

TRIQUINT HIGH-TECH COMPONENT MANUFACTURER SPEEDS UP WITH WAN ACCELERATION



BACKGROUND

When your business supplies high-performance, precision modules and components for Wide Area Network (WAN) communications applications around the globe, you need to make sure your wide area network infrastructure operates at peak performance.

“SLOW WAN PERFORMANCE CAUSED PROBLEMS ON MULTIPLE LEVELS”

— PAK CHAN, IT MANAGER,
TRIQUINT SEMICONDUCTOR

That was the situation faced by TriQuint Semiconductor, an Oregon-based firm that designs, develops, manufactures and markets a broad range of high-performance gallium arsenide (GaAs), surface acoustic wave (SAW) and bulk acoustic wave (BAW) integrated circuits, modules and components for wireless communications, telecommunications and data communications. Its components are used in wireless handsets, base stations, broadband communications and military applications.

TriQuint employs more than 1,800 people in such far-flung locales as Oregon, Texas, Florida, Massachusetts, Germany, Costa Rica, Malaysia and China. And while this global footprint is certainly a sign of great success—TriQuint has also won numerous awards, including those given by Forbes and Fortune—it also caused problems with communication among the various company locations.

All of TriQuint’s sites are connected via a MultiProtocol Label Switching (MPLS) wide-area network. “We had high latency and some packet loss on our WAN links,” says Pak Chan, IT manager for TriQuint. “We were experiencing 90ms delays between Oregon and Texas and between Oregon and Florida. The latency between our offices in Oregon and Malaysia was 250ms to 300ms. The slow WAN performance caused problems on multiple levels.”

First, employees had to wait an unrealistic amount of time to download critical information, like forecasting spreadsheets. “Our ERP servers are hosted in Oregon, and when employees in Munich would start to download a forecasting spreadsheet at the start of a meeting, they often wouldn’t receive the entire spreadsheet until the meeting was over,” Chan recalls.

In addition to trouble with simple file transfers around the world, a deeper issue caused concern for TriQuint. “Remotely backing up from different locations throughout the world to the Oregon data center was not an efficient process,” Chan says.

Other issues raised by an inefficient WAN architecture included slow SQL database performance, the inability to efficiently prioritize VoIP traffic across the WAN, and the inability to allocate appropriate bandwidth to various applications.

“We didn’t have bandwidth starvation issues, so throwing more bandwidth at the problem wouldn’t help,” Chan says. “Latency is our real problem, and the only way to address that is to use WAN optimization.”

Customer: TRIQUINT



Triquent Challenges

- Remote back up of network applications from different locations around the world
- Improve overall applications performance across TriQuint’s distributed WAN
- Ensure high quality VoIP service between offices

Silver peaks Results

- 5-6x reduction in data backup and recovery times (Improved “RTO”)
- File transfer times across the WAN accelerated up to 14-fold
- 45% improvement in WAN utilization, leaving room for future growth
- Server centralization drove capital and operational savings
- ROI expected in less than 12 months

ACHIEVING PEAK PERFORMANCE

After evaluating WAN acceleration technology from several vendors, Chan and his team selected Silver Peak NX Series appliances for a complete WAN acceleration solution.

“We chose Silver Peak for its performance as well as its ability to support all of our applications, which include Microsoft file services, SQL database transactions, network based backup and VoIP,” Chan says. “Looking down the road, we didn’t want to limit our solution to TCP or have to buy a different product to handle UDP acceleration for our VoIP traffic.”

TriQuint was also particularly pleased with Silver Peak’s performance accelerating Microsoft file services, which is based on the Common Internet File System (“CIFS”) protocol. “Silver Peak notably improved the performance of our remote file sharing applications, and has a distinct advantage when it comes to transferring Excel files, such as our forecasting spreadsheets,” Chan says.

TriQuint installed NX Series appliances, which easily and seamlessly fit between corporate network resources and the WAN infrastructure used to interconnect those resources.

One of the key features of the NX Series is Network Memory™ technology, which significantly reduces the amount of data crossing the WAN and ensures LAN-like application performance. It does this by inspecting all inbound and outbound WAN traffic in real time, storing a single local instance on each appliance. Advantages of Network Memory include application transparency, enterprise scalability, network-wide visibility and seamless integration and operation.

In addition to Network Memory, Silver Peak uses TCP acceleration techniques, including optimizing the window and transaction sizes as well as selective acknowledgements to compensate for poor performance on TriQuint’s high latency global links. Adaptive Forward Error Correction helps avoid delays that come when packets are dropped across the MPLS WAN, which enables the WAN to easily recover from packet loss.

Another key ability that Silver Peak brings is quality of service (QoS), which includes native support for advanced QoS, a variety of packet marking techniques, application classification, and traffic queuing and shaping.

BETTER RESPONSE, STRONG ROI

Chan says that since the Silver Peak deployment, TriQuint has experienced numerous positive results, not the least of which has been a 12-month return on investment, based on improved user productivity and reduced downtime risk as a result of faster backup and recovery of critical data. Employees are more productive, now that they don’t have to wait around for the right information to be delivered over the WAN.

TriQuint was also able to more easily meet its disaster recovery goals. The company experienced a 5- to 6-fold improvement in backing up data from sites around the world to the company’s Oregon headquarters, thanks to Silver Peak. Backups that used to take an entire night were reduced to several hours, ensuring that business data was protected during allocated windows.

Similar improvements are seen when running SQL transactions across the WAN. “Silver Peak kept latency and loss to a minimum, enabling them to outperform other vendors when handling real-time SQL transactions,” says Chan.

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As for WAN utilization, before Silver Peak's solution was deployed, TriQuint experienced greater than 75 percent average utilization. That's been slashed to just 30 percent with Silver Peak, giving the company more headroom for future traffic demands.

"We don't have to buy more bandwidth. Instead we can better allocate our existing bandwidth resources to more applications," Chan says. "We can also improve control over our data by centralizing servers within Oregon. This was not possible in the past due to high bandwidth utilization and poor WAN performance."

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