



SERVICE PROVIDER

# Unity EdgeConnect SD-WAN Edge Platform

Most enterprise digital transformation initiatives embrace a cloud-first strategy for hosting today's evolving mix of applications. They must connect users securely and directly to business applications from anywhere, across any type of WAN and from any device.

For many enterprises, the ideal option is to turn to a service provider for a managed SD-WAN service. Managed SD-WAN services pave the way for service providers to compete for additional managed service opportunities outside of their footprint, provide opportunities to acquire new customers and improve customer retention with agile service delivery.

The Silver Peak Unity EdgeConnect™ SD-WAN edge platform enables service providers to build high-performance managed SD-WAN services to drive new revenue streams, expand market reach and deliver SD-WAN services with SLAs in and out-of-region quickly and cost effectively.

## Unity EdgeConnect

Three components comprise the Unity EdgeConnect SD-WAN edge platform:

- > **Unity EdgeConnect** physical or virtual appliances (supporting common hypervisors and public clouds) that support SD-WAN locations ranging from a small branch offices to a large data center or campus site. deployed in branch offices to create a secure, virtual network overlay. This enables service providers to offer flexible managed SD-WAN services which can augment their MPLS services by leveraging broadband or LTE whether site-by-site, or via a hybrid WAN approach.

- > **Unity Orchestrator<sup>SP</sup>** is a secure, cloud-hosted, multi-tenant management Software-as-a-Service that enables service providers to globally manage and monitor their managed SD-WAN service offering. An intuitive user interface provides unprecedented levels of visibility and control for global customer management with a unique ability to centrally configure and manage secure SD-WAN deployments that are customized per enterprise customer.
- > **Unity Orchestrator<sup>TM</sup>**, included with the EdgeConnect solution, Orchestrator provides full visibility, control, and management of a tenant's enterprise-wide SD-WAN service deployment, including the unique ability to centrally assign policies based on business intent to secure and control all WAN traffic. Service providers can create value-added reports leveraging the extensive real-time and historical application visibility and reporting capabilities of Orchestrator.
- > **Unity Boost<sup>TM</sup>** WAN Optimization is an optional WAN optimization performance pack that combines Silver Peak WAN optimization technologies with EdgeConnect to create a single, unified WAN edge platform

## EdgeConnect Key Features

- > **Zero-Touch Provisioning:** A plug-and-play deployment model enables EdgeConnect to be deployed at a branch office in seconds, automatically connecting with other Silver Peak instances in the data center, other branches, or in cloud Infrastructure as a Service (IaaS) such as Amazon Web Services, Microsoft Azure, Oracle Cloud Infrastructure and Google Cloud Platform.

- > **Business Intent Overlays:** The EdgeConnect SD-WAN solutions is built upon an application-specific virtual WAN overlay model. Multiple overlays may be defined to abstract the underlying physical transport services from the virtual overlays, each supporting different QoS, transport, failover and security policies. Groups of applications are mapped to different business intent overlays to deliver applications to users in alignment with business requirements. Business intent overlays may also be deployed to extend micro-segmentation of specific application traffic from the data center across the WAN to help maintain security compliance mandates.
- > **Tunnel Bonding:** Configured from two or more physical WAN transport services, bonded tunnels form a single logical overlay connection, aggregating the performance of the underlying links. Real-time traffic steering is applied over any broadband or MPLS link, or any combination of links based on company-defined policies based upon business intent. In the event of an outage or brownout, EdgeConnect automatically continues to carry traffic on the remaining links or switches over to a secondary connection.

Network traffic traversing an EdgeConnect SD-WAN can be tuned for availability, quality, throughput and efficiency. This is accomplished on a per-application basis through the use of Business Intent Overlays. Multiple business intent policies can be created, each with its own specific bonding policy. As part of this policy definition, the service provider customers have the ability to customize the link prioritization and traffic steering policies based on multiple criteria, including physical performance characteristics, link economics, link resiliency characteristics and customer-definable attributes.



Figure 1: EdgeConnect XS shown here. Also available as a virtual appliance.

