ISG Provider Lens™

Network - Software Defined Solutions and Services

SD-WAN Equipment and Service Suppliers (DIY)

Global 2019

Quadrant Report

A research report comparing provider strengths, challenges and competitive differentiators

June 2019

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orange™ Business Services

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The research and analysis presented in this report includes research from the ISG Provider Lens™ program, ongoing ISG Research programs, interviews with ISG advisors, briefings with services providers and analysis of publicly available market information from multiple sources. The data collected for this report represents information that was current as of June, 2019. ISG recognizes that many mergers and acquisitions have taken place since that time but those changes are not reflected in this report.

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1 Executive Summary

3 Introduction

18 SD-WAN Equipment and Service Suppliers (DIY)

31 Methodology

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EXECUTIVE SUMMARY

Existing managed LAN and WAN services, multiprotocol label switching (MPLS) and related technologies form the backbone of the enterprise customer installed base for telcos and other communication services providers and account for most of the revenues generated worldwide. This trend, however, is rapidly changing. The software-defined network (SDN), which is closely related to network function virtualization (NFV) and software-defined WAN (SD-WAN) technologies and services, is evolving and rapidly penetrating the market. A similar trend exists with related network services such as performance assurance (management), managed networks and devices (MND), and 4G and 5G mobility (4G/5G) with associated additional (non-core) mobile servicers based on those faster mobile data stream standards, along with their triggers and influences. The main factors that drive this rapid change for enterprises are:

Increasing flexibility and agility: Enterprises have become more focused on improving the integration, automation, orchestration and management of network resources and processes. This has evolved to encompass NFV and has since led onto software-defined networking in a wider sense. This trend is being driven by enterprises' desire to seamlessly add applications and network resources in order to meet business and user goals more efficiently and securely without creating silos or depending on vendors. This is often expressed by the business itself as "increasing flexibility and agility."

Improving customer satisfaction while boosting sales: The ability to respond quickly and seamlessly to customer queries and quickly provide (often automatically) new services via SDN helps in elevating client experience and boosting sales.

Reducing costs and improving usage efficiency: Enterprises can improve the utilization efficiency while reducing network usage costs even beyond the savings achieved by adopting an NFV strategy. This is particularly relevant with the explosion of data usage in mobile devices, often in areas that are not business critical, and while using social media applications or other related services. Traffic can be routed over lower cost connections and at reduced reliability and quality levels automatically via software-defined pathways with little or no human interaction involved.

The aforementioned factors, together with cloud networks, have been driving significant changes to networks and their operations over the past 30 years. Some telecommunication service providers, such as AT&T, have announced plans to make at least 75 percent of their networks SDN-compliant and functional by 2022. Others have introduced SD-WAN implementations to reap benefits in a shorter term.

Many service providers that are reviewed in this study are involved in pilot projects and are regularly converting them into production-level deployments. Some have already completed such activities or have many demonstrated instances of doing so on behalf of their clients. This progression, coupled with the relative newness of SDN, has led ISG to expect that many of the companies that are currently categorized as Product Challengers or Market Challengers in this study will be able to improve their positioning over the course of the year to enter leadership positions in their respective segments.

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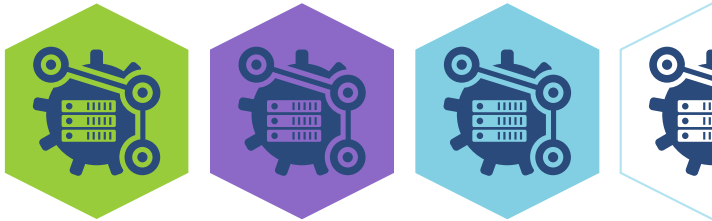
It must be noted that significant volatility exists in the constellation of market providers, partly due to the multitude of mergers and acquisitions that occurred during the last 18 months. This trend is set to continue and may even increase during the remainder of 2019 as SDN becomes mainstream.



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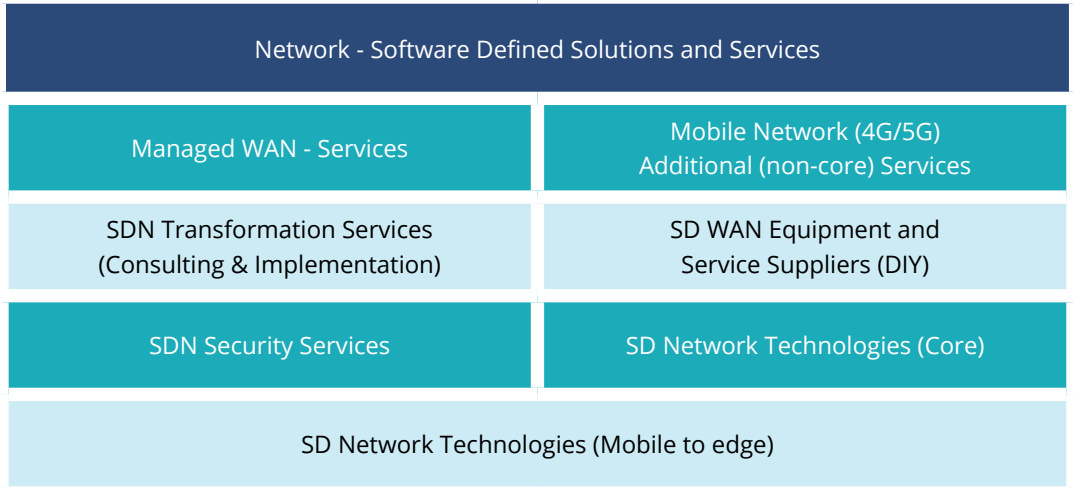
Introduction

Simplified illustration



Source: ISG 2019

Definition

The ISG Provider Lens™ study examines the different kinds of global network offerings related to SDN, SD-WAN and associated security, core-branch and mobility service offerings related to those segments. It also assesses the more traditional managed WAN market offerings. For users, both markets are extremely important. This study accounts for changing market requirements and provides a consistent market overview of the segments. It also offers concrete decision-making support to help user organizations to evaluate and assess the offerings and performance of service providers.

