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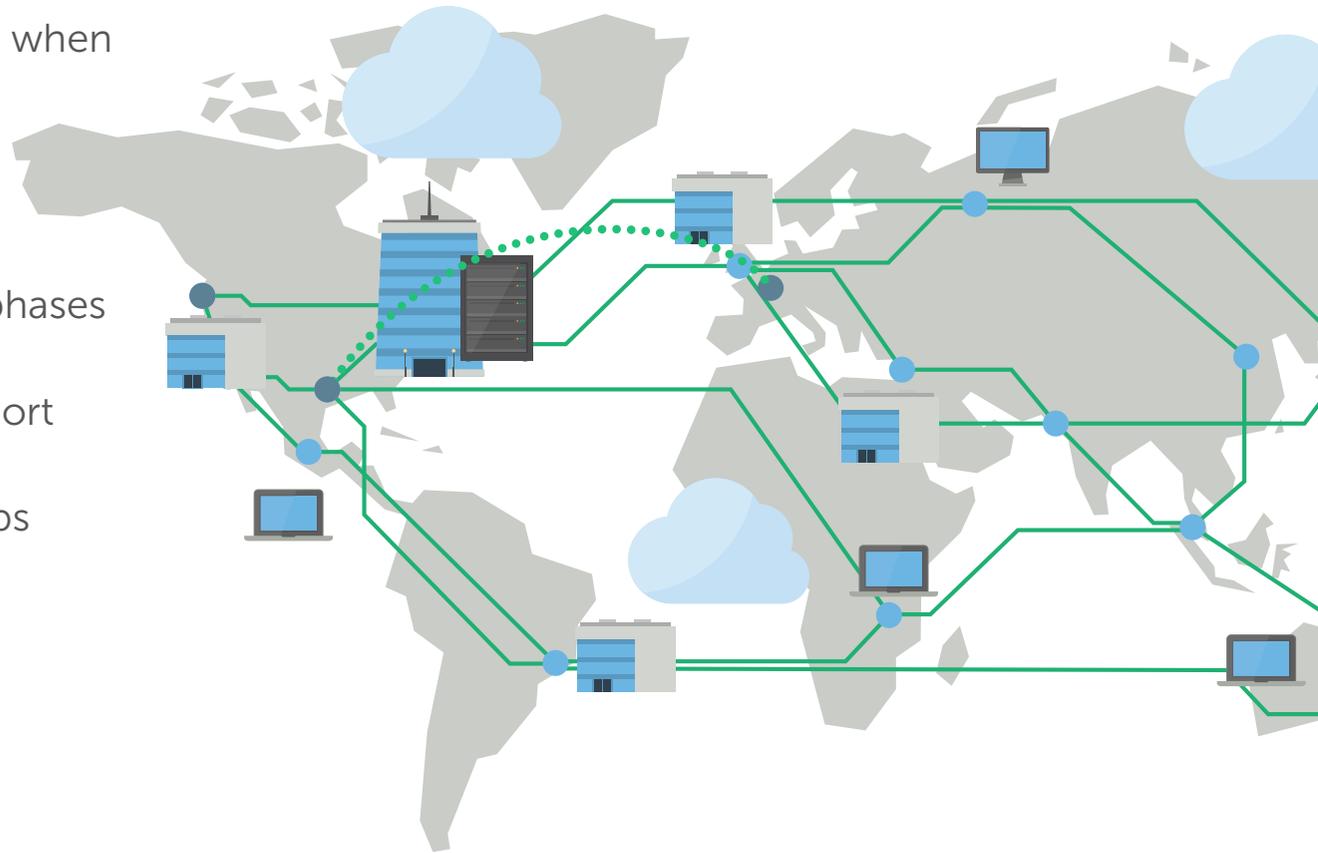


Ready, Set, SD-WAN

4 Best Practices for Your
Enterprise SD-WAN

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The question is no longer if, but when

“The SD-WAN market has passed the hype phase and entered a period where early implementations have begun to deliver tangible benefits,” according to IDC.¹ Companies have embraced SD-WAN to deliver improved performance, security, cost savings, and business agility .

