



**Need Help Navigating Your SD-WAN
Journey? AT&T Managed SD-WAN
could be the Right Choice for You**

In partnership with AT&T and Cisco

Powering clients to a future shaped by growth

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In a recent Frost & Sullivan Global Cloud survey, respondents indicated the following as the top three strategic goals of their organization:

- 1 Improve business process efficiency
- 2 Improve customer experience
- 3 Become more innovative



Cloud Computing, continues to be an integral part of businesses' digital transformation journey to help them achieve these strategic goals. In the same survey, IT decision makers indicated that the software applications deployed by their companies is evenly split between public and hosted private cloud and organization-managed infrastructure (e.g., on premises data center, edge/branch, co-location).

As enterprise IT environments increasingly become hybrid in nature, the networks connecting these hybrid deployment models are extremely critical to provide a seamless exchange of data. Software-Defined Wide Area Network or SD-WAN is revolutionizing the enterprise WAN space as the ability to dynamically route traffic on the most optimized transport path (public and private), based on pre-defined policies and performance of the WAN connections, is dramatically different from the previous static hybrid WAN deployments. Other key reasons driving adoption of SD-WAN among businesses include cost savings, network agility, application-aware routing, optimized cloud connectivity, and enhanced application and performance visibility. According to Frost & Sullivan estimates, currently, there are over 300,000 operational SD-WAN sites, globally, with the number of sites forecast to exceed 1.5 million by 2024.¹

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¹ <https://store.frost.com/frost-radartm-global-sd-wan-vendor-market-2020.html>

As businesses evaluate SD-WAN solutions, IT decision makers are quickly realizing that a holistic WAN transformation is incomplete without the right security measures in place while extending users anytime, anywhere access to enterprise applications. With SD-WAN, while businesses can combine private and public links, and do direct internet breakout to cloud, it also exposes the enterprise perimeter to security risks. Hence, second generation SD-WAN solutions available in the market today have an enhanced focus on security, with security functions embedded natively with SD-WAN solutions. Some SD-WAN solutions provide security by working with security vendors.

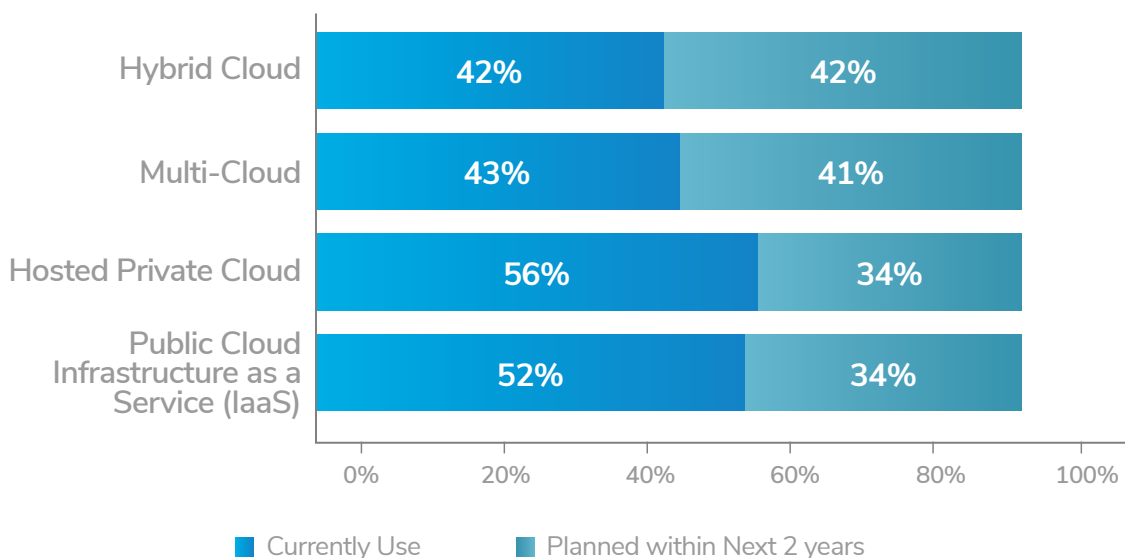
Cloud Computing, SD-WAN, and security are clearly key elements of businesses digital transformation strategy. However, network and IT administrators are struggling to keep up with the pace of technology change. While the initial appeal of simplified network management and cost savings from deploying SD-WAN is attracting the attention of IT decision makers, the WAN transformation efforts are more complex than what meets the eye. Deploying, operating and managing a global WAN, while keeping up with key technology trends such as hybrid cloud services, big data and analytics, Internet of Things (IoT), and providing security and compliance solutions across the network is a mammoth undertaking. Working with a managed services provider can help your organization handle those complexities, and embrace and integrate SD-WAN with other enterprises solutions. In this paper, we analyze the role of SD-WAN in enterprise digital transformation initiatives, highlight the WAN deployment challenges as networking and security converge, and present the value proposition of the AT&T SD-WAN with Cisco solution for your organization.