The areas described in the following sections are associated with SDN and more traditional managed WAN provisioning.

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Definition (cont.)

Scope of the Report

Managed WAN Services

Managed WAN services cover the features and functionality that carriers offer in their WAN and at the customer point of demarcation. They are a collection of value-added services (VAS) that offer monitoring and reporting, security and outsourced customer-premises equipment (CPE) functions. Many enterprises see managed WAN services as a way to outsource IT functions and purchase them along with consulting and professional services to assess, design and implement their enterprise networks. At the basic level, the managed WAN services offered by carriers provide monitoring and alerts for critical problems such as network outages. Higher tiers of service can add configuration management, proactive troubleshooting and trouble resolution, service-level agreement (SLA) management, more sophisticated and granular monitoring and reporting, on-the ground CPE installation and hardware support to ensure that CPE software is up to date and configured correctly, and the overall lifecycle management. This section should cover all the major suppliers of managed WAN services for enterprises.

Mobile Network (4G/5G) Additional (non-core) Services

Fifth generation (5G) mobile networks and wireless systems are the next telecommunication standards after the current long-term-evolution (LTE) or 4G technology, operating in the millimeter wave bands (28, 38, and 60 GHz). 5G is aimed at a higher capacity than the current 4G, which would allow for an increased density of mobile broadband users and support more device-to-device, reliable and massive machine communications. It is also aimed at lowering latency and battery consumption compared to 4G equipment and is targeted at the internet of things (IoT). This segment covers specific mobility-targeted services or solutions, applications, management systems and methods, end-device control and management and related services. These services are either offered by service providers or suppliers as discrete solutions or as modules that will integrate with or are reliant on SDN or SD-WAN.

This section should cover all the suppliers of these additional services that make use of software-defined systems via LTE/4G or 5G delivery. **It does not cover the core licensed mobile telephony/data services themselves.**

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Definition (cont.)

SDN Transformation Services (Consulting & Implementation)

SDN and SD-WAN provides the benefits of SDN technology to traditional hardware-based networking and is considered complementary to NFV. It is an overlay architecture with a networking foundation that is much easier to manage than legacy WANs. It essentially moves the control layer to the cloud and in the process, centralizes and simplifies network management. This overlay design abstracts software from hardware, enabling network virtualization and making the network more elastic. 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 the SD-WAN architecture is its ability to communicate with all network endpoints without the need for external mechanisms or additional protocols. Suppliers have been increasingly active as advisors/consultants as well as implementation enactors of managed services to supply complete solutions to enterprises. Consulting companies, large vendors and managed network services providers have been actively involved in offering SD-WAN as managed service packages in this space (independently or as part of partnership/consortium deals).

This quadrant should cover all the advisory/consulting, hardware and software, management/reporting tools, applications and services associated with delivering SD-WAN to enterprises, starting from consulting to managed services delivery.

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Definition (cont.)

SD-WAN Equipment and Service Suppliers (DIY)

SD-WAN provides the benefits of SDN technology to traditional hardware-based networking. It has an overlay architecture with a networking foundation that is much easier to manage than legacy WANs. It essentially moves the control layer to the cloud and then centralizes and simplifies network management. This overlay design abstracts software from hardware, enabling network virtualization and making it more elastic. 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 the SD-WAN architecture is its ability to communicate with all network endpoints without the need for external mechanisms or additional protocols. Suppliers have been active in selling directly SD-WAN solutions to enterprises for their "DIY" (enterprise owned and non-managed) implementations. They are also increasingly partnering with licensed telco/service providers to offer delivery packages in this space.

This section should cover all hardware and software, management/reporting tools, applications and services associated with delivering SD-WAN for enterprise-owned operations.

SDN Security Services

An SD-WAN is a logical overlay network that encompasses any WAN transport — public, private, even LTE/4G or 5G, and is independent of any single carrier or service provider. The overlay occurs between any two SD-WAN nodes, called edges, which can be deployed at the branches and/or data centers. A cloud- delivered variation extends the overlay to any cloud point-of-presence (PoP) or data center. A key value in security services for the network is that SD-WAN unifies secure connectivity over all transports while supporting transport independence. There is no need to use/provide a different security mechanism for different transport types or to depend on the transport provider for their secure network. The network overlay can support a wide range of security capabilities and can enhance its inherent security capabilities by adding advanced security systems in the form of discrete overlays, services or applications. It can be managed both automatically and centrally as well as at local levels.

This section should cover all suppliers of software and/or hardware associated with additional and discrete security services based on SDN or SD-WAN systems.

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Definition (cont.)

Network Technologies Suppliers (Core)

SDN technology is a networking approach that eliminates the complex and static nature of legacy distributed network architectures by using a standards-based software abstraction layer between the network control plane and underlying data forwarding plane in both physical and virtual devices. It is fundamentally different from NFV in terms of end results and ability, although both approaches are mutually supportive. A network virtualization program eliminates the conventional shortcomings and provisioning tasks related to legacy network segmentation technologies, such as switched VLANs, routed subnets, and firewall access lists (ACLs). An SDN-based network virtualization application supports arbitrary assignment of IP/MAC addressing schemes, automates network configuration tasks and enforces the expected network segmentation. Data plane abstraction provides a standards-based approach to dynamically provision the network fabric from a centralized (or distributed) software-based controller or multiple controllers.

SDN technologies enable improvements in network agility and automation and can substantially reduce the cost of network operations compared to traditional network deployments. The implementation of an industry-standard data plane abstraction protocol (such as OpenFlow) allows the use of any type and brand of data plane devices as all the underlying network hardware is addressable through a common abstraction protocol. It allows the dynamic and automatic provisioning of virtual network segments and virtual routing services on both physical and virtual networking devices. Security policies can be automatically provisioned via a cloud orchestration platform, such as OpenStack, or through workloads assigned according to attributes, such as MAC, subnet, VLAN and IP protocol, in an automated manner.

