (IntraSelect for Cisco), including partner gateways for Juniper, Aruba, VMware and Versa. Deutsche Telekom's NFV offering supports a limited range of NFV from uCPE devices and 32 NFV service nodes.

Deutsche Telekom should be considered by enterprises with global networks that are heavily weighted toward Europe.

Strengths

- Deutsche Telekom is renewing its enterprise network capabilities for higher service automation in its software-defined anything (SDx) platform. This platform currently offers NoD via an online portal for underlay connectivity services (Ethernet, MPLS and internet) and some SD-WAN, firewalling and cloud connect services.
- Deutsche Telekom has a good depth of SD-WAN offerings with eight technologies in the portfolio, including six SD-WAN vendors supported, which enables the service provider to support a large variety of customer requirements for feature sets and price ranges.
- Deutsche Telekom has acquired a major stake in Teridion, which offers overlay internet routing with multiple cloud-based virtual POPs worldwide to provide enhanced internet services to reduce latency and improve performance for applications.

Cautions

- Deutsche Telekom's offering and plans for VNFs that enterprises can consume from network POPs (that is, NFV) are more limited than most of the other providers in this research.
- Deutsche Telekom has a weaker network coverage in the Americas, the Middle East and Africa than leading service providers in this Magic Quadrant.
- Deutsche Telekom's WAN access options (5G and satellite) are more limited than that of providers evaluated in this research, and multiservice access (Ethernet, MPLS and internet) is not available yet.

GTT Communications

GTT Communications is a Niche Player in this Magic Quadrant. Based in McLean, Virginia, GTT is a provider of global enterprise networking services. GTT commenced a Chapter 11 bankruptcy process in 2021 and has completed its financial restructuring process, emerging from its case on 3 January 2023.

GTT's MPLS network covers 38 countries, while its internet backbone reaches 37 countries. It offers cloud connectivity to 12 major cloud providers in 37 cities. GTT offers managed SD-WAN from VMware, Silver Peak and Fortinet, from as many as 72 gateways, though not across all vendors. GTT offers NFV services from both uCPE devices and 46 NFV service nodes in 26 cities, with a limited range of VNF types.

GTT should be considered by enterprises requiring global networks that need strong coverage in North America and Europe. Gartner client feedback has been mixed compared with other providers, due to the financial restructuring and inconsistent service and support. Clients should evaluate GTT for all network services and consider a secondary provider.

Strengths

- GTT is one of the few providers, compared with others in this MQ, that emphasizes cost-effective options for customers.
- GTT offers some flexible and differentiated MPLS billing options, including options to charge for ingress traffic only and shared bandwidth ports.
- Its SD-WAN vendor partners are HPE, VMware and Fortinet, and the recent launch of Secure Connect offers SD-WAN with Palo Alto SSE.

Cautions

- GTT's product development strategy remains focused on incremental additions rather than game-changing innovation. Its SASE offering is more limited in contrast to other competitors within this research, and it still lacks NoD.
- GTT's cloud connectivity options trail others included in this research. Its customer self-management portal is also not as full-featured, and it lags in its use of automation to improve service delivery.
- GTT's financial viability may limit product development and innovation needed for growth, and it may impact sales turnover.

Lumen Technologies

Lumen Technologies is a Niche Player in this Magic Quadrant. Headquartered in Monroe, Louisiana, it is a major U.S. NSP with extensive global networking capabilities. In November 2022, Lumen announced an exclusive arrangement for the proposed sale of Lumen's Europe, Middle East and Africa business to Colt, which is expected to close 4Q2023.

Lumen's MPLS network reaches 43 countries, and its internet network reaches 34 countries. It offers cloud connectivity to six major cloud providers. The cloud connectivity by city varies widely

depending on the market or region. Lumen offers managed SD-WAN services from Versa Networks, Cisco Viptela/Meraki, VMware and Fortinet, with 116 SD-WAN gateways for Versa Networks and roughly half that for VMware and Fortinet. Lumen's NFV offering is available from uCPE devices and more than 236 NFV service nodes for nonvisibility VNF support.

Multinational enterprises with a high concentration of locations in the U.S. and APAC should consider Lumen for managed and unmanaged global networking requirements.

Strengths

- Lumen has invested to improve the customer experience and external customer touchpoints, including Lumen.com, the Lumen Marketplace, its Control Center and its Developer Center across all service areas.
- Lumen has enhanced its NFV offering and is competitive compared with the leading providers in this research. Lumen offers network-based SD-WAN gateways for three of its five SD-WAN offers. It offers a streamlined yet integrated SD-WAN SLA that is consistent across network services, which includes SLA-based commitments to availability tiers, repair and change management.
- Available in 119 countries prespinoff, Lumen's Edge Gateway serves as an on-premises-based edge compute platform that is designed to support multiple WAN transport connections along with enough compute (cores/memory/storage) to deploy a suite of WAN, security and IT workloads.

