

ENTERPRISES ARE READY FOR SD-WAN: THEY'RE JUST LOOKING FOR THE RIGHT PARTNER

FEBRUARY 2018



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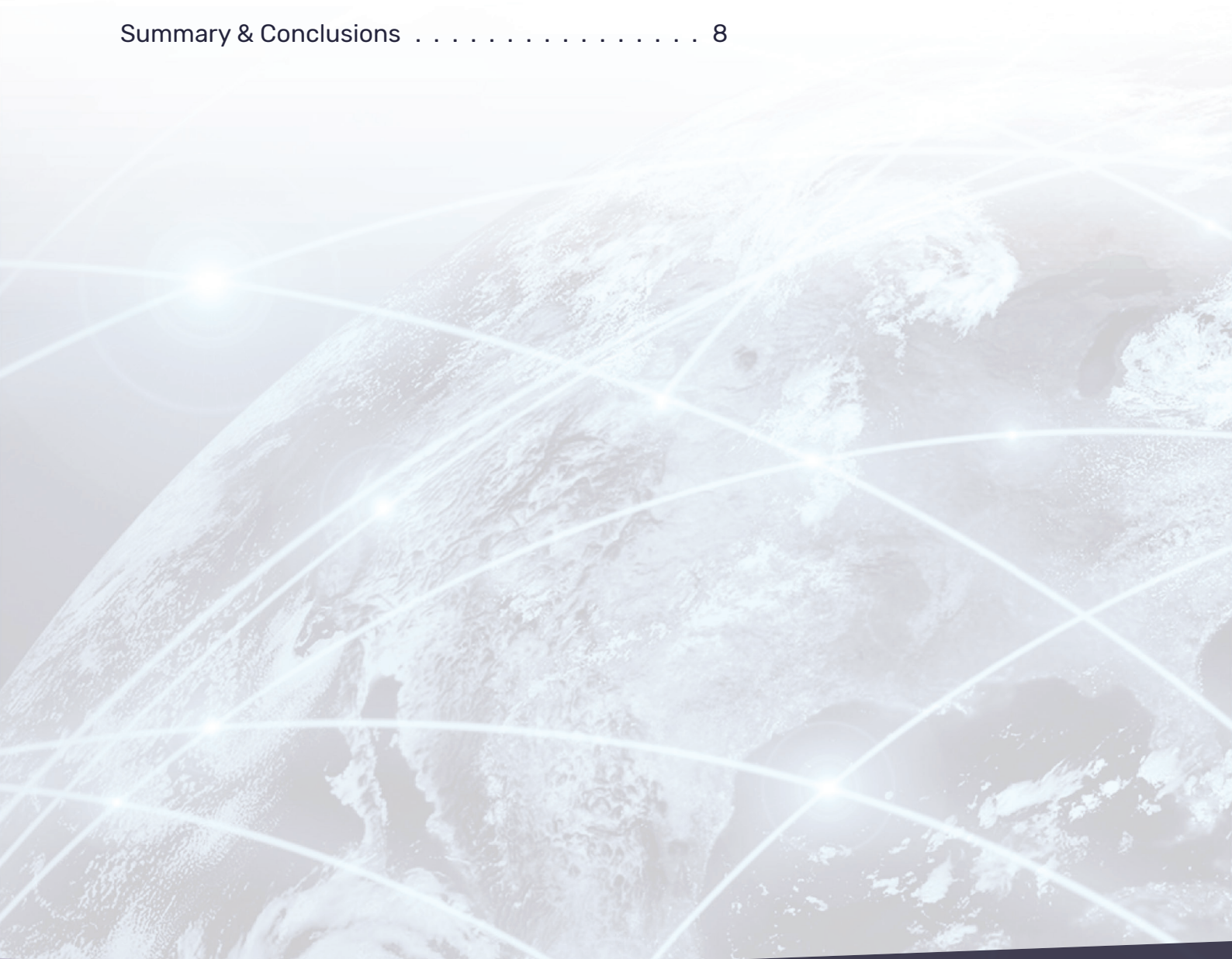