- **Path Conditioning:** This feature provides private-line-like performance over the public internet. Includes techniques to overcome the adverse effects of dropped and out-of-order packets that are common with broadband internet and MPLS connections to improve application performance.
- **Routing:** EdgeConnect supports standard Layer 2 and Layer 3 open networking protocols such as VLAN (802.1Q), LAG (802.3ad), IPv4 and IPv6 forwarding, GRE, IPsec, VRRP, WCCP, PBR, BGP (version 4), OSPF.
- **First-packet iQ™ Application Classification:** EdgeConnect First-packet iQ application classification identifies applications on the first packet to deliver trusted SaaS and web traffic directly to the internet while directing unknown or suspicious traffic to the data center firewall or IDS/IPS. Identifying applications on the first packet is especially important when branches are deployed behind Network Address Translation (NAT); the correct path must be selected based on the first packet to avoid session interruption.
- **Local Internet Breakout:** Intelligently steer trusted internet-bound application traffic from the branch directly to the internet, eliminating inefficient backhaul of all HTTP traffic to the data center. The solution eliminates the potential for wasted bandwidth and performance bottlenecks for trusted SaaS and web traffic. Trusted traffic is sent directly across the internet while unknown or suspicious traffic may be sent automatically to more robust security services in accordance with corporate security policies.
- **Cloud Intelligence:** Real-time updates on the best performing path to reach hundreds of Software-as-a-Service (SaaS) applications, ensuring users connect to those applications in the fastest, most intelligent way available. Additionally, automated daily updates of the application IP address database to EdgeConnect appliances keep pace with SaaS and web address changes.
- **WAN Hardening:** Each WAN overlay is secured edge-to-edge via 256-bit AES encrypted tunnels. No unauthorized outside traffic can enter the branch. With the option to deploy EdgeConnect directly onto the internet, WAN hardening secures branch offices without the appliance sprawl and operating costs of deploying and managing dedicated firewalls.
- **Zone-based Stateful Firewall:** Centrally visualize, define and orchestrate granular security policies and create secure end-to-end zones across any combination of users, application groups and virtual overlays, pushing configuration updates to sites in accordance with business intent. Using simple templates to create unique zones that enforce granular perimeter security policies across LAN-WAN-LAN and LAN-WAN-Data Center use cases.
- **Automated Orchestration:** EdgeConnect supports automated orchestration, using a drag-and-drop interface, to enable service providers to automate and accelerate the integration of security partners' advanced services like [Check Point](#), Forcepoint, McAfee, Netskope, Palo Alto Networks, Symantec, [Zscaler](#), and secure DNS (e.g. Infoblox) utilizing private secure encrypted IPsec tunnels.
- **High Availability (HA):** The EdgeConnect HA cluster architecture protects from hardware, software and transport failures. High Availability is achieved by providing fault tolerance on both the network side (WAN) and on the equipment side. The EdgeConnect appliances are interconnected with a HA link that allows tunnels over each underlay to connect to both.

## Orchestrator<sup>SP</sup> Key Features

- **Single Screen Administration:** Automates the implementation of network-wide business intent policies for each enterprise customer, eliminating manual configuration of devices at individual branch locations and enabling secure global administration of deployment assets (appliances and licenses)

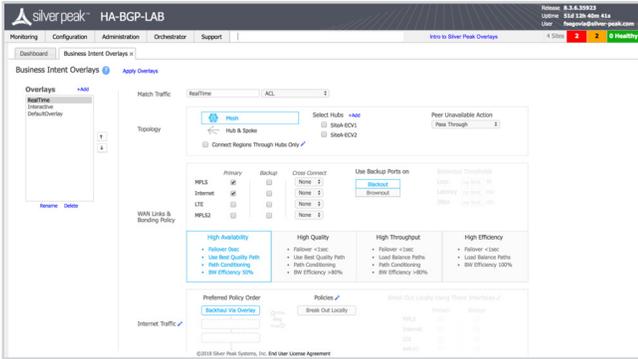


Figure 2: Orchestrator<sup>SP</sup> enables the automated distribution of business intent policies to multiple branch offices.

