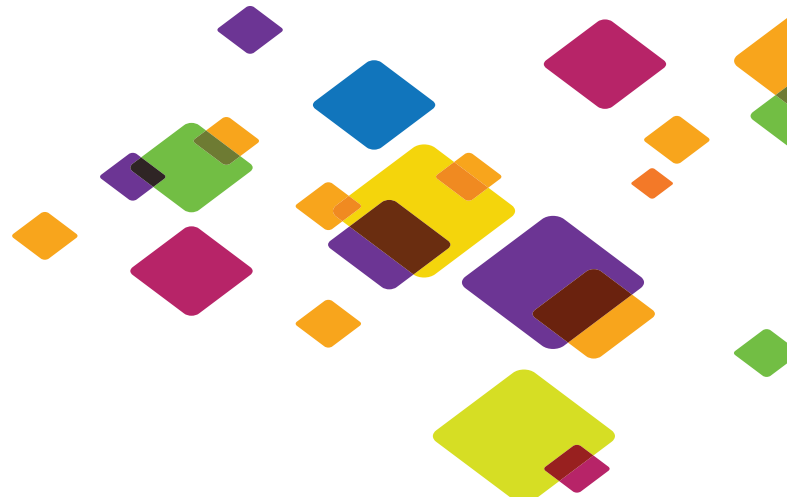


WHITE PAPER

Silver Peak and Infoblox

A Combined Solution for Controlling Complexity
and Cost as the Business Grows



Overview

As businesses scale and grow, IT infrastructure must also scale and grow to support the business. Growing the datacenter is a well-understood and generally straightforward process.

But when organizations begin to deploy and manage hundreds or thousands of locations in highly distributed WANs over multiple types of connections—MPLS and broadband (cable, DSL, LTE, etc.)—cost and complexity increase, and unique network and IT challenges come into play. In this paper we will present the challenges, and a solution using Silver Peak’s Unity EdgeConnect Software-defined WAN solution combined with Infoblox secure DNS, DHCP, and IP address management (IPAM).

Audience

This whitepaper is intended for network administrators who manage multisite installations, including multiple data centers and branch offices, and are responsible for WAN and LAN services.

The Problems with Scaling a Network

Managing a contained network for one-datacenter or location is straightforward. There is a single IP address space, a single DNS and DHCP environment, and one security environment. When the network scales to multiple sites, including branches and regional data centers, the environment becomes more complex.

A multi-site network increases the complexity of the network by adding multiple IP address spaces, each with separate DHCP, DNS, WAN, and Internet connectivity and security needs. As the network scales, traditional tools don’t scale with it. Spreadsheets are no longer an option for managing IP addresses, DNS threats target multiple locations, and DDoS attacks become a more difficult threat to deal with.

Remote sites are also difficult to deploy. Bandwidth installation needs to be scheduled months in advance to be ready when the office is opened. Routers and firewalls need to be ordered, configured, and added to the larger WAN environment. For MPLS networks, connections can be difficult when a preferred provider does not have readily available service at a new site.

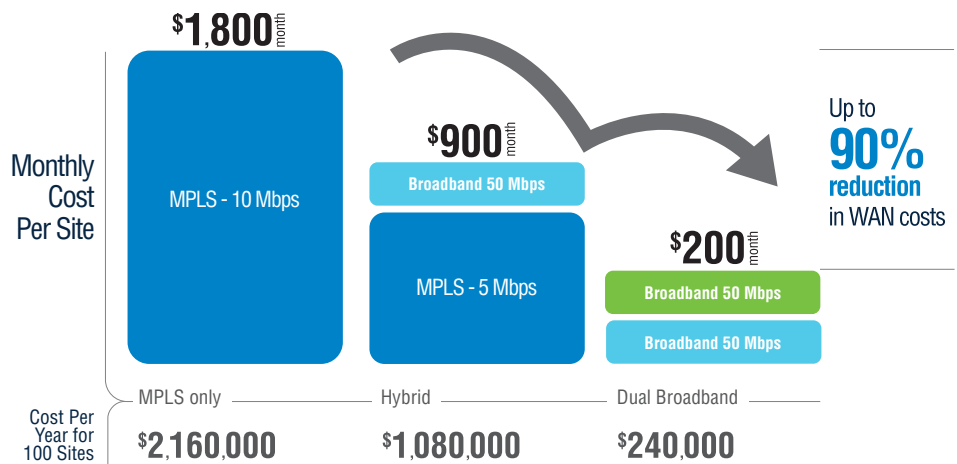


Figure 1: Silver Peak Unity EdgeConnect and Infoblox DDI can reduce WAN costs by 90 percent.