Cautions

- Lumen's SASE solutions are in their early stages and lack key capabilities, and while its SASE roll out is by region, it may be impacted by the divestiture of EMEA, which could halt further development.
- Assuming EMEA divestiture closes, Lumen will soon have limited network coverage outside the U.S. and APAC, and will rely heavily on partners outside those regions.
- Gartner clients have expressed dissatisfaction with customer experience, including sales inconsistency, time to respond and overall customer support.

NTT

NTT is a Leader in this Magic Quadrant. It is the leading NSP headquartered in Japan and provides global network services via its NTT Ltd. unit.

NTT's MPLS network reaches 49 countries, and its internet backbone reaches 43 countries. NTT offers direct connectivity to nine major cloud providers in 56 cities. It has a comprehensive NFV portfolio, with the largest number of unique VNFs compared with others evaluated in this research, across uCPE devices and 118 NFV service nodes. NTT offers managed SD-WAN globally based on Cisco Viptela/Meraki, HPE, Versa Networks, Fortinet and VMware, with 151 network-

based SD-WAN gateways in 53 countries. However, more than half have only a single fully redundant gateway in the country, for all its offers.

NTT should be considered by all enterprises with global WAN needs across all regions.

Strengths

- NTT has a strong offering for SD-WAN work-from-home (WFH) solutions for enterprise employees with seamless integration with the enterprise SD-WAN network infrastructure. It can segment WFH networks for personal home and business use to support enhanced security.
- NTT's NoD is more feature-rich than most in supporting all of its network services, including 5G, to all users to dynamically configure bandwidth, as well as add or change NFV/VNF services and add cloud endpoints. Partner-based Internet services remain a stronghold to its strategy, allowing it to offer more breadth and competitive pricing.
- NTT has extensive MPLS and internet coverage in APAC, North America, Europe and Africa, including a growing list of access providers for greater reach.

Cautions

- Carefully investigate NTT's SASE strategy, because it was the least clear in terms of services currently offered and specific vendors supported.
- While NTT's SLAs are comprehensive, they are complicated and therefore less competitive. For example, we have seen instances where a client has to be within 50 kilometers (km) of the NFV node in order to qualify for the specific SLA.
- NTT's network coverage in Latin America remains limited compared with Leaders in this Magic Quadrant. NTT's brand awareness outside the APAC region remains a challenge, and the company often gets overlooked for opportunities for which it might be suitable.

Orange Business Services

Orange Business Services is a Leader in this Magic Quadrant. Orange Business Services is the enterprise service unit of Orange, a global communications service provider headquartered in France.

Orange Business Services' MPLS network covers 91 countries, while its internet backbone covers 64 countries. The vendor supports cloud connectivity to nine major cloud providers in 19 cities worldwide. It offers managed SD-WAN services based on 18 Cisco Viptela/Meraki and 11 Fortinet network-based gateways for its SD-WAN offerings. It offers NFV with routing, SD-WAN, security and WAN optimization VNFs available from uCPE devices and 30 NFV service nodes.

Orange Business Services should be considered by all enterprises with requirements for managed global networks across all regions.

Strengths

- Orange Business Service has a stronger network presence in Latin America and the Middle East compared with most other competitors in this research.
- It also displays more of a focus on customer experience than others in this research, with greater use of automation and AIOps in its management portal. Customer experience enhancements include an “internet weather map” tool that allows customers to compare and select services based on price and performance.
- Orange Business Services’ vision that networks should function more like cloud services is compelling and should resonate among increasingly cloud-focused enterprises. As part of its cloud-first market strategy, Orange Business Services has added two cloud interconnect locations and supports multicloud networking, all backed by its unified global Tier 1 backbone.

Cautions

- Orange Business Services’ products and strategy focus more on Europe, with little indication it plans to improve marketing in the Americas in particular.
- Orange Business Services’ sales organization is still focused on Europe, with minimal presence in North America and Latin America. Its claim that its higher-level SLA Gold and Platinum internet services qualify as enhanced internet is questionable, particularly for the Gold level, which doesn’t appear to offer additional routing efficiency.
- Orange Business Services’ focus is on NFV service nodes, and as a result, its uCPE strategy appears to be lacking compared with others in this research.

Tata Communications

Tata Communications is a Leader in this Magic Quadrant. Part of the Tata Group and headquartered in Mumbai, India, Tata Communications is a global provider of enterprise network services.

Tata Communications MPLS network covers 64 countries, and its internet backbone reaches 41 countries. It offers direct cloud connectivity to nine major cloud providers in 19 cities. It offers managed SD-WAN based on Versa Networks, Cisco Viptela/Meraki, HPE, Fortinet and its in-house Tata AppWAN. It has 68 Versa, 47 Cisco Viptela and 56 Fortinet SD-WAN gateways. It offers NFV services from uCPE devices and 68 NFV service nodes.

Client feedback for Tata Communications was among the most favorable. The company should be considered for all enterprise global WAN needs, especially those requiring extensive coverage in Africa, the Middle East and Asia/Pacific.