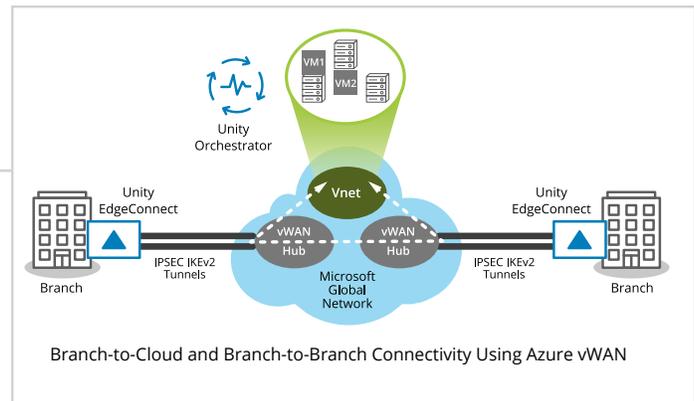
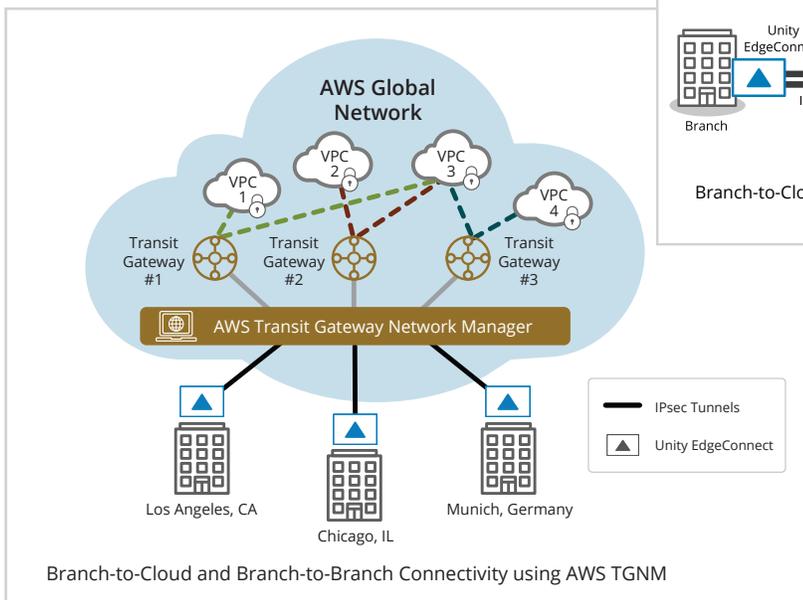
- **Multi-tenant Management and Administration:** Scales to support SD-WAN deployments for hundreds to thousands of enterprise customers
- **Live View:** Monitors real-time throughput, loss, latency and jitter across SD-WAN overlays and the underlying transport services to proactively identify potential performance impacts
- **Real-Time Enterprise Customer Monitoring and Historical Reporting:** Provides specific details into application, location, and network statistics, including continuous performance monitoring of loss, latency, and packet ordering for each enterprise customers' network paths

## Integration with Microsoft Azure Virtual WAN (vWAN) and AWS Transit Gateway Network Manager (TGNM)

By integrating the Microsoft Azure vWAN and AWS Transit Gateway Network Manager (TGNM) REST APIs, the Silver Peak Unity EdgeConnect platform enables customers to quickly build a cloud on-ramp and auto-mate network deployments, removing the manual complexity of connecting branch offices to local Azure or AWS Points of Presence (PoPs). The API integration enables EdgeConnect to identify the locations of branches in the network and determine the closest VPN Gateway (vWAN hub or head-end gateway in AWS) to connect to. EdgeConnect automatically establishes standards-based IPsec tunnels and, configuring both of the tunnel endpoints for each branch to a VPN Gateway.