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ENTERPRISES ARE READY FOR SD-WAN: THEY'RE JUST LOOKING FOR THE RIGHT PARTNER

Enterprises are facing substantial challenges related to scaling their IT infrastructure to meet a myriad of increasingly complex business demands, and the associated requirement for more capacity at branch locations. The monthly recurring costs for traditional WAN services are leading enterprises to explore business broadband to augment or replace existing WAN services. The confluence of factors related to globalization, digital transformation, as well as “routine” cost pressures to do more with less has created the need for enterprise IT managers to examine new architectures while simplifying their IT network operations.

SD-WAN is a set of technologies and products that relies on extensive automation to let enterprises create a dynamic WAN with 2 or more connections at each location without incurring the operational overhead of a complex routed environment. SD-WAN provides a full range of services including application performance monitoring paired with dynamic path selection ensuring good performance, security controls including firewalling and encrypted VPN, and performance reporting. SD-WAN can be acquired and deployed by the enterprise or acquired as a service from a variety of local, national, and global managed services providers.

The growing interest in SD-WAN lies in the combination of advanced networking features with low operational overhead because SD-WAN systems automate and hide the complexity from the user control and ultimately allows more enterprises to build a better WAN. Enterprises can add multiple WAN links, such as lower cost business broadband connections, and layer SD-WAN over the top for a uniform and consistent network experience. The benefits for the enterprise are

significant and the hyperbole is not far from reality. However, enterprise IT still has to be convinced that SD-WAN will work as promised, but as acceptance continues, proof points and adoption will quickly grow.

In order to better understand the market demand for SD-WAN services in 2018, GlobalData has teamed with AT&T, Comcast Business, and CenturyLink to commission a survey of enterprise IT managers in developed markets to gather first-person, voice of the customer, feedback regarding their IT challenges, the respondents perceptions of how and where SD-WAN can help, and any steps they are currently taking related to SD-WAN adoption.

The survey was conducted in mid-2017 containing 50 qualitative, phone interviews of IT professionals with roles ranging from CIO to Director-level roles from companies primarily in North America, but also a few in Europe and Australia. Respondents worked for companies from more than 10 key industry segments including Automotive, Consumer Goods, Energy, Finance, Manufacturing and Professional Services as well as a variety of sizes from SMBs to XLEs that maintain more than 1,000 branch sites.

What follows is a summary of the results.



STATE OF THE BUSINESS

To better understand the challenges IT faces, it's important to understand enterprises current environment.

Branch Functions

Over the years enterprise IT has added more and more capabilities to branch locations by adding hardware appliances. (see Figure 1) There has been some function consolidation such as firewall and VPN combined on a single platform, but from a workflow perspective the management of these functions are largely independent which means making what seems to be a simple change could quickly evolve into numerous steps needing to be executed in the right order.

The more changes needed at a branch, the more operational overhead is expended. Additionally, each function adds to branch costs and increases overhead on processes such as license management. Most enterprise branch locations are singly connected, and adding a second WAN connection further complicates the branch architecture and enterprises that want to add capacity are hesitant to do so because of the significant complexity involved.

WAN Connections

Further complicating matters is that enterprises are using a variety of WAN technologies in the branches which ultimately have to be supported by equipment on the customer premises. (see Figure 2) While MPLS is by far the most widely deployed primary WAN technology, the same pattern exists for back-up WAN connections as well. Alternatives like fixed broadband, carrier Ethernet, and mobile technologies are also widely deployed to meet different business needs. The variation is mainly due to location availability and application requirements. In urban and suburban areas, more WAN technologies are available and used whereas in more remote locations ISDN and satellite are used to meet

