Performance Brief: High Speed File Transfer Tools

High speed file transfer tools, such as rsync or IBM Aspera's FASP, dramatically shorten large data transfers often by replacing or enhancing standard TCP. These tools aim to overcome the limitations in TCP's congestion control algorithm, which exponentially reduces transmission performance when faced with packet loss.

While high-speed file transfer tools might address file transfer performance, they often ignore other enterprise challenges. Excess data is sent across the wide area network (WAN), delaying file delivery and increasing WAN costs. Some protocols operate effectively across the campus, but degrade significantly as latencies approaches 100 milliseconds, typical of coast-to-coast connections. Nearly all undermine the performance of other applications sharing the network and most require users to change their habits and adopt specific file transfer tools.

Silver Peak Accelerates File Transfers

Silver Peak dramatically shortens large data file transfers for every application not just specialized file transfer tools by minimizing transferred data, optimizing the underlying protocols, and eliminating or reducing network errors. Silver Peak compresses and deduplicates data traversing the WAN at the byte-level, identifying and eliminating redundant data across all IP-based applications and protocols. Data delivery is shortened with TCP Acceleration, which includes window scaling, selective acknowledgements, and HighSpeed TCP, and by accelerating one of the most popular file sharing protocols, the Common Internet File System (CIFS), with CIFS read-ahead, CIFS write-behind, and CIFS metadata optimizations. Silver Peak eliminates or reduces packet loss and out of order packets (OOPs) in real-time with Forward Error Correction (FEC) and

Packet Order Correction (POC). Dynamic Path Control ensures peak performance even as latency or packet loss conditions change by dynamically selecting the optimum path for a given application.

Performance Results

Customer testing shows that Silver Peak shortens large file transfers by 75 percent and more, particularly on second-pass transfers. When implemented in conjunction with TCP-alternatives, such as Aspera FASP, Silver Peak reduces bandwidth consumption by 50 percent (See figure 1). All results were gathered with Silver Peak software out-of-the box without any protocol adjustments or special add-ons. Silver Peak strongly encourages organizations to test file transfer performance themselves as numerous factors may impact individual results.

SILVER PEAK DEDUPLICATES ASPERA
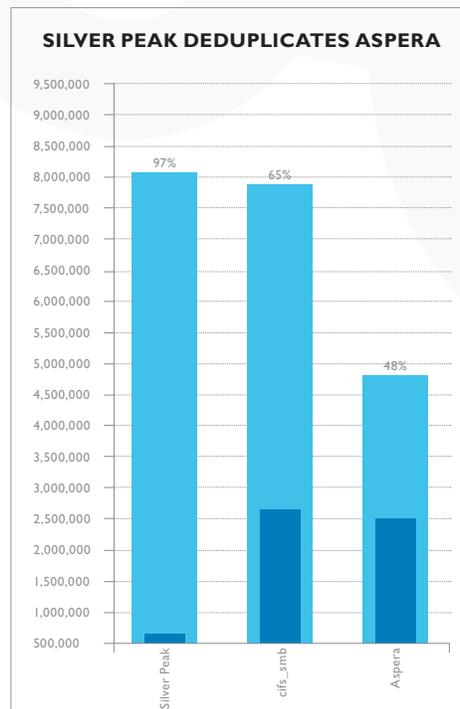
Silver Peak reduces Aspera traffic travelling across the WAN by half.

Summary

- Eliminated 50 percent of Aspera data from the WAN
- Shortened FTP transfers by 75 percent

Testing Details

Testing results for large data file transfers were compiled from two software manufacturers – an engineering software firm and desktop application firm. The engineering software firm measured IBM Aspera performance across a 200Mb network connection between San Francisco and Bangalore with 220ms of latency and packet loss .5-1.5 percent packet loss.

The desktop application firm transferred150 GBytes of files with FTP across a 1 Gbps connection with 100ms of latency and .01 percent packet loss. "Baseline" refers to transfers without Silver Peak software enabled. "First Pass" refers to initial transfers not seen by the Silver Peak software. "Second Pass" refers to subsequent transfers seen by Silver Peak software.