Key Features:

- Automate branch connectivity to Azure and AWS Points of Presence (PoPs)
- Simplify network expansion and troubleshooting



- Faster onboarding to applications and workloads — both to and from Azure and AWS
- Optimized routing within Azure or AWS network
- Centralized network monitoring
- Global network visibility
- Cohesive policy configuration

## Delivering the highest quality of experience for Microsoft O365

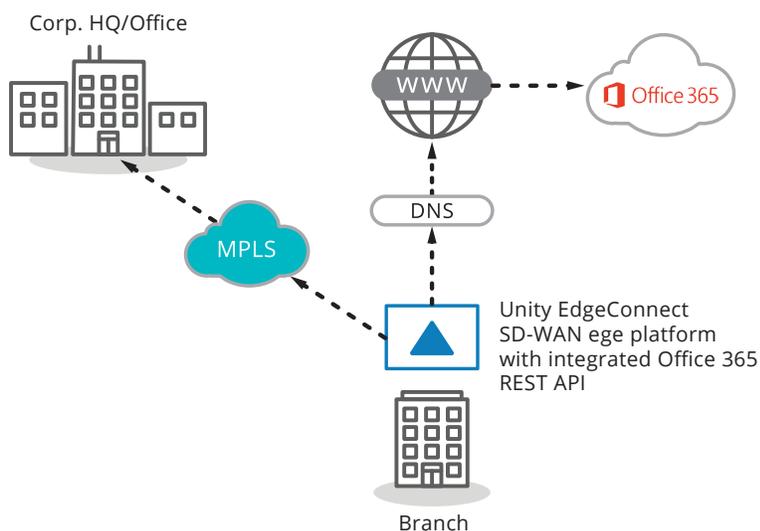
With the [Microsoft Office 365 REST API integration](#), Silver Peak continuously learns and discovers new Office 365 end points and/or IP addresses and automatically re-configures EdgeConnect if a new, closer Office 365 end point becomes available. By doing so, users always achieve optimal Office 365 connectivity and performance by reducing the round-trip time (RTT). The EdgeConnect SD-WAN edge platform has been independently tested and certified to support the Microsoft Office 365 Connectivity Principles. As a result of the independent testing, the EdgeConnect platform has been inducted into the Microsoft Office 365 Networking Partner Program and has been given the official “Works with Office 365” designation.

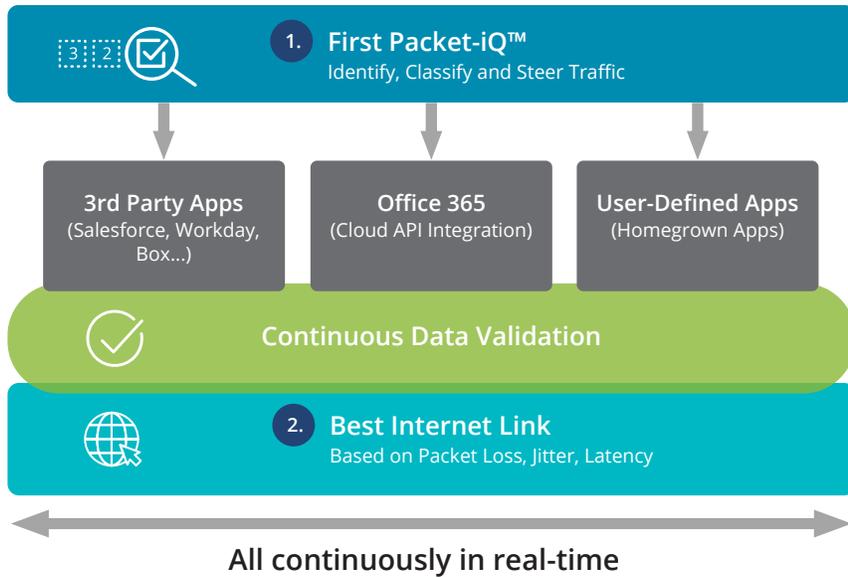
## Advanced Segmentation with Virtual Routing and Forwarding (VRF)

Network managers can now configure and manage separate addressing, routing and security policies consistently with the EdgeConnect SD-WAN edge platform across end-to-end segments and micro-segments for traffic traversing large-scale multinational enterprises and federations of independent companies. Advanced segmentation eliminates the arduous task of manually stitching together VRF, firewall and NAT policies in a consistent manner, dramatically simplifying the management of diverse scenarios and providing unprecedented flexibility when contending with overlapping IP address spaces.

## Efficient DNS Query Resolution

A critical step in the DNS proxy is to resolve the DNS query quickly. With EdgeConnect, customers can reach DNS servers in close proximity to branch sites eliminating backhaul of the DNS request to the remote data centers where enterprise DNS servers are hosted. From the branch location itself, DNS requests can be made directly to Global DNS servers, which reduces the impact of latency in establishing a SaaS application session, thereby improving SaaS application performance.





