

Improve Mac Integration on Campus: GroupLogic's ExtremeZ-IP Outperforms Mac OS X SMB-Client in Recent Benchmark Study

Overview and Results

GroupLogic White Paper | April 2011



Access.



Share.



Extend.™

Executive Summary

In Fall 2010, GroupLogic, Inc. surveyed 125 North American higher-education IT leaders, to quantify Mac user growth within higher education and to identify the key challenges associated with integrating Macs into Windows-based infrastructures.

Respondents reported the following information, showing that the Apple in the Enterprise trend has spread throughout higher-education as well:

- Mac adoption remained steady across universities and colleges in 2010—pegged at 30 percent among students and 24 percent among faculty populations.
- This adoption resulted in a strong growth rate of 18 percent over 2009 with continued growth of Mac presence on campuses forecasted to reach 20 to 21 percent over the next five years.
- Despite this trend, 59 percent of respondents felt the satisfaction level of Mac users within their respective networks had not improved over the past year. Effective file and print sharing methods topped the list of unmet requirements.
- Respondents estimated that despite relative satisfaction, as many as 91 percent of institutional Mac users think service or performance improvements are needed.

Not surprisingly, 63 percent of universities and colleges surveyed rely upon existing tools and protocols already built into Mac and Windows to accomplish their integration goals. One such protocol is SMB, also known as Common Internet File System (CIFS) from Microsoft. SMB is a common protocol used to integrate Macs into Windows-based environments by overriding Mac operating systems to make the Mac operate similar to a PC. While SMB offers the benefit of being “free,” inherent glitches within the protocol are driving Mac users to demand better solutions to working without difficulty within Windows-based environments. In fact, a majority of IT leaders surveyed reported that rapidly-growing populations of Mac users on their campuses are pressuring IT organizations to adopt entirely new Mac/Windows integration strategies.

Limitations with SMB run the gamut from critical issues to minor yet frustratingly common annoyances, including:

- Lack of integration with Microsoft’s Active Directory (AD) and Distributed File Service (DFS);
- Inability to easily access printer drivers or shared files; and
- Compromised data integrity and performance when using SMB to share Windows file server information.

In a recent performance benchmark study, GroupLogic, Inc. pitted ExtremeZ-IP against SMB. ExtremeZ-IP is GroupLogic’s solution for accessing Windows file server information from Mac OS X clients, and offers a fast and effective way to access Windows file and print server information from Mac devices. Not only is it effective in removing the inherent limitations of SMB, such as lack of Active Directory and DFS support, it outperforms SMB by as much as 50 to 100 percent depending upon the type of read/write activity and number of Mac clients. This study makes abundantly clear that when it comes to seamless integration of Mac devices into Windows-based environments, ExtremeZ-IP performance is unmatched, even by the leading manufacturer-issued protocols.

In the following section, we’ll examine the specific differences between SMB and ExtremeZ-IP.

Background on the Benchmark

The ExtremeZ-IP performance benchmark was performed using a Windows based test machine with the following configuration:

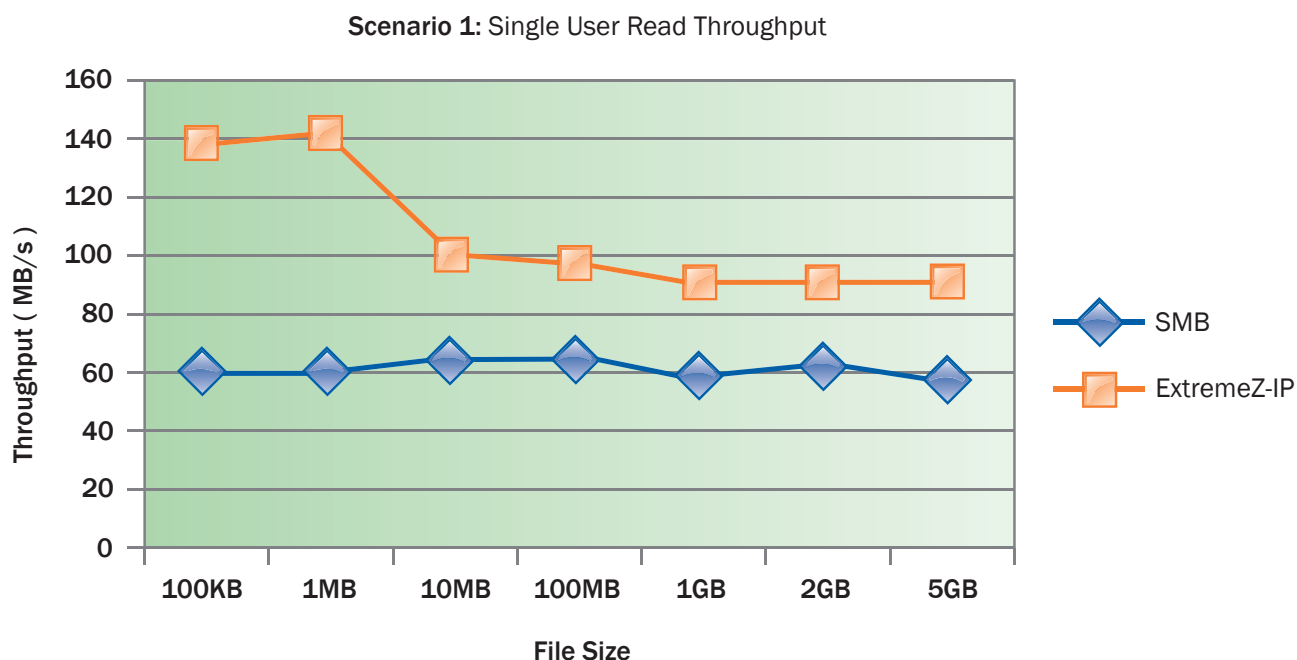
- Windows 2008 R2 64-bit
- 2X Intel Xeon E5630 2.53GHz (8 cores)
- 8GB 1333MHz RAM
- 5X Broadcom 5709 GbE NICs
- 1X 15K 300GB system drive, 2X 15K 300GB storage drives in RAID 0
- ExtremeZ-IP 7.0

