



Getting a Rapid Return on a Silver Peak Investment

The Business Case for WAN Acceleration

Wide Area Network (WAN) acceleration reduces the amount of traffic sent across the WAN and delivers information locally whenever possible. This improves the costs associated with application delivery – from staffing, infrastructure and facility costs to expenditures in application software and WAN bandwidth. In addition, WAN acceleration protects investments in business critical applications by ensuring that they meet end user performance objectives, and it minimizes risk of exposure by improving the performance and reliability of data backup, replication and recovery. As a result, WAN acceleration provides an extremely rapid return on investment, plus the intangible benefit of increased end user productivity and unsurpassed IT satisfaction.

There are several areas where enterprises can benefit from WAN acceleration, which include:

- Improve the performance of core business applications across the WAN, including file transfers, mail/calendaring, HTTP downloads, ERP, CRM, etc.
- Facilitate data center consolidation
- Improve the performance and reliability of data replication and recovery between disaster recovery facilities.

This document looks at each major project and identifies several areas where WAN acceleration can provide significant cost savings.

BUSINESS JUSTIFICATION #1: IMPROVE APPLICATION PERFORMANCE ACROSS TI'S WAN

There are inherent limitations associated with Wide Area Networks that make it difficult to deliver business critical applications to remote and branch offices. Bandwidth is limited and costly to provide, latency occurs when communication is taking place over long geographic distances, and network congestion can lead to packet loss. The back-off mechanisms incorporated within TCP, coupled with the “chatty” behavior of common application protocols, such as CIFS, further exacerbate the situation. The result is poor application response time in many enterprise WAN environments.

Increase End User Productivity

A variety of WAN acceleration techniques can be employed to improve application performance across the WAN, including:

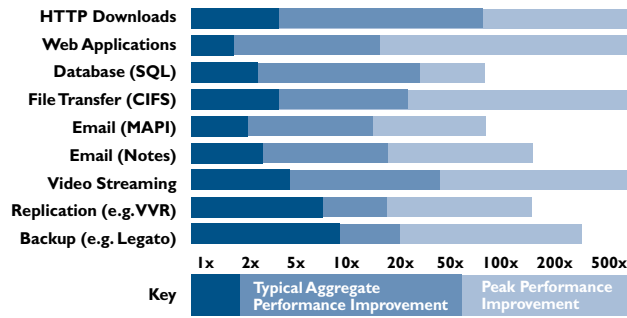


- Disk based data reduction (Network Memory™)
- Compression (payload and header)
- TCP acceleration
- Loss mitigation using adaptive Forward Error Correction (FEC)
- Quality of Service (QoS)

Assuming a 90x performance improvement for file transfers across the WAN, then a 100 MB file transfer might be reduced from over 120 minutes to 30 minutes, a savings of over 90 minutes per transaction! Assuming that that same file is transferred 10 times throughout the course of a day by different employees, WAN acceleration would result in 900 minutes of saved productivity, or 15 hours daily (per file). Extrapolating this gain across all file types and applications would lead to exponential savings across the enterprise from increased end user productivity.

Maximize Application Investments

Enterprises can use WAN acceleration to ensure the successful rollout of new business critical applications. This can have an enormous impact on corporate profitability. Nike, for example, blamed problems involving a new set of supply-chain management applications for an expected profit shortfall several quarters ago. In similar accounts, Disney endured \$878 million write-offs due to software investments that didn't pan out, and Gateway disposed of \$143 million worth of application investments. While several factors contribute to the success or failure



Average and peak gains seen in a typical Silver Peak environment.

of an enterprise application, by taking WAN performance concerns out of the equation Silver Peak helps to reduce deployment risk.