## Support for Custom User-Defined Applications

Many organizations continue to support applications customized for or internal to the company that are hosted in the corporate data center. Such custom applications are critical for the enterprise and with the EdgeConnect SD-WAN, customers can ensure optimal performance of these applications. From Orchestrator, IT can easily configure a custom application definition that enables EdgeConnect to identify it on the first packet.

## Intelligent Internet Breakout

Often customers provision two or more WAN links from the remote branch site to increase network and application availability and performance. These links are used for breaking out traffic locally at each branch. Using the internet as an underlay transport is less expensive than provisioning private leased line connections like MPLS. To optimize utilization of the provisioned WAN internet links, EdgeConnect monitors the performance of all WAN links by continuously measuring packet loss, jitter, latency and mean opinion score (MOS) in real-time. EdgeConnect uses

Apps, IaaS, PaaS	Circuits	Bonding + SLA	Topology	SaaS, Cloud, Internet Apps	Internet Policy & Firewall	Overlay Defaults
<b>Real Time Overlay</b>						
	MPLS Internet LTE (Backup)	<b>High Availability</b> Loss: 1% Latency: 400ms Jitter: 200ms		Cisco Webex, zoom, Ring Central 8x8	Best Circuit + Local Firewall Local Firewall, Datacenter (Backup)	FW Zone: Real Time QoS: Real Time Boost: Disabled
<b>Enterprise Apps Overlay</b>						
AWS, SAP, Azure, ORACLE Cloud Infrastructure	MPLS Internet LTE (Backup)	<b>High Quality</b> Loss: 2% Latency: 600ms Jitter: 300ms		Office 365, salesforce, box, workday, slack	Best Circuit + Cloud Firewall CloudGuard, Datacenter (Backup)	FW Zone: Restrict QoS: Enterprise Boost: Enabled
<b>Default Overlay</b>						
	MPLS Internet LTE (Backup)	<b>High Efficiency</b> Loss: 5% Latency: 800 ms Jitter: 500 ms			Load Balance + Cloud Firewall CloudGuard, Datacenter (Backup)	FW Zone: Default QoS: Best Effort Boost: Disabled

statistical learning to determine the optimal forwarding link, ensuring maximum application performance.

## Accelerate Managed SD-WAN Deployments

Service providers face unprecedented demand for managed SD-WAN services and choosing an SD-WAN management platform that is intuitive and flexible can accelerate service deployments.

Orchestrator<sup>SP</sup> generates unique customer Orchestrator tenants to ensure flexibility in tailoring deployments to individual customer requirements. It securely isolates each customer's SD-WAN configuration and performance statistics to assure robust security. Each tenant Orchestrator enables secure zero-touch provisioning of EdgeConnect appliances in each customer's branch sites, providing full visibility, control and management of the entire SD-WAN service deployment.

Orchestrator automates the assignment of business intent policies for applications groups to accelerate connectivity across multiple branches, eliminating the configuration drift that can result from manually updating rules and access control lists (ACLs) on a site-by-site basis.

When branch offices are deployed as part of an SD-WAN or hybrid WAN, some applications may require higher performance levels, like accelerating replication data over distance for disaster recovery.

The optional Unity Boost WAN optimization performance pack enables service providers to create tiered WAN service offerings that can be offered as a value-added software service on any EdgeConnect appliance. With a single mouse click in the Orchestrator GUI, service providers can enable enterprise customers to utilize Boost to accelerate application performance where and when it is needed.

Orchestrator<sup>SP</sup> delivers granular visibility into thousands of customer branch deployments for both data center and cloud-enabled applications. It provides the unique ability to centrally configure and manage secure SD-WAN deployments for each individual customer, while providing customized, segregated views and reporting.

