

## SILVER PEAK – SCALABLE WAN ACCELERATION

Silver Peak facilitates disaster recovery and enables server centralization by overcoming WAN performance limitations

### > LOCALIZE YOUR WAN™

The case for server and storage centralization is compelling - facilitated management, reduced IT costs, better security and auditing capabilities, and improved disaster recovery. However, running business critical applications over a Wide Area Network (WAN) can hamper performance and affect reliability.

Enterprises require a solution that enables them to centralize the control and management of servers and storage, while delivering LAN-like application performance across the WAN. Silver Peak is the first vendor to address these requirements in a secure and scalable manner. With Silver Peak, the WAN is no longer an obstacle to strategic IT initiatives.

### > CENTRALIZE BRANCH OFFICE INFRASTRUCTURE

By enabling enterprises to centralize branch office infrastructure, Silver Peak puts an end to “server sprawl” - and the security, compliance, cost, and management headaches that accompany it. In addition, Silver Peak enables enterprises to get more out of their existing WAN, reducing IT expenditures while facilitating business critical enterprise functions, such as disaster recovery and data backup.

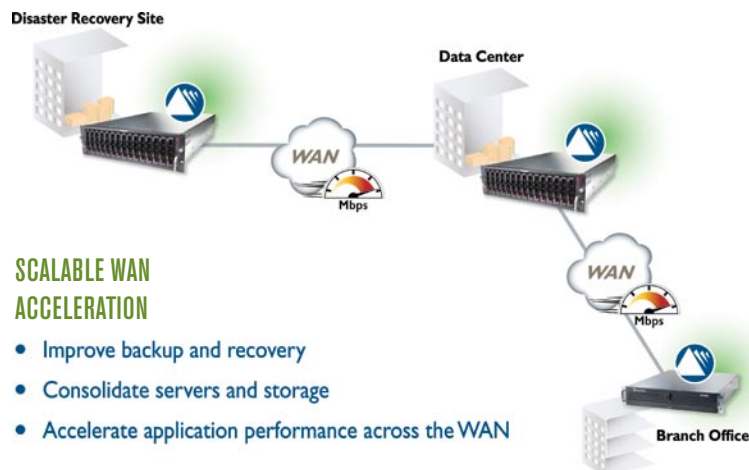
### > FACILITATE DISASTER RECOVERY

Silver Peak ensures business continuity by improving the performance and reliability of data replication, storage backup, and disaster recovery across a WAN. The Silver Peak solution cost effectively scales to support large data center environments, delivering LAN-like performance under the heaviest load. Only Silver Peak performs advanced data reduction on both TCP and UDP traffic, improving data transfer times and maximizing WAN efficiency across all disaster recovery applications, including Double-Take software, NetApp SnapMirror®/SnapVault®, Veritas™ Volume Replicator, EMC® SRDF and Legato, and other commonly deployed applications.

### > IMPROVE APPLICATION DELIVERY

By localizing information delivery, the Silver Peak solution accelerates performance for all enterprise applications, including:

- Email (MS Exchange®, IBM Lotus Notes®, SMTP), file services (CIFS, NFS, FTP), document management, and other productivity and collaboration tools.
- ERP, CRM and other enterprise applications
- Interactive and transactional applications, such as Telnet, Citrix®, Remote Desktop, and SQL
- Real-time and streaming media, including Voice over IP (VoIP) and video distribution.



### SCALABLE WAN ACCELERATION

- Improve backup and recovery
- Consolidate servers and storage
- Accelerate application performance across the WAN

## SILVER PEAK TECHNOLOGY

> Silver Peak offers a premier platform for WAN acceleration. This is achieved leveraging the following innovative technology components:

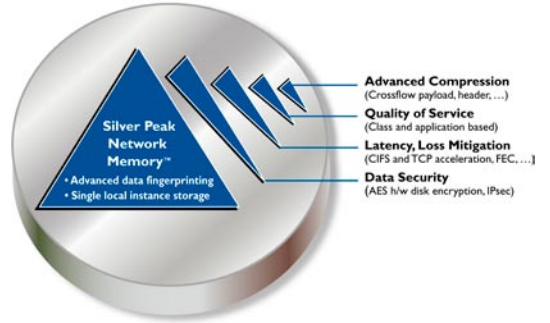
- **Network Memory™** - the industry's leading solution for disk based data reduction. Network Memory uses advanced fingerprinting technology to inspect all WAN traffic and stores a local instance of information in an application independent data store at the appropriate enterprise location.

The local instance is transparently populated based on day-to-day usage, containing a subset of the enterprises working data set that is most relevant to each location. Each piece of information is stored only once per location, enabling Silver Peak appliances to hold weeks or months worth of data.