Solving the problems with Silver Peak and Infoblox: A New Architecture

Silver Peak and Infoblox each have industry-leading solutions that, when used together, simplify the process of growing a network and adding remote sites. Silver Peak's Unity EdgeConnect, available as either virtual software (EC-V) or a turnkey appliance, allows new remote sites to be added to the business network in minimal time, and with minimal configuration. Infoblox DDI, which combines secure DNS, DHCP, and IPAM, reduces the amount of time it takes to deploy network services to remote sites. Together Silver Peak and Infoblox reduce the time to deploy a new site from weeks or even months to days (when comparing MPLS to broadband deployment times), while reducing monthly OpEx for connectivity cost by up to 90 percent.

Silver Peak Unity EdgeConnect and Unity Orchestrator together enable an organization to quickly and seamlessly add a remote branch to a corporate network. The connectivity can be provided by any network connection, including MPLS, LTE, or broadband Internet. Silver Peak works with Infoblox by providing access to core network services from remote sites. DHCP and DNS forwarding are all transparent to end-users and applications, and require minimal configuration.

Silver Peak Overview

Delivered in both physical and virtual form factors, Silver Peak Unity EdgeConnect creates a virtual network overlay, so that enterprises do not have to replace existing routers and firewalls at branch offices. With Unity EdgeConnect, customers can move to a broadband WAN at their own pace, whether site by site, or via a hybrid WAN approach that leverages both MPLS and broadband Internet connectivity (cable, DSL, LTE, etc.). This is often referred to as software-defined WAN (SD-WAN).

Unity EdgeConnect is an overlay solution, which means connectivity decisions are made independent of carriers, avoiding lengthy procurement and deployment delays for faster time to service. Connectivity can be rapidly extended, moved, or changed where and when the business demands. With a zero-touch, plug-and-play deployment model, Unity EdgeConnect can 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) with the likes of Amazon, Microsoft Azure, or VMware's vCloud Air.

Key Features of Unity EdgeConnect

- **Dynamic Path Control (DPC).** Steers Real-time traffic over any broadband or MPLS link based on company-defined business-intent policies. In the event of an outage or brownout, DPC automatically fails over to the secondary connection in about one second.
- **WAN Hardening.** Secures data edge-to-edge via 256-bit AES encrypted tunnels. No unauthorized outside traffic is allowed to enter the branch. WAN hardening secures branch offices without the appliance sprawl and operating costs of deploying and managing dedicated firewalls.
- **Path Conditioning.** Overcomes the adverse effects of dropped and out-of-order packets that are common with broadband Internet and MPLS connections. Path Conditioning provides private-line-like performance over the public Internet.
- **Cloud Intelligence.** Delivers real-time updates on the best performing path to reach hundreds of software as a service (SaaS) applications, ensuring that users connect to their applications in the fastest, most intelligent way available.



Unity Orchestrator is included with Unity EdgeConnect, and provides customers with unprecedented levels of visibility into both legacy and cloud applications, and the unique ability to centrally assign business-intent policies to secure and control all WAN traffic. Key features of Unity Orchestrator include:

- **Single Screen Administration.** Enables quick and easy implementation of network-wide business-intent policies, which eliminates complex and error-prone policy changes at every branch.
- **Granular Real-Time Monitoring and Historical Reporting.** Provides detailed insight into application, location, and network statistics, including continuous performance monitoring of loss, latency, and packet ordering for all network paths. All HTTP and native application traffic are identified by name and location, and alarms and alerts allow for faster resolution of service provider issues.
- **Bandwidth Cost Savings Reports.** Helps document the cost savings for moving to broadband connectivity.

Boost Application Performance on the Fly

When branch offices are deployed as part of a broadband or hybrid WAN, customers might require higher performance for specific applications—for example, accelerating replication data over distance for disaster recovery. Silver Peak Unity Boost is an optional performance pack that accelerates application performance as needed. With a click of a button, customers can subscribe to Unity Boost. Key features of Unity Boost include:

- **Latency Mitigation.** TCP and other protocol acceleration techniques minimize the effects of latency on application performance and significantly improve application response time across the WAN.
- **Data Reduction.** WAN compression and deduplication eliminate 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.

Infoblox Overview

Infoblox's integrated DNS, DHCP, and IPAM solution leverages patented Infoblox Grid™ technology to provide highly available core network services. Hardened appliances and operating systems make the solution more secure with extensions for implementing additional security features in both DNS and DHCP. The web-based GUI—with a distributed database, granular role-based administration, and closed-loop workflows that leverage automation, templates, and property inheritance—provides significant OpEx reductions while freeing up highly skilled engineers and architects to address more strategic IT initiatives.