Architectural Benefits

- 50 percent lower TCO
- 20 minutes to download and deploy
- No forced upgrades
- Improve every application
- Minimize support costs
- Eliminate import and duties charges
- Minimize purchase expenses
- Go virtual when ready

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Silver Peak Features

Silver Peak addresses the major performance challenges facing transferring large files across the WAN without adding hardware, software tuning, or application-specific plug-ins:

Bandwidth – Silver Peak data deduplication conserves bandwidth consumed by large files and other high-speed file transfer tools, such as Aspera FASP. The first time data is sent from the WAN, it is finger-printed and compressed by Silver Peak. Subsequent requests are fulfilled from the local Silver Peak instance.

Latency – Silver Peak mitigates latency, making file transfers more efficient over distance. TCP Acceleration includes window scaling, selective acknowledgements, and HighSpeed TCP. CIFS Acceleration include CIFS read-ahead, CIFS write-behind, and CIFS metadata optimizations. Packet

coalescing re-packages smaller packets into a larger one and Dynamic Path Control selects the fastest path to a remote location.

Congestion – Silver Peak compensates for the effects of network congestion in several ways. Lost or out-of-order packets are recovered and resequenced in real time, avoiding retransmission delays. Traffic shaping and QoS mechanisms ensure all applications receive the necessary bandwidth. Dynamic Path Control identifies the least-congested path for every application.

Silver Peak protects data-in-transit with an AES-256, IPSec virtual private network (VPN) between locations. Data-at-rest is also encrypted with AES. End-to-end encryption is provided by SSL/TLS. Silver Peak does all of this for small offices or large data centers, making Silver Peak software the most scalable data acceleration platform in the industry.

Deployment Benefits

Improve Productivity

Enable users to share and transfer files faster and with less frustration.

Lower Bandwidth Charges

Eliminate redundant data from the WAN, dramatically reducing recurring bandwidth charges.

Secure Data

Secure file transfers with IPsec, and AES disk encryption without impacting optimization performance.

For More Information

Visit www.Silver-Peak.com and

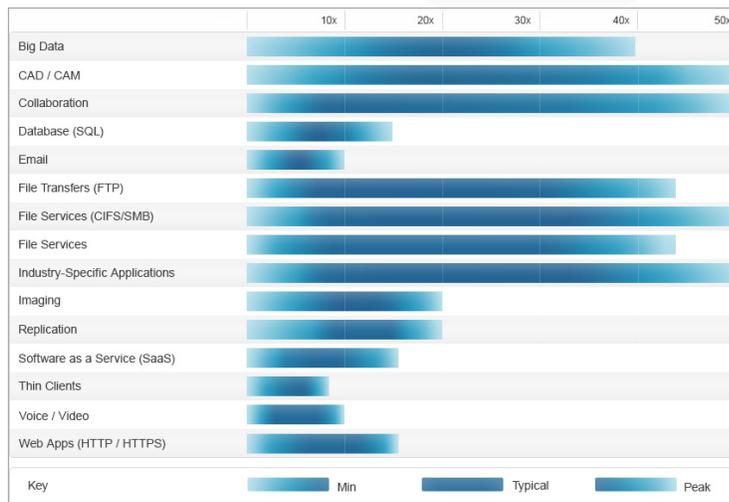Learn how Silver Peak improves SMB and Windows file sharing by more than 20x.

Read why AutoDesk, ASA and others selected Silver Peak WAN optimization.

Watch the IT director at Progressive Financial explain how his company benefited from Silver Peak optimzation.

Calculate your theoretical benefit with Silver Peak software using our throughput calculator.

Test the Silver Peak software for free. It takes about 20 minutes to download and deploy.

Silver Peak Optimizes Any Enterprise Application

	10x	20x	30x	40x	50x
Big Data					
CAD / CAM					
Collaboration					
Database (SQL)					
Email					
File Transfers (FTP)					
File Services (CIFS/SMB)					
File Services					
Industry-Specific Applications					
Imaging					
Replication					
Software as a Service (SaaS)					
Thin Clients					
Voice / Video					
Web Apps (HTTP / HTTPS)					
Key	Min	Typical		Peak	

Silver Peak optimizes every application. Actual performance will vary based on many factors.

silver peak™