Network Memory examines outbound packets to see if a match exists in the local instance at the destination location. If a match exists, then the duplicate information is not sent across the WAN and instructions are sent to deliver the data locally. If the data has been modified, only the delta is transmitted across the WAN, maximizing bandwidth utilization and application performance

- **Compression:** The Silver Peak solution supports advanced cross-flow payload and header compression. Cross-flow payload compression ensures that the transmission of data across the WAN is as efficient as possible by eliminating redundant information. Header compression significantly reduces the overhead inherent to flows of small packets, as is the case with Voice over IP.

- **Quality of Service (QoS):** Silver Peak NX Series appliances supports a variety of QoS techniques, including advanced queuing and scheduling, as well as per application policy based decision-making and application tagging. Silver Peak's advanced QoS capabilities enable enterprises to deploy and prioritize a wide variety of business critical applications, ensuring that each gets the network resources it needs.
- **Latency and loss mitigation –** The Silver Peak solution uses protocol acceleration techniques, such as window size adjustment and selective acknowledgements, to compensate for poor performance on high latency links. Moreover, the Silver Peak solution employs adaptive Forward Error Correction, which adds a small amount of redundant information to the payload so that lost packets can be easily recovered at the destination with minimal impact on performance. Silver Peak dynamically adjusts the FEC overhead in response to changing link conditions for maximum effectiveness in environments with packet loss.
- **Data security –** Silver Peak NX Series appliances protect all locally-stored and transmitted information from physical and network-level security breaches using the 128-bit Advanced Encryption Standard (AES) and IPsec tunneling. Data encryption is done in hardware on the NX Series appliances to ensure maximum performance.



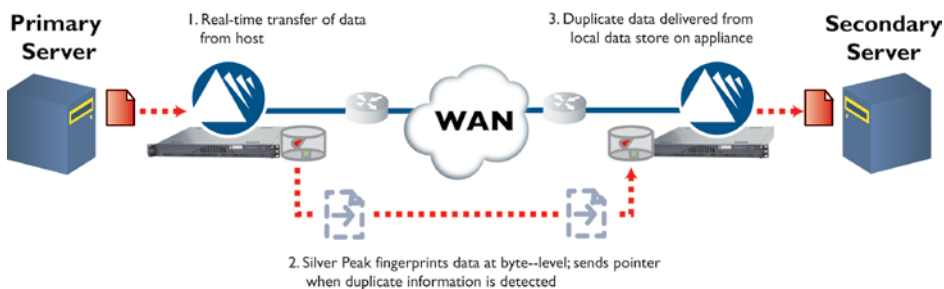
## > SILVER PEAK PRODUCTS

Silver Peak's award winning NX Series appliances satisfy all enterprise WAN acceleration needs, from small branch offices to the largest data centers. Specific NX variants include:

- **NX-2500:** 1 RU appliance with 2 Mbps WAN capacity and 250 GB of local data store. The NX-2500 is optimized for small/branch offices.
- **NX-3500:** 2 RU appliance with 10 Mbps WAN capacity and 500 GB local data store in a RAID configuration. The NX-3500 is ideal for mid sized offices.
- **NX-5500:** 3 RU appliance that supports 50 Mbps WAN bandwidth and 2TB of secure local data store in a RAID configuration. The NX-5500 brings application acceleration to medium and large offices.
- **NX-7500:** 3 RU appliance that support 155 Mbps with all features enabled (800 Mbps with latency mitigation only) and 2 TB of secure local data store in a RAID configuration. The NX-7500 is intended for deployment in large facilities, such as corporate data centers.
- **NX-8500:** 3 RU appliance that supports 500 Mbps with all features enabled (800 Mbps with latency mitigation only) and 7 TB of secure local data store in a RAID configuration. The NX-8500 is intended for deployment in larger enterprise facilities, such as regional hubs, multi-national data centers, and disaster recovery locations.

Larger networks are managed using Silver Peak's Global Management System (GMS). This is a robust platform for system-wide configuration, administration, monitoring, troubleshooting, and management.

