



2021

Network – Software Defined Solutions and Services 2021

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Table of Contents

Definition	4
Quadrants Research.....	5
Quadrants by Region	11
Archetype report	12
Schedule.....	13
Partial list of companies being invited for the survey	14

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Definition

This ISG Provider Lens™ study, Network — Software Defined Solutions and Services 2021 examines the different kinds of global network offerings related to software-defined networking (SDN). These include Software Define Networking (SD-WAN) (consulting, implementation and managed services) and SD-WAN (DIY), covering equipment and service supply to enterprises for their own operations. It also includes core to edge-branch providers, including the ones delivering through mobile and 4G/5G technologies and the service offerings related to these segments. In addition, the study additionally includes Edge technologies and services, including Internet of Things (IoT), Universal/Virtual customer premises equipment (u/vCPE) and software defined local area network (SD-LAN) and finally focuses on the rapidly growing area of enterprise 5G solutions being offered within private and campus network environments.

In the last few years, MPLS managed WAN services have been shifting toward SD-WAN and hybrid and cloud-enabled networks; these new networks are currently dominating the revenue stream in this market, where majority of the customer deployments, worldwide, are by telcos and service providers. This, however, is still an on-going process. SDN segments are evolving and rapidly increasing in market share alongside other related network services such as cloudification; hybrid networks (MPLS/IP); mobility delivered (LTE/4G/5G) enterprise services, including beyond enterprise network edge; and branch/edge technologies and services, including SD-LAN and (u/vCPE). Such developments are primarily driven by the ongoing digital transformation of business processes, organizations and business models to meet the requirements of a dynamic, globalized world in real time (including issues triggered by the global pandemic) by increasing agility and flexibility, boosting customer experience (CX) and opportunity, enhancing network security, strengthening competitive positioning of enterprises and reducing overall network costs for services delivered.

ISG sets out to deliver a comprehensive research program with a clear and definitive evaluation criterion, covering the developments and deliverables of service providers and equipment suppliers in this dynamic marketplace. This study accounts for changing market requirements and provides a complete market overview of the segments, along with concrete decision-making support to help user organizations evaluate and assess the offerings and performance of providers.

The ISG Provider Lens™ study offers IT decision makers:

- Transparency over the strengths and weaknesses of relevant providers
- Differentiated positioning of providers by segments
- Focus on several markets, including Australia, Germany, the U.K., the U.S. and Nordics

Our study serves as an important decision-making basis for positioning, key relationships and go-to-market considerations. ISG advisors and enterprise clients also use information from these reports to evaluate their current vendor relationships and potential engagements.

Quadrants Research

As a part of this ISG Provider Lens™ quadrant study, we are introducing the following six quadrants under Network — Software Defined Solutions and Services 2021.

Simplified illustration



Source: ISG 2020

Managed (SD) WAN Services

This quadrant addresses the providers of enterprise WAN (primarily enterprise SD-WAN or hybrid MPLS/IP WAN) that deliver managed solutions and associated services to enterprise clients.

SD-WAN provides the benefits of SDN technology over traditional hardware-based networking. It is an overlay architecture with a networking foundation that is easier to manage than legacy WANs, essentially moving the control layer to the cloud and, in the process, centralizing and simplifying network management. This overlay design abstracts software from hardware, enabling network virtualization and making the network more elastic. An SD-WAN architecture reduces recurring network costs, offers network-wide control and visibility and simplifies the technology with zero-touch deployment and centralized management. The key aspect of an SD-WAN architecture is that it can communicate with all network endpoints without the need for external mechanisms or additional protocols. Suppliers have been increasingly active as managed service providers, offering complete managed SD-WAN solutions to enterprises (including hybrid MPLS/IP or MPLS/SDN solutions) as well as white-label products to telco providers or integrators as part of their broader strategic implementations.