Each Orchestrator tenant provides specific details of the WAN performance for each individual enterprise customer (Figure 3), including:

- Detailed reporting on application, location, and network statistics
- Continuous performance monitoring of throughput, loss, latency, jitter and packet ordering for all network paths
- Identification of all application traffic by name and location
- Alarms and alerts allow for faster resolution of network related issues
- Bandwidth cost savings report that documents the cost savings of migrating to broadband

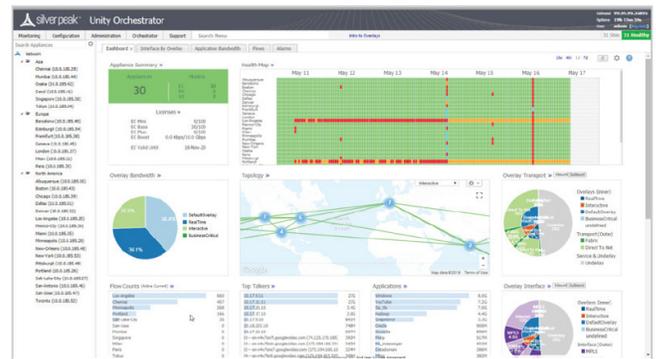


Figure 3: Orchestrator tenant dashboard provides status and details for each individual enterprise customer's SD-WAN deployment

## Gain Control over the Cloud

Gain an accurate picture of how Infrastructure-as-a-Service (IaaS) and Software-as-a-Service (SaaS) and are being used within your organization.

- Name-based identification and reporting of all cloud applications.
- Tracking of SaaS provider network traffic.
- Cloud Intelligence provides internet mapping of optimal egress to SaaS services.

# Strengthening WAN Security

Advanced capabilities provide cloud-first service providers with the control to centralize and automate security policy governance and safely connect users directly to applications. They enable service providers to centrally segment distributed enterprises' users, applications and WAN services into secure zones and automate application traffic steering across the LAN and WAN in compliance with predefined security policies, regulatory mandates and business intent (Figure 4). To support enterprises with multivendor security architectures, Orchestrator offers service providers a seamless drag and drop service chaining to next-generation security infrastructure and service.

## Boost Application Performance as Needed

Unity Boost WAN Optimization is an optional WAN optimization performance module that includes:

- **Latency Mitigation:** TCP and other protocol acceleration techniques are applied to all traffic, minimizing the effects of latency on application performance and significantly improving application response times across the WAN.
- **Data Reduction:** Data compression and deduplication eliminates the repetitive transmission of duplicate data. Silver Peak software inspects WAN traffic at the byte-level and stores content

in local data stores. Advanced finger-printing techniques recognize repetitive patterns for local delivery. Data Reduction can be applied to all IP-based protocols, including TCP and UDP.

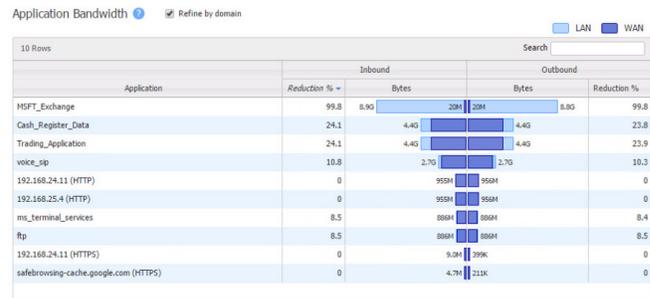


Figure 5: Boost enables customers to add application performance as needed.

## Why Add Boost?

Unity Boost enables service providers to create tiered WAN service offering for SD-WAN that includes an optional WAN optimization service that can be offered as a value-added software service on the EdgeConnect appliance.

Silver Peak EdgeConnect appliances alone provide enhanced application performance for broadband or hybrid WAN deployments, utilizing the included packet-based tunnel bonding, Dynamic Path Control (DPC) for real-time traffic steering over multiple WAN links, and Path Conditioning for overcoming the adverse effects of dropped and out-of-order packets that are common with internet connections.

