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WHITE PAPER
SOLUTION INTEGRATORS

The 6 Benefits of Migrating to SD-WAN

Plus the Right Strategy in 7 Key Questions

Introduction

Traditional WANs are not satisfying the needs of today's enterprise organizations, especially when it comes to supporting cloud-based SaaS applications. Traditional wide area networks (WANs), based on conventional routers and hub-and-spoke data center architectures, were never designed for the cloud. They typically require backhauling all traffic from branch offices to a hub or headquarters data center where advanced security policies can be applied and internet access granted. This causes delays and impairs application performance resulting in a poor user experience and lost productivity.

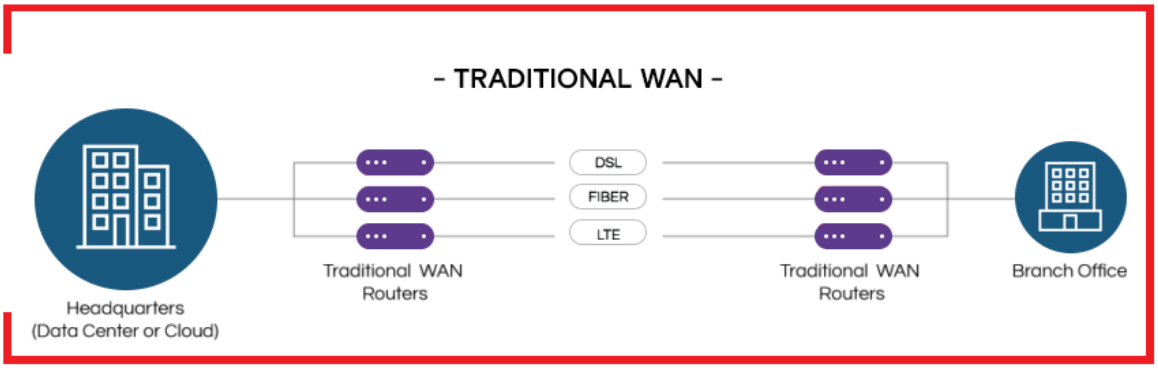
Unlike the traditional router-centric WAN architecture, a software-defined wide area network (SD-WAN) is designed to fully support applications hosted in on-premise data centers, public, or private clouds, and SaaS services such as Salesforce.com, Workday, Office 365 and Dropbox, and can provide the highest levels of application performance.

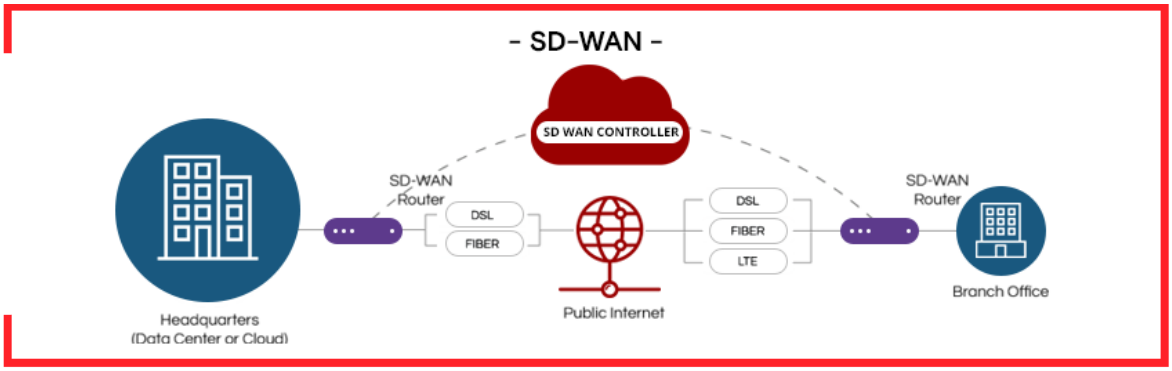
As organizations, and IT and network professionals, such as yourself, aim to future-proof their networks, they are considering adopting the next-generation technology that software-defined wide area networking (SD-WAN) can provide.

Enterprises are seeking easier management of multiple connection types across their WAN to improve application performance and the end-user experience. IT pros want SD-WAN's centralized management and orchestration capabilities because they can manage multiple transport links, including MPLS, Ethernet, broadband and wireless LTE/5G, and optimize network traffic to avoid potential performance issues that occur during peak traffic demands.

These factors are driving the increased adoption of SD-WAN. It gives you way to ensure optimal levels of quality of service for critical applications that need to be accessed across an enterprise and from the cloud.