Some applications, such as CRM, can cost close to \$10,000/user to deploy. This includes application licenses, subscriptions, software support, integration, customization, IT personnel, and training costs, as well as significant investment in IT. An enterprise with 1,000 users could easily spend over \$10 million to effectively roll out this type of solution. It is common to invest 3 times the amount of the software, or 1/3 the total project investment, in IT infrastructure upgrades to support this new application. This includes things like database servers, back-up, client upgrades, remote access, application security, and network upgrades. When put in this context, an investment in network acceleration appliances cost less than 1% of the total cost of deploying a single enterprise application. By amortizing this cost across many different applications (e.g., CRM, email, ERP, file, web, etc.), the business case for deploying WAN acceleration becomes even more profound.

A Silver Peak investment costs <1% of the total cost of deploying an enterprise application

Reduce Support Costs

With WAN acceleration, end users experience better application performance. This typically results in fewer calls to the help desk, which translates to lower operational expenditures as less time is spent troubleshooting application performance and WAN behavior. If it costs \$100 to resolve a single trouble ticket, eliminating just 10 problems a week would save a company approximately \$50,000 per year.

Bandwidth Savings

The average large enterprise is forced to upgrade WAN bandwidth approximately every 2 years. (This is down from a 4 year average that existed several years ago). Some links, particularly international connections, can easily experience 80% or higher utilization only a couple of months after being upgraded.



managed DSL in a metropolitan area, for example, costs approximately \$500 per month. A DS3 can cost 10x that amount. The price for bandwidth can be twice as high in remote locations or certain parts of the world. This can make it exceptionally costly to deliver high bandwidth WAN services to multiple locations.

Silver Peak reduces up to 90% of WAN traffic, avoiding or delaying bandwidth upgrades

Upgrading WAN services takes time and money, and often does not address application delivery woes. For one, enterprise users have a tendency to fill WAN pipes over time, making bandwidth upgrades a short term fix. In addition, a significant portion of application delivery challenges are due to WAN latency, not bandwidth. In that situation, increasing the size of the pipe will have no impact on application performance.

WAN acceleration improves bandwidth efficiency by dramatically reducing the amount of traffic that is traversing these links. Data reduction, for example, can reduce WAN traffic by 90% on average. This can delay the need to upgrade existing WAN links and dramatically improve the performance of existing WAN connections.

Silver Peak Customer Success Stories

- A leading supplier of software solutions used to design semiconductors turned to Silver Peak to ensure that its developers could easily share source code and design information across distributed geographic locations. High latency and packet loss (up to 20% in some instances) made it difficult to deliver key applications between facilities throughout North America, Europe, and India. The company toyed with the idea of replacing their IPVPNs with dedicated private lines to overcome their WAN performance issues, but this would cost approximately \$7,000 in additional monthly IT costs per site. Instead, the company deployed Silver Peak NX appliances, which increased average WAN performance by 20x. By turning to WAN acceleration, the company improved its development operations by decreasing application response time and increasing WAN bandwidth efficiency.
- A global software manufacturer found itself upgrading its WAN bandwidth every 12 months on average. This cost them close to \$45,000 in new WAN expenditures every year. After implementing Silver Peak's NX series appliances, bandwidth utilization on those links decreased dramatically, to 25% of their previous amount. They were able to postpone their annual upgrade, which more than justified the investment in Silver Peak appliances.
- The regional transit agency for Central Puget Sound in Washington State

requires close coordination between hundreds of employees and contractors. The SoundTransit WAN was regularly experiencing 80-90% saturation as workers shared CAD drawings, construction photos, and other large documents with one another. This made it increasingly difficult to collaborate on time sensitive construction projects, and was causing the performance of the agency's extensive Voice over IP (VoIP) network to suffer. To overcome these challenges, the agency turned to Silver Peak's NX Series appliances, which eliminated 95 percent of the WAN traffic sent across the WAN and reduced the impact of latency and packet loss. 6 MB file transfer were reduced from one minute to a few seconds (20x improvement), and VoIP quality improved significantly across the WAN.