Appliances Connecting Branch Offices to the WAN

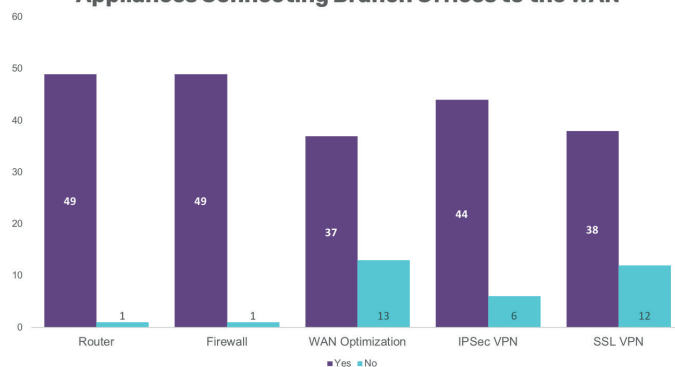


Figure 1

the minimum requirements of low bandwidth applications. Remote locations such as gas stations and convenience stores are seeing high bandwidth demands for point of sale terminals, interactive signage, and IoT systems for video surveillance and environment controls.

Contrary to industry buzz, SD-WAN is not an MPLS killer. MPLS is a proven technology and many enterprises will continue to rely on it because of its predictable and reliable performance. That's not to say that some enterprises aren't looking to replace their existing WAN—some are—but the perception—fair or not—is that business broadband or Internet-as-a-backbone is not as reliable as private, dedicated connectivity. However, enterprises are looking to augment their existing WAN, and want a lower cost alternative. SD-WAN is an ideal technology to augment an existing WAN without adding significant, perhaps even reducing, operational overhead by simplifying management and enabling enterprises to leverage more cost effective broadband capabilities.

Technologies Used as Back-Up Connections

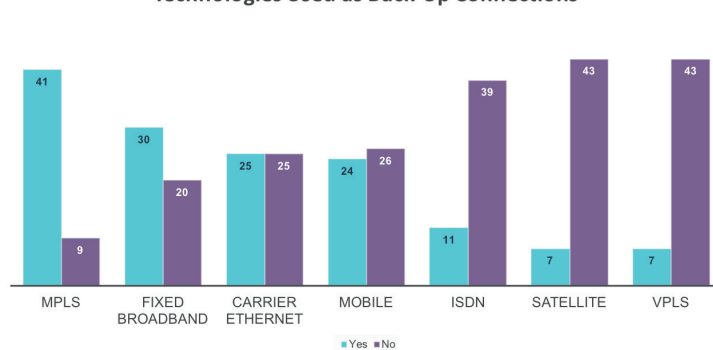


Figure 2

UBIQUITOUS DEPLOYMENT

"Our critical applications are On-Premises while few are based on SaaS. On-premises allows us to have better control, governance, security, better facility. However, currently we are discussing internally of moving to cloud. Nothing has finalized yet, but may be in next 6-12 months." – Sr. IT Manager, Manufacturing Industry

More enterprises are turning to cloud services of all types for enterprise applications. (see Figure 3) Employees are accessing applications at the branch and from central locations, and productivity can be negatively impacted due to poor application performance. In customer facing locations like retail, a great application experience can positively impact sales tying a stores physical and on-line presence together. That means that SD-WAN deployments need to encompass cloud applications to ensure good performance regardless of where applications are hosted. Leaving cloud applications out of the picture is solving only part of the enterprise demand.

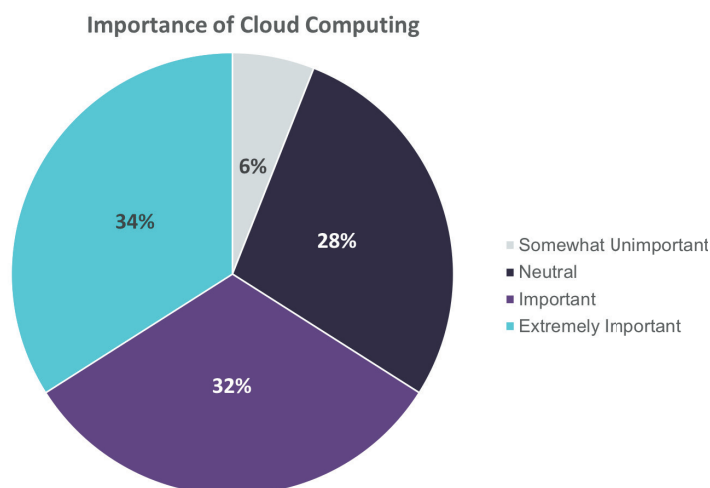


Figure 3

“ In cloud there is better cost management option via Opex rather than Capex. There is flexibility as I can select what I want to manage and what I want to outsource to cloud provider so I can utilize my resources in a better way. ”