The main companies covered in this segment of this study will be vendors of SDN and NFV equipment and core services that are purchased either directly by enterprises or by service providers for specific enterprise projects.

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Definition (cont.)

Network Technologies Suppliers (Mobile to Edge)

SDN technologies enable improvements in network agility and automation and can substantially reduce the cost of network operations when compared to traditional network deployments. The implementation of an industry-standard data plane abstraction protocol, such as OpenFlow, allows the use of any type and brand of data plane devices as all the underlying network hardware is addressable through a common abstraction protocol. It also allows for the dynamic and automatic provisioning of virtual network segments and virtual routing services on both physical and virtual networking devices. All edge components may be managed.

in the same manner as core and SD-WAN components. With software-defined access out to branch/edge, including all customer premises equipment (CPE, referenced as virtual CPE or vCPE in SDN terms) and associated Wi-Fi networks, access points (APs), software-defined mobile networks (SDMN), and SD-LAN (includes both wireless [SD-WLAN] or mobile [SD-WMLAN], the management protocol can be further improved.

This segment assesses all the main vendors and service providers (such as telcos) in the SD-LAN space, including vCPE, SDMN and SD-LAN specific vendors.

In this independent study, following the format of the internationally successful Provider Lens™ series, ISG sets out to deliver a comprehensive but defensible research program based on an extensive evaluation of criteria that cover all major telcos and service providers of relevance in the global, Germany, the Nordics, the U.K. and the U.S. regions.

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Provider Classifications

The ISG Provider Lens™ quadrants were created using an evaluation matrix containing four segments, where the providers are positioned accordingly.

Leader

The "leaders" among the vendors/providers have a highly attractive product and service offering and a very strong market and competitive position; they fulfill all requirements for successful market cultivation. They can be regarded as opinion leaders, providing strategic impulses to the market. They also ensure innovative strength and stability.

Product Challenger

The "product challengers" offer a product and service portfolio that provides an above-average coverage of corporate requirements, but are not able to provide the same resources and strengths as the leaders regarding the individual market cultivation categories. Often, this is due to the respective vendor's size or their weak footprint within the respective target segment.

Market Challenger

"Market challengers" are also very competitive, but there is still significant portfolio potential and they clearly lag behind the "leaders." Often, the market challengers are established vendors that are somewhat slow to address new trends, due to their size and company structure, and have therefore still some potential to optimize their portfolio and increase their attractiveness.

Contender

"Contenders" are still lacking mature products and services or sufficient depth and breadth of their offering, while also showing some strengths and improvement potentials in their market cultivation efforts. These vendors are often generalists or niche players.

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Provider Classifications (cont.)

Each ISG Provider Lens™ quadrant may include a service provider(s) who ISG believes has a strong potential to move into the leader's quadrant.

Rising Star

Rising stars are mostly product challengers with high future potential. When receiving the "rising stars" award, such companies have a promising portfolio, including the required roadmap and an adequate focus on key market trends and customer requirements. Also, the "rising stars" has an excellent management and understanding of the local market. This award is only given to vendors or service providers that have made extreme progress towards their goals within the last 12 months and are on a good way to reach the leader quadrant within the next 12-24 months, due to their above-average impact and innovative strength.

Not In

This service provider or vendor was not included in this quadrant as ISG could not obtain enough information to position them. This omission does not imply that the service provider or vendor does not provide this service.

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Network - Software Defined Solutions and Services - Quadrant Provider Listing 1 of 5

	Managed WAN Services	Mobile Network (4G/5G) Additional (non-core) Services	SDN Transformation Services (Consulting & Implementation)	SD-WAN Equipment and Services (DIY)	SDN Security Services	SD Network Technologies (Core)	SD Network Technologies (Mobile to Edge)
Aerohive	Not in	Market Challenger	Not in	Not in	Not in	Not in	Not in
America Movil	Not in	Contender	Not in	Not in	Not in	Not in	Not in
Apcela	Not in	Rising Star	Rising Star	Rising Star	Contender	Rising Star	Rising Star
Arista	Not in	Not in	Not in	Contender	Not in	Product Challenger	Not in
Aryaka	Not in	Not in	Market Challenger	Market Challenger	Not in	Not in	Not in
AT&T	Leader	Leader	Leader	Not in	Product Challenger	Leader	Leader
ATOS	Not in	Not in	Not in	Not in	Contender	Not in	Not in
Belkin	Not in	Not in	Not in	Not in	Not in	Not in	Contender
BT	Leader	Leader	Product Challenger	Not in	Leader	Product Challenger	Leader
Cato Networks	Not in	Product Challenger	Product Challenger	Product Challenger	Not in	Product Challenger	Product Challenger
Centrify	Not in	Product Challenger	Not in	Not in	Product Challenger	Not in	Not in

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Network - Software Defined Solutions and Services - Quadrant Provider Listing 2 of 5

	Managed WAN Services	Mobile Network (4G/5G) Additional (non-core) Services	SDN Transformation Services (Consulting & Implementation)	SD-WAN Equipment and Services (DIY)	SDN Security Services	SD Network Technologies (Core)	SD Network Technologies (Mobile to Edge)
CenturyLink	Leader	Not in	Leader	Not in	Product Challenger	Not in	Leader
China Telecom	Contender	Not in	Not in	Not in	Not in	Product Challenger	Not in
Cisco	Not in	Not in	Product Challenger	Leader	Product Challenger	Leader	Leader
Citrix	Not in	Product Challenger	Not in	Not in	Product Challenger	Not in	Not in
Cloudgenix	Not in	Not in	Not in	Not in	Not in	Product Challenger	Not in
Colt	Product Challenger	Not in	Not in	Not in	Not in	Not in	Not in
Computacenter	Not in	Not in	Product Challenger	Not in	Not in	Not in	Not in
Datto	Not in	Not in	Not in	Not in	Contender	Not in	Not in
Dell EMC	Not in	Not in	Market Challenger	Leader	Not in	Leader	Market Challenger
D-Link	Not in	Not in	Not in	Not in	Not in	Not in	Market Challenger
DXC	Not in	Not in	Not in	Not in	Product Challenger	Not in	Not in

