Ensemble SmartWAN

Expanding uCPE with secure virtual networking

Secure networking is critical to deploying enterprise applications, whether at the edge or in the cloud. Maybe it's remote access for employees. Perhaps it's access to private cloud applications. Or transient connectivity between branch sites. Whatever the application, it needs to be driven by secure connectivity. ADVA's SmartWAN addresses these challenges with an efficient, simple, and cost-effective alternative to today's router appliances. And SmartWAN provides a cloud-native and future-proof platform for innovation to support your communications strategy.

What's wrong with routers?

Enterprises and service providers build secure networks today using approaches like routers with IPsec. But there are drawbacks to this method. Routers are closed, proprietary and limited in functionality. And the high cost extends both to the licensed software as well as the platform on which it runs. Using routing appliances is device-centric and locks enterprises into a single-vendor solution. This approach doesn't map well into today's cloud-native model of open and best-of-breed multi-vendor systems.

So how can you implement secure networking and avoid these pitfalls? And set the stage for future innovation?

SmartWAN for secure networking

The answer is SmartWAN from ADVA. SmartWAN provides the essential features for secure networking, including routing, tunnels, and path resiliency. It uses the latest technologies to provide high performance encrypted overlays on low cost commercial off-the-shelf (COTS) platforms.

With SmartWAN, you can build private networks that provide secure access using IPsec tunnels – all managed by a simple controller that speeds deployment.

Built on the Ensemble platform

Even better, SmartWAN is built on Ensemble, the industry's leading virtualization platform. That means you can start with secure networking only, and meet your cost and performance objectives. Later you can add functionality via in-service downloads. This might include off-the-shelf software such as a firewall, DPI or WAN optimization. Or it might be your own applications, running in a small edge cloud on Ensemble Connector. And you can select from leading server manufacturers to provide the hosting platform.

Keep reading for more details on SmartWAN!

SmartWAN and uCPE as a platform for innovation

As the provider of the industry's leading uCPE solution, customers are now asking ADVA to support more advanced networking functionality in the Ensemble platform. Routing and policy-based VPNs are considered core uCPE features. They address the gap between lower-end market requirements and high-end SD-WAN solutions. To meet the market demand, ADVA is introducing a new feature called SmartWAN. It provides the following:

- Fully integrated secure networking solution

- Low cost, small footprint, high performance and fully featured

- Automated installation, provisioning and licensing that's easy to deploy

- Simple and intuitive management tools that streamline building and administering overlay VPNs

- All the benefits of an open hosting platform. It can evolve as the customer requirements change

- Lowers costs by eliminating the need for additional networking VNFs in many cases.

SmartWAN vRouter

The heart of SmartWAN is its virtual router. It is a compact, high-performance embedded routing engine that automatically deploys with Ensemble Connector to provide a dual stack advanced networking feature set. It's automatically enabled, provisioned, and licensed "out of the box" via the Ensemble ZTP process.

SmartWAN vRouter embeds an advanced routing engine (provided by 6WIND) as part of the Ensemble Connector deployment package. As shown in the nearby table, SmartWAN vRouter provides a fully featured routing solution that also delivers high performance.

SmartWAN vRouter is also commercially attractive compared to third-party routing solutions. The routing engine is low-cost and low-footprint, meaning less hardware is required to achieve the desired performance targets.

Operationally, the SmartWAN vRouter is deployed in a fully automated fashion as part of the standard Ensemble ZTP process. Customer-specific router configurations are provisioned with site-specific day-1 configuration via Ensemble Virtualization Director. SmartWAN vRouter can run as a standalone networking application or can be service chained with other third-party VNFs as part of a broader service offering. Application specific telemetry KPIs provide important visibility into networking performance. These KPIs can be pushed to either customer-provided database applications or an Ensemble Analytics solution provided by Ensemble Virtualization Director.