Strengths

- Tata Communications’ enhanced internet services via its IZO Internet WAN platform continues to provide an enhanced internet service with deterministic routing, guaranteed performance and robust end-to-end SLAs, including centralized order placement and support in more than 190 countries.

- It has enhanced NoD across network services to support short-term interim bandwidth requirements for specific use cases, enabled by its strong global cable capacity. Tata Communications also has plans for 400G to meet market demands beyond current portfolio capabilities.

- Tata Communications offers monitoring as a service that enables monitoring and management of all variants of its IZO Internet WAN, including customer third-party internet services without Tata Communications-provided CPE. It also provides a single estate view across all links (including on-net and third party).

Cautions

- Tata Communications' network coverage is more limited outside APAC and EMEA, which can be less appealing to North American and European opportunities.

- Tata Communications continues to have a more limited portfolio of VNFs on its uCPE devices than nearly all the providers evaluated in this Magic Quadrant, but it supports a broader range of VNFs on its NFV service nodes.

- Tata Communications' NoD continues to lag others evaluated in this Magic Quadrant, although it has expanded its capabilities to include near-real-time provisioning.

Verizon

Verizon is a Leader in this Magic Quadrant. Based in New York City, it is a major provider of U.S. fixed and mobile networking and global enterprise network services.

Verizon's MPLS network reaches 60 countries, while its internet backbone spans 35 countries. Verizon offers cloud connectivity to eight major cloud providers in 27 cities. It offers managed SD-WAN from Versa Networks, Cisco Viptela/Meraki, HPE Aruba (Silver Peak), VMware (VeloCloud) and Fortinet, with 64 network-based SD-WAN gateways. It offers NFV services with a broad portfolio of VNFs and edge compute capabilities from a range of uCPE devices and 61 NFV service nodes.

All multinational enterprises should consider Verizon for managed and unmanaged network requirements.

Strengths

- Verizon's cloud services portfolio, which includes Secure Cloud Interconnect (SCI) and Software Defined Interconnect (SDI), has been bolstered by the recent launch of its Multi-Cloud App Access Manager. This service enables a user working remotely to access applications in multiple clouds with security and optimization.

- Verizon's NaaS offering provides customers a new operating expenditure (opex) billing option and updated, streamlined SLAs for enterprises seeking a subscription-based option.

- Its SD-WAN portfolio also includes managed SASE with Versa and Cisco, while its managed SD-WAN portfolio will likely benefit from the planned launch of single-vendor SASE.

Cautions

- Verizon's direct cloud connectivity geographic reach is 30% below the average for providers in this research.
- While Verizon supports a limited FWA offer in other specific regions using network partners, its FWA strategy remains focused on North America.
- Based on client inquiry, Verizon continues to offer elevated WAN connectivity pricing and is inflexible in contract negotiations, which has led to increased customer dissatisfaction.

Vodafone

Vodafone is a Leader in this Magic Quadrant. Headquartered in Newbury, U.K., it is a provider of fixed and mobile network services in the U.S., Europe, the Middle East, Africa and Asia/Pacific. Vodafone Business is responsible for providing global enterprise networks and associated services.

Vodafone's MPLS network spans 76 countries, while its internet backbone covers 33 countries. It offers cloud connectivity to six major cloud providers in 35 cities. It offers managed SD-WAN services based on Juniper, Cisco Viptela/Meraki and VMware, with 31 network-based gateways for Juniper, 49 for VMware and six for Meraki. Vodafone offers NFV with a broad portfolio of VNFs delivered from uCPE devices and 86 NFV service nodes.

Favorable client feedback for Vodafone was among the highest, and Vodafone should be considered by enterprises with global networks that require strong coverage in any or all of Europe, the Middle East, Africa or Asia/Pacific.

Strengths

- Vodafone's network POP coverage is strong in Europe, APAC and Africa, where it also has domestic operations in select countries.
- Vodafone has a segmented SD-WAN offering for different enterprise needs and use cases, including mid-market enterprise, that can be augmented with single-vendor and multivendor SASE.
- Vodafone plans to expand beyond its initial deployment of its 10 Super POPs, which is used to deliver NoD capabilities for NFV-based network services, SD-WAN gateways and CBCI to help reduce latency.

Cautions

- Vodafone principally focuses on its top global accounts and other large enterprises in the markets where it has national and partner operations.
- Vodafone's NoD and automation capabilities lag offerings from other service providers, but Vodafone has ongoing initiatives to enhance its offering.

- Vodafone has a more limited coverage in North America compared with other providers in this research, and nearly no coverage in Latin America.

Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

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Added

- Comcast Business was added this year to the Magic Quadrant.

Dropped

- Masergy Communications was acquired by Comcast, so while Masergy dropped, Comcast was added.
- Several providers did not meet our revised inclusion criteria for the 2023 edition of the Magic Quadrant, including Arelion, PCCW Global, Singtel Telecommunications, Sparkle, Riedel Networks, Telefonica and Telstra.