- **Improved service uptime** is achieved through high-availability pairing of appliances, field replaceable units, one-click disaster recovery, and zero downtime upgrade processes. Organizations can rely on their core network services, knowing that their infrastructure will never be the reason for an IT service outage.
- **Reduced OpEx** comes from operational efficiencies related to network core services. Delivery can be cut in half with an authoritative, central repository of data that supports streamlined workflows and granular role-based administration.
- **Enhanced security** is the result of a very secure platform with extensions to enforce network security policy at the edge of the network, detect malware on clients, mitigate DDoS attacks, detect rogue devices, and shorten security response time to find and isolate infected devices.



- **Vastly improved visibility** delivered by Infoblox Authoritative IPAM spans all IP addressable assets on an enterprise network.
- **Integration with the IT ecosystem and hybrid clouds** extends DDI automation and visibility across virtual and physical environments. Organizations can design and build heterogeneous, best-of-breed environments as well as leverage the out-of-the-box ability to automate DDI for virtual environments, centrally manage Microsoft DNS and DHCP, and build custom solutions using a broad array of open APIs.

This robust DDI solution enables network administrators to centrally manage the entire solution, infrastructure, and data easily. Infoblox DDI is made to be highly available through HA pairing and one-click disaster recover. In addition, software updates as well as backup and restore are executed with zero downtime. A zero-admin database, specifically designed to support network services and consistency between service and management views of IP network data, stores all network data, including IP and MAC addresses, host names, user credentials, all layer-2 and layer-3 infrastructure device data, and a wealth of user-definable information.

The system delivers critically needed operational automation—reducing many tasks down to one click—as well as central administration with granular role-based access and delegated workflow approvals. The solution includes powerful features such as network discovery, logging, auditing, and extensive reporting to ensure compliance, reduce trouble-shooting times, and provide insight for planning. It also supports IPv6, Anycast, Multi-Grid management, Multi-Master DNS, and more, making it flexible enough to work in virtually any network architecture.

In addition to core DDI services, the solution provides the foundation to extend enterprise-grade protocol (DNS/DHCP) and IP address management to virtual environments, including automating private and hybrid cloud deployments. Other components, features, and licenses help deliver secure DNS, enabling the system to defend against DNS-based attacks whether they are launched internally or externally.

Architecture Overview

Silver Peak and Infoblox both support physical and virtual appliances, and either can be deployed at any site, in any combination.

In the main data center, an Infoblox Grid Master will be deployed as an HA pair. The Grid Master is responsible for sharing information across all Infoblox appliances in real-time, and also acts as a centralized point of visibility. The main DDI services are defined here: secure DNS, DHCP, and IPAM. Silver Peak appliances will also be deployed redundantly in the main data center, and will provide the foundation for the enterprise-wide WAN. The Silver Peak appliances will provide the secure connection to the data center, as well as routing services for network traffic, including forward DNS and DHCP requests to the Infoblox Grid.

When regional data centers are available, or large regional offices, additional Infoblox nodes can be deployed to provide distribution of core network services. Redundant Silver Peak devices will also be deployed to provide WAN services.