Eligibility criteria:

- Scope of product/service managed WAN portfolio
- Ability to deliver and manage all hardware and software aspects
- Ability to re-architect (as required) the existing MPLS-based WANs into hybrid-WAN systems
- Management capability for the needed orchestration and control of the overall architecture
- Flexibility and ease of introducing new services and deployments
- Stability and roadmap planning
- Reference customer/site volume in deployment
- Competitiveness of offering and commercial terms

SDN Transformation Services (Consulting & Implementation)

This quadrant analyzes providers of advisory/consulting and services associated with delivering SD-WAN to enterprises — from initial advisor consulting through to services delivery and rollout.

Traditionally, modifications or new installations of IT devices in a data center and its external WAN networks involved making changes to each network component, which could take days or longer. This rigid architecture is increasingly being challenged by current business requirements for more agility, flexibility, automation and security — private, public, hybrid and multi-cloud networking, explosive mobile application usage in the workplace, IoT, Industry 4.0, big data, infrastructure as a service (XaaS) and intent-based AI and machine learning (ML) networking solutions require a flexible network environment that can accommodate changes quickly with minimum human intervention. SDN provides many of these benefits compared with traditional hardware-based networking and is closely related to Network Function Virtualization (NFV), cloudification strategies and digital transformation undertakings. SD-WAN by moving the control layer to the cloud and thereby centralizing and simplifying network management by means of its overlay architecture is much easier to manage than legacy WANs and delivers on the requirements of today's digital transformation driven business needs.

Suppliers in this area have been increasingly active as advisors/consultants for implementation, supplying complete or partial solutions to enterprises. They might also act as brokers and project managers to ensure combined coalition deliveries as planned. Consulting companies, large vendors and managed network services providers have also been actively involved in offering SD-WAN packages in this area, independently or as a part of partnership/consortium deals.

Eligibility criteria:

- Scope of product/service portfolio
- Ability to deliver consulting for strategizing right through to deploying technology including providing support in all integration and implementation areas
- Understanding of overall market and contributions to the same
- Scope of partnerships and offerings and management capability for the needed orchestration within a customer project
- Stability and roadmap planning capabilities
- Reference customer/solutions post pilot/commercial deployment
- Competitiveness of offering and types of commercial terms

SD-WAN Equipment and Service Suppliers (DIY)

This quadrant assesses providers delivering SD-WAN-related hardware and software, management and reporting tools, and applications and services to enterprise clients taking the do-it-yourself (DIY) approach to SD-WAN and enterprise own operations.

SD-WAN is virtual and allows enterprises to bundle multiple WAN technologies and connections such as MPLS, broadband internet, 4G / LTE (Long Term Evolution) and ethernet and provision them as overall bandwidth. SD-WAN determines the path for transmitting data packets and the medium to be used; if a connection has excess load, another path is taken automatically. The virtual connections consist of multiple paths that are used simultaneously.

SD-WAN provides the benefits of SDN technology to traditional hardware-based networking. It is easier to manage than legacy WANs, essentially centralizing and simplifying network management and easing deployment with the help of a cloud-based control layer. This overlay design abstracts software from hardware, enabling network virtualization and making the network more elastic. One of the key aspects of the architecture is that it can communicate with all network endpoints without the need for external mechanisms or additional protocols. Suppliers have been active in directly selling SD-WAN solutions to enterprises for their DIY (non-managed) implementations and are increasingly partnering with licensed telco/service providers in this space.

Eligibility criteria:

- Scope of product/service portfolio
- Ability to deliver equipment and service, including requisite training, to allow smooth operations for enterprises
- Understanding of overall market area and contributions to the same
- Scope of partnerships and offerings and management capability for the needed orchestration within a customer project
- Openness of offering to avoid vendor lock-in
- Ability to offer full customer support and assistance post delivery
- Reference customer/solutions post pilot/commercial deployment
- Competitiveness of offering and types of commercial terms

Technology and Service Suppliers (core - 4G/5G)

This quadrant analyzes providers of SDN core services purchased directly by either enterprises or service providers for specific enterprise projects. It also includes specific 4G/5G mobility-targeted services or solutions, applications, management systems and methods. In addition, it comprises SDN end-device control and management and related services that can be integrated into an enterprise's SD-WAN strategy from the primary enterprise location to branches or remote office locations.