Inclusion and Exclusion Criteria

To qualify for inclusion for both this Magic Quadrant and the Critical Capabilities for Network Services, Global, providers must:

- Sell MPLS and internet (both DIA and broadband/DSL) core services to enterprise customers globally. All services must be generally and globally available and not offered on an individual customer (one-off) basis or only in limited markets. These providers:
  - Have a minimum of five MPLS POPs in each of the following geographic regions: Asia/Pacific, North America and Europe.
  - Have a minimum of 10 internet POPs in each of the following geographic regions: Asia/Pacific, North America and Europe.
- Offer broadband access services (minimum 100/10 megabits per second [Mbps]) that can be either inherent to the provider’s core network offering or offered in a resale model. These

broadband services must be available in Asia/Pacific, North America and Europe.
- Provide 4G/LTE and 5G cellular WAN access connectivity in each region (Asia/Pacific, North America and Europe) either directly or through partners for a comprehensive offering.
- Offer managed SD-WAN services globally.
- Have a minimum of four SD-WAN gateways in each of the following geographic regions: Asia/Pacific, North America and Europe.
- Have a minimum of three carrier-based cloud interconnect (CBCI) nodes owned by the carrier — each with direct connectivity to AWS, Microsoft and Google (minimum three leading cloud providers) — in each of the following geographic regions: Asia/Pacific, North America and Europe.
- Have signed at least one contract for global enterprise network services in each major region (Asia/Pacific, North America and Europe) as a net new account for global WAN services, which includes provisioned sites in a minimum of three of six regions (North America, Latin America, Europe, the Middle East, Africa and Asia/Pacific) in the last 12 months.
- Operate their own global network services rather than simply reselling the services of other global or regional network providers.

Honorable Mentions

- **Arelion** is a global network services provider based in Stockholm, Sweden. Arelion should be considered by enterprises seeking global internet-based or hybrid WAN connectivity predominantly in Europe and the U.S., and more-limited requirements in other regions.
- **PCCW Global,** based in Hong Kong, is the international operating division of HKT, the leading telecom provider in Hong Kong, and is a strong provider in the Asia/Pacific region. PCCW Global should be considered by enterprises that need strong Asia/Pacific, the Middle East and/or Africa regional coverage, with more-limited needs in other regions.
- **Riedel Networks** is a privately held global service provider based in Butzbach, Germany, and targets midsize customers. Riedel Networks should be considered by midsize multinationals that prefer Cisco-based solutions for global managed network services.
- **Singtel** is based in Singapore and is a leading NSP in the Asia/Pacific region. Singtel should be considered by regional and global organizations requiring strong network coverage predominantly in the Asia/Pacific region.
- **Sparkle,** headquartered in Rome, Italy, was historically focused on global connectivity in the wholesale market and is now also expanding into global enterprise networking. Although it offers global services, due to its limited footprint, Sparkle should be considered by enterprises with global networks that need connectivity focused primarily in Europe, the Middle East and Africa, as well as in Latin America.

- **Telefonica** is headquartered in Madrid, Spain, and is a major provider of fixed and mobile network services in Spain, the U.K., Germany and Latin America. Telefonica should be considered by enterprises with global networks that require strong coverage in Europe and Latin America.

- **Telstra** is headquartered in Melbourne, Australia, and is a major NSP in the Asia/Pacific region. Telstra should be considered by organizations requiring strong network coverage in Asia/Pacific, but with less extensive requirements in other regions.

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate vendors on the breadth of their network services portfolio in terms of features, quality and procedures to deliver the services. These criteria enable service providers' performance to be competitive, efficient and effective, and to positively affect revenue, retention and reputation in Gartner's view of the market.

Product/Service: Gartner evaluates the ability to offer a broad range of network services, including WAN services, managed SD-WAN, cloud connectivity, network on demand, and uCPE/NFV/SASE services. We consider offering capabilities and differentiation across the categories of service breadth, vendor support, global consistency and customer experience.

Overall Viability: Viability includes an assessment of the organization's overall financial health, as well as the financial and practical success of the business and the likelihood that the individual business unit will continue investing in the overall portfolio of services.

Sales Execution/Pricing: We evaluate the organization's capabilities in all presales activities and the structures that support them. This includes deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel.

Market Responsiveness/Track Record: We look at the vendor's ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness to changing market demands.

Marketing Execution: We evaluate the clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand, increase awareness of offers and establish a positive identification in the minds of customers. This "mind share" can be driven by a combination of publicity, promotional, thought leadership, social media, referral and sales activities.

Customer Experience: How do customers view this provider and the quality of customer experience delivered? The key components in this category are the provider's portal and service support responsiveness for enterprise customers regardless of size or industry.

Operations: This criterion refers to the ability of the service provider to meet delivery commitments. Factors include quality of the organizational structure, skills, experiences,

programs, systems and other vehicles that enable the organization to operate effectively and efficiently.

