



Case Study: Aperio* Technologies

Aperio puts Gigabit adapters “under the microscope” to find the best performance for organic tissue analysis

Case Highlights

Profiled Organization: Virtual microscopy software and instrumentation developer.

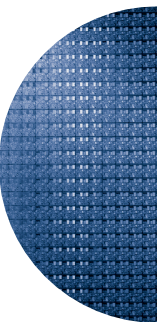
Challenge: Provide a high-performance network over copper cabling to create and transfer high-resolution digitized microscope slides.

Solution: Deployed Gigabit Ethernet over copper wiring throughout the network – from server to desktop using Intel® PRO/1000 XT Server Adapters and Intel® PRO/1000 T Desktop Adapters.

Benefits: A cost-effective, high-performance network that allows for smooth transfer of very large files.



Intel in
Communications



Introduction

Tissue analysis for drug discovery, research, and clinical diagnostics just got better – thanks to Aperio* Technologies' software and its new Gigabit Ethernet network. Aperio Technologies, Inc., develops software and instrumentation to increase the speed, reliability and accuracy of tissue analysis. The Company has developed a slide scanning platform that comprises a scanner (the ScanScope*) to rapidly digitize microscope slides, software for efficiently viewing scanned digital images ("virtual slides"), and software tools to enable the application of algorithms to virtual slides.

The digital image made from Aperio's technology is an image of the entire glass slide that can be efficiently viewed, panned, and zoomed on a computer monitor. A virtual slide allows the tissue image to be sent electronically so that remote diagnosis by an expert can be made immediately.

Challenge: Move large, digital microscope image files around the network

Scanning, manipulating, retrieving and viewing the high-resolution, multi-gigabyte digitized microscope slides places great demand on the network. Once a slide has been loaded into the ScanScope, it automatically finds the areas of the slide containing tissue and automatically determines the tissue contour information necessary to maintain accurate focus during scanning. The ScanScope generates TIFF data that is immediately viewable after scanning using Aperio's ImageScope viewer. TIFF data is not compressed. The Aperio Image Compressor provides a means of compressing the TIFF data into a single JPEG2000 file at a user-selectable quality (compression ratio). The images are scanned at 54,000-108,000 pixels per inch in a 15 mm x 15 mm area. The virtual slides can range from 200MB to 40,000MB (40GB) when uncompressed and 140-560MB when compressed.

The slides are saved on a dual Intel® Xeon™ processor-based image server running Microsoft* Windows* 2000 server and 1 to 2 terabytes of online storage. The slides can then be accessed and viewed using desktop PCs. Aperio also provides services that enable specialists and researchers to view the slides via the web. In order for pathologists and researchers to have access to their images, the network must be available 24x7.

Adding to the challenge was copper wiring. Although Aperio was a new company, the building they moved into was already wired with copper Category-5 copper. Rewiring with fiber cabling would have been too costly for a start-up company. Therefore, the solution had to be compatible with the existing cables.

Process: Closely examine and select the best performing adapters

To find a solution that would fulfill Aperio's requirements, the company turned to Intel® Premier Provider and reseller Abra Collabra*, a leading provider of collaborative computing and communications solutions. Abra Collabra, based in Carlsbad, California, knew exactly what Aperio needed: a complete Gigabit over Copper network – from server to desktop.

"We compared the price and performance specs with all the products available. The solution chosen features Netgear* Gigabit switches and the Intel® PRO/1000 Desktop and Server Adapters to meet the customer's needs," said Marty Addison, Abra Collabra president.

Solution: Complete end-to-end Gigabit Ethernet solution

The solution called for Intel® PRO/1000 Adapter Cards to be installed on Aperio's servers and all of the desktop workstations, and multiple Gigabit switches were installed as the network backbone. In order to use the existing Category-5 copper cabling, Abra Collabra selected Intel® PRO/1000 XT Server Adapters and Intel® PRO/1000 T Desktop Adapters.