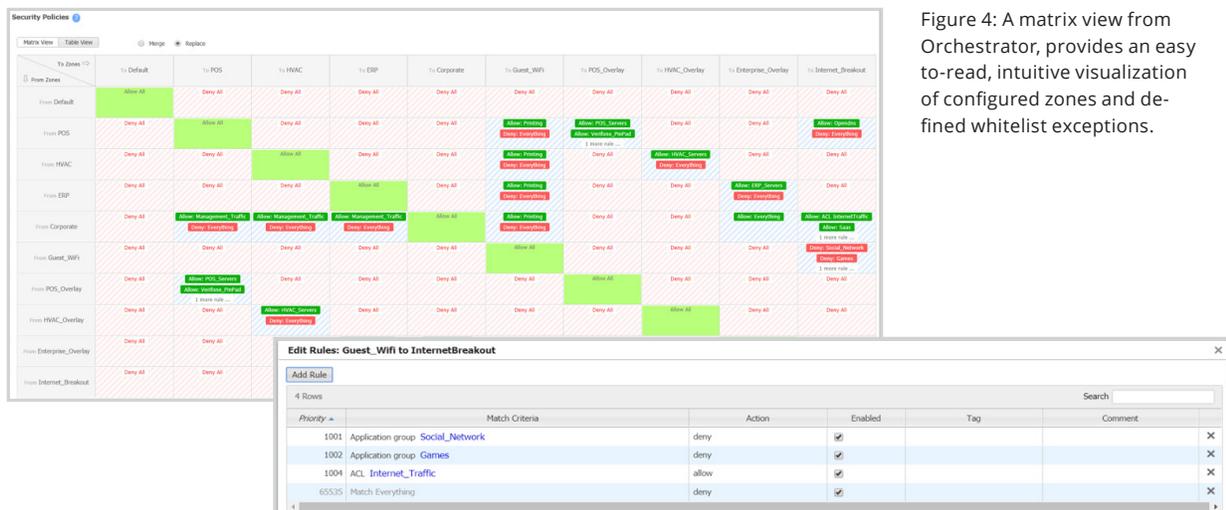


Figure 4: A matrix view from Orchestrator, provides an easy to-read, intuitive visualization of configured zones and defined whitelist exceptions.

However, sometimes additional performance is needed for specific applications or locations. As distance between locations increases over the WAN, application performance degrades.

This has less to do with the available bandwidth, and is more about the time it takes to send and receive data packets over distance, and the number of times data must be re-sent.

## Boost Use Case Examples

- Customers replicating to a disaster recovery (DR) site thousands-of-miles away might want to add Boost to ensure recovery point objectives (RPOs) are not compromised.
- Enterprises with remote sites located in rural areas, or with sites that are exceptionally farther away from the company's data center, might want to add Boost to overcome the effects of high latency.

With Unity Boost, customers gain the flexibility to enable enhanced WAN optimization capabilities where and when it is needed in a fully integrated solution.

## Overcome Effects of Latency

The time it takes for information to go from sender to receiver and back is referred to as network latency.

Since the speed of light is constant, WAN latency is directly proportional to the distance traveled between the two network endpoints. Silver Peak offers a variety of TCP acceleration techniques to mitigate WAN latency, including window scaling, selective acknowledgment, round-trip measurement and high-speed TCP.

Windows and other applications that rely on the common internet file system (CIFS) often take longer to perform common file operations over distance, such as retrieving and sharing files. Boost helps these applications not only by improving the underlying TCP transport, but also by accelerating CIFS through CIFS read-ahead, CIFS write-behind, and CIFS metadata optimizations.

## Increase Throughput

As packets flow through EdgeConnect appliances, Boost inspects WAN traffic at the byte-level and stores content in local data stores. As new packets arrive, Silver Peak computes fingerprints of the data contained within the packets and checks to see whether these fingerprints match data that is stored locally.

If the remote appliance contains the information, there is no need to resend it over the WAN. Instead, specific start-stop instructions are sent to deliver the data locally.

