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Secure. Flexible. Resilient.

Comparison of SD–WAN Solutions

Technology Brief

SD-WAN Solutions: Past, Present and Future

Software-Defined Wide Area Networking (SD-WAN) is a well-know and commonly used solution for networks today, but when it was first coined by analysts in 2014, it was a revolutionary method of solving old problems. Pioneering developers called it WAN Virtualization to describe the power of software taking over and enhancing previously hardware-intensive functions. Both established networking hardware vendors and ambitious startups added a plethora of features to their SD-WAN offerings to give end users, network administrators and Managed Service Providers (MSPs) the ability to adjust, optimize, automate and test their WAN connections through software controls. SD-WAN uses tools like encryption, Quality of Service (QoS), traffic shaping and alerts to make the most of the WAN connections. In addition to these core features, many solutions today also include functionality like firewalls and traffic optimization as part of a converged solution set.

SD-WAN continues to evolve to address growing cybersecurity threats and the vulnerability of endpoint devices connected to corporate networks. Today, Secure Access Service Edge (SASE) is the newly-coined solution that solves both old and new problems with a security-first focus. SASE is a natural extension of SD-WAN that Ecessa and other network technology providers are now addressing. We are seeing a shift in network architectures to include SASE, even as those offerings are being defined. As we did with SD-WAN, Ecessa is excited to develop SASE solutions for our customers.

That being said, the right SD-WAN solution makes your WAN work better, makes management easier, can save you the expense of downtime from unplanned carrier outages and the hassle of QoS issues like jitter and latency. It must be backed by exceptional support and include upgrade paths to meet your expanding needs. The right solution needs to be chosen carefully and deployed correctly to fully realize these benefits. In this document, we will provide an overview of the different SD-WAN technical approaches currently being offered and their unique attributes. It's our hope that the information that follows will help you find the best solution for your business now and into the future.

SD-WAN From a Carrier vs an OEM

When it comes to building a stronger, more secure and reliable network for your business or enterprise, SD-WAN technology is your quickest path to attaining this outcome. But how do you choose a supplier?

With an overwhelming number of carriers out there all selling and promising carbon copies of the same products and services, it can be difficult to make a decision as to which one best suits the needs of your business or enterprise. So, which carrier should you choose to deliver SD-WAN?

The quick answer? None of them.

Unlike original equipment manufacturers (OEMs), carriers are behind the curve when it comes to understanding the complexity of this particular technology. The truth of the matter is that many carriers simply resell, reskin, and restamp their brand onto technology that they—like other layfolk—need instruction manuals to understand. That said, when things do go awry, the process of getting the issue resolved is often a long and painful one—usually involving one too many phone calls through tiers of tech support representatives, only to be put on hold while they scan their knowledge base for a less-than-adequate answer.

On the other hand, OEMs like Ecessa know their SD-WAN intimately because they built it with their own hands—down to the very last snippets of code. They know the answers to your questions, because they wrote the knowledge base. If there's a bug, they'll fix it. If there's something that needs to be changed, they'll change it. If you want a new feature, they'll add it. When you call the OEM's customer service, you get immediate results. And they'll be honest about carrier network outages. No more pulling your hair out when network bugs and outages arise. You get superior performance and top tier technical support by choosing OEM companies, like Ecessa, who will treat you like the valued customer you are, day in and day out.

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OEM vs Carrier

	Carrier-provided SD-WAN	OEM SD-WAN
Carrier agnostic/Can change carriers at any time?	No	Yes
Supports any kind of WAN circuit?	No	Yes
Direct technical support from the manufacturer	No	Yes
Direct software support from the manufacturer	No	Yes

Another aspect for organizations to consider is how the SD-WAN solution is delivered. There are three main architectures for how SD-WAN is delivered.

SD-WAN Architectures

There is the cloud-based approach, which means that in addition to appliances on sites, there is a hosted cloud gateway that all traffic routes through. While this approach can provide a consistent connection to other cloud hosted services on the Internet, when it comes to multisite traffic from branches to a Headquarters or Datacenter, it adds hops and latency.