BUSINESS JUSTIFICATION #2: FACILITATE DATA CENTER CONSOLIDATION

According to recent Computerworld and Ziff Davis surveys¹, over 80% of enterprises are either exploring branch office infrastructure consolidation projects, or have already taken steps towards this goal. By facilitating the centralization of servers and storage, WAN acceleration can save a significant amount of money in infrastructure costs, software investments, WAN bandwidth, and day-to-day operational expenditures.

¹ Surveys were commissioned by Silver Peak but independently handled by Computerworld and Ziff Davis. The results can be found at <http://www.silver-peak.com/InfoCenter/>



Labor and Support Costs

70% of the total cost of ownership for a data center is related to labor. This includes the staffing requirements needed to handle systems support, help desk functions, network support, and application development/maintenance, among other critical tasks.

Labor costs balloon when servers are distributed throughout an enterprise. For example, additional systems administrators might be required at each remote location to handle day-to-day maintenance, upgrades, etc. Or, individuals can travel to remote locations to provide support, but this takes time and incurs additional expenses. An alternative is to outsource support services for remote locations. But, this can be even more costly when done en masse.

70% of the total cost of ownership of data center is related to labor

Hardware and Software Costs

By enabling server centralization, WAN acceleration can dramatically save on hardware and software costs associated with enterprise application delivery.

A typical windows server that is configured to handle basic file, email and directory services for a small office (100 people or fewer), costs approximately \$5,000 on average. An enterprise with 20 branch offices would spend

\$100,000 to equip these offices with local servers. Another \$100,000 might be spent on SQL databases (\$5,000/server), taking the total infrastructure costs to \$200,000 across all branch locations. (This does not count infrastructure costs within main campuses or regional offices.)

If backup is handled locally per branch office, this cost would more than double as enterprise are required to purchase backup servers, tape libraries, backup software, and/or pay for offsite delivery and storage at each location. This might create an additional \$20,000 in infrastructure costs per branch office, or \$400,000 across all offices. This increases the total hardware and software investment across this enterprise to approximately \$600,000. (Note: this does not count ongoing expenses and fees, or costs required to deliver other business critical applications locally, such as software licenses for email, CRM and ERP applications. For example, one can expect to pay an additional 15% of the total investment cost on ongoing maintenance.)

It is estimated that server centralization reduces as much as 40% of the total hardware, software, and maintenance costs associated with application delivery by minimizing hardware, licenses, and support contracts and centralizing backup tasks. In the above scenario, that is a savings of \$240,000. As server centralization often cannot be achieved

without adequate WAN performance, many of these cost savings can be directly attributed to an investment in WAN acceleration.

Bandwidth Savings

When servers are centralized, more data is sent across the WAN. This can place a strain on existing WAN bandwidth. As described above, WAN acceleration can eliminate over 90% of WAN traffic using data reduction and compression, which avoids (or delays) the need to perform costly WAN upgrades.

Silver Peak Customer Success Stories

- A national law firm began a strategic initiative in 2006 to centralize all critical applications within two dedicated collocation facilities. The goal of this project is to reduce infrastructure costs, ensure data privacy, facilitate day-to-day IT operations, and protect client information through real-time data replication. Silver Peak's NX Appliances showed 10-20x average improvement across several different applications, including CIFS and FTP. Data replication saw a 21x improvement across the WAN. With Silver Peak, the firm reduced up to 93% of WAN traffic in a single day. By breaking broke down the WAN barriers that hamper application performance across the Law Firm's WAN, Silver Peak enabled the firm to move ahead with its centralization plans.



- A regional medical center determined that server centralization could save them up to 40% on hardware and software costs. That is because larger servers with more processing power can be used to replace many smaller servers, and common management and backup software can be used to manage all branch offices. Silver Peak enabled the center to move forward with their centralization plans, which ultimately saved the company almost \$150,000.
- A provider of visual imaging and branding solutions deployed Silver Peak NX appliances to pool creative resources across multiple offices while centralizing key manufacturing machinery. The firm's employees typically transfer Gigabytes of data across the WAN each day, including hundreds of images that are used in the design and production of retail displays and packaging. After evaluating a variety of solutions, the company saw the biggest performance improvements with Silver Peak's NX appliances. 50 MB files that used to take 5 minutes to transfer across the WAN were reduced to a few seconds after the initial transfer— a 60x improvement in application performance. This improved all aspects of the company's business—from project management and production design to printing and finishing— while saving the company millions of dollars in capital expenditures and hardware maintenance costs.