| Advanced routing features |
|---|
| - Dual stack IPv4/v6 forwarding data path |
| - IPsec tunnels with IP passthrough: for secure tunnels that traverse NAT |
| - Bidirectional forwarding detection (BFD): for tunnel performance and latency |
| - BGP, OSPF, NHRP: to maintain topology, and handle dynamic discovery |
| - VRRP: for high availability |
| - DMVPN: to support the building and tearing down of full mesh tunnels |
| - BGP FlowSpec: used to mark flows for advanced traffic sharing and path redundancy |
| - NETCONF/YANG management: API to allow integration |
| - SR-IOV (optional): for high throughput |

Benefits of Ensemble SmartWAN

SmartWAN offers many of the key benefits initially targeted by SD-WAN but at a lower cost point (in terms of software licensing and hardware footprint required) and higher overall performance.

Secure networking

With SmartWAN's flexible, full-featured secure networking solution, overlay networks can be built across a variety of private, public and wireless underlay network technologies. As a result, SmartWAN allows customers to more efficiently manage bandwidth costs and ensure highly available connectivity through the efficient routing of traffic over prioritized underlay networks.

● ADVA™

SmartWAN Deployment

SmartWAN deploys from the Ensemble solution without the complexity of additional controllers. Ensemble Virtualization Director streamlines creation, automates ZTP deployment and simplifies day-N management activities. And because SmartWAN is integrated into the broader Ensemble MANO solution, customers can deploy either the SmartWAN solution or third-party SD-WAN VNFs as needed. In both cases, the Ensemble MANO solution provides a common deployment and management paradigm across all sites – eliminating the need for "swivel chair" management between disparate tools for different customer sites.
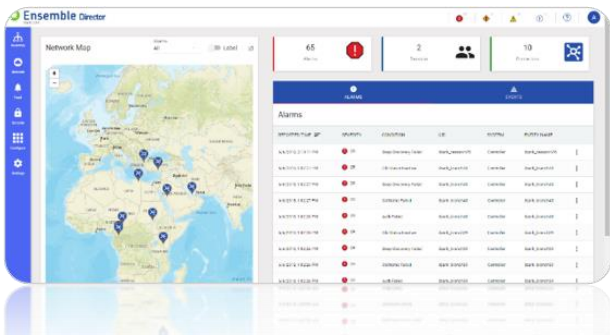
Leveraging the common Ensemble MANO platform also simplifies integration with other back-end management systems by providing a single set of APIs to facilitate the integration activities.

Expandability

uCPE is now a given. IHS Markit reports that "82% of the operators polled are deploying or plan to deploy VNFs on uCPE located at customer sites." And SmartWAN is built on Connector, which is the industry's leading open uCPE platform. That means SmartWAN provides the ability to expand the solution with more advanced uCPE features via VNF/CNF onboarding. That includes hosting other SD-WAN solutions, so providers can offer their customers a choice of SD-WAN.

Attractive commercial model

Ensemble SmartWAN offers a competitive cost model and improved ROI for enterprise networking use cases. Service providers can offer secure overlay features at a lower initial cost than stand-alone SD-WAN applications. However, Ensemble does not lock service providers into a single deployment model. If new customer sites require additional best-of-breed features, or the requirements change on existing sites, Ensemble provides the ability to expand the uCPE deployment by adding third-party networking functions to the same platform. Those functions can work in conjunction with SmartWAN or, if required, replace SmartWAN altogether.

The savings for SmartWAN are significant. Let's look at a comparison of fixed hardware and subscription software costs over three years. It's important to consider both because the hardware cost is often subsidized. For a 500Mbit/s to 1Gbit/s service, the system cost for SmartWAN comes in at one-quarter to one-third of a traditional appliance-based SD-WAN implementation. And there are other savings, such as lower deployment and operational costs. Of course, SmartWAN offers a platform for upsell – which is not available with closed appliances.

Summary

With SmartWAN, ADVA is taking NFV, uCPE and edge computing to the next level. SmartWAN provides additional flexibility to address different market segments with our embedded networking solution. And it's still the industry's leading multi-vendor uCPE platform. A true win-win solution for networking!

Contact us here to learn more.

ADVA™