THE ROLE OF SD-WAN IN ENTERPRISE DIGITAL TRANSFORMATION

Hybrid and Multi-cloud is on the Rise

In the Frost & Sullivan Cloud User Survey of IT decision-makers, 75% of respondents agreed to the statement, "Cloud is integral to our digital transformation initiatives." As per the same survey (see Exhibit 1), more than 40% of the global IT decision makers indicated they currently use hybrid cloud and multi-cloud.

Exhibit 1: Global Cloud Adoption Trends (N=1621)



Source: Frost & Sullivan

The use of multiple environments reflects businesses' decision to implement a flexible, hybrid, multi-cloud strategy. To meet enterprise needs for agility, cost-effectiveness, and application performance, the networks connecting the hybrid IT environment should keep pace with the IT infrastructure. SD-WAN technology enables enterprises to do just that. For example, while private MPLS or Ethernet links could be the right choice to connect to an ERP application in a hosted private cloud, for reasons of security and compliance, Internet links could be the right choice for accessing SaaS applications with reduced transport costs. SD-WAN offers a highly reliable and highly secure connectivity options for businesses doing direct internet breakout to SaaS based applications such as Office 365. The SD-WAN functionality enables businesses to flexibly use and integrate, multiple transport networks (MPLS, Internet, Ethernet, Dedicated Internet Access, 4G/LTE). The pre-defined business policies determine which cloud applications are routed directly to the Internet, versus backhauled to a hub site.

Quick Provisioning of Global Branch Sites and Remote Users

Global branch sites connectivity and management is time-consuming and complex for large distributed enterprises. Most large enterprises have a hybrid WAN in place today, wherein they may use MPLS to connect critical locations, and IPsec VPNs to connect less critical branch sites. However, the current hybrid WAN architecture they have in place is likely static in nature. Any change in network configuration involves truck rolls and requires network engineers to make the changes—which is time consuming and expensive.

SD-WAN customer premises equipment (CPE) dramatically reduces the time required to add new branch sites, as the CPE is a plug-and-play device that can be configured without oversight by on-site network personnel. The zero-touch provisioning feature enables the device, once plugged into the network, to automatically connect to the controller, and self-configure. New branch locations can deploy SD-WAN equipment, and start with readily available wireless LTE service, while waiting for a network service provider to provision wired services (Internet or MPLS). MPLS services provisioning times can run into multiple weeks in some scenarios; while new branch addition initiatives with SD-WAN are not deterred due to long provision cycles of wired services.



The COVID-19 pandemic has further highlighted the need to effectively support remote users connecting to enterprise applications over residential broadband links. However, as remote workers compete for bandwidth with kids attending virtual classrooms and others at home trying to stream entertainment videos, optimizing and prioritizing business applications on home networks has become critical during the current crisis. Considering that remote working is here to stay, the enterprise IT now needs to plan on supporting remote workers connecting over residential broadband links (in most cases, a single link). By extending SD-WAN technology to remote workers, network administrators can provision optimized connectivity for remote users.

Support Internet of Things, Big Data, and Mobility Trends

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The new business environment is highly mobile, and requires IT resources to be available 24/7, so that geographically dispersed teams of employees, providers and customers can do business around the clock. Increasingly, mobile users are using their own smartphones and tablets to access corporate resources. Furthermore, Big Data and IoT applications, distributed across cloud and on-prem data centers, are putting immense pressure on WAN bandwidth, which MPLS alone cannot fulfill in a cost-effective manner. The traditional WAN architecture—with traffic passing back and forth from remote sites into central data centers, and back via MPLS—does not work well for distributed deployments. In contrast, SD-WAN enables remote offices or nodes to connect directly to the Internet via high-speed broadband, while the links adhere to QoS and compliance requirements defined by the controller corporate policies.