While the benefits of SD-WAN are easily understood, you, and your team, should be intentional when selecting an SD-WAN vendor. Rather than focus on "which" vendor to select, it's recommended that you gain clarity about "how to choose" a vendor that can satisfy your organization's specific requirements and use cases.





Six factors you need to consider when evaluating SD-WAN solutions

The best way to evaluate an SD-WAN solution is to compare its feature and functionality parity. But, you and your team, should also examine the following factors when selecting an SD-WAN solution for your enterprise needs. Collectively they can help you discover and determine the highest and best use of an optimal SD-WAN solution for your organization.

Ease of Deployment

One of the goals of SD-WAN is to be able to install networking appliances at any branch without needing someone to configure it on-site. Hence, a new or replacement network device can be sent to a branch location and be physically installed and powered up by a local employee who may or may not have IT skills. Therefore, you, and your enterprise, need your SD-WAN solution to automatically configure and connect to the central SD-WAN management system.

Traditional WANs require a lot of manual, on-site configuration, which becomes highly laborious, prone to errors, and, not to mention, costly and time-consuming to troubleshoot. This means one of your IT resources with configuration skills and a laptop has to physically go to the branch site and configure the network device (ie. router) for basic operation. This all has to happen before the you can complete the enterprise-wide configuration from the central network management system.

Alternatively, a top consideration for your SD-WAN solution is the ability for you to ship it directly to the branch site and have someone locally do the install and have it up and running within minutes. This significantly reduces lead time and the number of hours spent on installation, and mitigates, if not eliminates, the potential for configuration errors.

As a result, your SD-WAN vendor should provide the benefit of zero-touch provisioning or plug-and-play functionality. This is essential when you have many sites with no local IT staff or new sites that are being opened frequently, such as (pop-up) stores or temporary offices, etc.

Automation

Witch automation is key. Your enterprise SD-WAN solution should enable the quick and consistent deployment of network devices with minimal local configuration. The challenge with automation is that automation is not good at dealing with anomalies and unpredictable events. Trying to write automation scripts that anticipate all manner of failure scenarios can very quickly turn into a networking quagmire.

An acceptable SD-WAN solution should provide a differentiated intelligence that includes learning algorithms that continually monitor the quality of all available paths and intelligently combine error correcting algorithms with packet-by-packet multipath load balancing. The goal is to deliver a consistently positive user experience, even when the underlying physical networks experience loss and jitter.

This is accomplished when the SD-WAN edge device automatically calls home and contacts the enterprise's head-end orchestration device. This automatically pushes a centrally applied configuration to the remote network device in accordance with the enterprise policies for the network.

Moreover, this process must be dynamic so if there is ever a change in enterprise policy, the change(s) can be made centrally within the orchestration device and the remote network devices will be reconfigured automatically. The key benefit here is that at no point do any IT staff need to log in and configure an individual remote device to make the changes.

The combination of automation with dynamic learning and adaptation capabilities in the SD-WAN solution delivers consistent optimized network performance across the enterprise's SD-WAN fabric.

Application Performance

One of the benefits of SD-WAN over traditional WAN is its ability to optimize bandwidth-sucking, critical applications that might otherwise face network latency and congestion issues.

An enterprise SD-WAN solution should offer dynamic path selection to prioritize mission-critical enterprise applications, no matter whether it's an employee working from home remotely or the C-level staff working at headquarters. The SD-WAN solution should apply consistent enterprise policy to automatically prioritize real-time applications like Voice-over-IP (VoIP) or video conferencing, etc

Furthermore, when an outage or bottleneck occurs, SD-WAN should also offer self-healing functionality that enables it to re-route prioritized traffic to the next-best link and preserve the end-user experience. Bandwidth-intensive and lag-sensitive applications, like VoIP and unified communications (UC), are increasingly running over enterprise WANs. But traditional WANs, as described, aren't architected with inherent intelligence built-in to support these critical applications.

SD-WAN should provide increased visibility and flexibility to prioritize voice, video, and other latency adverse applications to rapidly shift traffic between multiple MPLS and/or public internet broadband transport connections. SD-WAN solutions should give network users a seamless, high quality experience of enterprise applications

With this top of mind, SD-WAN solutions should enable flexible, deterministic paths depending on individual application requirements in order to prevent congestion and bottlenecks. SD-WAN should accomplish this by diverting traffic to alternate, less-busy transport links thus ensuring a reliable flow of data transfer, instead of making it vulnerable to getting lost, dropped or blocked.