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Network - Software Defined Solutions and Services - Quadrant Provider Listing 3 of 5

	Managed WAN Services	Mobile Network (4G/5G) Additional (non-core) Services	SDN Transformation Services (Consulting & Implementation)	SD-WAN Equipment and Services (DIY)	SDN Security Services	SD Network Technologies (Core)	SD Network Technologies (Mobile to Edge)
Ericsson	Not in	Not in	Not in	Product Challenger	Not in	Product Challenger	Product Challenger
Extreme Networks	Not in	Product Challenger	Product Challenger	Product Challenger	Product Challenger	Product Challenger	Product Challenger
Fortinet	Not in	Not in	Not in	Not in	Product Challenger	Not in	Not in
GTT	Product Challenger	Not in	Contender	Not in	Not in	Not in	Product Challenger
Harman	Not in	Not in	Not in	Product Challenger	Not in	Product Challenger	Product Challenger
HCL	Product Challenger	Not in	Product Challenger	Leader	Market Challenger	Leader	Not in
HPE	Not in	Not in	Contender	Contender	Not in	Contender	Product Challenger
Huawei	Not in	Not in	Not in	Contender	Not in	Product Challenger	Not in
IBM	Leader	Product Challenger	Leader	Leader	Leader	Leader	Leader
Infosys	Not in	Not in	Product Challenger	Leader	Product Challenger	Product Challenger	Product Challenger
Juniper	Product Challenger	Not in	Leader	Leader	Not in	Market Challenger	Not in

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Network - Software Defined Solutions and Services - Quadrant Provider Listing 4 of 5

	Managed WAN Services	Mobile Network (4G/5G) Additional (non-core) Services	SDN Transformation Services (Consulting & Implementation)	SD-WAN Equipment and Services (DIY)	SDN Security Services	SD Network Technologies (Core)	SD Network Technologies (Mobile to Edge)
Logicalis	Rising Star	Not in	Contender	Not in	Not in	Contender	Not in
Masergy	Market Challenger	Market Challenger	Not in	Market Challenger	Leader	Not in	Not in
Microsoft	Not in	Product Challenger	Not in	Not in	Product Challenger	Not in	Not in
NTT	Product Challenger	Product Challenger	Product Challenger	Product Challenger	Market Challenger	Product Challenger	Product Challenger
Nuage Networks (Nokia)	Not in	Product Challenger	Product Challenger	Product Challenger	Not in	Contender	Not in
Orange Business Services	Leader	Leader	Leader	Leader	Leader	Not in	Leader
PCCW	Market Challenger	Product Challenger	Not in	Not in	Not in	Market Challenger	Not in
Pica8	Not in	Contender	Not in	Not in	Not in	Not in	Not in
Prodapt	Not in	Not in	Product Challenger	Not in	Not in	Not in	Not in
Riverbed	Not in	Not in	Not in	Product Challenger	Not in	Not in	Not in
Silver Peak	Not in	Product Challenger	Product Challenger	Product Challenger	Not in	Not in	Not in

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Network - Software Defined Solutions and Services - Quadrant Provider Listing 5 of 5

	Managed WAN Services	Mobile Network (4G/5G) Additional (non-core) Services	SDN Transformation Services (Consulting & Implementation)	SD-WAN Equipment and Services (DIY)	SDN Security Services	SD Network Technologies (Core)	SD Network Technologies (Mobile to Edge)
SingTel	Product Challenger	Leader	Product Challenger	Not in	Not in	Product Challenger	Not in
Sprint	Product Challenger	Product Challenger	Product Challenger	Product Challenger	Not in	Not in	Not in
Swisscom	Market Challenger	Product Challenger	Product Challenger	Not in	Not in	Not in	Not in
Symantec	Not in	Not in	Not in	Not in	Leader	Not in	Not in
Talari Networks	Not in	Not in	Not in	Product Challenger	Not in	Product Challenger	Not in
TCS	Product Challenger	Product Challenger	Product Challenger	Product Challenger	Product Challenger	Not in	Product Challenger
Tech Mahindra	Leader	Not in	Leader	Not in	Not in	Not in	Product Challenger
Telstra	Product Challenger	Not in	Product Challenger	Not in	Not in	Not in	Not in
Telus	Contender	Not in	Not in	Not in	Not in	Not in	Not in
TP-Link	Not in	Not in	Not in	Not in	Not in	Not in	Contender
Trend Micro	Not in	Not in	Not in	Not in	Product Challenger	Not in	Not in

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Network - Software Defined Solutions and Services - Quadrant Provider Listing 6 of 6

	Managed WAN Services	Mobile Network (4G/5G) Additional (non-core) Services	SDN Transformation Services (Consulting & Implementation)	SD-WAN Equipment and Services (DIY)	SDN Security Services	SD Network Technologies (Core)	SD Network Technologies (Mobile to Edge)
T-Systems	Product Challenger	Leader	Leader	Not in	Leader	Not in	Not in
Verizon	Product Challenger	Leader	Leader	Not in	Not in	Not in	Product Challenger
Versa	Not in	Not in	Not in	Not in	Not in	Product Challenger	Not in
Vmware	Not in	Not in	Not in	Leader	Product Challenger	Not in	Not in
Vodafone	Product Challenger	Leader	Product Challenger	Not in	Leader	Leader	Leader
Wipro	Leader	Not in	Leader	Not in	Rising Star	Not in	Not in
ZTE	Not in	Not in	Not in	Not in	Not in	Not in	Contender

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Network - Software Defined Solutions and Services Quadrants