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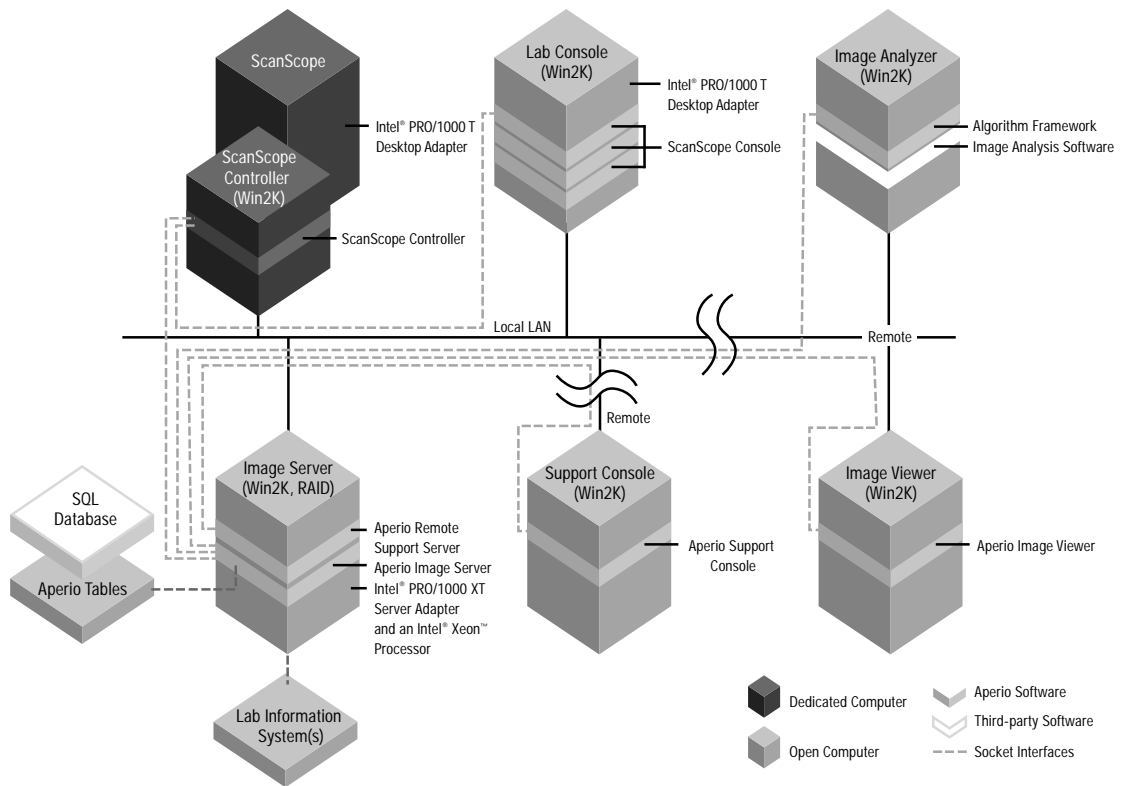
Marty Addison

President
Abra Collabra



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Ole Eichhorn
Chief Technology Officer
Aperio



ScanScope System Components



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"Abra Collabra always recommends Intel PRO Gigabit Adapters because they offer the best performance, price, warranty, support and reputation," said Addison.

The Intel PRO/1000 Adapter solution provides high reliability and performance. It prevents network bottlenecks when sending large files through the network. The Intel PRO/1000 XT Server Adapters are PCI-X compatible with advanced offloading to provide high server throughput and low CPU utilization. Automatic failover, PCI HotPlug*, Active PCI*, and Adapter Fault Tolerance allows Aperio to replace a failed adapter without taking the server down during operating hours, and provides redundant protection should a link fail. In addition, the solution saved Aperio money by eliminating the cost of rewiring the network.

Future: Use Intel architecture-based solutions where possible

Because this was a new network, there are no benchmarks for comparison. However, Aperio's network solution meets its current requirements for performance and reliability. The company predicts that it'll have additional demands on the network as they add more staff and as its customer base for its web-based ASP service continues to grow. "We've been very pleased with the Intel solution, and will continue to use Intel architecture-based solutions for network expansion where possible," said Ole Eichhorn, chief technology officer for Aperio.

Aperio also recommends the same Gigabit Ethernet solution to customers who purchase its turnkey systems that include one or more ScanScope scanners, a network file server, and processing machines – all Intel architecture based.

For more information, please visit the Intel web site at:

www.intel.com/network/connectivity/index.htm

For more information about Aperio call 760.539.1100 or visit: www.aperio.com

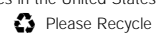
For more information about Abra Collabra call 760.433.3000 or visit: www.abracollabra.com



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