IT Manager,
Manufacturing Industry

CO-MANAGED IS KEY

"We will control SD-WAN policy administration, due to security reasons. We want the policies to be monitored and controlled by us based on our requirements. If we outsource it to third party, then we might end up having policies which are not best suited or secured for our network." – Sr. Manager, IT Services

More enterprises are coming to grips with the idea that providing IT is not a core competency, and IT's time is better served addressing business requirements and adding value rather than merely keeping systems running. While there is always a cost concern with managed services due to the premium involved, business savvy IT managers understand that they may be able to offset the MSP costs by reducing internal operations costs. However, there are

other requirements that also impact decisions such as company or government mandated governance requirements, or a strong desire to not outsource critical operations. Here's where co-management comes into its own by taking the operational burden of systems management off the task list for enterprise IT while still allowing them the required control to make changes as they need to.

THE BRANCH OPPORTUNITY

Use of High Availability WAN

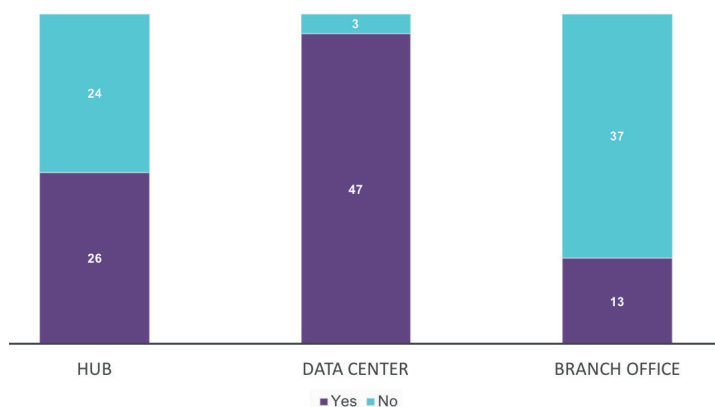


Figure 4

Most enterprises have ensured their data centers have redundant WAN connections, and half of respondents indicate their regional hubs have built-in redundancy as well. However, about a quarter respondents have redundant connections at the branch. (see Figure 4) That's a potentially lucrative market opportunity for SD-WAN and aligns with the desire, if not demand, for cost effective high availability at the branch. With the increased

“Redundancy is required at all locations even if it is the branch location, hub location or main data center.”

Sr. IT Manager,
Professional Services Industry

presence of business broadband that is as reliable as alternatives, and usually more cost effective—more capacity for a lower monthly recurring cost compared to other WAN services—having highly available branches is within reach of more enterprises and becomes even more important as businesses seek to make branch offices more capable of delivering new customer experiences.

ISSUES FACED BY IT

The sentiment behind SD-WAN as an MPLS killer is the assumption that enterprise IT wants to get rid MPLS. However, in this survey, just the opposite was reported. (see Figure 5)

A majority of the respondents reported that they are generally satisfied with their MPLS WAN but that doesn't mean that IT isn't looking for alternatives. The cost of MPLS circuits are generally high, which enterprises would like to reduce, but not at the cost of performance and reliability. Enterprise ITs frustration isn't necessarily with MPLS, but instead, seems to be with the difficulty and delay in working with a service provider to implement new orders, changes, and problem resolution.

