

### Performance Summary

- › In a test using EqualLogic replication features, Blue Coat ProxySG appliances reduced transfer time up to 90% for a warm test with instantaneous improvements as high as 96%.

### Test Scenario

These tests were performed between 2 Dell EqualLogic PS series SAN arrays. The tests were run on a simulated network for a T1, 10Mbps, and 15Mbps WAN Links with 50ms latency.

## Blue Coat Accelerates and Optimizes iSCSI between SAN arrays

IT organizations have moved to appliance based SAN arrays for their mass storage needs. Meanwhile the creation of geographically distributed datacenters for redundancy/disaster-recovery purposes has created the need for such storage arrays to remain synchronized across general purpose network links. The iSCSI protocol is widely used for this purpose. While iSCSI provides SAN connectivity without dedicated cabling, it does not include any optimizations to address the latency and throughput constraints of a WAN link. Blue Coat Systems provides an end-to-end solution based on MACH5 technology to regain performance, minimize bandwidth usage, and significantly reduce the time to complete iSCSI operations between datacenters.

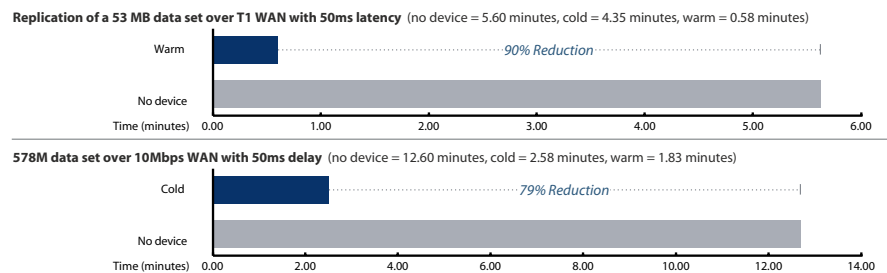
### iSCSI over the WAN

The two primary uses for iSCSI over a WAN are remote storage calls from application servers and disk replication between SAN array devices. Application server to SAN array iSCSI generally occurs when the application only need occasionally access to the data on the SAN. This is particularly true with Internet facing applications that may have a server in each geography but only one set of shared data on a SAN. More often iSCSI crosses a WAN when two SAN arrays perform replications, both full (for newly deployed arrays) and partial for ongoing synchronization. Both uses of iSCSI are critical to provide ongoing access to data regardless of the network latency and constraints between datacenters.

However, these actions over a WAN, with reduced bandwidth and high latency, often suffer from severely degraded performance, slowing business critical operations. Typical application server to SAN array lookups are composed of many small SCSI commands. Even the largest file access may still be increasing the TCP data window minutes or hours into the transfer. This is less of an issue for full SAN replications where the transfers are generally larger, but any packet loss on the WAN will greatly decrease the maximum transfer rate until TCP scales its transmissions back up. Incremental replications, a standard feature of many SAN arrays fall somewhere between the two in terms of performance across a WAN.

### Performance Results

In a test using EqualLogic replication features, Blue Coat ProxySG appliances reduced transfer time up to 90% for a warm test with instantaneous improvements as high as 96%.



Blue Coat ProxySG appliances also provide improvements the first time the data set is replicated. In testing using a 578M data set over a 10Mbps WAN link with 50ms latency, time to perform the replication was reduced by 79% for the cold test.

### How Blue Coat Accelerates and Optimizes iSCSI

Blue Coat's MACH5 (Multiprotocol Accelerated Caching Hierachy) Application Delivery Network improves and accelerates iSCSI. Byte caching and compression technologies reduce bandwidth utilization by up to 95% allowing data transfers to complete in minutes or seconds instead of hours. When combined with protocol optimization provided by the Blue Coat ProxySG, which ensures full utilization of the link, the SAN array software's TCP behavior is automatically managed in a way to optimize the TCP window size and send as much data in the shortest amount of time. Additionally, the Blue Coat solution also provides the ability to employ bandwidth management/QoS (quality of service) for any class of traffic to be appropriately prioritized. The Blue Coat solution is also the only solution capable of integrating into your existing IT infrastructure, allowing for flexible authentication and deployment options.

## Blue Coat Benefits

### Reduce Bandwidth Usage

Byte caching and compression significantly reduce the time required to complete file and data retrieval.

### Reduce Server Utilization

Protocol optimizations reduce the load on the server, offloading transfer buffering from the server's RAM to the ProxySG, allowing for greater scalability and ROI.

### Secure and Easy Deployment

Integrate securely with your IT infrastructure.

### QoS and Bandwidth Management

Deploy Blue Coat to intelligently prioritize and bandwidth-shape iSCSI traffic relative to other business-critical traffic.

## About Blue Coat Acceleration Technology

Blue Coat acceleration technology is a patent-pending combination of data reduction and application acceleration techniques that provide measurable improvements in performance and reduction of bandwidth. Whether at the edge of your network, or right in the heart of it, Blue Coat acceleration technology provides a powerful toolkit to optimize performance for distributed applications.

These technologies include:

### Protocol Optimization

Improves the performance of protocols that are inefficient over the WAN by eliminating the impact of latency native to their design. Blue Coat has been optimizing network protocols for over a decade, and offers multiple improvements for TCP, CIFS, HTTP, HTTPS, MAPI and streaming video and IM protocols.

### Byte Caching and Compression

Dictionary-based gigabyte caching combines high performance disk storage for large byte patterns with innovative indexing and referencing techniques to drastically reduce bandwidth from large, repetitive data transmission. Inline compression reduces predictable patterns even on the first pass, making it an ideal complement to byte caching technology.

### Asymmetric Pipelining and Object Caching for Web and SSL

Blue Coat's pipelining parallelizes multiple connections within compound web pages, moving data and objects much more quickly to the user. Object caching, with patented adaptive refresh, assures that the freshest content is served immediately to the users – without the network wait. Blue Coat delivers this acceleration in an asymmetric architecture, requiring only a single box at the branch to accelerate internal and external HTTP and SSL traffic – with no appliance required on the other side of the transaction.

### Video Split Streaming, Object Caching & CDN

Large video files – whether static or streamed live – are difficult to deliver in distributed environments due to large bandwidth requirements. Blue Coat's live split streaming takes a single stream from the WAN and splits it into multiple streams at the remote site, enabling all employees to view live streams at the bandwidth cost of just one stream. Video caching makes on-demand video instantly available to employees, while CDN capabilities enable you to pre-position content at non-peak times.

### Recreational traffic control & SaaS Acceleration

Classify each external website access with Blue Coat WebFilter and our real time WebPulse service in order to prioritize business, minimize recreation and prevent malware infections. Unique internet caching capabilities let you reduce bandwidth for allowed Web sites – and accelerates Software as a Service (SaaS) applications important to your business. Note, Web filtering and WebPulse are only available with the ProxySG Proxy Edition.

### Bandwidth Management

Prioritize network resources based not only on port or device, but on users, applications and content to more accurately reflect your corporate policies on the network. Works by itself, or integrates with your infrastructure QoS to provide application intelligence to the packet switching network.

## About Blue Coat ProxyClient

ProxyClient builds on Blue Coat's Secure Web Gateway and WAN Optimization technologies to secure and accelerate application delivery for roaming and small branch users. Combining Blue Coat's acceleration technologies with Blue Coat WebFilter and WebPulse service, ProxyClient delivers LAN-like user experience, policy enforcement and malware protection at the PC-level.