SD technology is a networking approach that eliminates the complex and static nature of legacy distributed network architectures by using a standard-based software abstraction between the network control plane and underlying data forwarding plane. It enables improvements in network agility and automation, while substantially reducing the cost of network operations when compared with traditional network deployments. Adopting an industry standard data plane abstraction protocol (such as OpenFlow) allows the use of any type or brand of data plane device as the underlying network hardware is addressable through a common abstraction protocol. Such a protocol allows the use of both physical and virtual networking devices. These are considered as core network functions.

In addition to core network functions, mobile or wireless access technologies have been increasing in importance among enterprises for their communication and functional operations. 5G is designed to provide higher capacity than current 4G/LTE, allowing a higher density of mobile broadband users at higher transfer speeds and supporting more device-to-device, reliable and considerable machine communications. It is also aimed at lower latency and reduced battery consumption, compared with 4G equipment, and targeted at mobile high-speed data and IoT.

Eligibility criteria:

- Product portfolio coverage, focus areas, completeness of modular delivery and integration with broader solutions
- Ability to deliver equipment and service to customers, including requisite training
- Ability to deliver value-added services within a 4G/5G environment, utilizing SD methods
- Understanding of overall market area, technology environment and evolutions and contributions to the same
- Scope of partnerships and offerings and management capability of a customer project
- Openness of offering to avoid vendor lock-in
- Reference customer/solutions post POC/pilot moving into commercial deployment
- Competitiveness of offering and types of commercial terms such as shared risk models

Edge Technologies and Services

This quadrant analyzes vendors delivering technologies across hardware and software, management/reporting tools and applications and offering services associated with edge network technology to enterprises across multiple verticals.

Edge technologies, services and computing are current trends in the IoT and Industrial Internet-of-Things (IIoT) world. With the localized processing of data, security and privacy have improved because any breach can be managed locally and not passed onto the WAN or cloud and, thus, back to central enterprise to defend. In IoT edge computing and networking, data from various connected devices of the IoT ecosystem is typically collected in a local device, analyzed on the network, and then transferred to the central data center or cloud. As the number of connected devices have increased exponentially, the volume of data generated is multifold. Thus, interim processing is required to ensure cost reduction and increased efficiency, which, in turn, places great importance on efficient and software-driven edge capability networks and connectivity capabilities.

Edge components may be managed in the same manner as core and SD-WAN components, with software-defined capabilities to include branch and edge functionalities as well as all customer premises equipment (uCPE or vCPE) and associated software-defined mobile networks (SDMNs) and SD-LANs that include both wireless (SD-WLAN) or mobile (SD-WMLAN), as well as IoT or IIoT sensors and devices or control/security devices.

4G/LTE in public spectrums, together with wired connectivity locally (wherever appropriate), are able to supply significant speed and bandwidth, at low cost, for most industrial applications under the “Industry 4.0” initiative by functioning with IoT/IIoT devices. In conjunction with wireline connectivity as required, the versatility of mobile connectivity offered has demonstrated the ability to serve over 85 percent of all Industry 4.0 requirements. Recent developments in-built security have allayed many concerns, among executives, regarding its introduction. This is seen in many applications to be sufficient for lower scale edge network deployment in the near term, with longer term needs being met by 5G private or public networking as they come on-line.

Eligibility criteria:

- Product portfolio coverage, focus areas and completeness of modular or area solutions, together with integration into broader solutions
- Ability to deliver requisite training and education to clients, if required, with Proof of Concept (POC)/Studio
- Understanding of overall market, technology environment and evolutions — and contributions to that area — together with industry specific knowledge and experience
- Scope of partnerships and offerings, and management capability of disparate providers and solutions within a customer project
- Reference customer/solutions in POC/pilot deployments or commercial deployment
- Competitiveness of offerings and types of commercial terms

Enterprise 5G Solutions

This quadrant analyzes 5G enterprise networks (private or campus networks) that are offered by network equipment providers (NEPs), technology and service providers, and systems integrators as a part of a larger partner ecosystem. It includes POC solutions moving into pilots or have already moved through those stages, with long-term intentions of phased commercial deployments based upon initial results.