Centralized vs. Distributed Internet Access

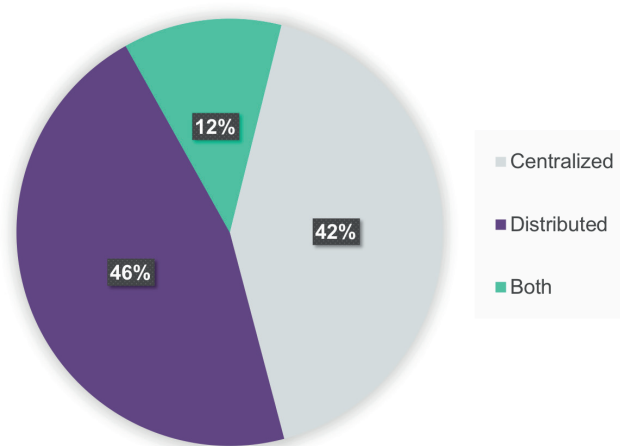


Figure 5

“We would like a centralized management, where we can centrally manage the usage of bandwidth of all the locations and I can allocate resources centrally. So, it would be good if I am able to get additional bandwidth easily on demand.” – Network Manager, Engineering Services Firm

Increased use of cloud services and the ability to bring up 1,000 virtual services in a few minutes is impacting the expectations of enterprise IT for on-demand, cost effective, and flexible services when and where they want it. With an SD-WAN deployment, enterprises can acquire more cost-effective WAN connectivity from any number of providers, and then streamline network operations with the SD-WAN overlay.

MSP's are in a unique position to further streamline WAN operations by providing both the WAN underlay, and the SD-WAN overlay and integrating the two at the portal level. This can enable bandwidth on demand, consistent WAN monitoring and management, and better troubleshooting and problem resolution which stand-alone SD-WAN products and services are simply unable to match.

Networking doesn't operate in a vacuum and any enterprise has to apply the same controls for application traffic regardless of where the client and servers reside and regardless

of how the network is built. Today, network configuration and applied security policies take place in different groups and as separate workflows that have to be coordinated at all levels of IT to ensure the proper policy is applied. Enterprises can consolidate workflows by working with an MSP that offers managed security capabilities along with SD-WAN services creating a holistic approach satisfying both networking and security requirements.

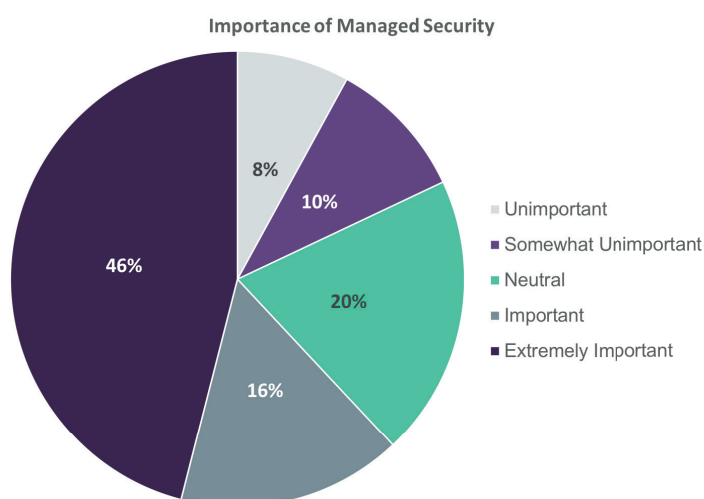


Figure 6

IMPORTANT QUESTIONS TO ASK AN MSP

Deciding to deploy your own SD-WAN products or choosing to select a managed service boils down to several key factors such as: How much technical debt is your company willing to accrue? Will you add more value to your company by running your own infrastructure? Would you be better served using an MSP, and spending the saved time on other projects? To this end, important questions to consider include:

What benefits does a MSP offer with a combined managed WAN and SD-WAN service?

Enterprises can separate WAN connectivity from SD-WAN capabilities which may mean they can acquire lower cost WAN services local to the branch offices. However, a combined WAN and SD-WAN offering, including when the MSP offers WAN aggregation on the enterprise behalf, may be able to provide more reliable services and

provide faster problem resolution since the MSP has taken responsibility for the entire WAN architecture.

How can the MSP support your migration to SD-WAN?

