

SERVICE PROVIDER



EdgeConnect^{SP} The Premier SD-WAN Solution

Build High-Performance Managed SD-WAN Services

Challenges with Legacy WANs

Significant shifts in application and traffic patterns, including the increased use of cloud services, are driving the need for enterprises to reevaluate networking requirements for branch offices. This includes a desire of enterprises to use broadband connectivity to easily connect users in branch offices to cloud-based applications

As enterprises seek more flexible and cost-effective alternatives for incorporating

broadband WAN services, the requirement for high performance extends from data center-hosted applications to branch networks where the integration of

SaaS, IaaS, and other cloud services are a key part of a digital transformation strategy.

Why SD-WAN?

The software-defined WAN (SD-WAN) is a new solution that addresses requirements for a simpler, faster and lower cost WAN. SD-WANs allow enterprises to use multiple types of transport (MPLS, broadband, 3G or 4G) simultaneously to improve application performance and business productivity.

Additionally, SD-WANs deliver the flexibility to securely connect to cloud services and also provide high availability.



Drive new revenue streams, expand market reach and deliver SD-WAN services with SLAs in and out-of-region quickly and cost effectively

But, with flexibility often comes complexity. To avoid this enterprises are turning to service providers as a trusted advisor for a turnkey managed SD-WAN solution.

The Managed SD-WAN Services Opportunity

Service providers are aggressively looking to respond to enterprise demands for greater WAN service agility and flexibility.

Managed SD-WAN services represent a new opportunity for service providers to expand global market share in a \$80B* market. SD-WAN services can underpin new innovative application-centric services to enable new sources of revenue and expand the on-net and off-net market footprint for service providers.

Service Provider Challenges

- Rapidly evolve the network to fully support the accelerating migration of applications to the cloud
- Speed time-to-market for new managed services
- Create tiered, differentiated managed SD-WAN services
- Expand service offerings to out-of-region sites and to new customer segments
- Drive improvements in customer satisfaction and retention by meeting SLAs without full control of the customer's environment – network, transport connectivity, power, fiber cuts and more
- Reduce provisioning cycles and in-service upgrades

Benefits of Managed SD-WAN Services

- Performance-based SLAs over multiple WAN transport services
- Tiered, differentiated SD-WAN services that

support mission critical, high priority, and low priority voice, video, data or cloud applications

- Optimized SaaS and IaaS applications from on-net and off-net branch sites
- New value-added application visibility, analytics
- WAN optimization services

Silver Peak Service Provider SD-WAN Solutions

Silver Peak Unity EdgeConnect^{SP} is a complete, high-performance SD-WAN solution. It enables service providers to bring new, differentiated, managed SD-WAN services to market quickly and cost effectively to drive new revenue streams, expand market reach and deliver SLAs in and out-of-region.

The Silver Peak SD-WAN solution consists of Unity EdgeConnect zero-touch physical and virtual appliances, and a multi-tenant orchestrator, Unity Orchestrator^{SP}, to streamline service management for thousands of customers. Silver Peak optional Unity Boost WAN optimization software may be added to EdgeConnect, creating a fully integrated value-add, or higher tier service.

EdgeConnect^{SP} Advantages

Service provider benefits of the Silver Peak EdgeConnect^{SP} solution include:

- **High Performance** – Enable SLAs over multiple diverse WAN transports for in and out of region
- **Fast** – Deliver services to customers in hours/days with overlay deployments, fully compatible with their existing WAN infrastructure
- **Scalable** – Centralize orchestration and Zero Touch Provisioning (ZTP) for thousands of customers
- **Extensible** – Interface via REST APIs to third party orchestration and OSS/BSS
- **Service agility** – Drive rapid service creation and flexible service chaining