5G mobile networks or wireless systems are the next telecommunications standards after 4G/LTE technology and operate in millimeter wavebands (28, 38 and 60 GHz). 5G is designed to provide higher capacity than 4G/LTE, allowing a greater density (10s to 100s time greater density) of mobile broadband users or devices connected at higher transfer speeds, supporting more device-to-device, reliable and considerable machine communications. It is also aimed at lower latency and reduced battery consumption than 4G equipment and is targeted at flexible connectivity, mobile high-speed data and the Internet of things (IoT).

This quadrant covers specific mobility targeted or wireless connected services/solutions, applications, management systems and methods, end-device control and management and related services in enterprises operating under private/campus network considerations. Private 5G refers to 5G deployments on campus (also referred to as 5G campus network) or other land or building areas that have restricted entry and are generally not open to the public. Private 5G is targeted at flexible connectivity, mobile high-speed data and the Internet of things (IoT), rather than specifically voice connectivity. It may encompass allow access to the public who are present within a 5G Campus through Wi-Fi or other wireless connectivity or by 5G GSMA data connection used as a LAN. They are not public licensed networks, but may be used, in some cases, as tributary feeds or access points to public licensed networks (for example, connectivity inside a campus to a VPN/WAN or public licensed WAN connection for outside campus transport). They have licensed (wherever required by regional regulators) or allocated 5G spectrum, usually in the 3.7-3.8GHz band, specifically for industrial use in local deployments, possibly limited in some regions to 100MHz of spectrum.

Eligibility criteria:

- Product portfolio coverage, focus areas, completeness of both modular (partial) solutions and complete, fully integrated broader solutions linking to Data Centers (DC) or external WANS
- Ability to deliver training and provide both POC/studio simulations and testing for a client
- Understanding of overall market area, technology environment and evolutions and contributions to that area, together with awareness about national regulations as required
- Industry specific knowledge and experience
- Scope of partnerships and offerings and management capability for the needed orchestration within a customer project
- Reference customer/solutions in POC/pilot moving into commercial deployment
- Competitiveness of offering and types of commercial terms

Quadrants by Region

Quadrants	USA	Germany	Nordics	U.K.	ANZ
Managed SD WAN Services	√	√	√	√	√
Transformation Services (Consulting and Implementation)	√	√	√	√	√
WAN Equipment and Service Suppliers (DIY)	√	√	√	√	√
Technology and Service Suppliers (core – 4G/5G)	√	√	√	√	√
Edge Technologies and Services	√	√	√	√	√
Enterprise 5G Solutions	√	√	√	√	√

Archetype report

This strategic report improves awareness/knowledge and enables decision making based on the capabilities and positioning of IT, network and business service providers. The new ISG Provider Lens™ Archetype report aligns ISG-identified client requirements with known provider capabilities.

The report identifies 4-6 archetypes that represent typical buyer characteristics and buying requirements for IT, network or BPO service lines. These archetypes are:

- Globally focused
- Represent ISG advisor perception of buying patterns of clients
- Neither non-prescriptive nor rank based
- Help align buyer-side needs with provider-side capabilities to reduce costs for both sides

Figure 1: Sample ISG Provider Lens™ Study Provider Listing

Traditional Archetype Archetype Leaders	Staff Augmentation Focus	T&M Pricing Focus	Packaged Technology Capabilities	Custom Development Focus
A	●	●	●	○
B	●	●	●	○
C	●	●	●	●
D	●	●	●	○
E	●	●	●	○
F	●	●	○	●
G	●	●	○	●
H	●	●	○	●

● Score 4 out of 4 ● Score 3 out of 4 ○ Score 2 out of 4 ○ Score 1 out of 4

Schedule

The research phase falls in the period between **December 2020 and February 2021** during which survey, evaluation, analysis and validation will take place. The results will be presented to the media in **May 2021**.

Milestones	Beginning	End
Survey phase	16 December 2020	20 January 2021
Sneak previews	8 March 2021	31 March 2021
Content provisioning	8 March 2021	15 March 2021
Press release	May 2021	

Access to Online Portal

You can view/download the questionnaire from [here](#) using the credentials you have already created or refer to instructions provided in the invitation email to generate a new password. We look forward to your participation!