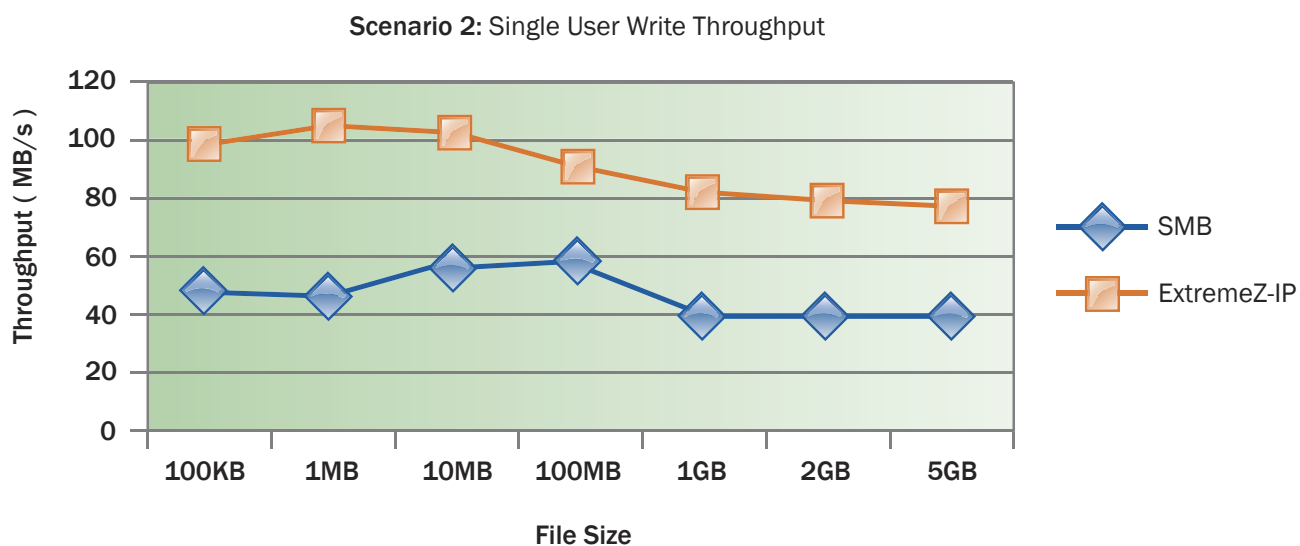
Throughput performance for SMB and ExtremeZ-IP were tested in a variety of scenarios created to measure read/write activity in both single and multi-user environments. These tests were conducted using the standard “dd” command on the Mac OS X client over an HP ProCurve gigabit switch.