Table 1: Ability to Execute Evaluation Criteria

Evaluation Criteria	*Weighting*
Product or Service	High
Overall Viability	Medium
Sales Execution/Pricing	High
Market Responsiveness/Record	High
Marketing Execution	Medium
Customer Experience	High
Operations	Low

Source: Gartner (February 2023)

Completeness of Vision

Gartner analysts evaluate vendors on their ability to convincingly articulate logical statements. This includes current and future market direction, innovation, customer needs and competitive forces, and how well they map to Gartner's view of the market.

Market Understanding: Can the vendor drive/influence the direction of the market through development roadmaps and offerings? Are providers focusing on building their core competencies with strategic enhancements, or are they investing in random technologies?

Marketing Strategy: We are looking for messaging and marketing campaigns and the vendor's ability to communicate differentiating its functionality and value proposition. Are the issues that are being communicated and addressed meeting the trends in the market and the needs of end users?

Sales Strategy: Does the vendor have a sound strategy for selling that uses the appropriate channels, including direct and indirect sales, marketing, and communications? Does the vendor have partners that extend the scope and depth of market reach, expertise, technologies, services and its customer base?

Offering (Product) Strategy: Do the current and planned future offerings meet buyers' needs now with differentiable functionality, and how will it do so in the future? Is the provider building additional features and expanding the offers or lagging in their investments that buyers are seeking? Or is it anticipating the issues that the buyer will face and allocating resources to address them?

Business Model: We evaluate the design, logic and execution of the organization's business proposition to achieve continued success. Does the business model meet the needs of the target market and enable the provider to grow?

Vertical/Industry Strategy: Does the provider's strategy, direct resources, skills and offerings meet the needs of market segments, including vertical industries? In this market for network services, can the vendor differentiate itself with services that are specifically developed for the unique requirements of targeted verticals, such as healthcare, logistics, manufacturing, retail, hospitality and others?

Innovation: What has the provider done to address the future requirements of network services, including the need for product breadth, additional vendor support, consistent portals and ubiquitous offerings globally to solve clients' business problems? Has the vendor successfully differentiated the current and future product lines to address customer requirements, now and two to five years out?

Geographic Strategy: We evaluate the provider's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography. Can the provider meet the needs of global enterprises for product and support?

Table 2: Completeness of Vision Evaluation Criteria

Evaluation Criteria ↓	***Weighting*** ↓
Market Understanding	Medium
Marketing Strategy	Medium
Sales Strategy	Low

Evaluation Criteria ↓	*Weighting* ↓
Offering (Product) Strategy	High
Business Model	Low
Vertical/Industry Strategy	Medium
Innovation	High
Geographic Strategy	Medium

Source: Gartner (February 2023)

Quadrant Descriptions

Leaders

Providers in the Leaders quadrant are performing well and maintaining a stable organization, with a clear vision of market direction. They deliver comprehensive portfolios of quality network services across the broadest geographies. They address the global networking needs of a broad range of enterprises in terms of size, geographic distribution and vertical industry. Leaders shape the direction of the market by extending their coverage, developing new class-leading capabilities and commercial models, and deploying them at scale.

Challengers

Challengers are strong in execution, but narrower than Leaders in their vision for taking market leadership. They focus more on established network services and geographies, and are typically followers of the market innovations created by Leaders and Visionaries.

Visionaries

Visionaries have market-leading plans for the future in terms of geographic and/or network service innovation. However, their current capabilities are not class-leading in terms of scope and/or quality.

Niche Players

Providers in the Niche Players quadrant may focus on a particular segment of the market, as defined by characteristics such as size, vertical sector, geographic coverage or technology, and they may be strong providers for those requirements. However, they lack the capabilities to address the needs of the broader range of enterprises or the vision to significantly alter their position in the market.

Context

Enterprises remain challenged to design and operate their networks to support dynamic requirements, including changing working practices, accelerated digital and cloud transformations, and rapidly changing business environments. As a result, they increasingly see the value of improving the agility of their enterprise networks, both in terms of new technologies and new sourcing approaches.

Additionally, the need for more bandwidth hasn't slowed down. Digital business initiatives are placing increasing demands on the enterprise network, increasing the needs for bandwidth (between 20% and 30% annually), reliability and performance. Video, both live and stored, is the main driver of increases in bandwidth, whereas IoT typically requires greater reliability.

Meanwhile, a growing proportion of enterprise applications are being delivered as cloud services — infrastructure as a service (IaaS), platform as a service (PaaS) and SaaS. This requires incorporation of cloud endpoints into the network and a burgeoning need for user-to-cloud, data-center-to-cloud and cloud-to-cloud connectivity. The ability of enterprises to rapidly adopt SaaS and rapidly evolve IaaS- and PaaS-based applications using approaches such as DevOps is driving the need for networks that can be dynamically changed in similar time scales, such as CBCI and NoD services. That, in turn, has driven increased use of AI/ML in network monitoring, optimization and provisioning to improve service response and service order activations.

