



Performance Summary

- › Reduce bandwidth utilization by 85 percent or more for Citrix traffic
- › Stabilize and improve Citrix client behavior by decoupling ICA clients from handling slow WAN connections
- › Blue Coat MACH5 accelerates Citrix ICA/PNA clients

Test Scenario

These tests were performed with Citrix Presentation Server version 4 running on Windows 2003. The client workstation was Windows XP SP2 with Citrix client version 9, using standard Microsoft office suite of applications and Internet Explorer to login to a CRM application.

The tests were run on a simulated 1.544Mbps (T1) WAN link with 100ms latency.

- › Cold test, starting condition: no traffic has passed through the Blue Coat appliances.
- › Warm test starting condition: the same or similar traffic has already passed through the Blue Coat appliances once.

Blue Coat Accelerates and Optimizes Citrix Presentation Server

Many enterprises extend application access to remote users through interactive terminals. Citrix Presentation Server is one such solution, providing desktop-like functionality for remote users through a GUI rich terminal connection. Presentation Server is built on the Independent Computing Architecture (ICA), which is a thin client protocol that transmits high-level windowing information instead of a pure graphical bitmap. While Citrix Presentation Server helps an IT organization consolidate server infrastructure, the traffic from remote clients can consume a significant amount of WAN bandwidth, overloading both WAN networks and the Presentation Server itself. Blue Coat MACH5 improves the Citrix performance by optimizing the WAN traffic between Citrix ICA clients and their Presentation Server.

Citrix Presentation Server over the WAN

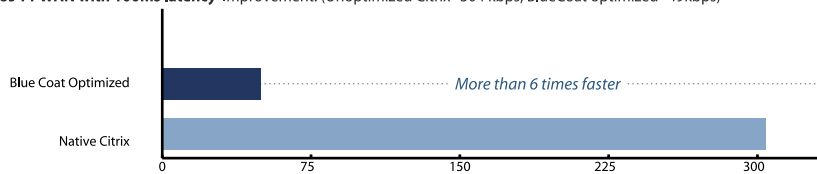
Delivering applications over the WAN with Citrix Presentation Server requires significant network resources to provide the constant, time-sensitive transmission of packets required for a high quality user experience. Perhaps less demanding and better performing than the application being delivered would have been, remote users of ICA over the WAN compete for bandwidth with other users and application traffic not published by Presentation Server.

Citrix Presentation Server sends window display information as opposed to graphic images of the remote desktop. While this is an improvement in terms of required bandwidth, in reality remote users still see erratic and suboptimal performance on the local session, such as uneven screen refreshes as well as lag and jitter in cursor positioning caused by network latency and bandwidth queuing. However, by applying intelligent optimization with Blue Coat MACH5, remote Citrix clients will see a smoother session while reducing network utilization.

Performance Results

In a test of Citrix ICA clients accessing Citrix Presentation Server over a simulated WAN, ProxySG appliances reduced the amount of data transferred over the WAN by more than 6 times. The test environment was a 1.544 Mbps (T1 link) with 100ms latency. The test included logging into Citrix Presentation Server and using the standard Microsoft Office application suite to open a Word, Excel and PowerPoint documents, followed by logging into a CRM application with Internet Explorer. The test results measure the average bandwidth utilized for un-optimized Citrix traffic, and Blue Coat optimized Citrix traffic (warm test case). In addition to reducing bandwidth utilization, screen refreshes appeared to be smoother.

1.544 Mbps T1 WAN with 100ms latency Improvement: (Unoptimized Citrix=304 kbps, BlueCoat optimized=49kbps)



How Blue Coat Accelerates and Optimizes Citrix Presentation Server

Blue Coat's MACH5 technologies optimize Citrix by reducing data transfer while streamlining data transport. Data transferred between Citrix remote ICA clients and the Presentation server is reduced with byte caching and compression technologies. The transport of data is streamlined by applying QoS tagging with bandwidth management, in conjunction with TCP enhancements. Blue Coat MACH5 reduces uncompressed Citrix traffic with better gains than with native Citrix compression. Even with default Citrix compression, the Blue Coat solution can apply bandwidth management and QoS to Citrix traffic to appropriately prioritize it over other WAN traffic in the organization, providing a smoother and higher quality experience to the remote user. By allowing Blue Coat MACH5 to do the compression and encryption, another benefit, in addition to superior compression rates, is offloading Citrix Presentation Servers from resource-intensive compression and encryption, increasing server capacity.



Blue Coat Benefits

QoS and bandwidth management

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

Optimize network traffic

Use Blue Coat's advanced TCP features, including selective ACK, congestion/packet loss recovery, TCP window scaling to optimize Citrix traffic.

Server offload

Deploy Blue Coat to compress and encrypt Citrix traffic, offloading Citrix Presentation servers.

Improve print performance

Deploy Blue Coat to reduce bandwidth utilization and shorten printing times with byte caching.

Stabilize client behavior

Insertion of Blue Coat MACH5 will stabilize and improve Citrix client behavior by decoupling Citrix clients from WAN connections – Citrix clients communicate to the Blue Coat appliance over the LAN, and Blue Coat handles the WAN side connections.

About Blue Coat MACH5 Acceleration Technology

Blue Coat MACH5 technology is a patent-pending combination of five separate application management and tuning technologies that provide unrivaled improvements in application performance and bandwidth utilization. Whether at the edge of your network, or right in the heart of it, MACH5 technology provides a powerful toolkit for meeting any application delivery challenge. These technologies include:

Bandwidth Management

Assign priority and 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.

Protocol Optimization

Improves the performance of protocols that are inefficient over the WAN through specific enhancements that make them more tolerant to the higher latencies typically found there. Blue Coat has been optimizing network protocols for over a decade, and offers multiple improvements for TCP, CIFS, HTTP, HTTPS, MAPI and most streaming video and IM protocols.

Byte Caching

Cache repetitive traffic found in the byte stream and serve it locally to reduce the amount of traffic that actually uses the WAN at all. Works like a customized compression algorithm for your network traffic, and leads to dramatic bandwidth savings.

Object Caching

Store files, videos and web content locally, providing LAN-like performance for WAN users, without the overhead and risk of traditional wide area file services. For content delivery, no technology does more to reduce latency and bandwidth to improve the end user experience.

Compression

Inline compression can reduce predictable patterns even on the first pass, making it an ideal complement to byte caching technology.

About the Blue Coat ProxyClient

ProxyClient builds on Blue Coat's secure web gateway and acceleration technologies to extend application delivery to the desktop. Using MACH5 technology, including caching, compression and protocol optimization, ProxyClient accelerates web and office applications for roaming and small branch users. ProxyClient delivers LAN-like user experience and Blue Coat web filtering with a simple and easy footprint for installation, configuration, deployment and ongoing maintenance.