## NETWORK MEMORY



## > ENTERPRISE SCALABILITY

The Silver Peak solution was designed from the ground up to support the scalability needs of large enterprises, while simultaneously remaining effective for smaller deployments. Unique features that ensure enterprise-grade scalability include:

- **Throughput.** Silver Peak offers the highest WAN capacity of any WAN acceleration solution. By delivering data reduction, compression, QoS, and latency/loss mitigation at high WAN speeds (up to 500 Mbps in a single appliance), Silver Peak is ideal for large data center applications.
- **Storage Capacity.** Silver Peak leverages disk based data reduction for superior memory retention and performance over time. The NX series appliances offer more than 10x the local data store as alternative products, supporting up to 7 TB in a single appliance.
- **No Flow Limits.** The Silver Peak solution is not limited by the number of transport-layer (TCP, UDP, RTP) flows in a network, as is the case with alternative solutions.
- **Hardware Acceleration.** Silver Peak leverages dedicated hardware acceleration to ensure that encryption does not adversely impact scalability and performance.
- **Application Breadth.** Silver Peak is the only WAN acceleration vendor to operate at the network layer of the ISO stack, providing data reduction, compression, and other techniques across all enterprise applications, including VoIP, video and Citrix.



**Silver Peak's Global Management System**

## > SECURE CONTENT ARCHITECTURE™

The Silver Peak solution is built upon a comprehensive Secure Content Architecture™ that enables enterprises to deploy WAN acceleration with complete confidence. The Secure Content Architecture is a multi-layered approach that delivers the following protection:

- **Data Plane:** Silver Peak uses 128 bit AES encryption to protect all information stored within NX appliances. This same technology is used in conjunction with IPSec to protect data as it traverses the WAN. Dedicated multi-Gbps processors are used to handle encryption, ensuring maximum performance and security. These features are especially useful in SSL environments, as they ensure that traffic is never stored in the clear, and that certification management and key exchange is performed in a secure fashion.
- **Control Plane:** Silver Peak employs a variety of methods to control traffic traversing the WAN. Stateful deep packet inspection is also used for detailed visibility into application behavior for intelligent acceleration decisions, such as controlling applications that use ephemeral ports (e.g. FTP and Voice over IP).

- **Management Plane:** With GMS, Access Control Lists (ACLs) and other advanced authentication policies can be centrally configured and enforced. Access to all Silver Peak devices is tightly controlled using TACACS+ and/or RADIUS. By exporting Netflow statistics, Silver Peak provides IT managers with detailed visibility into traffic behavior for rapid problem identification and resolution, performance monitoring for enforcing Service Level Agreements (SLAs).

With Silver Peak, data is always secure – at rest and across the WAN. In addition, security policies are easy to configure, enforce, and monitor from a central location, and hardware acceleration ensures no adverse impacts on network performance or scalability.

## LAN-LIKE PERFORMANCE

Network Memory enables information to be delivered locally when possible, reducing latency and avoiding potential server acknowledgement timeouts.

The Silver Peak solution also leverages advanced packet compression and various protocol optimization techniques to reduce network latency and maximum bandwidth usage.

The result is order of magnitude gains across all enterprise applications – as much as 500x peak improvements in some instances.

## > SILVER PEAK BENEFITS

Localize information for improved application delivery

- Immediate performance improvements across all applications
- No client or server configuration required

Centralize branch office servers and storage

- Reduce IT investment costs
- Eliminate server security, auditing, and backup challenges

Improve network backup and disaster recovery

- Protect critical business information
- Increase data availability



NX-2500



NX-3500

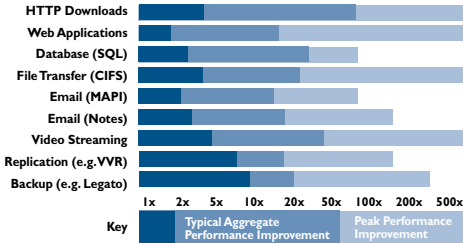


NX-5500 | NX-7500 | NX-8500





## SAMPLE PERFORMANCE IMPROVEMENT FOR COMMON ENTERPRISE APPLICATIONS



### > TRANSPARENCY

Silver Peak NX Series appliances fit seamlessly into any enterprise environment. They are deployed in each office of a distributed enterprise network and typically sit “behind” the WAN router. The appliances support a variety of different installation modes, including “in-line” and “out-of-path” using Policy based Routing (PBR), Web Cache Coordination Protocol (WCCP), or Virtual Router Redundancy protocol (VRRP).

The Silver Peak solution is deployed without any modifications to clients, servers, or applications. This maintains the integrity of enterprise application suites and ensures that performance gains will not be undermined by new releases of application software. In addition, it enables order-of-magnitude performance improvements to be achieved with minimal upfront time and effort.

By fingerprinting at the byte level, the Silver Peak solution works across different application types. For example, if a remote user downloads a PowerPoint file using the Common Internet File system (CIFS) and then emails that file using the Simple Mail transport Protocol (SMTP), the

repetitive information is transported across the WAN only once. This process occurs in a manner that is completely transparent to the end user and the applications, ensuring seamless operation in heterogenous environments. Silver Peak exports Netflow™ statistics for enhanced visibility into network behavior. This assists with performance management and reporting, SLA monitoring, and advanced problem resolution.