BUSINESS JUSTIFICATION #3: IMPROVE THE PERFORMANCE AND RELIABILITY OF DISASTER RECOVERY

Disaster recovery can be particularly difficult to achieve across a WAN. For one, backup, replication and recovery involve the transfer of entire volumes of data, which require a significant amount of WAN bandwidth. In addition, many business continuity tasks react poorly when in the presence of high latency, resulting in application timeouts and subsequent database synchronization problems.

WAN acceleration overcomes these challenges by reducing the amount of data sent across the WAN during the backup, replication, and restore processes, and delivering information locally whenever possible to accelerate application response time. In addition, TCP acceleration and Quality of Service (QoS) help overcome other bandwidth and latency challenges that often plague disaster recovery initiatives.

Minimize the Cost of Exposure

Most large enterprises have well defined Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO) as part of their business continuity plans. However, according to a recent Ziff Davis survey², it is often quite difficult to meet these objectives. For example, while 83% of enterprises have a goal of complete backup/replication in less than 5 hours, only 40% are actually achieving this goal.

²This survey was commissioned by Silver Peak and independently carried out by Ziff Davis. Results can be provided upon request

These problems are only getting worse due to an enormous increase in the volume of data that is being protected. While 36% of businesses replicate >10 TB of data per session today, this volume is expected to increase fivefold in the next 12 months (to >50 TB).

What is the cost of lost data? How much money would a company lose if they lost all support cases for the last twelve hours, or even the last ten minutes? What is the value of the knowledge contained in the company's last hour worth of e-mails? What would it cost to have TI engineers recreate the last twelve hours worth of work?

According to Gartner Group, the average cost of network downtime for larger corporations is \$42,000 per hour (\$700 / minute). If a database recovery can be reduced from 2 hours to 4 minutes using WAN acceleration, than the investment can save approximately \$81,000 using Gartner's figures.

A database recovery can be reduced from 2 hours to 4 minutes, saving over \$81,000

Similarly, a Pepperdine University report in 2003 estimated that it costs the average enterprise \$10,000 for each MB of data lost. With 15x data reduction, 93% less traffic is sent across the WAN using data reduction



and other techniques. This enables enterprise to shrink their RPOs – i.e. recover more data in the event of a disaster. If just 10 additional MB are recovered using WAN acceleration, that is \$100,000 in estimated cost savings.

Avoid IT costs associated with database synchronization issues

When backups and/or replications fail, IT resources must be allocated to fix the problem. Depending on the frequency with which this occurs, this can place a drain on limited IT resources. In addition, it draws focus away from other IT initiatives.

By eliminating backup synchronization problems, WAN acceleration can help recoup man-hours spent troubleshooting their disaster recovery processes. This time can be re-allocated towards more strategic tasks, such as capacity planning. If a typical man-hour costs approximately \$35 and the company eliminates 20 hours/week in disaster recovery problems, then close to \$30,000 can be saved per year in operational expenditures.

Increase geographic distances between data centers

By reducing the impact of latency, enterprises can extend the distances between data centers and disaster recovery locations. This is rapidly becoming part of industry best practices for disaster recovery as it increases operational flexibility while minimizing the risk of exposure. In fact, this can be the difference between recovering from a catastrophic disaster, such as a hurricane or terrorist attack, and losing

everything in the event. Given the above cost metrics, WAN acceleration can save tens of millions of dollars by enabling enterprises to geographically disperse business critical data for DR purposes.