* 2016 IDC Managed Services Forecast

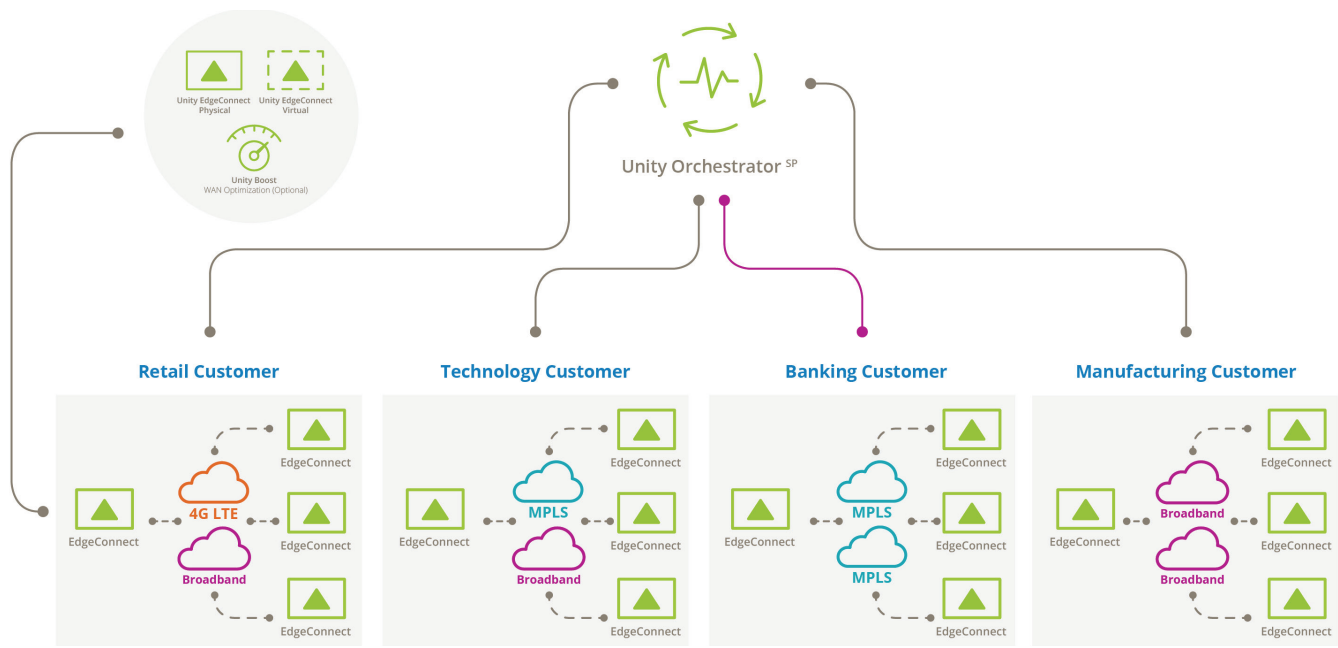


Figure 1: The Silver Peak Unity EdgeConnect^{SP} SD-WAN solution includes physical or virtual appliances, an optional WAN optimization performance pack, Unity Boost, and the multi-tenant Orchestrator^{SP} global management system.

Key Capabilities

The EdgeConnect^{SP} solution includes several key Silver Peak SD-WAN performance innovations that ensure highest levels of application performance and QoS over any transport that uniquely enable service providers to deliver SLAs over any combination of two or more WAN transport services.

Tunnel Bonding

Tunnel bonding creates multiple logical overlays from two or more diverse physical WAN connections. Each overlay can support load sharing for higher performance and higher availability. If a WAN link fails, the remaining link(s) can transport all of the important applications without interruption. In the event of an outage or brownout, the SD-WAN service automatically switches over to a secondary connection in less than a second, without application interruption.

Path Conditioning

- Forward Error Correction (FEC) and Packet Order Correction (POC) techniques improve performance and overcome the adverse effects of dropped and out-of-order packets that are

common with broadband internet, LTE and MPLS connections. Path Conditioning provides private-line-like performance over public internet services without TCP re-transmissions.

Application, Visibility & Control (AVC): First Packet Intelligence

- Silver Peak's AVC identifies tens of thousands of applications, IP addresses, and web domains which can be used to direct (or block) entry to a given business overlay or port. This first packet intelligence is important to do local internet breakout. This maps application flows to the correct overlay or directly to the Internet to ensure the highest levels of application performance.

Unity Boost (Optional WAN Optimization)

Boost enables service providers to offer additional, tiered differentiated services with a single integrated solution that incorporates service chaining.

- Silver Peak application acceleration and latency mitigation features improve response times for latency-sensitive applications over distance



Figure 2: The Silver Peak LiveView window displays the benefits of combining tunnel bonding, FEC and business intent overlays to deliver an uninterrupted video stream shown in solid green, despite the packet loss (orange) shown in the underlying MPLS and internet links.