Ease of Management

Wide area networks are ever changing fabrics and cannot be treated as static elements that are configured once and then forgotten about without proactive management. Enterprise WAN resources can have many performance variations that result from changing transport conditions and/or cross traffic on the IP path that the transport connections are sharing on the internet.

Therefore, SD-WAN solutions should provide dynamic management capabilities of disparate WAN resources to accomplish complex configuration in a simplified manner. Also, SD-WAN should provide an on-going resource management tool in a centralized administrative service engine that provides secure, centralized, cloud-enabled WAN control and management. This tool continues to automate network administration functionality to streamline and simplify the management across the entire SD-WAN fabric of distributed network device operation.

SD-WAN should inherently proactively address many of potential configuration issues in operating a large, distributed wide area network. It should do this by utilizing transport independent overlay tunnels and centralized traffic routing based on network policies that take into account both user and application roles. This alone simplifies WAN management.

The key benefit of ease of management in an optimal SD-WAN solution is that WAN connections can be automatically discovered and encrypted tunnels established and orchestrated based on the enterprise's topological needs, such as connecting head-end data centers to remote offices. This way, tunnels are only established between the sites that need them to ensure connectivity

Even though many SD-WAN vendors provide central management tools for intuitive administration, not all SD-WAN vendor solutions are necessarily easy to manage.

Customer satisfaction depends on the approach followed by SD-WAN providers for software-defined networking and it varies from vendor-to-vendor. An effective SD-WAN solution, deployed and managed, is successful only if it matches with organizations needs and goals.

Network Security

With the ever increasing adoption of SaaS applications, being able to optimally connect users to SaaS application instances from remote branch offices using lower cost internet services to augment or replace MPLS can provide the best performance for a user.

A SD-WAN solution should help by centralizing security policy for remote sites. Regardless of the deployment model or vendor, a centralized SD-WAN platform can provide better visibility and control into user traffic flows, and therefore better mitigate risk.

Since all web traffic is not created equal, active use of direct internet breakout connections requires a secure methodology because the single biggest concern will be network security. This is especially true when contemplating a fundamental change in networking architecture by migrating to SD-WAN.

Because SD-WAN secures traffic in transit, deploying solutions that include integrated firewalls and associated unified threat management have an advantage over solutions that require separate threat management. Properly configured SD-WAN devices can simplify security and defend data from attackers especially when branch sites are set up for direct internet breakout.

Actually, SD-WAN makes segmentation and implementing zero-trust processes easier. Approaches include SD-WAN solutions that whitelist online applications and websites for branch offices in addition to having localized firewall functionality.

Most SD-WAN vendors offer, at a minimum, stateful firewall plus other features such as network segmentation and site-to-site encrypted IPSec tunneling. But many SD-WAN vendors don't deliver more sophisticated security policy enhancement such as application-aware next-generation firewalls, intrusion prevention, data loss prevention and unified threat management to ensure integration with the rest of the enterprise's security policy enforcement.

In addition to SD-WAN, Secure Access Service Edge (SASE) provides cloud-hosted security features such as next-generation firewalls, intrusion prevention, data loss prevention, and secure web gateway. With the entire network and security infrastructure delivered as a single cloud-native platform, enterprises can leverage SASE as part of an SD-WAN solution to benefit from increased visibility, fewer silos, and enhanced enterprise security.

Cost Effectiveness

SD-WAN offers affordable flexibility. Traditional WANs typically connect to carrier MPLS from expensive proprietary routers at every branch site. This solution is expensive and difficult to migrate away from or expand, especially if your organization has geographically disparate branch locations that are difficult for IT staff to visit.

A key benefit to SD-WAN should be the enablement of enterprises to take advantage of any available transport connection type to provide connectivity and get sites turned on as quickly as possible. SD-WAN should eliminate the need for deploying expensive IT staff and/or outsourced professional services resources to set up, maintain, or refresh the network at remote locations. SD-WAN also minimizes IT expenses by automating and provisioning configuration and deployment tasks that are so common in the traditional WAN.