Enterprises can perform the migration to SD-WAN themselves, but by relying on an MSP's professional services that has performed migrations can speed the process up and reduce missteps that can result in higher costs and downtime. You'll want to fully understand the professional services that are included and optional with a new SD-WAN service and select the features your company will need to ensure a smooth migration.

What is the MSP's connectivity to cloud services?

Enterprises are moving more workloads to cloud services and they have to be included in any SD-WAN architecture to ensure

good, reliable application performance. Interconnection can vary a great deal between MSPs, so you'll want to ask your MSP how it interconnects with cloud services and how the interconnection is integrated with your SD-WAN service.

What other virtual network functions can be integrated with SD-WAN?

Enterprises may have security and operational requirements beyond the capabilities offered by SD-WAN making service chained VNF's a critical component of a managed SD-WAN service. If your company has standardized on a particular vendor, then you'll want to ensure that vendor is supported in the MSP offering and ask about license transfers.

SUMMARY & CONCLUSIONS

"We need trained resources, tools and software's to maintain our day to day network. We have service provider, who manages multi-location data center services and equipment to ensure efficient and effective usage." – IT Network Manager, Chemical Manufacturing Industry

Ultimately, when enterprise IT replaces one product or service with another, they are looking for significant improvement along one or more axes such as lower costs, higher performance, better workflows, or higher reliability. This juncture of WAN costs, performance, and reliability is where SD-WAN products and services can cost effectively meet these three seemingly competing requirements.

Enterprise customers are willing to pay a premium for a managed services because benefits that come from having a set of capabilities reliably delivered that they

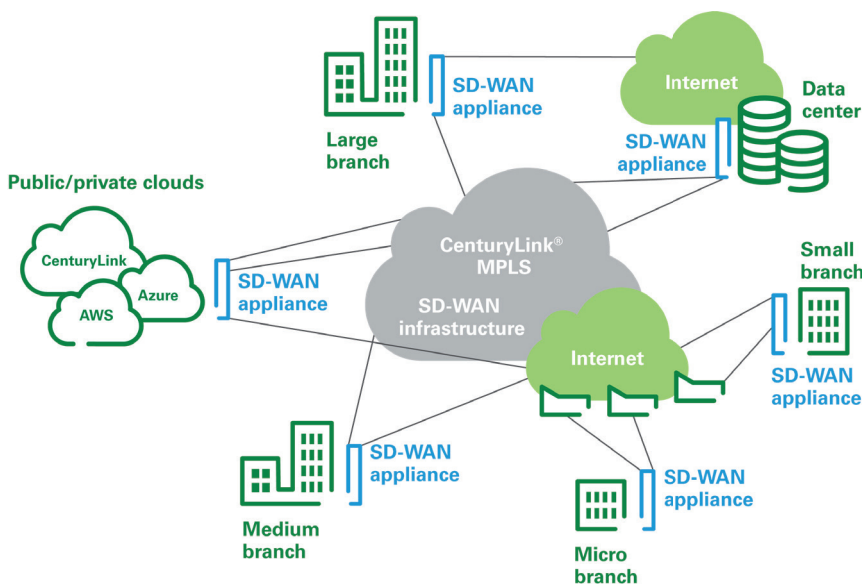
don't have to build and manage themselves outweigh the cost and effort of deploying their own solution. Integration and support of cloud applications and services is a critical component and managed services providers offering WAN services are often uniquely situated to offer fast connections to popular web and cloud services.

And finally, as companies embark on a digital transformation, they are looking at MSP's as partners who can provide guidance, consulting, architecture services, and support so that the IT can add value to the company rather than merely keeping the lights on.

See More. Know More. Worry Less.

We get it. Your digital transformation demands a network infrastructure with built-in flexibility and security. A hybrid network and SD-WAN can get you there, but you're worried about the operational risks, such as downtime, security holes, and lack of experience. It's no wonder that companies are turning to IT experts for help.

Hybrid Connectivity with CenturyLink® SD-WAN



To get started, visit centurylink.com/sdwan or talk to a CenturyLink IT expert at **800-871-9244**.