Over the past decade, the SD-WAN technologies have matured to become more feature rich and enterprise class. There has been a noticeable shift from cloud-first, early adopters to larger globally-distributed organizations. According to Gartner, by 2024, to increase agility and enhance support for cloud applications, 60% of enterprises will have implemented SD-WAN, up from less than 20% today.²

What is SD-WAN?

Gartner says SD-WAN has four characteristics

- 1** Must support multiple connection types
MPLS, Internet, LTE, etc.
- 2** Can do dynamic path selection
Allows for load sharing across WAN connections
- 3** Provides a simple interface for managing WAN
Must support zero-touch provisioning at a branch, should be as easy to setup as a home WiFi
- 4** Must Support VPNs
As well as other third-party services, such as WAN optimization controller, firewalls, web gateways, etc.

In addition to the characteristics above, Large enterprises require:

- Enterprise-grade, automated routing
- Integrated SD-WAN, application acceleration, and advanced security

What to do to prepare for your implementation

Like many enterprises, you may be looking to SD-WAN to meet your insatiable need for bandwidth and to lower your network costs with direct Internet access and broadband.

However, before rolling out SD-WAN, here are four questions to ask:

1. What are your most critical apps and where are they hosted?
2. What are your current and projected throughput requirements?
3. How do you expect your security posture to change with SD-WAN?
4. To what extent is your team familiar with SD-WAN and what level of training and support do they require?

This eBook explores four tips to help your enterprise get the most value quickly from your investment in SD-WAN.

CASE STUDY:

A global software company wanted to migrate all its workloads to the cloud and turned to SD-WAN to facilitate the transformation.



50 offices



30 countries



Specifically, they wanted to automate and simplify application steering to multi-cloud infrastructure with direct branch-to-Internet access and augment MPLS network with Internet links to provide higher capacity while managing costs

To prepare for their implementation, they ran lab tests to determine the availability and costs savings using Internet links. By implementing SD-WAN, they were able to:



Improve user experience and speed access to multi-cloud business applications



Connect legacy sites to enterprise SD-WAN fabric in less than an hour per site

30% less

Reduce IT footprint in the branch by over 50% and telecom costs by 30%

Tip #1: Rollout your SD-WAN in phases

Just as with any new software, large enterprises are adopting a phased approach to SD-WAN rollouts. Enterprises typically start out with a pilot project to prove the effectiveness of SD-WAN in their own environment and to demonstrate ROI.

Fortunately, SD-WAN is well suited for a phased deployment. You can provision SD-WAN equipment and deliver network and security services from a single point of control automatically, avoiding the need for skilled personal available on-site to deploy, configure, and manage the solution. Transit hubs are one option to integrate with the existing network. However, they are time-consuming to develop and implement due to the manual effort involved. A better option is to use automated routing which is included in many advanced SD-WAN solutions.

Don't forget to future proof your implementation with a solution that supports both IPv4 and IPv6.

Phased deployment approach

PHASE 1: Pilot lab test for four nines availability at a lower cost than MPLS.



PHASE 2: Switch to an SD-WAN appliance in each branch office location to connect to the SD-WAN fabric. . .Enable branch direct-to-Internet access.



PHASE 2: Phased deployment approach, Bring virtual private clouds into the SD-WAN fabric.



PHASE 4: Spin up new sites or integrate sites after a merger or acquisition.



Tip #2: Plan for multi-cloud support

If you are like most companies, you are supporting or planning to support multi-cloud architectures. It may be due to multiple SaaS vendors or to provide greater business continuity, service availability, and leverage in vendor negotiations.