WHETHER YOUR TEAMS LIKE IT OR NOT, NETWORKING AND SECURITY ARE CONVERGING

Network and application security remains number one among the top three technology priorities for businesses. While cloud-based security services have been gaining traction in the last decade, premises-based security consisting of a next-generation firewall remains dominant among mid-size and large business segments. As businesses transform their IT and network architectures, utilizing cloud services and SD-WAN, respectively, it is critical that they simultaneously consider transforming their security architectures. For example, when remote users access SaaS based applications over Internet links, it is inefficient to route traffic to a firewall at an enterprise data center before routing it to

the user. Instead, routing traffic through a web highly secure gateway helps to eliminate the inherent risks of the public Internet. Most SD-WAN solutions available in the market today come with an integrated stateful firewall that offers basic security features. To further support enterprise IT decision makers' need for a broader set of security features; vendors have established relationships with security vendors to provide interoperability with their solutions.

The network segmentation feature of SD-WAN further allows network administrators to apply granular security policies based on user identity, functional groups and/or applications traversing the network. As the enterprise perimeter is no longer limited to users within the company site, the security teams have their work cut out for them. Users today are accessing enterprises applications that are hosted in the data center or in a cloud from the branch, their home office, or a coffee shop on their mobile devices. While service chaining premises-based and cloud-based security solutions to highly secure applications across the perimeter is an option, the next wave of SD-WAN product evolution is focused on integrated security. In the integrated approach, SD-WAN security and routing functions are available as a single software image, which dramatically simplifies WAN architectures by consolidating several network functions into a single appliance. The ability to apply consistent security policies from the LAN to WAN to cloud is extremely important for businesses while doing direct internet breakout to the cloud. A highly secure SD-WAN solution with integrated security and networking with the option to manage through a single pane of glass holds immense promise for enterprises' cloud networking.

Traditionally, their respective decision makers have made network and security decisions separately. That approach must change in the current era for organizations to succeed in their digital transformation journey. For your organization to make that virtually seamless transition from existing network and security infrastructures to a converged, highly secure SD-WAN platform, the networking and security teams will need to come together. The learnings from the initial deployments of SD-WAN sites have proven that the self-managed or do-it-yourself approach to SD-WAN is much more complex than businesses imagined. Adding security to the mix further increases the time and effort required by networking and security teams. It is no surprise that more businesses are choosing to work with a managed service provider for their SD-WAN needs. In a recent Frost & Sullivan SD-WAN survey, 54% of the IT decision makers indicated they prefer a fully managed SD-WAN service.

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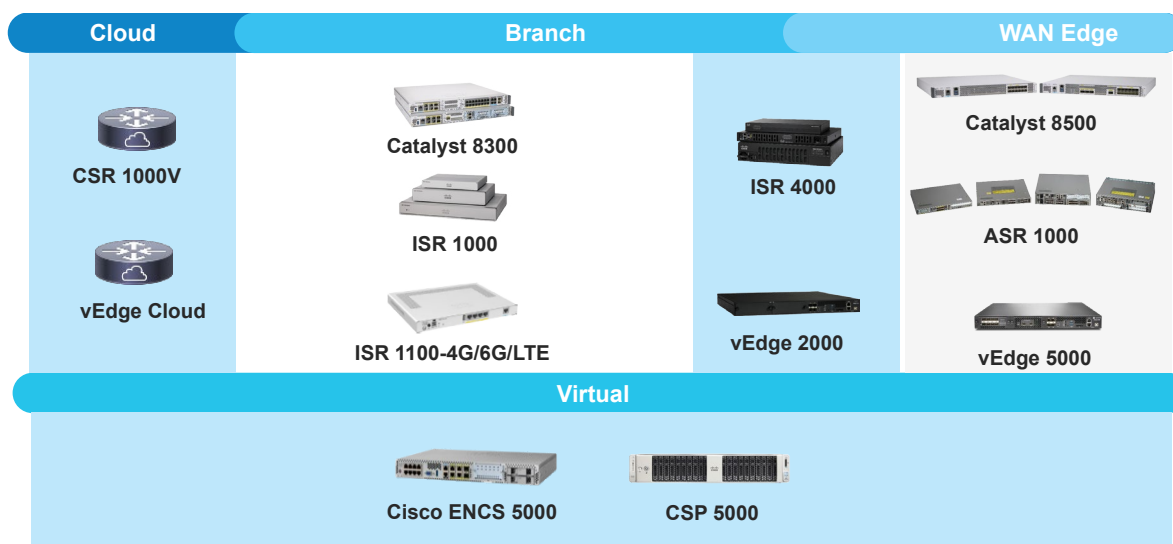
WHY BUSINESSES SHOULD CONSIDER THE AT&T SD-WAN WITH CISCO