1. GlobalData. 2018. Enterprises Are Ready for SD-WAN: They're Just Looking for the Right Partner, February 2018.

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74%

of enterprises use a managed service provider to operate their network.¹

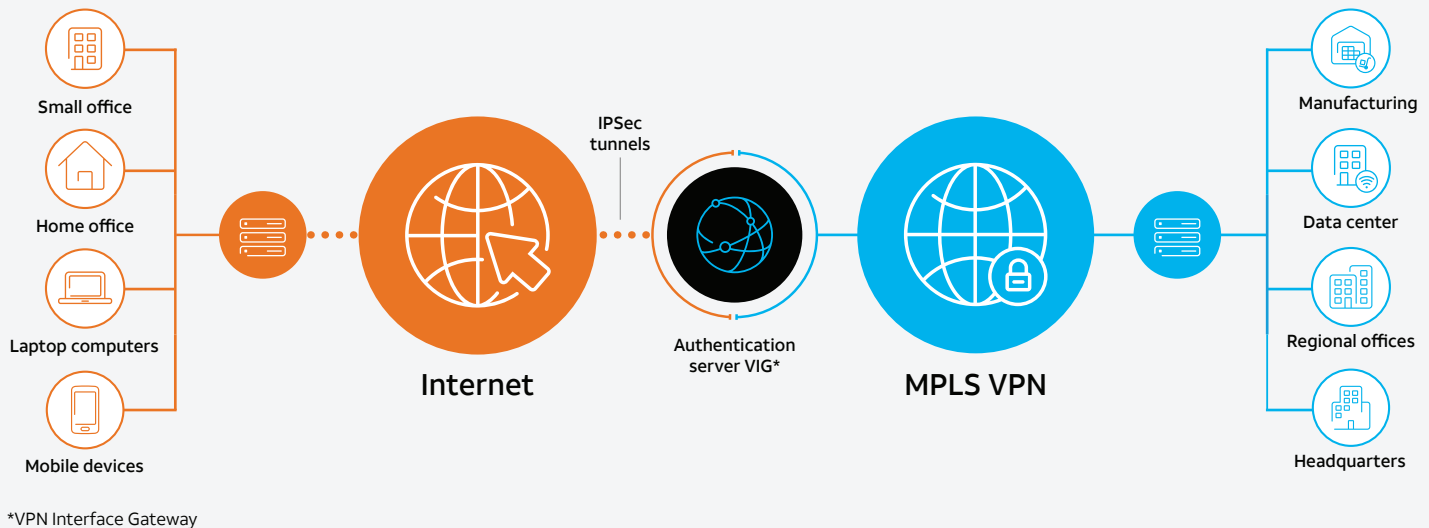


MEF AWARDS 2017

Best SD-WAN Managed
Service of the Year **Worldwide**

What is Hybrid Networking with MPLS and SD-WAN?

Hybrid Networking with MPLS and SD-WAN is a combination of applications featuring a high-speed, single-carrier-operated network that maintains traffic separation and efficiently routes data traffic by choosing the access type for optimal performance.



Optimize your performance with the combined powers of SD-WAN and MPLS.

At the heart of MPLS VPN is complete management control and the privatization of web traffic across an infrastructure. Coupled with SD-WANs' efficient use of public networks using broadband connections, the result is high-performance routing that allows you to prioritize information. Send your less latency-sensitive applications via broadband internet and decrease the congestion on MPLS circuits.

Top 3 advantages of Hybrid Networking

Choose what to deploy and how it will be delivered.



Near real-time dynamic routing

- Have the ability to select network technologies on a site-by-site basis for maximum flexibility.
- Customize on a per-location basis to match highly secure network performance with critical business needs.



Cost reduction with greater reliability

- AT&T Hybrid networking solutions can help you reduce network cost by routing non-critical traffic over lower-cost broadband connections using SD-WAN.
- Combine MPLS quality and lower cost Internet at each site for an optimal balance of performance, security, and cost.