Benchmark Results

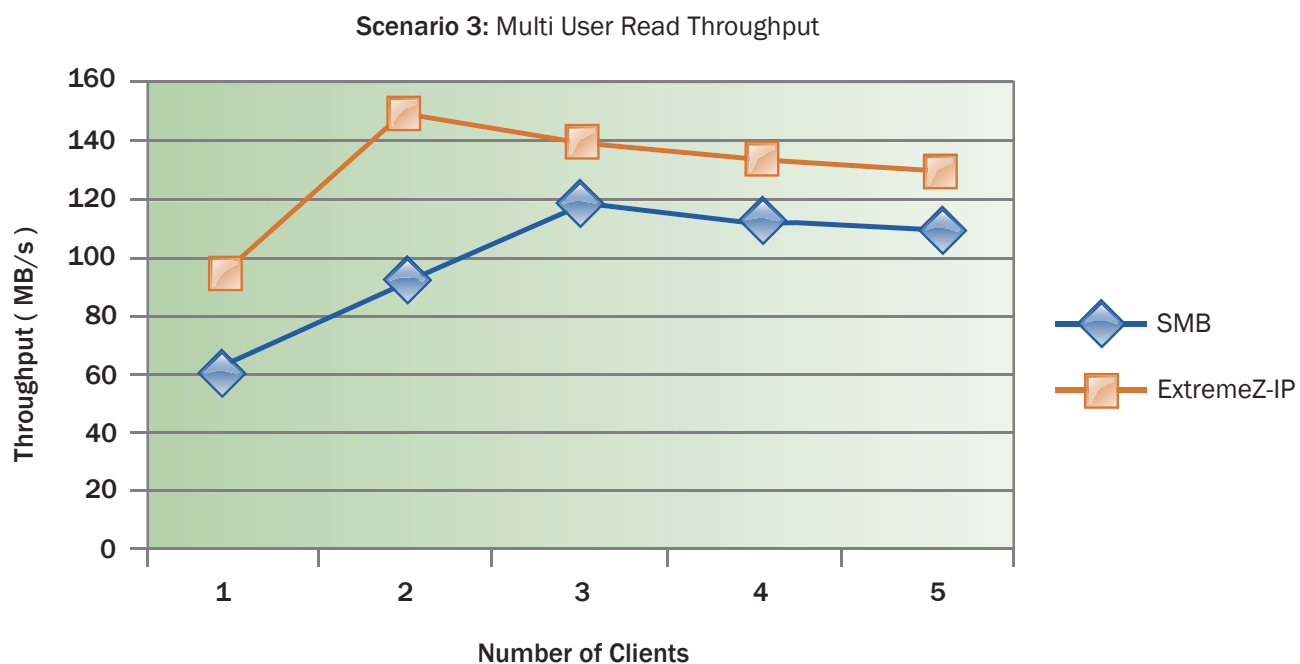
Four scenarios were constructed to measure the throughput performance difference between SMB and ExtremeZ-IP. Scenarios 1 and 2 measured read and write throughput with a single user reading and writing files of different sizes. In all cases, ExtremeZ-IP provided significantly greater throughput for Mac users than SMB.

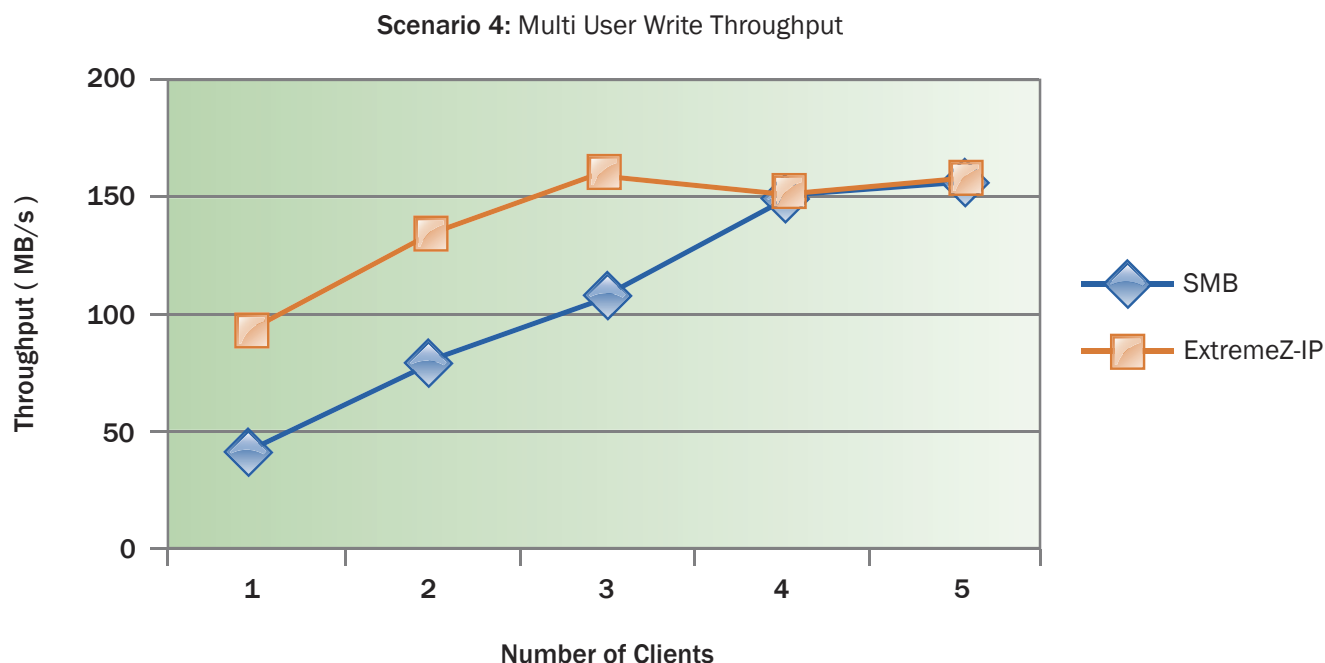
The following are the results for these scenarios.