AT&T SD-WAN with Cisco combines networking and security strengths of Cisco with managed network capabilities from AT&T to offer businesses a compelling highly secure SD-WAN solution. If your organization is looking to integrate an SD-WAN VNF with existing solutions or deploying SD-WAN newly, AT&T can help your network and security teams make that transition gradually.²

WAN Infrastructure Simplification

AT&T SD-WAN with Cisco is ideal for existing and new business customers looking to deploy a highly secure SD-WAN solution. For organizations that currently have Cisco ISR/ASR routers and firewalls in their WAN deployments, AT&T supports a variety of equipment platforms including ISR/ASR physical appliance, and as a virtual instance on the Cisco Enterprise Network Compute System (ENCS) device to make that transition easy (see Exhibit 2).

Exhibit 2: AT&T SD-WAN with Cisco – Hardware Options



Source: AT&T

Cisco ISR/ASR routers is particularly relevant for businesses that appreciate the superior routing functionalities Cisco ISR/ASR routers offer. The Cisco IOS-XE SD-WAN devices further combines complex security functions (firewall, IPS and URL filtering) features and SD-WAN functionality (with network segmentation offered inherently) on a single appliance to dramatically simplify enterprise appliance sprawl. For branches that require a virtualized instance of the SD-WAN, customers can choose the ENCS appliance.

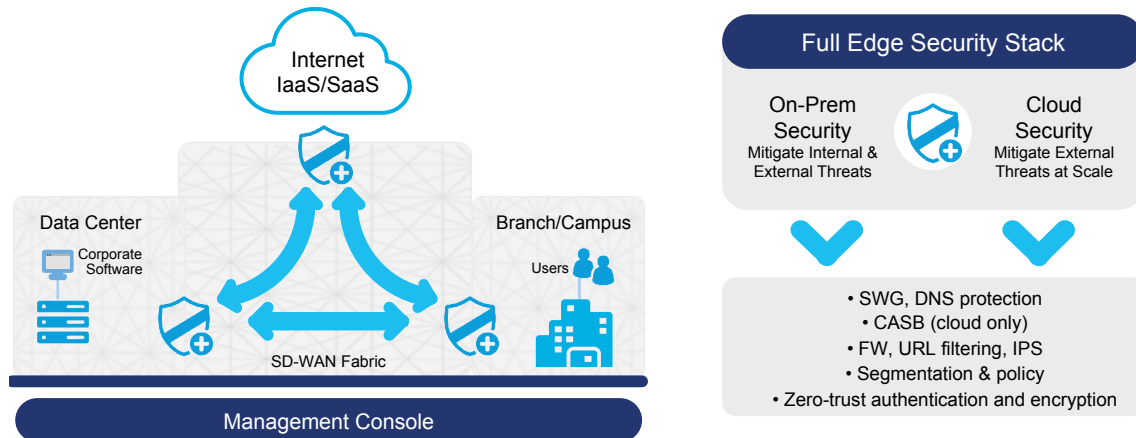
Managed SD-WAN with Integrated Security

As described in the earlier sections, security is increasingly becoming an integral part of SD-WAN deployments. With AT&T SD-WAN with Cisco, customers gain access to the integrated

² AT&T SD-WAN with Cisco is available globally in 150+ countries.

security portfolio, combined with managed services capabilities from AT&T. Cisco has integrated its enterprise security features with SD-WAN to provide a full edge security stack from branch to cloud and colocations (See Exhibit 3).³

Exhibit 3: Highly Secure SD-WAN: AT&T SD-WAN with Cisco



Source: AT&T

The combination of physical appliance and cloud-based security (Cisco Umbrella) allows network administrators to:

- Improve end-user experience by providing more secure direct internet and cloud access
- Enhance performance through cloud-based SSL/TLS traffic decryption
- Get comprehensive visibility and control on inbound and outbound traffic
- Reduce costs and complexity by providing one box for networking, security, and cloud management functions.

As a fully managed service, AT&T manages the end-to-end deployment and management of the highly secure SD-WAN service, with management and visibility into the services. However, with the co-managed option, customers have the ability to do policy management.

Optimized Cloud Connectivity

AT&T SD-WAN with Cisco is pre-integrated with leading public cloud providers—AWS, Google Cloud and Azure—for quick and seamless connectivity to businesses' multi-cloud deployments. The service also has onramps established to leading co-location providers and SaaS applications for optimized hybrid cloud connectivity.