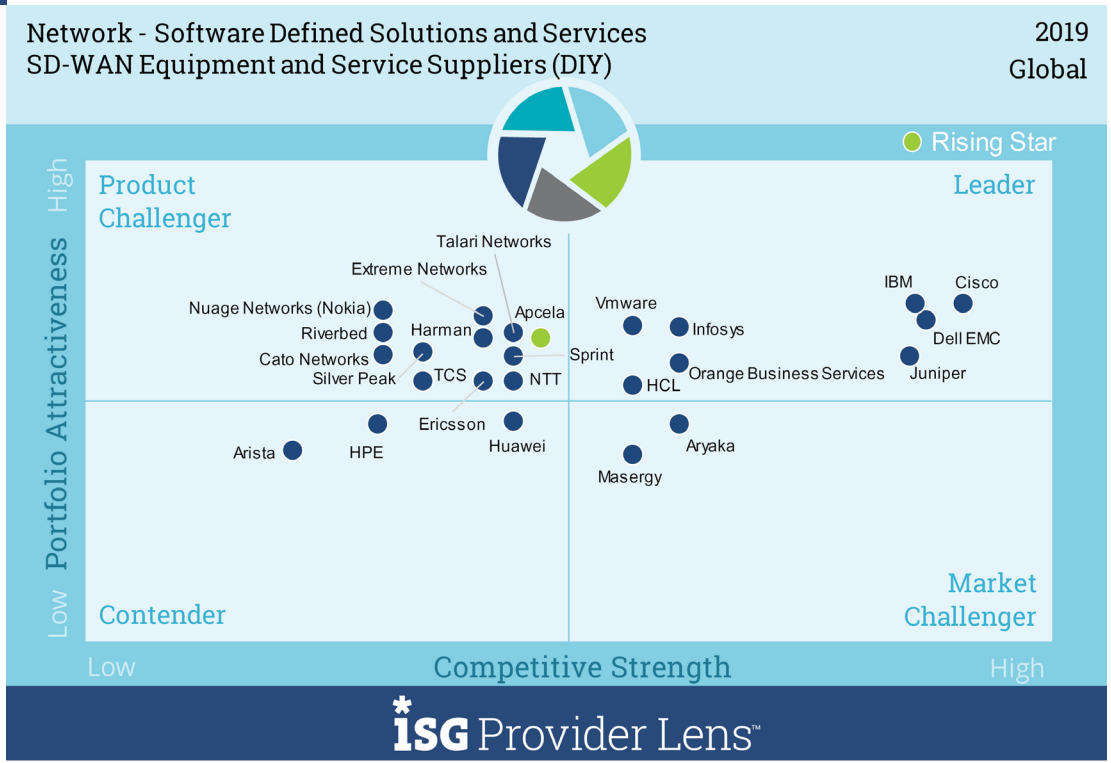
SD-WAN EQUIPMENT AND SERVICE SUPPLIERS (DIY)

Definition

This segment examines those providers of equipment and services (ranging from partial WAN supply to entire end-to-end SD-WAN offerings) directly for the enterprises' own (or third-party) operations rather than those delivering SD-WAN solutions as a managed service.

SD-WAN provides the benefits of SDN technology to traditional hardware-based networking. It is an overlay architecture providing a networking foundation that is much easier to manage than legacy WANs. It essentially moves the control layer to the cloud and, in the process, centralizes and simplifies network management. This overlay design abstracts software from hardware, enabling network virtualization and making it more elastic.

The SD-WAN architecture helps to reduce recurring network costs, offers network-wide control and visibility, and simplifies the technology with zero-touch deployment and centralized management. The key aspect of the architecture is its ability to communicate with all network endpoints without the need for external mechanisms or additional protocols.



Source: ISG Research 2019

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SD-WAN EQUIPMENT AND SERVICE SUPPLIERS (DIY)

Definition (cont.)

During the last 10 years, most companies have used multi-protocol label switching (MPLS) technology to transport data packets from A to B — an expensive but reliable transmission option for business-critical applications. Partly due to the proliferation of non-business critical traffic over WANs (such as social media, non-enterprise application use, informal messaging and video stream communications between colleagues), many enterprises require fast and flexible WAN connections to cloud providers and their own global offices with high bandwidth but lower criticality guarantees and price points.

SD-WAN is a virtual WAN that allows enterprises to bundle multiple WAN technologies and connections, such as MPLS, broadband internet, LTE 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 too much load, another path is taken automatically. The virtual connections consist of multiple paths that are used in parallel. If one path fails, transmission is continued by simply taking another path. Available products ensure 256-bit tunneled encryption. A policy-based controller is used to influence paths and connections. For example, a controller may transmit critical applications via MPLS only and other applications only via internet broadband connections or other technologies to ensure high-performance transmission of data, voice and video files. The controller or a management console is used to define rules that are applied automatically, for example, to speed up the data transfer of critical application or to route non-business-critical traffic to lower-cost transport methods. Based on the multiple paths of the virtual WAN environment, data transfers are accelerated, and bandwidths and costs can be reduced.

Cost reductions related to SD-WAN introduction can be highly significant. End users also have the option to give up parts of their high cost, rigid MPLS connections. They are not bound to use one carrier anymore but can order an optimal connection individually via a colocation hub provider in the short term. Although SD-WAN is still in its infancy, there is a growing interest in the technology as well as in associated NFV.

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SD-WAN EQUIPMENT AND SERVICE SUPPLIERS (DIY)

Eligibility Criteria

- Product/service portfolio coverage, completeness and scope
- Ability to deliver equipment and service to customer, inclusive of prerequisite training
- Understanding of overall market area and contributions to that area
- Scope of partnerships and offerings, management capability for the needed orchestration within a customer project
- Openness of offering to avoid vendor lock-in
- Completeness of customer support and assistance post delivery
- Stability and roadmap planning of the provider
- Reference customer/solutions in post pilot/commercial deployment
- Competitiveness of offering and types of commercial terms

Observations

- **Cisco** is very successful with its Intelligent WAN (IWAN), Meraki SD-WAN company and branch technologies and solutions, as well as its Cisco SD-WAN (Viptela) product and service range. The firm also offers a full portfolio of SD-WAN hardware (ASR/ISR 1000, ISR 4000, routers, vEdge routers, etc.) and management systems, such as vManage, and cloud enablement such as Cisco Cloud onRamp.
- **Dell EMC** develops, delivers and supports information infrastructure and virtual infrastructure technologies, solutions and services. The company is traditionally known for its server and data center equipment and services but is rapidly growing in importance in the networking and SDN space following its acquisition of VMware – VeloCloud.
- **HCL** is continuing to invest in building industry-leading, differentiated tools for optimized network automation and management. These include NetBOT (automated network management), HCL Sensus (SDN), HCL TIS (SD-WAN), HCL Nucleus (automated wireless management), and HCL Rendezvous (AI-enabled collaboration). The company has an enviable list of reference clients and high visibility projects worldwide within its general and software-defined portfolio.