### > EASE OF USE

The NX Series appliances are managed using Silver Peak’s web-based Appliance Manager which provides remote device management, network monitoring, and application performance analysis. The Appliance Manager features easy to use wizards to simplify common appliance configuration tasks. An intuitive user interface provides detailed device management, alarming, ongoing monitoring, and graphing tools to evaluate network and application performance data.

Larger deployments can be easily managed using Silver Peak’s Global Management System (GMS). This is a comprehensive platform for deployment, management, and monitoring of a Silver Peak-enabled WAN. GMS provides the following advanced management capabilities:

- **Ease of Deployment** - New appliances can be pre-provisioned prior to shipping and then automatically discovered and registered using the GMS platform. In addition, Silver Peak provides an automated deployment wizard to assist with the configuration of these devices. Enterprise-wide policies can be created and applied using customized templates within GMS.

- **Simplified device management** - GMS facilitates day-to-day administrative tasks, including scheduled configuration backups, automatic software updates, and other vital device management functions.
- **Centralized network monitoring** - GMS provides a single, centralized “launch point” for monitoring a Silver Peak-enabled WAN. This includes easy to use dashboards that provide essential real-time information, such as device status and usage statistics, tunnel metrics, and alarms.
- **Extensive reporting capabilities** - GMS provides extensive reporting capabilities that assist with capacity management, network planning, auditing, troubleshooting, ROI analysis, and SLA enforcement. Both real-time and historical reports are available.

### > RESILIENCY

The Silver Peak NX Series appliances feature RAID with encrypted disk-drives and redundant power-supplies.

Fail-to-wire network interfaces mechanically isolate the appliances from the network in the event of a hardware, software, or power failure, ensuring that traffic flows uninterrupted.

For maximum resiliency, NX appliances can be deployed redundantly, with failover and load-balancing between devices. This ensures the highest level of application performance even during failure conditions.

### > ENTERPRISE-GRADE WAN ACCELERATION

The Silver Peak solution uses advanced WAN acceleration technology to enable distributed enterprises to completely reverse or contain server sprawl and to minimize their vulnerability through better business continuity. It provides all of the management, security, and cost benefits of server centralization, with the performance benefits of content distribution. As enterprises grow in size, and network applications become more critical to business operations, Silver Peak is an indispensable enhancement to existing enterprise WAN infrastructure. ■

## NX APPLIANCE SPECIFICATIONS

FEATURE	NX-2500	NX-3500	NX-5500	NX-7500	NX-8500
Advanced 64-bit architecture suited for:	Branch Office	Mid-Size Office / Small Data Center	Medium Office / Large Office	Large Data Center	Large Data Center
WAN Capacity	2 Mbps	10 Mbps	50 Mbps	155 Mbps (all features enabled) 800Mbps (latency mitigation only)	500 Mbps (all features) 800Mbps (latency mitigation only)
LAN Side Capacity	1 Gbps	1 Gbps	1 Gbps	2 Gbps	4 Gbps
Certified Connections	64,000	64,000	64,000	128,000	256,000
Local Data Store	1 x 250 GB	2 x 250 GB w/ RAID	8 x 250 GB w/ RAID	8 x 250 GB w/ RAID	14 x 500 GB w/ RAID
Power Supplies	Single	2 x Redundant	3 x Redundant	3 x Redundant	3 x Redundant
AES Disk Encryption	Hardware	Hardware	Hardware	Hardware	Hardware
IPSec Traffic Encryption	Hardware	Hardware	Hardware	Hardware	Hardware
RAM	HW Error Correction	HW Error Correction	HW Error Correction	HW Error Correction	HW Error Correction
Ethernet Ports	4 x 10/100/1000	4 x 10/100/1000	4 x 10/100/1000	4 x 10/100/1000	4 x 10/100/1000
In-line Deployment	Fail-to-wire	Fail-to-wire	Fail-to-wire	Fail-to-wire	Fail-to-wire
Out-of-path Deployment	PBR, VRRP, WCCP	PBR, VRRP, WCCP	PBR, VRRP, WCCP	PBR, VRRP, WCCP	PBR, VRRP, WCCP
Redundant Deployment	VRRP 1:1, N+1	VRRP 1:1, N+1	VRRP 1:1, N+1	VRRP 1:1, N+1	VRRP 1:1, N+1
Form Factor	1RU	2RU	3RU	3RU	3RU