CONSIDER THE FOLLOWING

24%

increase spend in public cloud for enterprises in 2019⁴

5+

clouds used on average⁴

Majority

of workloads are in the cloud⁴

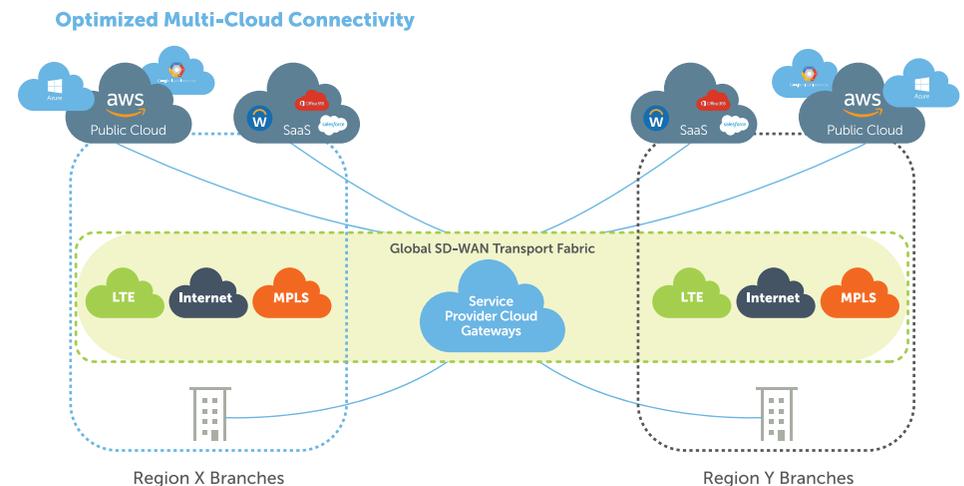
38% Public Cloud

41% Private Cloud

To support a multi-cloud access strategy, enterprises are now turning to direct branch-to-Internet breakouts. Network teams used to backhaul traffic from branch offices over MPLS to a central data center for inspection to ensure security, but this approach no longer makes sense since most traffic today is destined for the cloud. Backhauling Internet-bound traffic causes unnecessary delays, cost, and congestion.

As part of a multi-cloud access strategy, plan to:

- Provide direct, secure, and optimized cloud access at every branch location
- Implement direct cloud access for popular and well-known sites including AWS, Azure, and Google and SaaS services such as Salesforce, Office 365, and RingCentral
- Integrate security including NGFW, IPS, AV, secure web gateway, and UTM technologies

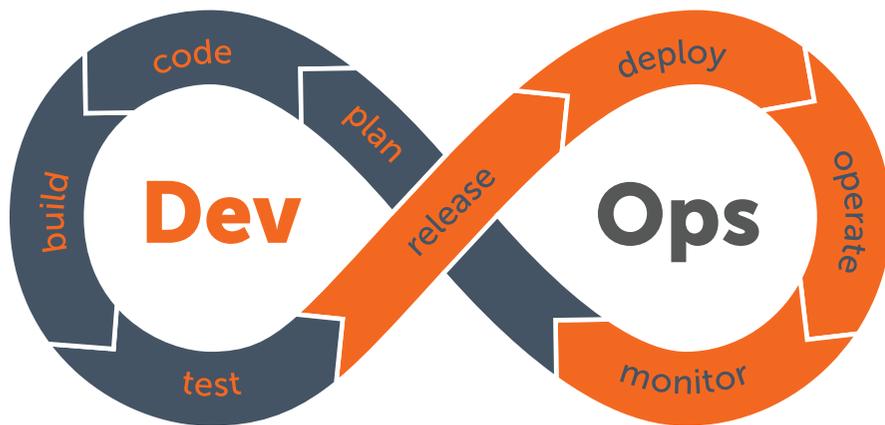


Tip #3: Integrate your DevOps environment

Like DevOps, SD-WAN is focused on building in automation and elasticity. Start by incorporating automation and elasticity with SAML and RESTful APIs to create high-value integration with DevOps environments.

Scripted automation can also apply to tasks related to the SD-WAN and remote or branch office. Some of those capabilities are built into more enterprise-class SD-WAN products, including zero-touch provisioning, in order to improve standardization and minimize manual tasks.

Since performance is a key concern of DevOps, use the SD-WAN JSON API to interact with existing DevOps monitoring tools—especially **network performance management (NPM)**—to meet performance expectations. You can also leverage SaaS acceleration capabilities to better meet needs of demanding, distributed workforces. Look for SaaS acceleration that is integrated with your SD-WAN solution, can accelerate most critical apps, and can expand as needed.



Tip #4: Secure your investment



Be sure to choose the security architecture with the flexibility to best meet your needs. You may want to backhaul sensitive traffic to the data center to centrally inspect the traffic and enable direct branch-to-Internet breakouts to deliver superior user experience for less-sensitive SaaS and cloud applications.