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SD-WAN EQUIPMENT AND SERVICE SUPPLIERS (DIY)

Observations (cont.)

- **IBM's** solutions may be full-enterprise SD-WAN or partial/branch SD-WAN/intelligent edge and hybrid private/public cloud-enabled. SD-WAN migration services can be delivered as part of the overall engagement led by IBM's consulting resources.
- **Infosys** delivers network as a service (NaaS)-based enterprise network transformation to SD-WAN, with a "consumption made easy" approach to more than 25 countries. It has more than 2,000 full-time employees with strong experience in network and services delivery, supported by a team of consulting/industry specialist advisors.
- **Juniper** has a wide portfolio of hardware and software solutions that can address nearly all the SDN requirements of enterprises. It often adopts automated, open and standards-based approaches. Products such as Contrail, NorthStar, NFX series and WANDL IP/MPLS tend to be an open interface and can be interchangeable at strategic points as per clients' requirements.
- **Orange Business Services** delivers via its Flexible SD-WAN solution that can be combined with managed security, WAN optimization and application visibility services These services are provided either on appliance or VNF and through various levels of service management. Multi-sourcing integration (MSI), which is offered as a service, takes care of multi-vendor and multi-network type integration and management.
- **VMware** SD-WAN by VeloCloud™ is VMware's flagship SD-WAN solution (acquired VeloCloud™ in December 2017). It is delivered in cloud, hybrid cloud and on-premise versions. Its primary solutions are SD-WAN Gateway, SD-WAN Edge and SD-WAN Orchestrator.
- **Rising Star Apcela** is continuing its impressive transformation into an enterprise-centric provider of deterministic networking services, aligning enterprise application and network performance requirements. The firm has network as a service (NaaS)-oriented products that are based on its AppHUB platform. It also offers low latency with high frequency SD-WAN as a service based on its modular Alpha platform.

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CISCO

Overview

Cisco is a global company with its headquarters in San Jose, California. It offers a broad array of infrastructure hardware and software, including switches, routers, network optimization support (NOS), SD-WAN, Intelligent WAN (IWAN), WAN hardware and software, and the requisite control, management and automation capabilities for them. It also offers consulting/advisory services related to these activities and to general business areas related to current and future technology for a wide range of industry verticals. Cisco is relevant in nearly all verticals and geographies globally.

Strengths

Vast portfolio coverage: Cisco's portfolio includes IWAN, Meraki SD-WAN and branch technologies and solutions, as well as Cisco SD-WAN (Viptela) product and service range. The firm also offers a full portfolio of SD-WAN hardware (ASR/ISR 1000, ISR 4000, routers, vEdge routers, etc.), management systems such as vManage, and cloud enablement such as Cisco Cloud onRamp for co-location. It can demonstrate numerous U.S. and global installations among end-user organizations, service providers and carriers.

Tiered usage pricing plans: Cisco provides SD-WAN solutions to enterprises and offers usage subscription in three tier levels with 1,3 and 5-year plans.

Key supplier status in most implementations: Most of the enterprises and carriers in the enterprise network service provisioning market consider Cisco as one of the key equipment providers in the SDN/SD-WAN space and as one of their partner/supply companies.

Caution

Cisco appears to be present in all supply areas of the market and sometimes faces direct competition with key (partner) clients within the same RFI/RFQ/bids. It is sometimes involved in procurement proposal situations, where its equipment is represented in all offers. Although commercially enviable in the short term, vendors have historically found this to be a risky situation.

2019 ISG Provider Lens™ Leader

Cisco is a strong leader in the market for SD WAN equipment and services.

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DELL EMC

Overview

Dell EMC is a large privately held company headquartered in Hopkinton, Massachusetts, providing a broad range of IT products and services to enterprises and service providers. The company develops, delivers and supports information infrastructure and virtual infrastructure technologies, solutions and services. It is traditionally known for server and data center equipment and services but has been rapidly gaining prominence in the SDN space following its acquisition of a majority stake in VMware/VeloCloud.

Strengths

Extensive new range: Dell EMC has rolled out new edge, network and customer premises equipment (CPE) last year, all of which have proved popular. The strategic acquisition of VMware/VeloCloud has given the company significant capabilities in the SD-WAN equipment and services market.

Ready, out of the box: The firm's new open universal customer premises equipment (uCPE) and the Virtual Edge Platform (VEP) family are pre-tested and configured to work seamlessly with Silver Peak Systems, VeloCloud Networks and Versa Networks. This expands its reach to enterprises, service providers and carriers.

Caution

Many enterprises still consider Dell EMC as a supplier of only servers and technologies and do not acknowledge the networking element of its business. The firm should demonstrate its abilities in the SDN space by leveraging its partners (VMWare, VeloCloud, Versa, Silver Peak Systems).

2019 ISG Provider Lens™ Leader

Dell EMC is aggressively competing in this space with its range of high-quality solutions, especially when combined with its strategic partners offerings.

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HCL

Overview

HCL has 124,000 employees spread across 41 countries and generated around $8 billion in revenue in 2018. The company is continuing to invest in building industry-leading, differentiated tools for optimized network automation and management. Some of these include NetBOT (automated network management), HCL Sensus (software-defined networks), HCL TIS (SD-WAN), HCL Nucleus (automated wireless management) and HCL Rendezvous (AI-enabled collaboration). The company has an enviable list of reference clients and high visibility projects worldwide within its general and software-defined portfolio.