Site Typing for Hybrid Networking

Hybrid network services are the underlying foundation of an SD-WAN solution. The ability to use any type of underlying transport service means businesses can continue to use the network transport they currently have, and supplement or replace with other options if required.

³ For businesses looking to further consolidated their enterprise applications, AT&T SD-WAN with Cisco comes with integrated UC capabilities.

AT&T offers a broad range of transport technologies like dedicated internet access (DIA), broadband, Wireless/5G, Ethernet, and to match the site application performance and cost requirements. Furthermore, to provide a phased approach to SD-WAN, AT&T encourages its existing MPLS and IPsec customers to use hybrid networking alongside SD-WAN, instead of a rip-and-replace approach. AT&T VPN (MPLS-based VPN) and AT&T Network-Based IP VPN Remote (AT&T NIRA) service customers can continue to keep MPLS and IPsec sites, and add SD-WAN at select sites, thus making the evolution to SD-WAN simpler.

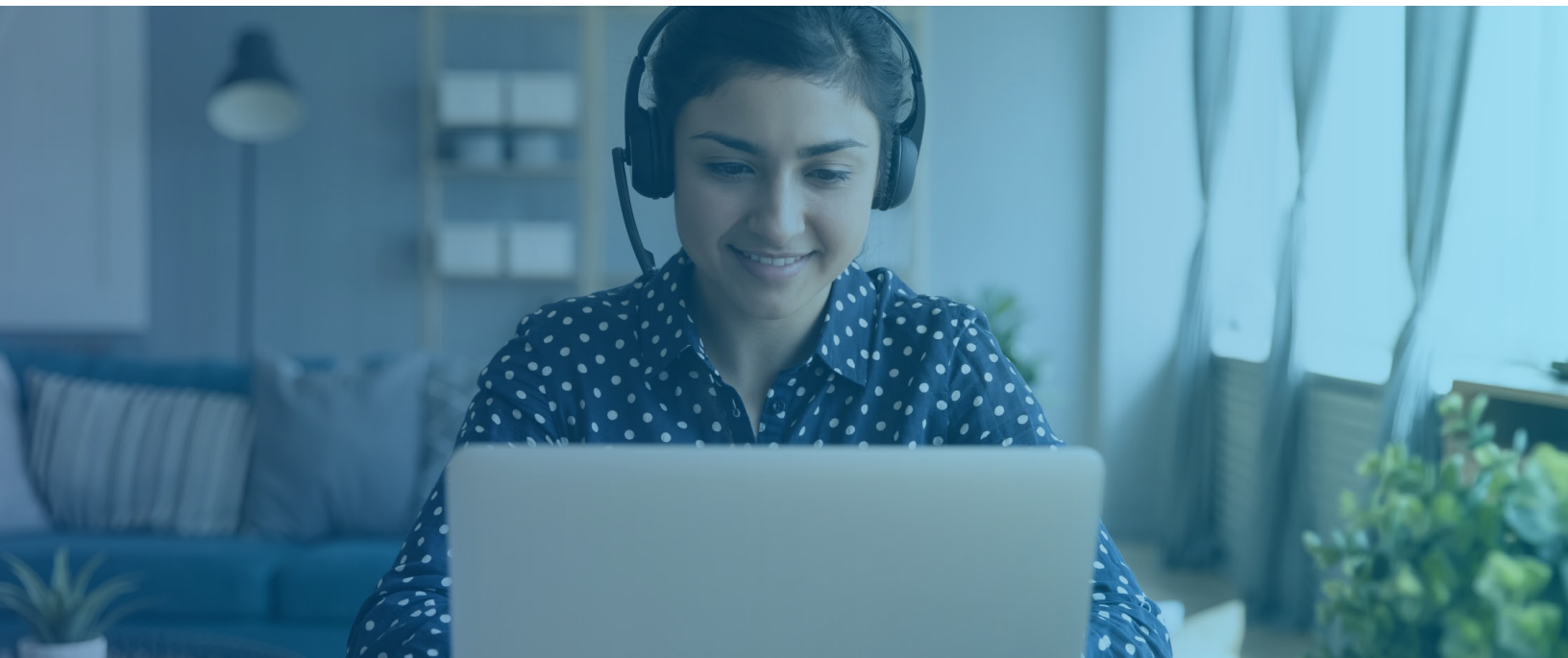
Network Management Services

While SD-WAN enables enterprises to utilize hybrid WAN services to save costs on expensive private network links, the process of procuring, deploying, and managing network services from several providers can be time consuming for the IT team. Since many organizations are reducing their network and IT staffs to control costs, while placing pressure on existing staff to achieve operational efficiency, SD-WAN management can add to the burden.