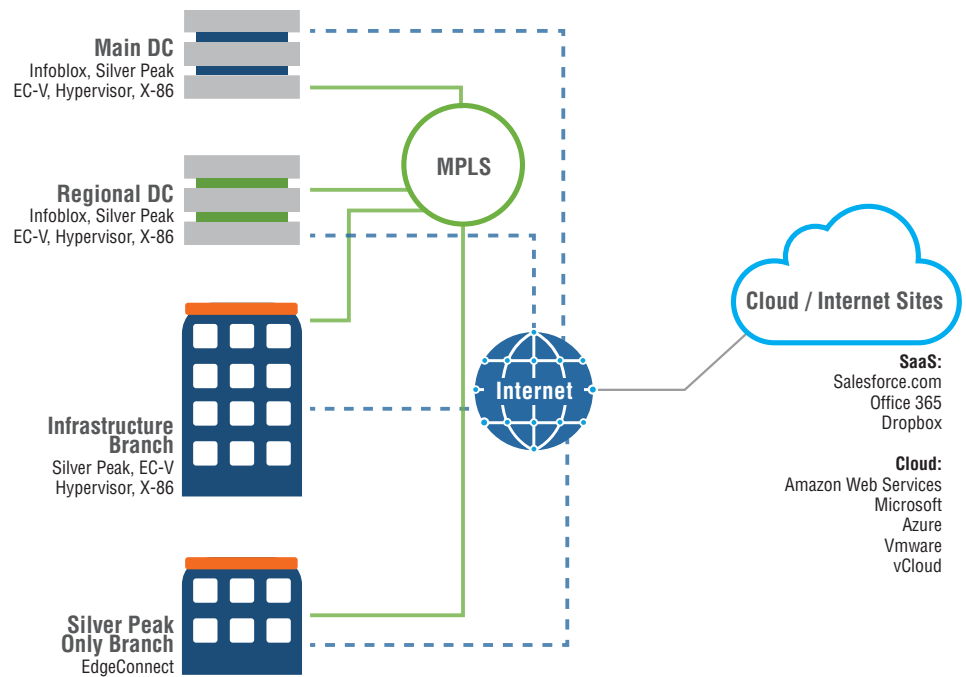


Figure 2: Enterprise deployment

In branch offices, or any remote site, Silver Peak EdgeConnect appliances will be deployed to provide access to the enterprise WAN. All core network services, DNS and DHCP, will be provided from an Infoblox appliance at the main or regional data centers.

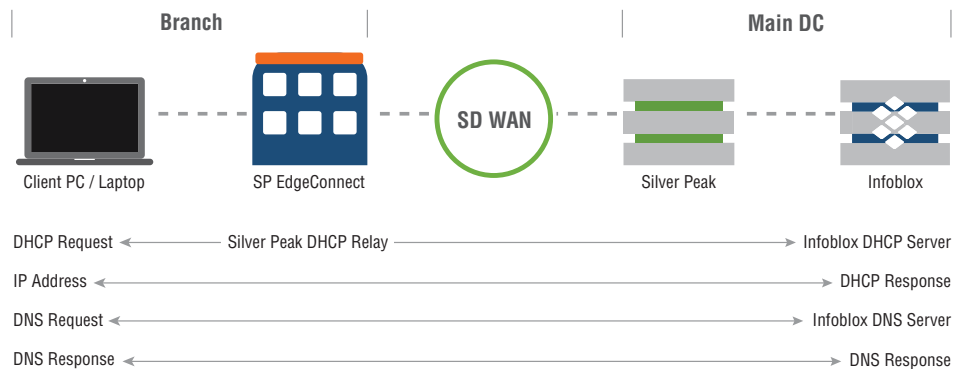


Figure 3: Branch office deployment

The Silver Peak appliance will forward all DNS and DHCP requests to the Infoblox Grid. Silver Peak EdgeConnect devices can be deployed as hardware or software appliances in the branch offices and remote sites. When the office has infrastructure to support virtual machines, like VMware vSphere, Microsoft Hyper-V, or KVM, an EdgeConnect EC-V can be deployed, thus saving on the amount of hardware deployed in the branch. Hyperconverged appliances, like those from Nutanix and other vendors, can also be used to host the EdgeConnect EC-V.

For new sites that do not require a virtual server infrastructure, or existing sites that don't have an infrastructure to run virtual machines, you can deploy Silver Peak EdgeConnect as a hardware device. The Silver Peak EdgeConnect will manage all WAN connectivity, routing, and security for the branch, reducing the amount of hardware that needs to be deployed and resulting in a "thin" branch.

The final piece of hardware for branches is a network infrastructure for client access. This can easily be accomplished with wireless access points, again reducing the amount of hardware required in the branch.



All management will be performed from the main data center, for both Infoblox and Silver Peak. Silver Peak Unity Orchestrator provides:

- Simple, zero-touch provisioning of new remote office instances
- Single-screen administration to view and apply network-wide business intent policies
- Real-time monitoring of application and network statistics—across the entire WAN or by individual location
- Alerts and alarms to quickly ensure resolution to service issues

Summary

Deploying a Silver Peak Unity EdgeConnect and Infoblox joint solution enables:

- Flexibility to rapidly and non-disruptively augment or replace MPLS networks with broadband
- Visibility and control for legacy and cloud applications, and the unique ability to centrally assign business-intent policies to secure and control all WAN traffic
- Security, with the combination of Silver Peak IPSEC 256-bit AES Encryption and Infoblox secure DDI services
- Enhanced performance of remote office applications
- Savings, by leveraging lower-cost broadband and centralizing DDI services with Infoblox

Management of remote sites is simplified with core network services centralized on the Infoblox Grid, while increasing flexibility to use the appropriate connectivity for each location and change providers without impacting the business—which means that the WAN can evolve with the enterprise.

About Infoblox

Infoblox (NYSE:BLOX) delivers network control solutions, the fundamental technology that connects end users, devices, and networks. These solutions enable approximately 7,500 enterprises and service providers to transform, secure, and scale complex networks. Infoblox helps take the burden of complex network control out of human hands, reduce costs, and increase security, accuracy, and uptime. Infoblox (www.infoblox.com) is headquartered in Santa Clara, California, and has operations in over 25 countries.





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