To address the broader demand for flexibility, service providers are deploying new networking technologies, especially managed SD-WAN, which is now the default offering for new network deployments and major refreshes. Given continued enterprise concerns about security, service providers also are adding managed secure access service edge (SASE) services that integrate SD-WAN with security. At the same time, the virtualization of network edge functions, using NFV and uCPE, is gradually becoming more common.

Enterprises with global networking needs can choose from a wide selection of solution providers. This decision will be based on geographic requirements, the specific services required and the preferred sourcing approach. Sourcing options include managed, co-managed or unmanaged network services, with the growing option of sourcing the underlay of transport services separately from the overlay of SD-WAN and security.

Competition continues to drive down unit prices for global networking services. However, in a market in which there are no meaningful price lists, enterprises still need to use competitive procurement practices and strong negotiations to obtain the best prices.

Market Overview

Gartner forecasts that the market for enterprise fixed data networking services in 2023 will be nearly $134 billion, an increase of approximately 2.6% from 2022 for a compound annual growth rate (CAGR) of 1.9% from 2021 through 2026. The number of global NSPs included in this research has decreased, and many more are operating in the broader market and did not meet all our inclusion criteria. In addition to large global providers, enterprises are increasingly willing to consider smaller or regional providers, including managed service providers, with little or no network infrastructure of their own, but who resell network services to their enterprise clients where needed.

Network Transport ("Underlay") Trends

WAN transport services (frequently called "underlay" services) continue to see rapid change, especially in terms of migrations and changes to primary connectivity. MPLS — the mainstay of enterprise networks for over two decades — is being augmented and often displaced by internet (transport) services. And while MPLS still brings benefits in terms of high availability and stable performance, it commands a slight premium in price to standard internet services. MPLS is still preferred as the primary link for the most critical locations and in places where internet performance is poor or variable, which includes emerging markets and those where the internet is heavily restricted, resulting in poor performance. The net result is a smaller number of higher-capacity MPLS lines being retained or deployed in new network designs.

Gartner has witnessed that many enterprises using a hybrid of internet and MPLS usually have more and larger internet lines than MPLS lines. Direct internet connectivity allows direct access to SaaS and general internet traffic and offers a wider variety of access types than MPLS, including dedicated internet access (DIA) over Ethernet, as well as broadband and cellular. DIA lines are typically priced similarly to MPLS lines of comparable capability, but can easily be sourced from multiple providers, while MPLS links generally need to be sourced from a single provider.

For global network deployments, traversing the internet brings additional challenges not found in national networks, including the risk of suboptimal routing and congestion as the traffic traverses multiple ISPs. There are a number of ways of overcoming this, including:

- Sourcing all internet services from a single provider
- Federations of ISPs that offer controlled routing among their members
- Network-based SD-WAN gateways terminating the SD-WAN tunnels and passing the traffic over the provider's backbone
- Enhanced internet services that control routing in a way that is agnostic to ISPs and specific SD-WAN technology

Different providers have adopted different approaches from these options and may have multiple options available. Providers who have developed a differentiated internet approach include BT, Deutsche Telekom, NTT, Tata Communications and Vodafone.

Enterprises' pace of adoption of cloud IT service delivery remains key to transforming their WAN architectures. Fortunately for enterprises, global NSPs have deployed a range of capabilities to address enterprises' cloud connectivity needs (see **How to Optimize Network Connectivity Into Public Cloud Providers**). The providers in this Magic Quadrant all offer CBCI service directly from their MPLS and Ethernet networks to the top three leading cloud service providers at a minimum. The key differentiators are with the connected specific cloud providers and cities, and the ability to add virtualized services (such as security) into the cloud connection points.

These CBCI services typically allow for the adjustment of capacity — and in some cases, the addition of new cloud endpoints — on demand under portal and/or API control. Such on-demand services may also be extended beyond cloud connectivity to larger enterprise locations and even used for the creation of extranet connections between enterprises. These "network on demand" services typically support bandwidth changes and policy modifications and allow multiple services such as internet and MPLS to be provisioned over a single access line and adjusted as required.

Access Technology Trends

Traditional leased-line access, such as T1 or E1 lines, to internet services or MPLS are no longer proposed in new deals, except in very rare instances, such as in rural locations or some emerging markets. Pricing for these legacy service types is increasing, and in many cases, the services are reaching the end of their life (see **Quick Answer Quick Answer: My Legacy Telecom Service Is Being Shut Down, So What Should I Do?**) thereby forcing enterprises to be proactive in identifying new services and potentially new providers.