[Click here](#) to view/download the ISG Provider Lens™ 2021 research agenda.

Research Production Disclaimer:

ISG collects data for the purposes of writing research and creating provider/vendor profiles. The profiles and supporting data are used by ISG advisors to make recommendations and inform their clients of the experience and qualifications of any applicable provider/vendor for outsourcing the work identified by clients. This data is collected as part of the ISG FutureSource process and the Candidate Provider Qualification (CPQ) process. ISG may choose to only utilize this collected data pertaining to certain countries or regions for the education and purposes of its advisors and not produce ISG Provider Lens™ reports. These decisions will be made based on the level and completeness of the information received directly from providers/vendors and the availability of experienced analysts for those countries or regions. Submitted information may also be used for individual research projects or for briefing notes that will be written by the lead analysts.

Partial list of companies being invited for the survey

Are you in the list or do you see your company as relevant provider that is missing in the list? Then feel free to contact us to ensure your active participation in the research phase.

1&1 Internet AG	Blue Telecom
128 Technology	Broadcast Solutions Finland
1und1	Broadcom
A10 Networks	BT
Accenture	CANCOM
Adatis Managed Services	Capgemini
Aerohive Networks	Casa Systems
AFRY	Cognizant Technology Solutions
Akamai Technologies	Colt
Alcatel-Lucent Enterprise	CommScope
Allied Telesis	Computacenter
ALTEN calsoft labs	Controlware
Altistar	Damovo
Altran (Including Aricent)	Data#3
Amazon Web Services (AWS)	Datacom
Apcela	Dell EMC
Arista	Deutsche Telekom
Aryaka	Cato Networks
Asavie	Centrify
ASG Group	Cisco
AT&T	Citrix
Atos	Claranet
Axiants	CloudGenix
Belkin	COCUS AG

Dicker Data	InfoVista
Dimension Data	IPLOOK.com
DNA Oyj	Juniper
DSI Ltd	Juniper Networks
DXC	Kaloom
EE	Kapsch CarrierCom
Electra Networks	KPN
Elisa	L&T Technology Services
Empirix	Ligado Networks- ligado.com
Enea	Logicalis
Ensign Communications	LTI
Ericsson	Lumen
euNetworks	Macquarie Telecom
Extreme Networks	Masergy
FatPipe	Mavenir
Fortinet	Megaport
Fujitsu	Metaswitch
GCI	MetTel
GCX	Microdata Telecom
GTT Communications	Microland Limited
HCL Technologies	MLL Telecom
HPE	M-net
HPE Aruba	necunified
Huawei	NetApp
Hughes Network Systems	NetCologne
IBM	Network Telecom
In2IT Technologies	networktelecom
Infosys	Nexion Networks

nex-tech	Spirent
Next-Tech Wireless	Sprint
Nortech	Sterlite Technologies Limited
NTT	Symantec
O2	Syniverse
Olabs Technology	Talari Networks
Open Systems	Tango Telecom Ltd
Optanix	tangotelecom
Optus	Tata Communications
Oracle	TCS (Tata Consultance Services)
Orange Business Services	TDC (Denmark)
Parallel Wireless	Tech Mahindra
PCCW Global	Tele2
Pica8	Telefónica
Prevas	Telefónica Germany GmbH & Co. OHG
Prodapt	Telenor
QSC	Telia
Qualcomm	teligent
RAD	Telgent Telecom AB
Radisys	Telstra
Ranplan Wireless	Telus
Riedel Networks	Three
RINA wireless	TIETO
rinawireless	T-Mobile USA
Riverbed Technology	tmobilesa
Samsung	Total Network Solutions (TNS)
SES Networks	totalnetsol
Silver Peak	TPG Telecom

Trend Micro	Viptela (Cisco)
T-Systems International	Virgin Communications
Unisys	Virtela NTT
Uscellular	Vmware
UST Global	Vocus
Verizon	Vodafone
Versa	Wipro Technologies
Versatel	Xenon
Vertiv	Zayo Group
Vertiv.com	Zeetta Networks
VIAVI Solutions	Zensar Technologies
viavisolutions	ZTE
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