Strengths

Knowledge and execution: HCL has deep in-house knowledge and capabilities in all areas of networking and transformation. It also has significant expertise in consulting and scalable implementations based on a wide platform of technology. The company has proven its ability to deliver POCs and pilots and scale them into global enterprise-wide or divisional deployments.

Strong ecosystem: HCL has an impressive pantheon of partners, co-invested partners and acquired companies. Each of them brings specific expertise to the overall HCL and SDN family of offerings and capabilities.

Industry scope: HCL is active in a wide array of industries and specific industry sub-sectors. It also has impressive references of client success.

Caution

Maintaining a smooth functioning collaborative ecosystem of internal resources and partner companies is a challenging task. Although HCL seems to be capable in this respect, it should exercise caution in future activities with a focus on this vital area.

2019 ISG Provider Lens™ Leader

HCL delivers innovative and scalable enterprise network-level solutions in the SDN space.

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IBM

Overview

IBM has been at the forefront of enterprise network and digital transformation for some time. Its SDN offerings are led by IBM Global Technology Services (GTS), with additional focus from its telecom and media and entertainment industry divisions. With an extremely strong portfolio of its own solutions and a vast partner ecosystem of leading players in SDN and SD-WAN, IBM is able to deliver comprehensive, provider-agnostic solutions for enterprises.

Strengths

Strong portfolio of offerings: IBM has an exceptionally strong portfolio of its own solutions and a partner ecosystem of leading players in the SD-WAN and networking products markets. This enables the firm to deliver comprehensive, innovative and low-risk solutions for enterprises.

Multiple-solution options: Solutions may be full-enterprise SD-WAN, partial or branch SD-WAN/intelligent edge, hybrid private/public cloud enabled, involve data centers and IT infrastructure, fully/highly secure, or an MPLS replacement. SD-WAN migration services can be delivered as part of the overall engagement by utilizing IBM's consulting resources.

Unrivaled global coverage, portfolio and innovation: IBM has an almost unrivaled global footprint and is a well-established provider of network and technology infrastructure, integration and operation services globally. The firm was one of the first suppliers to offer a NaaS delivery and pricing model and it continues to innovate in this area.

Caution

IBM appears to be positioned strongly in the large to high-end mid-market enterprise segments. The adoption of NaaS could turn the entire mid-sized enterprise segment into a potential client base. The firm should carefully assess its sales and delivery costs to achieve this and gain a competitive edge.

2019 ISG Provider Lens™ Leader

IBM is a world-leading provider of vendor-agnostic SDN/SD-WAN offerings with innovative pricing options.

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INFOSYS

Overview

As of 2017, Infosys is the second-largest Indian IT company and the 596th largest public firm in the world based on revenue. On September 28, 2018, its market capitalisation was $44.32 billion. Infosys has a deep background in technology and networks engineering. It has long-standing engagements with carriers, service providers, and enterprises in the migration and transformation areas. The firm has recently shifted its focus to SDN and NFV. It has introduced innovative AI, robotics and advanced toolsets in the networking space, while retaining its core consulting and engineering competencies.

Strengths

NaaS model SD deployments: Infosys enables SDx-focused enterprise network transformation and employs a "consumption made easy" approach to supply to more than 25 countries. It has over 2,000 employees with extensive experience in network and services delivery, supported by a strong team of consulting/industry specialist advisors. Its experience in migration and transition can be applied to enterprise network transitions to de-risk the process.

Wide software-defined solution set: Infosys offers core SD-WAN, NaaS and network transformation services, ROBO (remote office, branch office), and service design network. Its portfolio also includes ServiceNow toolsets for delivery and management of customer services, with a WIFI-first current structure but 5G on the roadmap.

AI and robotics-driven developments and optimization: The Nia platform (formerly MANA) converges data analytics (potentially from Infosys Information Platform [IIP]), machine learning, knowledge management and cognitive automation capabilities. It enables a wide set of industry and function-specific solutions as part of the new SD network business delivery.

Caution

Many enterprises regard Infosys as supplier of only technologies. The firm should focus more on demonstrating its abilities in the SDN space.

2019 ISG Provider Lens™ Leader

With its innovative processes, toolsets and methods, Infosys is positioned as a world-class provider of SD-WAN for enterprises.

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JUNIPER

Overview

Headquartered in Sunnyvale California, Juniper is a well-known provider that caters to carriers, larger service providers, and selected enterprises globally. It has a strong science-grounded approach to SDN/SD-WAN and has a large ecosystem of supportive partners in the carrier and delivery areas. It has an extensive portfolio of hardware and software solutions that can address nearly all SDN requirements of enterprises and often employs automated, open and standards-based approaches. Products such as Contrail, NorthStar, NFX series and WANDL IP/MPLS tend to be an open interface and are interchangeable at strategic points as per clients' requirements.

Strengths

Positioned to deliver to carrier or enterprise: Juniper is well positioned to provider partial or complete network solutions and replacements to carriers and enterprises on a global basis.

Productized off the shelf solutions: Contrail SD-WAN solutions, which can be bought or licensed, cover end-to-end SD delivery from CPE to the cloud or service provider. They offer full orchestration and in-built security and also cover MPLS, broadband internet and 4G/LTE transport paths.

Future safe: Contrail is scalable and highly secure for a multi-cloud environment. It has an open interface that is designed to be highly evolvable.

Caution

Juniper appeals strongly to large and larger mid-sized enterprises as well as carriers. However, other enterprises may not be aware of its capabilities apart from being an equipment provider to large-scale customers. This must be rectified if the company wants to increase its presence in the smaller end of the mid-sized enterprise market.

2019 ISG Provider Lens™ Leader

Juniper is a well-respected mature provider with deep technical understanding of the SDN/SD-WAN market and strong delivery capabilities.

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ORANGE BUSINESS SERVICES

Overview

Orange Business Services covers a wide range of network services such as SD-WAN, (Flexible SD-WAN) and internet services, which can be integrated or combined with managed security, WAN optimization and application visibility services. These services can be provided either on appliance or on VNF and with various levels of service management. Its MSI service takes care of multi-vendor and multi-network type integration and management. Orange Business Services is highly focused on providing consulting services to ensure that client requirements are met.