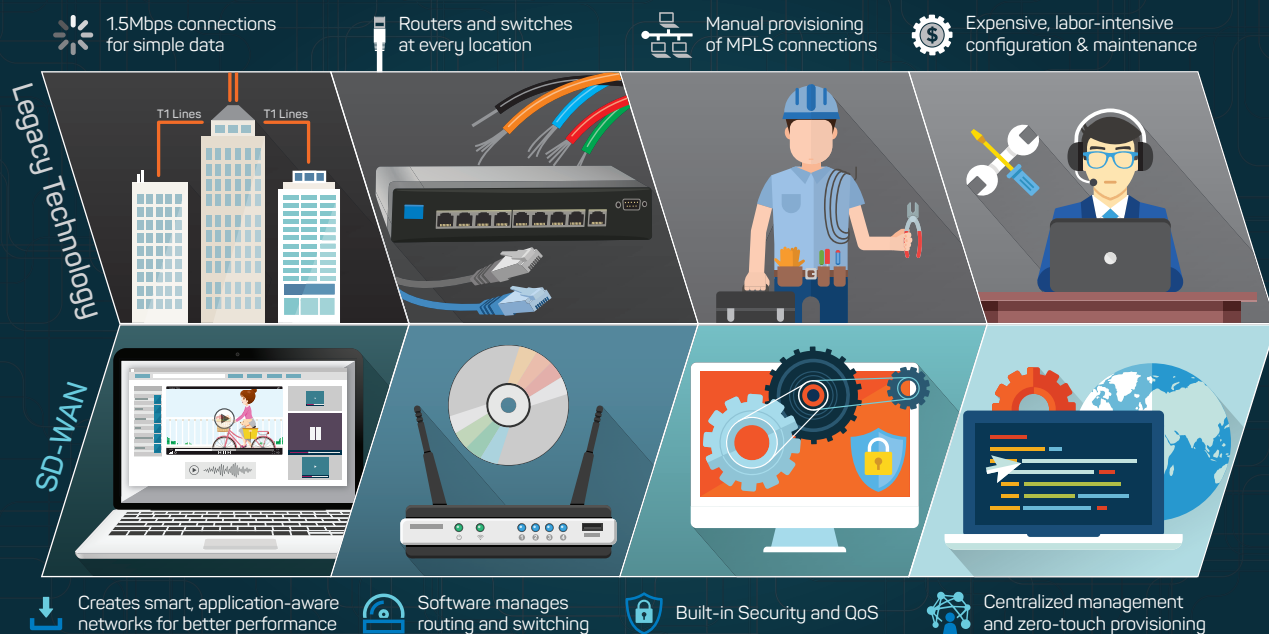
End-to-end security

- MPLS is not exposed to internet risks.
- Our MPLS, Broadband, Internet and SD-WAN solutions give you a range of security and performance levels to best match your business needs and latency sensitivity.

TRANSFORMING THE ENTERPRISE WITH SD-WAN

As business IT models expand to include distributed locations and cloud resources, software-defined networking has emerged as the enabling platform.

NETWORKS NEED TO EVOLVE



BY THE NUMBERS

AC	+/-	%	÷
7	8	9	×
4	5	6	-
1	2	3	+

Enterprise bandwidth usage is growing 30-40% annually ¹

SD-WAN delivers:



10x bandwidth increase ²



90% reduction in WAN outages and troubleshooting costs ²



40%+ cost reduction ²

SD-WAN AS A FOUNDATION FOR GROWTH



Centralized, more responsive management to meet evolving business needs



Cloud integration for dynamic scaling, service continuity, and app access across locations



Built-in security with software-defined segmentation and policy enforcement



Hardware consolidation for lower CapEx and increased agility



Application-level intelligence to choose the best network path for optimal performance

To learn more about Comcast Business, visit
business.comcast.com/sdn

Sources

[1] IDC, "Evolving Enterprise Branch Office Communications in a Dynamic Software-Defined World," August 2016

[2] Nemertes Research, "Building the SD-WAN Business Case," Winter 2016

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