- Silver Peak data compression and deduplication technologies address limited bandwidth through advanced fingerprinting algorithms to examine all incoming and outgoing WAN traffic which eliminates the transmission of redundant data.

EdgeConnect^{SP} Solution

The Silver Peak SD-WAN solution provides flexibility for service providers to map individual or groups of applications to specific business overlays that can be customized for each enterprise. With this overlay model, service providers can migrate customers to an SD-WAN at their own pace while continuing to offer tiered managed MPLS VPN and private cloud connectivity services.

EdgeConnect^{SP} SD-WAN solutions enable service providers to expand revenues for WAN deployments that are both on-net and off-net, and extend new SaaS cloud connectivity services for business applications from any type of WAN transport.

Service providers can also define and offer tiered managed SD-WAN services that include a range of performance, latency and availability policies. For example, different service tiers might be offered based on the type of application and whether it is

best effort, mission critical, high or medium priority. The Silver Peak Unity Boost optional WAN optimization software performance pack provides even more possibilities for tiered, differentiated services.

Differentiated Managed SD-WAN Services

Tiered, differentiated managed SD-WAN services can be easily created using the EdgeConnect SD-WAN solution. For example, a managed SD-WAN service may complement a similar managed MPLS VPN service with 4 tiers of service (platinum, gold, silver & bronze). A platinum service may include the highest levels of performance and network availability, four levels of QoS, WAN optimization for all mission critical applications and optimized latency for any real-time voice or video applications.

In the example shown, each set of applications such as Guest Wi-Fi has its own overlay and can have a different SLA or tier of service. A mission-critical VoIP application that requires high availability SLA can be offered over any network transport as shown.

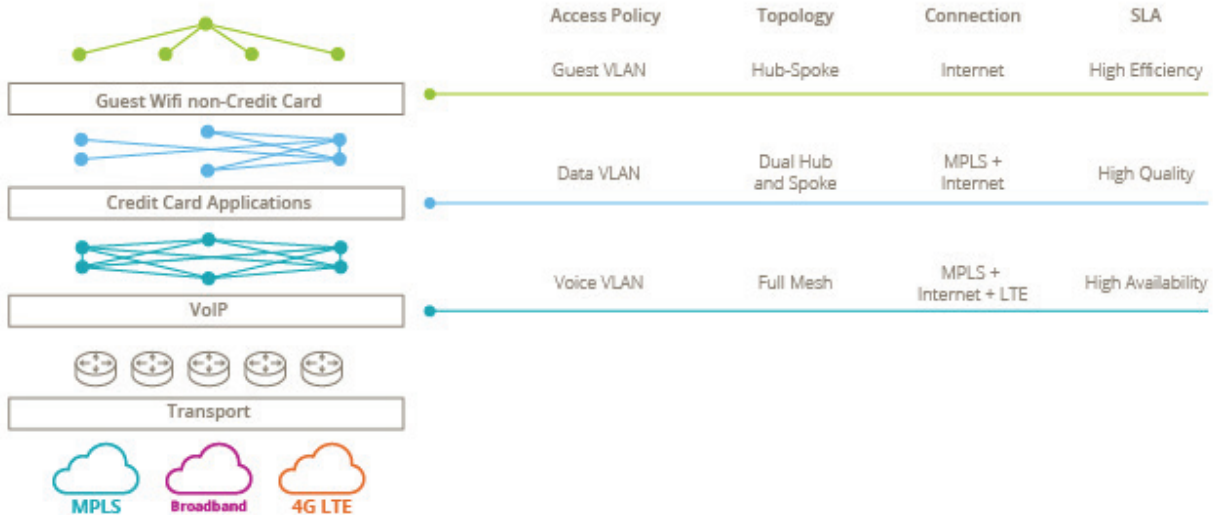


Figure 3: SD-WAN Business Intent Overlay

Business intent overlays separate the functions of the network from the physical components of the network. Much like server virtualization converted physical servers to software instances, business intent overlays virtualize the network to increase scale, function and flexibility. Business intent overlays make it possible to create tiered, managed services for a wide variety of applications and customer policies.



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