Fortunately, more SD-WAN solutions are incorporating security functions into their offerings. You should look for a solution that allows you to dynamically create secure tunnels between locations with any topology, independent of the underlying transport. With the increase in SaaS and cloud workloads, make sure that you can support direct, regional, and hub Internet breakouts.

Additional security features include built-in service chaining and application intelligence, which allows you to easily apply rule-based network and security policies. Micro-segmentation can further reduce risk zones and improve your security posture.

Enterprise SD-WAN security checklist

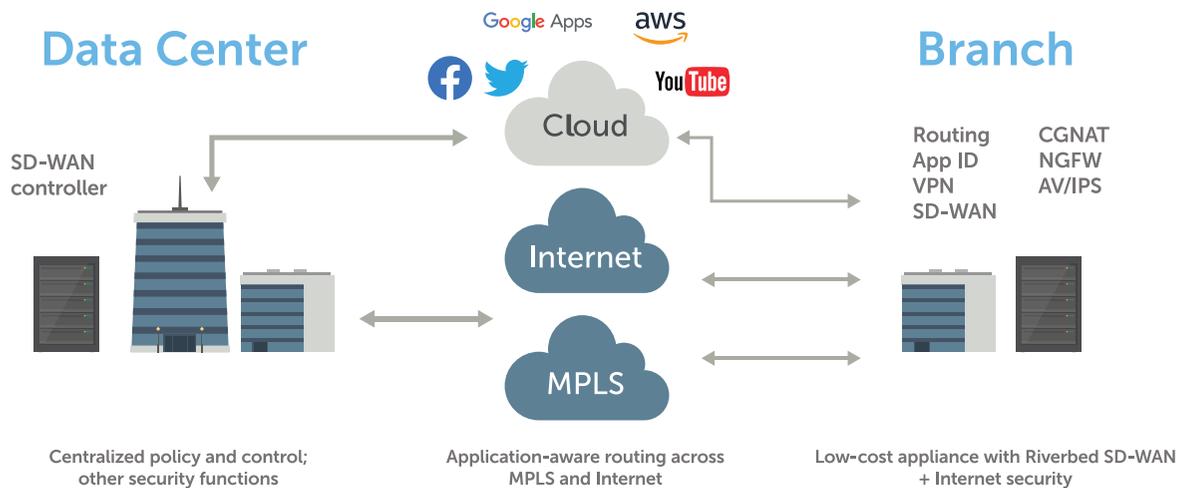
- ✓ Flexibility to support backhauling and secure direct Internet access
- ✓ Secure tunneling between locations with any topology, regardless of transport mode
- ✓ Service chaining to leverage best-in-class security services
- ✓ Application intelligence to apply network and security policies
- ✓ Embedded security functions, including Next-Generation Firewall (NGFW), Secure Web Gateway (SWG), Antivirus (AV), and Intrusion Detection and Protection Services (IDS/IPS)
- ✓ In multi-tenant environments, per tenant segmentation policy and enforcement

Why Riverbed?

Riverbed delivers a scalable and secure SD-WAN solution to support the needs of large enterprises with:

- Flexibility to allow for remote deployment and phased implementations
- Secure Internet breakouts to support multi-cloud access
- Full mesh network to support scalability
- Embedded security functions, including Next-Generation Firewall (NGFW), Secure Web Gateway (SWG), Antivirus (AV), and Intrusion Detection and Protection Services (IDS/IPS)
- Integrated application acceleration, optimization, monitoring, and security to improve performance and to reduce appliance sprawl
- Multi-tenancy to support complex organizational structures

Learn more about [Riverbed's enterprise SD-WAN solutions](#).





- i IDC, SD-WAN: Security, Application Experience and Operational Simplicity Drive Market Growth April 2019
- ii Gartner, 2019 Strategic Roadmap for Networking, April 10, 2019
- iii <https://www.networkworld.com/article/3031279/sd-wan-what-it-is-and-why-you-ll-use-it-one-day.html>
- iv Flexera, Rightscale State of the Cloud Report, 2019
- v Avant, State of Disruption Report, 2019

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