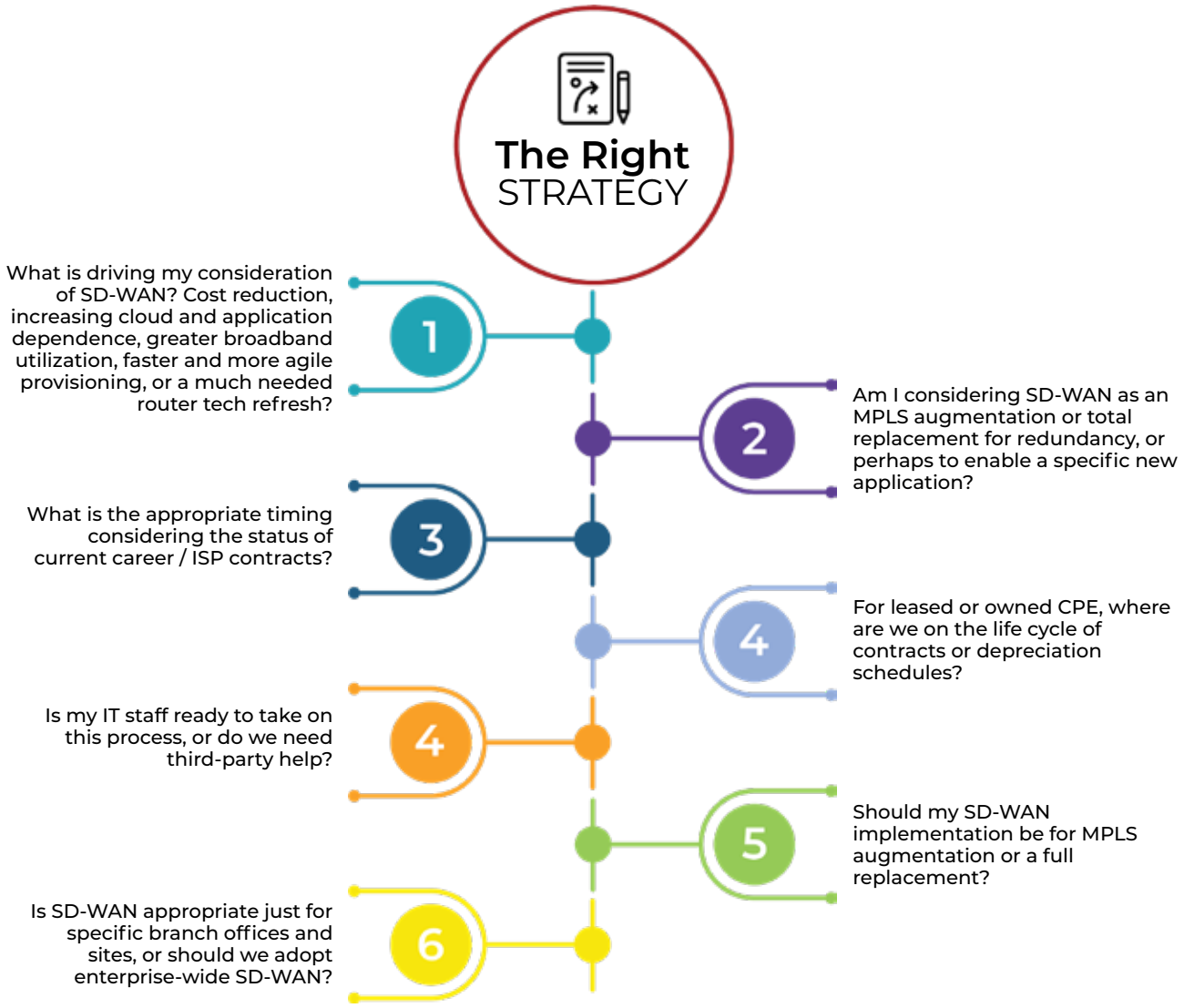
The price of an SD-WAN solution is directly proportional to enhanced total cost of ownership. A best-practices aligned SD-WAN solution provides enhanced support, engineering expertise, and 24/7 monitoring within a budget that adheres to higher efficiencies and economies of scale. Sometimes these solutions may seem somewhat expensive but they are still on a reasonable level.

Conclusion

Migrating to SD-WAN can be a foundational disruption for any enterprise if it is not properly and professionally executed. A trusted third-party advisor knows the right questions to ask and the processes needed to guide any enterprise IT department through this important transition. Here is the right strategy, including some recommended steps to consider when embarking on an SD-WAN migration.

The Right Strategy

The right strategy lays the essential foundation and it starts with building the business case, answering questions such as:



With a plentiful spectrum of vendors, the SD-WAN market merits knowledgeable and experienced professionals to help in-house IT teams assess, analyze, and evaluate not only the various vendor solutions, but also the stability and reliability of the partners that can help you design, architect, and fully deploy SD-WAN.

A dedicated third party well versed in SD-WAN and with the right technical knowledge and industry experience can relieve your internal management and IT staff of the many critical, but tedious and time-consuming processes in this pivotal phase. From project management through installation and cutover, a trusted advisor knows exactly how to handle and ease the entire implementation and migration process.

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