

Accelerate SQL Server replication and fulfill SQL queries faster with Silver Peak

Microsoft SQL Server is a relational database that uses a variation of Structured Query Language (SQL) called Transact-SQL (T-SQL) to manage data in the database. In many instances, SQL Server databases are centrally located, forcing queries to move large amounts of data across the bandwidth-constrained wide area network (WAN).

This may be due to maintaining a remote MS-SQL database or replicating databases off-site, whether for reasons of data protection or performance. Real-time SQL queries and database synchronization may also be degraded or disrupted by the longer delays and network congestion problems encountered on the WAN.

Adding bandwidth to the WAN fails to address these challenges. Latency and network congestion, such as packet loss or out-of-order packets, still undermine SQL Server performance over distance.

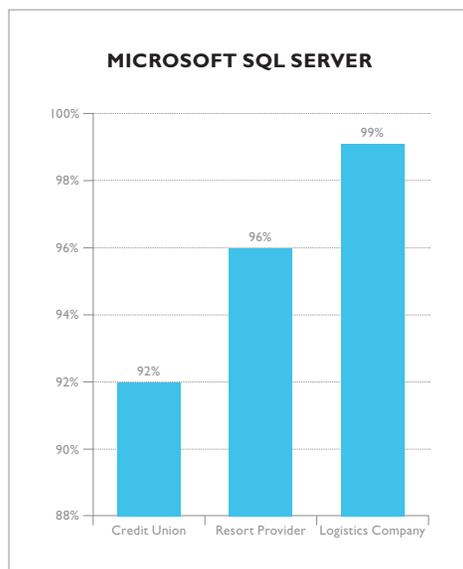


Figure 1: Silver Peak dramatically reduces the amount of SQL data transferred across the WAN.

And without a mechanism to guarantee bandwidth, SQL-based applications may underperform as lower-priority traffic consumes WAN bandwidth. Given the many “dialects” of SQL available today, implementing application-specific modification to address these problems is complicated and time consuming.

Silver Peak Accelerates SQL

Silver Peak enables Microsoft SQL Server to perform across the WAN as well as it does on the LAN. Silver Peak’s byte-level deduplication and compression sends less SQL data across the WAN. Latency problems are overcome by optimizing TCP and selecting the shortest path with Dynamic Path Control, improving real-time queries and replication performance over distance. Network congestion problems, which disrupt real-time SQL queries and replication, are eliminated or reduced with Adaptive Forward Error Correction (FEC), Packet Order Correction (POC) and Dynamic Path Control (DPC).

Performance Results

Customer testing shows that Silver Peak eliminates over 90 percent of SQL traffic from the WAN (see figure 1).

All results were gathered with Silver Peak’s software “out-of-the box” without any protocol tweaking or special add-ons. Silver Peak strongly encourages organizations to test Microsoft SQL performance themselves, as numerous factors may impact individual results.

Summary

- Eliminated up to 99% of SQL data from the WAN
- Moved 50 Mbps across a T1

Testing Details

SQL performance results were gathered from three enterprises – a logistics company, a resort provider, and a credit union.

The logistics company had a T1 (1.544 Mbps) circuit with 30ms of delay on average and .5 percent packet loss with peaks of over 2 percent.

The resort provider had a 6 Mbps connection with 75ms of delay. Packet loss was nominal.

The credit union had a 1.5 Mbps, 25ms connection. Out of order packets averaged as much as 11 percent.

Architectural Benefits

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

Silver Peak Features

Silver Peak software addresses the major performance challenges of running Microsoft SQL across the WAN for small offices or large organizations without additional hardware or application-specific plug-ins:

Bandwidth – Silver Peak data deduplication conserves bandwidth by eliminating redundant data from the WAN. The first time data is sent from the WAN, it is fingerprinted and compressed by Silver Peak. Subsequent requests are fulfilled by the local Silver Peak instance.

Latency – Silver Peak mitigates latency, enabling Microsoft SQL to operate more efficiently over distance. CIFS Acceleration includes CIFS read-ahead, CIFS write-behind, and CIFS metadata optimizations. TCP Acceleration includes windows scaling, selective acknowledgements, and HighSpeed TCP. Latency is also reduced through packet coalescing, which re-packages multiple smaller packets into a single larger one, and

through Dynamic Path Control, which selects the fastest path to a remote location.

Congestion – Silver Peak makes Microsoft SQL performance more predictable over distance by identifying the optimum path to a remote location. Lost or out-of-order packets are recovered and resequenced in real time, avoiding retransmission delays. Traffic shaping and QoS mechanisms ensure SQL receives the necessary bandwidth.

Secure – Silver Peak establishes an IPSec virtual private network (VPN) between locations, securing all data with AES-256, the enterprise standard for data encryption. Data at rest is also encrypted with AES. Access to Silver Peak software is protected with TACACS+ and RADIUS. End-to-end encryption is provided by SSL/TLS.

Silver Peak does all of this to scale, improving application performance from small offices to large data centers, making Silver Peak software the most scalable data acceleration platform in the industry.

Deployment Benefits

Improve Productivity

Enable users to utilize SQL applications more effectively and with less frustration.

Predictable Performance

Correct the network problems undermining SQL performance, giving users a more consistent experience.

Backup Faster over Distance

Improve Microsoft SQL replication and protect more data, even over long distances.

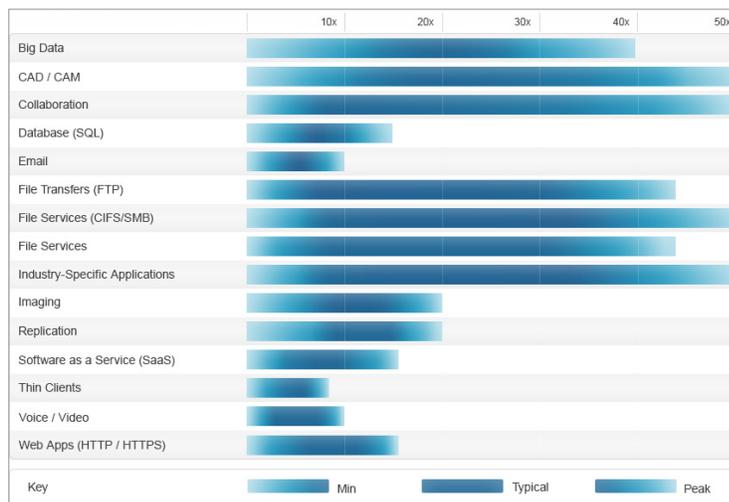
Secure Data

Secure SQL data with SSL, IPSec, and AES disk encryption without impacting optimization performance.

Lower Bandwidth Charges

Eliminate redundant data from the WAN to dramatically reduce reoccurring bandwidth charges.

Silver Peak Optimizes Any Enterprise Application



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

For More Information

Visit www.Silver-Peak.com and

Read why [AutoDesk](#), [ASA](#), and others selected Silver Peak WAN optimization.

Watch the IT director at [Progressive Financial](#) explain how they benefited from Silver Peak optimization.

Calculate your theoretical benefit with Silver Peak software using our [throughput calculator](#).

Test the Silver Peak software for free. It takes under an hour to download and deploy.