# EdgeConnect Hardware Platforms

	EdgeConnect US	EdgeConnect XS	EdgeConnect S	EdgeConnect M	EdgeConnect L	EdgeConnect XL
Part Identifier	EG-US	EC-XS	EC-S-P	EC-M	EC-L	EC-XL
Typical Deployment	Small Branch/ Home Office	Small Branch	Large Branch	Head Office Small Hub	Data Center Large Hub	Data Center Large Hub
Typical WAN Bandwidth	1-100 Mbps	2 - 200 Mbps	10 - 1000 Mbps	50 - 2000 Mbps	1 - 5 Gbps	2 - 10 Gbps
Simultaneous Connections	256,000	256,000	256,000	2,000,000	2,000,000	2,000,000
Recommend Boost up to	25 Mbps	50 Mbps	500 Mbps	500 Mbps	1 Gbps	5 Gbps
Redundancy / FRUs	No	No	Power (optional) and SSD	Power and SSD	Power and SSD	Power and SSD
Datapath Interfaces	3 x RJ45 10/100/1000 Mbps	4 x RJ45 10/100/1000 Mbps	8 x RJ45 10/100/1000 Mbps plus 4 x 1/10Gbps SFP+ (Pluggable)	EC-M-B: 4 x RJ45 10/100/1000 Mbps plus 2 x 1/10 Gbps fiber; Fail-to-Glass (Bypass)  EC-M-P: 4 x RJ45 10/100/1000 Mbps plus 2 x 1/10Gbps SFP+ (Pluggable)	EC-L-B/EC-L-B-NM*: 4 x RJ45 10/100/1000 Mbps plus 2 x 1/10 Gbps fiber; Fail-to-Glass (Bypass)  EC-L-P/EC-L-P-NM*: 4 x RJ45 10/100/1000 Mbps plus 2 x 1/10Gbps SFP+ (Pluggable)	EC-XL-B/EC-XL-B-NM*: 4 x 1/10 Gbps fiber; Fail-to-Glass (Bypass)  EC-XL-P/EC-XL-P-NM*: 6 x 1/10 Gbps SFP+ or 6 x 1/10/25Gbps SFP28 (Pluggable)

\*Models with suffix "-NM" are recommended for applications employing the Unity Boost™ WAN Optimization software

## Platform Specification Sheets


[EdgeConnect US](#)


[EdgeConnect XS](#)


[EdgeConnect S](#)


[EdgeConnect M](#)


[EdgeConnect L](#)


[EdgeConnect XL](#)

# EdgeConnect Technical Support

Term	Support is included as part of the EdgeConnect subscription license
Web-based Support Portal	Unlimited access 24 / 7 / 365 includes software downloads, technical documentation, and online knowledge base
Software Updates	Major and minor features releases; maintenance releases
Technical Support	24 / 7 / 365 Phone / E-mail / Web
Response Time	30 minutes for P1-Critical
HW Warranty and Maintenance	Refer to the <a href="#">EdgeConnect Warranty and Maintenance Policies Data Sheet</a> for further information

## Flexible Deployment Models

EdgeConnect Virtual (EC-V) – Download and install EdgeConnect from anywhere in the world. The software runs on all common hypervisors, including VMware ESXi, Microsoft Hyper-V, Citrix XenServer, and KVM. Silver Peak customers who have an IaaS presence in AWS, Microsoft Azure, Oracle Cloud Infrastructure or Google Cloud Platform can deploy EdgeConnect within their hosted cloud environment.

EdgeConnect Physical (EC) – For enterprises that are not virtualized in the branch, choose one of the EdgeConnect hardware appliance models for plug-and-play deployment.

## EdgeConnect Subscription Licensing

Silver Peak offers a metered licensing (ML) model. It provides service providers with a flexible pay-as-you-go licensing model that is based on how much bandwidth is consumed per appliance for each month, based on provisioned aggregate WAN bandwidth, and viewed in arrears. Unity Boost WAN Optimization is an optional WAN Optimization software that is priced on a per Mbps basis and that may be ordered and deployed flexibly to sites that require application acceleration.



### Company Address

Silver Peak Systems, Inc  
2860 De La Cruz Blvd.  
Santa Clara, CA 95050



### Phone & Fax

Phone: +1 888 598 7325  
Local: +1 408 935 1800



### Online

Email: [info@silver-peak.com](mailto:info@silver-peak.com)  
Website: [www.silver-peak.com](http://www.silver-peak.com)

© 2020 Silver Peak Systems, Inc. All rights reserved. Silver Peak, the Silver Peak logo, and all Silver Peak product names, logos, and brands are trademarks or registered trademarks of Silver Peak Systems, Inc. in the United States and/or other countries. All other product names, logos, and brands are property of their respective owners.

SP-SP-DS-ENT-UNITY-EDGECONNECT-SD-WAN-SOLUTION-121720