AT&T can ease the burden of end-to-end management and act as single point-of-contact for the SD-WAN solution, including the SD-WAN appliance, software subscriptions, WAN services, and managed services thus allowing the customer's IT team to focus on other strategic activities. In the Frost & Sullivan SD-WAN survey, managed SD-WAN service providers' ability to aggregate and manage network services from multiple providers, troubleshoot problems quickly, and simplify vendor management are the top three reasons respondents choose a managed SD-WAN service.

Superior Pre-sales and Post-sale Support

SD-WAN solutions offer superior benefits over traditional hardware-centric, static WAN deployments. The SD-WAN appliance is simple, easy to deploy, and the customer can self-configure without the need for network personnel to deploy and configure it. However, after the initial phase of SD-WAN deployments, in our discussions with businesses and service providers, it has become clear that many businesses struggle with SD-WAN solutions at their branch sites. Commonly stated challenges include trouble with LAN discovery, lack of knowledge by the staff at branch sites to even connect the appliance and carry through the basis steps. Therefore, most businesses deploying SD-WAN prefer working with a managed service provider who can deploy and managed the SD-WAN solution at all the sites and provide consistency.



As a long-time leader in the business network services space, AT&T understands the level of complexity involved in designing global WANs. AT&T created an expert technician role keeping this in mind to provide customers with a high-touch solution support. The technician:

- assembles requirements from teams involved in the process at customer's organization;
- creates and validates a plan that cuts across network, security and other related enterprise solutions that AT&T can support; and
- Tests and presents the recommended solution.

With AT&T managed SD-WAN, customers also have access to integrated service experience (ISE) that offers superior post-sale support. The ISE is a 24x7, global command and control center that offers a single point-of-contact and accountability. The responsibilities include first touch resolution, prioritization of critical incidents, ownership until resolution, root cause analysis and service improvement plans, to list a few, while aligning with ITSM governance and lifecycle support.

AT&T Consulting Services

The single biggest factor derailing most businesses' digital transformation initiatives is the fact that business goals fluctuate. This could be due to various reasons, the company is expanding into new markets, is adding and removing lines of business, acquiring other companies or merging with a company, moving employees to work from home, and of course, expanding into new geographies. The fact that technology is changing rapidly does not help either. In the Frost & Sullivan enterprise survey, "keeping up with new technology" has ranked as the top challenge facing IT leaders for the past 8 years.

The complexity of integrating hundreds of firewalls (and applying those rules correctly) into SD-WAN sites, or enhancing or replacing existing routers to support SD-WAN with integrated security can be a daunting task for enterprise IT. Additionally, as the businesses retain/upgrade/replace their underlying network services to optimize SD-WAN deployments, there could be a transition period when the company indeed operates dual WANs. Your organization can benefit from AT&T consulting services to help you in the journey. AT&T has successfully driven the digital transformation of some of the largest and most visible technology market leaders in the world, starting with itself. AT&T consultants have an average of 12 years of industry experience in the range of disciplines that feed into a digital transformation strategy, including networking, cloud, legacy data center modernization, SD-WAN, security, and governance.

CONCLUSION

The enterprise WAN is undergoing a transformation like never before. While businesses have dedicated the last decade to integrate cloud into their IT architectures, the emphasis has now shifted to providing the optimized and highly secure connectivity to distributed architectures. The emergence of SD-WAN is enabling businesses to do just that and more. However, global WAN deployment and management, while offering security and compliance, can be extremely complex and time-consuming. Working with a managed service provider such as AT&T, who has rich experience in global networking and enterprise applications can help navigate the challenges of WAN transformation.

To learn more about AT&T SD-WAN with Cisco, please visit: <https://www.business.att.com/collateral/att-sd-wan-with-cisco.html>

NEXT STEPS

- **Schedule a meeting with our global team** to experience our thought leadership and to integrate your ideas, opportunities and challenges into the discussion.
- Interested in learning more about the topics covered in this white paper? Call us at 877.GoFrost and reference the paper you're interested in. We'll have an analyst get in touch with you.
- Visit our **Digital Transformation** web page.
- Attend one of our **Growth Innovation & Leadership (GIL)** events to unearth hidden growth opportunities.

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