Bandwidth Savings

As the volume of data that is being protected in the enterprise continues to increase, the natural desire to increase WAN bandwidth to accommodate this growth. WAN acceleration can avoid or delay these upgrades, providing significant cost savings, as discussed above.

Silver Peak Customer Success stories:

- A global leader in professional services, has thirteen offices distributed throughout Canada serving over 4,000 users. The Firm was paying approximately \$10,000 per month for a 500 Mbps SONET connection between data centers, but rarely got more than 10% utilization on this link. This was making it difficult (and costly) to perform real-time data replication using DoubleTake software. After deploying Silver Peak, the firm saw a 46x improvement in the performance of their data replication solution – throughput improved from 10 Mbps to 460 Mbps. Similarly, the company saw significant performance improvements in other core applications being delivered across the WAN, including Microsoft file services (73x), FTP (46x) and Lotus Notes (12x).
- One of the largest construction risk management companies used Silver Peak to implement a reliable disaster recovery plan.

The company required real-time replication of all applications, which involved transferring terabytes of data between corporate locations and to clients and partners. Due to WAN limitations, the company routinely saw large file transfers take over 30 minutes, with server backups taking hours to complete. After deploying Silver Peak, the company saw a 20x reduction in WAN traffic, which enabled them to avoid upgrading their existing WAN links. 30 minute file transfer times were reduced to less than 1 minute, ensuring successful data replication.

- A financial institution implemented Silver Peak to avoid compliance issues by ensuring accurate and predictable data backup. The company required hourly backups of all client information between a production facility and a disaster recovery site. The company had difficulty getting all information from one site to the other during allocated 15 minute windows, which caused databases at each location to get out of synch. The only way to fix this was to go to the disaster recovery site and load the updated data from scratch, which was not very scalable or cost effective. This problem, which sometimes occurred as often as every two weeks, would take approximately 8 hours to fix – a major distraction for a busy IT group. After deploying Silver Peak, 15 minute transfers were reduced to less than 1 minute and the volume of data traversing the WAN was reduced from 5.25 GB to 350 MB on average. This eliminated the company's database synchronization problems.



Unique application breadth, security, and scalability features bolster the business case for Silver Peak NX appliances

Summary

By overcoming common performance challenges, Silver Peak's WAN acceleration provides a robust and rapid return on investment. This translates to a compelling business case for the following scenarios:

- Better application response time and availability means increased end user productivity.
- Better WAN utilization and application performance translates into higher IT satisfaction ratings.
- Consolidating IT servers within purpose built data centers enables IT staff to better secure business information. This helps to ensure corporate compliance with different regulatory standards, such as Sarbanes Oxley, HIPAA, GLBA, etc.
- WAN acceleration facilitates disaster recovery, ensuring that certain tasks, like backup, replication, and recovery are handled routinely and reliably.

Silver Peak offers several unique advantages over alternative WAN acceleration solutions that further bolster the business case for NX appliances. These include:

- **Application breadth.** Silver Peak is the only WAN acceleration solution to provide a full set of optimization functions on all enterprise traffic, including bulk TCP applications (NFS, CIFS, Rsync, email, SAP), UDP applications (VoIP, video), and real-time applications (replication and SQL). This means that an investment in Silver Peak is amortized across more areas of the business for better economies of scale.
- **Scalability.** Silver Peak NX appliances support 3x the WAN capacity, local data storage, and simultaneous user connections as the next closest competitive offering. This means that fewer devices are required in large data centers, which minimizes hardware expenditures, operational costs, and environmental costs (power and cooling).
- **Security.** Silver Peak incorporates 128 bit AES encryption to protect data at rest and across the WAN (using IPsec). This eliminates the need to purchase and deploy separate VPN solutions for WAN connectivity.

WAN Acceleration provides immediate and unique benefits that span all aspects of business operations. In this respect, an investment in Silver Peak WAN acceleration is a strategic one with immediate impact on both the top and bottom line.