These legacy access lines have largely been replaced by optical Ethernet access to MPLS and internet, at 10 Mbps, 100 Mbps, 1 gigabit per second (Gbps) or 10 Gbps. The economics of Ethernet access remain attractive, resulting in a tenfold increase in speed, but typically increasing cost by only two to three times. In fact, in developed markets, enterprises now tend to purchase access lines with much higher speeds than they initially require, with the port capacity limited to their current needs. This allows them to easily and quickly upgrade capacity in response to changing requirements.

For smaller, less critical or remote locations, broadband (increasingly, "superfast broadband," such as VDSL, cable modem or passive optical network [PON]) is the access technology of choice, despite having no SLAs or poorer SLAs than Ethernet access. In some geographies, including the U.S., internet providers have also introduced new access options labeled "business broadband" that offer only incremental SLA improvements compared with consumer offerings. When enterprises require large numbers of broadband connections, they can sometimes find that they are able to get better pricing than that offered by global service providers by sourcing broadband access directly or from aggregators. Many providers now support "bring your own broadband," which refers to the service provider delivering managed services over broadband sourced by the enterprise.

Gartner is also seeing a renewed and growing demand for Ethernet WAN and wavelength services, in addition to the hybrid network needs. These services have started to regain traction as opportunities to meet very large bandwidth needs (100G) and be utilized more efficiently in a regional or metro environment to support local data centers. Although custom priced, overall pricing continues to decline as the supply of the underlying facilities are more readily available.

Finally, cellular connectivity (4G and emerging 5G) increasingly is being used for backup, rapid deployment or temporary locations, although it does not typically offer network performance or availability SLAs. As with broadband, enterprises may be able to get attractive deals for data-only mobile services themselves, which will then be managed by their global provider.

Network Overlay Trends

New global network proposals are almost exclusively based on managed SD-WAN services with either a hybrid mix on MPLS and internet or all-internet-based underlay links. The global network providers have most commonly developed a portfolio of three to six SD-WAN vendors because the market is more fragmented and differentiated than the legacy CPE market it is replacing. In fact, Gartner believes that providers should support at least two SD-WAN vendors, offer strong integration and demonstrate a strong customer base. Providers that support a large number of SD-WAN vendors (10-plus) but have limited integration and fewer customers could present higher risks to the enterprise.

Some providers offer network-based SD-WAN gateways, allowing for easier migration to SD-WAN and improved scalability. Such gateways allow the network to use the internet for access and use the providers' higher-quality backbones for the long haul, greatly improving reliability and performance. A similar outcome can be achieved by using stand-alone enhanced internet backbone services on ISP federations.

Managed SD-WAN services typically offer the option of local internet access (split tunneling) from every site, which is especially useful for access to SaaS applications, such as Microsoft Office 365. Perimeter security can be provided on-site or as a cloud-based service and is increasingly integrated into the WAN design that Gartner calls the secure access service edge (SASE).

An increasing number of global WANs incorporate managed application visibility, with some providers now offering application-level visibility by default. SD-WAN services, which operate based on application-level policies, also typically offer inherently higher levels of application visibility. WAN optimization is still deployed for some specific use cases where bandwidth is either limited (e.g., very small aperture terminal [VSAT]) or expensive (e.g., the Persian Gulf region).

Network functions such as edge routing, SD-WAN, security, WAN optimization and visibility can be delivered as on-site appliances. However, many providers prefer a uCPE VNF approach versus POP VNFs to support greater geographic breadth to the enterprise. Whether VNFs are running in NFV service nodes in the provider's POPs or via on-premises uCPEs, which are essentially industry-standard servers deployed at the customers' locations, either approach can support one or more virtual functions. This makes it easy to rapidly change the functions deployed in the network, which are also usually consumed as-a-service with a monthly subscription fee for each

function. Some providers allow customers to run their own software, including edge compute applications, on these platforms. Ideally, a provider will offer both options to the enterprise.

All providers evaluated in this Magic Quadrant offer uCPE. The average number of unique uCPE vendors per provider remained the same at 2.6, and the average number of unique CPE-based VNF functions (typically consisting of SD-WAN, router, firewall and WAN optimization) has increased to 6.2. Many providers have added more vendors to a VNF, especially in the case of security. The average number of countries where uCPE and premises-based VNFs are offered is 144. In contrast, network-based VNFs are available in a much smaller number of countries (34 on average), although the number of average unique VNFs is similar to uCPE-based functions (5.9).

The network service providers are continuing to roll out managed SASE offerings as either best-of-breed dual vendor or single-vendor SASE solutions. This can eliminate the need to service chain and orchestrate SD-WAN functionality and several network security functions, thereby simplifying management and, often, offering better overall performance due to less complexity.

Automation and Operational Trends

Global networks are also becoming more complex because transport is becoming a hybrid of MPLS and internet with cloud endpoints and a variety of backbone options. SD-WAN and NFV technologies add even more complexity. In addition, the internet, especially using broadband or cellular access, is an inherently less predictable service than MPLS. Visibility capabilities — sometimes referred to as performance analytics — can help by enabling enterprises to see the actual performance of their applications. Enhancements continue around performance reporting tools and portals, enabling the enterprise with improved visibility at the network application layers. And with a focus on continuing to enhance the customer experience, customer satisfaction with global NSPs is improving.