There is also the premises-based approach, where a physical appliance at each of the organization's locations contains all the intelligence needed to make traffic prioritization and routing decisions. Inter-company traffic flows directly between locations without routing through a cloud, and Internet traffic is load balanced locally.

Lastly, there is the virtual delivery method, which means the SD-WAN software can live anywhere you have a virtual machine environment, whether that is a Headquarters, hosted Datacenter, or even remote sites, if the infrastructure to support it exists. Virtual delivery can usually be used with both the cloud-based and premises-based approach, depending on an organization's needs.

For more information, contact Ecessa at (800) 669-6242 or visit Ecessa.com.

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SD–WAN Architectures

Virtual

Virtual solutions are targeted for large enterprises that have virtualized many of their network functions, considered part of the broader Software-Defined Networking (SDN) or Network Functions Virtualization (NFV) adoption. With this option, the tools needed to provide WAN control and optimization are provided in VMWare, Amazon AWS, Google Compute, KVM or another hypervisor environment.

Pros:

- Integrated into broader SDN toolsets
- Software only, easy to port from one place to another
- Scalable with license management

Cons:

- Extensive expertise required to deploy and manage
- Requires an established, mature virtualized network to build on
- Hardware not optimized for WAN management

Cloud-Based

Cloud-based solutions are a hybrid solution that implements an edge hardware appliance in collaboration with a cloud-based virtual appliance. These solutions function by routing the remote site, or edge, traffic through various WAN connections to a central cloud instance. The cloud instance is where the management software implements the features of SD-WAN. Those features are then communicated to the edge appliance via a web orchestrator or application that keeps the cloud and edge components of the solution in sync.

Pros:

- Ability to obtain static IP addresses from the SD-WAN provider
- Easy to deploy with simplistic edge appliance controlled from the cloud
- More control over cloud application performance with data center cohabitation

Cons:

- All network traffic goes to the cloud, then to your enterprise
- Bandwidth scalability at the edge is limited with simple hardware
- Limited routing and configuration options; not ideal for complex network environments

Premises-Based

Premises-based solutions leverage dedicated hardware appliances at the edge, data center, corporate headquarters and cloud to provide a scalable end-to-end solution. All traffic management features are located on the appliance with policies and configurations being managed on the appliance or through a web application. Routing and traffic shaping is done locally or globally within an existing corporate network; leveraging multiple WAN connections from any combination of technologies, including MPLS, cable, fiber, satellite or wireless.

Pros:

- Customer has total control over where network traffic flows; no subscription services required
- Premises appliance easily scales to meet the needs of small to larger offices; solutions up to 20Gbps
- Dedicated, low latency routes, are ideal for any type of traffic, inducing Voice, Video and VDI

Cons:

- Customer is responsible for procuring bandwidth
- Deployment requires a process for customer or SD-WAN vendor to know your network
- Not optimized with Cloud SaaS providers

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Decision Matrix

So, how do you make a decision as to which solution is the best fit? Below is a matrix that includes some of the common questions that should point you in the right direction. Remember, you can always leverage Ecessa's sales and technical teams to help you define the right solution for your needs.

Things you should consider when choosing a delivery option:

	Virtual	Cloud-Based	Premised-Based
Can be deployed at any physical location?	Maybe	Yes	Yes
Can present a single IP when connecting to cloud services?	Maybe	Yes	No
Can support both public and private WAN connections?	Maybe	No	Yes
Can route inter-site traffic directly between locations?	Maybe	No	Yes
Can offload Internet traffic at the edge of the network?	Maybe	No	Yes
Can offer interconnects to major Cloud/SaaS providers?	Maybe	Yes	No

Fortunately, Ecessa supports all three delivery architectures, to offer organizations the most flexibility. Contact Sales to find out more about how Ecessa solutions can help you accomplish your WAN initiatives

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