Scenarios 3 and 4 measured read and write throughput in a multi-user environment. Each client used a dedicated NIC to read or write 5GB of data simultaneously on the server. The following are the results for these scenarios.





In all cases, ExtremeZ-IP outperformed SMB. The results in a single user environment were most notable where ExtremeZ-IP outperformed SMB by an average of 100%. In the case of the creative design individual who is writing multiple 100 MB files at once, the productivity savings can be substantial – ranging up to several minutes for each multi-file read or write operation. And for users who are reading or writing files ranging from 500 MB to 2 GB and beyond, the savings with ExtremeZ-IP will be even more pronounced – amounting to potential benefits that can easily add hours of additional productivity on top of each working day.

The multi-user throughput performance differences between ExtremeZ-IP and SMB were slightly less dramatic, but still consequential where ExtremeZ-IP outperformed SMB by 50% on average for files up to 5 GB.

These results show that overall, Mac users with ExtremeZ-IP installed on their Windows server experience raw throughput improvements averaging 50% to 100% higher than SMB. While the impact of this higher throughput can vary depending on server hardware performance, the number of concurrent users, and the size of files involved in the Mac client workflow, in real-life productivity terms this kind of improvement can amount to hours of time saved each day.

Summary

ExtremeZ-IP has provided substantial value for thousands of companies around the globe for over ten years now – value that has been measured in this study as faster access to Windows file server assets. For multi-user environments, Mac users who use ExtremeZ-IP can enjoy up to 50% faster read / write access to their Windows files. In an environment where it's typical for a single Mac user to read or write files at a given time, the performance differences are far more substantial, where Mac users can enjoy a 100% performance boost over SMB – saving them hours of productive time over the course of a single day.

In addition, not only does ExtremeZ-IP perform faster than SMB, it's easier to manage and provides far more capabilities as well... here are just a few:

With ExtremeZ-IP, Windows System Administrators can:

- Seamlessly integrate Macs into Active Directory and Microsoft DFS environments
- Enable Macs to restore files from Windows Volume Shadow Copy
- Allow Mac OS X clients to use files with 1+ character names or larger than 4GB
- Control the names and types of files users can place on each server volume
- Eliminate AppleTalk but maintain ease of use
- Support Time Machine backups and control available backup disk space quotas

With ExtremeZ-IP, Mac users can:

- Retain the full “Mac” experience while accessing Windows-based storage, printer and backup capabilities – support for Time Machine and Network Spotlight are perfect examples
- Continue to use long file names and files larger than 4GB if in accordance with IT administrative policies
- Automatically discover and setup file and print servers

In short, with ExtremeZ-IP, Mac users can get measurably faster, more secure and reliable access to shared files, printers and backups than by using SMB – and they get to keep their familiar user interface. In addition, customers who use ExtremeZ-IP also enjoy lower administrative costs and better service for their Mac users – all at an affordable cost that is more than offset by the increase in productivity for both Mac users and IT administrators as well.

About GroupLogic

GroupLogic helps enterprise and education IT organizations simply and securely integrate diverse computing platforms into enterprise environments, connecting employees to enterprise files, content and assets to facilitate a more productive and efficient work environment. With more than two decades of experience, GroupLogic leads the marketplace in helping IT organizations effectively and easily manage the integration of Apple products into the enterprise ecosystem. Whether IT organizations are looking to integrate existing Apple assets, purchase additional Apple hardware like Macs and iPads, or want to take advantage of the hardware costs savings that accompany the adoption of IT consumerization, GroupLogic enables IT organizations to easily and securely manage the rapid integration of diverse platforms while ensuring resources are optimized. GroupLogic enables the enterprise to focus on what is really important - competitive differentiation, improved employee productivity, mitigated risk and reduced costs. GroupLogic's proven products - ExtremeZ-IP, ArchiveConnect, and MassTransit - are in use by some of the world's most innovative companies, including Christie's, International Greetings and Omnicom Group.