Strengths

Excellent capabilities and partnership delivery: Orange Business Services has large coverage through its core network and partnerships. It offers full compatibility with Flexible SD-WAN through virtual SD-WAN gateways, allowing easy migration from traditional WAN to SD-WAN.

Out-of-the-box solution coupled with ease and customization: Flexible SD-WAN is an automated, intelligent, global solution with on-demand virtualized services. It is centrally orchestrated for end-to-end performance and control. It ensures reliable performance, improved security and support for multiple connection types, cost control and high-quality end-user experience for business-critical applications.

Consultative from POC to commercial roll-out: Orange Business Services follows a highly collaborative, open and consultative approach. The company demonstrates its trusted advisor capabilities to guide the client from POCs to commercial rollouts.

Caution

Many small systems integrators and advisory companies in specific geographies will compete directly for aggressive price points in this market segment. Orange Business Services must remain highly competitive in this regard while delivering a superlative service.

2019 ISG Provider Lens™ Leader

Orange Business Services has highly flexible products that can address client needs in the SD-WAN space. It also offers world-class, consulting-led transitional programs.

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VMWARE

Overview

VMware is a publicly traded company based in Palo Alto, California and has Dell EMC as a majority shareholder. Founded in 1998, it is a well-respected provider that has thousands of patents, high intellectual property of its own, and an ecosystem of more than 75,000 partners. The company launched VMware NSX®, an SDN network virtualization and security platform, following the acquisition of Nicira in 2012. With the acquisition of VeloCloud™ in December 2017, VMware SD-WAN by VeloCloud™ became VMware's flagship SD-WAN solution that is delivered in cloud, hybrid cloud and on-premise versions. Its primary solutions are SD-WAN Gateway, SD-WAN Edge and SD-WAN Orchestrator.

Strengths

Reliable and powerful solution for large enterprises and SMEs: SD-WAN by VeloCloud™ delivers hybrid WAN with high performance, reliability, transport and provider flexibility to assure optimal performance even for demanding applications such as voice and video. Primarily targeted at SMEs and large enterprises, it enables seamless insertion and chaining of virtualized services, both on-premises and in the cloud,

Ease of deployment and management: VMware offers centralized monitoring, visibility and cloud control to enable zero-touch branch deployment. It also delivers automatic business policy and firmware updates, link performance and capacity measurements.

Ease of branch deployments: SD-WAN Edge activation by cloud can enable branch deployment within minutes. Automatic WAN circuit discovery and monitoring eliminates link-by-link and branch-by-branch configuration.

Caution

VMware's offerings are in the higher end of the overall supply prices, which should be addressed as many lower cost providers are now maturing and delivering in the SD-WAN marketplace.

The company may need more certified professionals and implementation consultants to ensure high customer satisfaction in the expanding market.

2019 ISG Provider Lens™ Leader

VMWare has high-quality solutions and extensive expertise, making it an attractive choice for secure SD-WAN offerings.

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RISING STAR: APCELA

Overview

Apcela is continuing its impressive transition into an enterprise-centric provider of deterministic networking services, aligning enterprise application and network performance requirements. The company has NaaS-oriented products based on the AppHUB platform as well as low latency with high-frequency SD-WAN as a service based on the modular Alpha platform. It has an impressive private network ability, operating in 185 markets in 43 countries, with more than 70 cloud hubs. Apcela has hybrid private/public offerings along with strong partnering capabilities with many other providers and gateways to efficiently deliver its managed SD-WAN solutions and platform and hub solutions to enterprise to allow DIY.

Strengths

Expanding products and service range: Apcela has expanded its range of offerings and services during over the year to include managed SD-WAN services, network analytics platform, application acceleration for Office 365, and distributed security. These are supported by its AppHub platform, global network services and professional services practices.

Impressive growth and coverage: Apcela has a smaller revenue share compared to many leaders in the SDN transformation services space. However, its enterprise business units are growing rapidly at a 35 percent CAGR, accounting for over 60 percent of all revenues with 35 percent YoY growth in new enterprise clients. This has led to new practices and many new clients for DIY being added in new global locations.

Caution

Apcela must further demonstrate new SD reference cases to a wider audience in order to increase market awareness of its excellent SD-WAN and managed SD-WAN offerings.

2019 ISG Provider Lens™ Rising Star

Apcela is rapidly gaining prominence for the supply of innovative DIY solutions to enterprises in the SD networking space.

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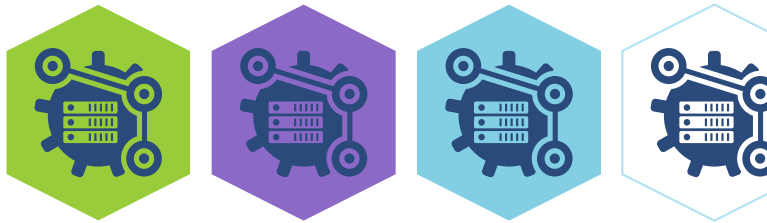
Methodology



METHODOLOGY

The ISG Provider Lens™ 2019 – "Network - Software Defined Solutions and Services" research study analyses the relevant software vendors and service providers in the Global market, based on a multi-phased research and analysis process, and positions these providers based on the ISG Research methodology.

The study was divided into the following steps:

1. Definition of Network - Software Defined Solutions and Services
2. Use of questionnaire-based surveys of service providers/vendor across all trend topics
3. Interactive discussions with service providers/vendors on capabilities & use cases
4. Leverage ISG's internal databases & advisor knowledge & experience (wherever applicable)
5. Detailed analysis & evaluation of services & service documentation based on the facts & figures received from providers & other sources.
6. Use of the following key evaluation criteria:
   - Strategy & vision
   - Innovation
   - Brand awareness and presence in the market
   - Sales and partner landscape
   - Breadth and depth of portfolio of services offered
   - Technology advancements

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ISG Provider Lens™ | Quadrant Report
June 2019

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