NSPs remain focused on improving their lead times, although they remain constrained by the lead times of third-party/local access providers. The increasing speeds of cellular services are making this technology more useful as a rapid deployment (interim) solution to bridge the gap of waiting for fixed connectivity. In addition, it provides a truly diverse backup option. However, the hype around 5G cellular replacing fixed connectivity should be treated with caution, due to maturity issues — especially lack of SLAs and coverage limitations (see **Quick Answer: 3 Questions to Answer Before Buying Enterprise 5G**) .

Providers continue to improve their SLAs with more realistic objectives and more meaningful penalties for failing to meet those objectives. They are increasingly improving to include the right to cancel the contract in the event of chronic breach, ensure on-time delivery, require proactive notification, and complete timely change requests.

In a new trend Gartner has seen this year, many providers have begun adopting artificial intelligence for IT operations (AIOps) and network automation for service onboarding and customer experience improvements. AI is also being leveraged to simulate issues and provide predictive analytics for service improvement and reduced downtime or service degradation (see **CSP Tech Trends for 2022: Implications for Network Infrastructure Providers**).

Sourcing Trends

Providers are increasingly focused on providing the managed network service “overlay” platform typically using SD-WAN, and optionally security (SASE), which can be delivered from cloud-native platforms or (less often) by using NFV/uCPE. The providers are more willing to support “bring your own access” and other flexible sourcing approaches for the “underlay” network transport components.

However, the majority of enterprises still buy most of their underlay services from their overlay provider, especially when using a hybrid underlay — that is, mixing MPLS and internet access. This integrated sourcing approach is the primary focus of this Magic Quadrant. Enterprises focused specifically on enterprise network operations services can consider most of the providers evaluated in this research, and also those in Magic Quadrant for Managed Network Services.

Most global network service providers are continuing to move toward a more platform-based approach using a software-driven, as-a-service model leveraging rich visibility and self-service via portals and APIs. A benefit of this approach is the ability to offer enterprises the opportunity for co-management where they can themselves manage aspects of the network, such as application and security policies, with benefits in terms of enhanced agility.

In addition, newer NaaS offerings offer a simplified consumption model with usage or subscription-based pricing, which may appeal from a sourcing perspective. However, NaaS appeals to only a small subset of enterprise customers that, among other things, don’t want to own hardware, perceive subscription-based pricing as optimal and have variable bandwidth needs (see **What Is NaaS, and Should I Adopt It?**).

Pricing Trends

Downward pressure on global network service prices remains steady during the pandemic, and managed services pricing has also remained steady, though it will be carefully watched as the economy fluctuates and the talent crunch remains in play.

To address cost containment amid providers’ investment strategies, some are focusing on extending their own networks, especially internet services, while others rely heavily on expanded partnerships with local providers. Most providers are making greater use of carrier-neutral communication hubs, such as those operated by Equinix, to cost-effectively interconnect with multiple access, backbone and cloud providers.

These hubs, particularly when combined with NFV and/or SD-WAN, have dramatically reduced the level of investment required to be competitive in the global network service market. This has allowed smaller providers to offer solutions competitive with those of the largest providers. However, maintaining a consistent set of service features and user experiences across these different elements remains a challenge.

Managed Services Trends

Most global WANs are delivered on a managed service basis, with the on-site devices, such as routers and security appliances, provided and managed by the service provider. Transport links are usually sourced from the managed service provider, but might also be separately sourced by the enterprise, which would then give the managed service provider operational responsibility for them. The U.S. is different because, although a substantial fraction of U.S.-headquartered multinationals do use managed network services, a significant number still manage their networks in-house and only source the network underlay from their global providers.

At the same time, networks are moving more to a co-managed reality because more network functions — such as SD-WAN application policies, security policies and NoD bandwidth — are controllable by the enterprise via the providers' portals and APIs. In this case, responsibilities for various network management functions are divided between the provider and the enterprise. This is especially true when network perimeter security functions are integrated into the SD-WAN solution (SASE), where a separate organization will often control the security policies and actions.

Evidence

Gartner developed this research based on the following sources of information:

- Gartner client inquiry data on network services that was collected over a 12-month period (Inquiries with Gartner analysts about network services have increased every quarter by at least 5% for the last four quarters. This includes more than 3,000 Gartner client inquiries on the topic of WAN and more than 1,500 Gartner client inquiries on the topic of SD-WAN during that time frame.)
- Market size forecast sources are from Gartner's **Forecast: Communications Services, Worldwide, 2020-2026, 4Q22 Update**
- Analyst-reviewed Gartner Peer Insights data for this market
- Provider responses to detailed questionnaires, as well as a video briefing specific to this Magic Quadrant research
- Periodic provider briefings
- Generally available information, news and data in financial and industry publications

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business

unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.