



**COMPANY:**

A leading supplier to the automotive industry, manufacturing a variety of engineered products

**INDUSTRY:**

Manufacturing

**PLATFORM:**

Microsoft® Windows®, AIX®, Linux, Novell® Netware®

**APPLICATIONS:**

VMware GSX Server™; Sanbolic Melio FS; IBM® Tivoli® Storage Manager for backup; Novell® NetWare® eDirectory; Baan ERP; Hyperion®; Microsoft SQL Server-based quality, quoting, payroll, and timekeeping applications; Windows file and print, IP network services, and service location protocols

**CHALLENGES:**

Implement better data protection and disaster recovery for multiple locations; manage storage growth and check tape proliferation; reduce server replacement costs

**SOLUTION:**

Virtualized infrastructure with iSCSI virtualized SAN

**LEARN MORE ABOUT SHILOH INDUSTRIES, INC.**

Visit [www.shiloh.com](http://www.shiloh.com)

**SHILOH CREATES FLEXIBLE VIRTUAL INFRASTRUCTURE WITH EQUALLOGIC® AND VMWARE®**

Shiloh Industries, Inc. is a full service manufacturer of engineered steel products based in Ohio. Its customers include most of the major automobile and heavy trucking companies as well as tier-one automotive suppliers. In addition to manufacturing finished parts and assemblies for customers, Shiloh does toll processing, a consignment manufacturing operation that includes both steel work and EDI information processing. Shiloh's facilities include ten plants in the United States and one in Mexico. Fiscal 2005 revenue was \$640 million.

**HETEROGENEOUS, MULTI-LOCATION IT HEADACHES**

Shiloh's primary data center is in Mansfield, Ohio but IT operations have classically been distributed throughout their multiple plants. Before implementing an iSCSI SAN, Shiloh's IT infrastructure depended on direct-attached storage (DAS). Each server, many at remote sites, had its own storage and its own tape drive for individual backups. Shiloh's key network applications include file and print; directory and authentication services; and IP network services, including DHCP, DNS and SLP delivered via Novell NetWare eDirectory. Quality, quoting, payroll, and timekeeping applications are based on Microsoft SQL Server; back-end applications include Hyperion financials, Baan ERP on IBM RS/6000® running AIX, and IBM Tivoli Storage Manager for backup. In addition, client access to the centralized Microsoft-based applications is accomplished through Windows Terminal Services.

With 30 servers running various operating systems and applications, the only way to protect data was to do daily full backups on each server. Recalls Network Services Administrator Steve Meckling, "We ran around here every day chasing tapes as did the IT staff at all the remote locations." However, like many organizations, Shiloh found this backup method to be inadequate. Backup tasks – particularly in branch locations – were unreliable, leaving data vulnerable. For example, when a power glitch took out a server's direct-attached storage two years ago, all the e-mail stores were lost.

Preventing that kind of occurrence was one of Meckling's primary objectives in upgrading the IT infrastructure. It had also become clear that the problems of DAS were likely to balloon in the future, so Meckling needed to control storage growth, eliminate tape proliferation, and consolidate applications to fewer servers to avoid one-to-one replace-

*"The central piece of our infrastructure is the EqualLogic SAN with its advanced storage management and data protection features. Everything revolves around it."*

*– Shiloh's Network Services Administrator,  
Steve Meckling*

ment of the many aging servers. In addition, Shiloh had to comply with Sarbanes-Oxley data protection and retention requirements as directed by the board.

#### **NEW TECHNOLOGIES OFFER ENHANCED SOLUTIONS**

Shiloh's IT staff stay ahead of the curve, paying attention to emerging trends; therefore, they realized early on that iSCSI connectivity and server virtualization could work together to solve their problems. VMware was selected for its server virtualization technology from the start. Meckling considers VMware's virtual server solutions to be more stable and robust than other products, and they support NetWare and Linux operations as well as Windows.

Before discovering EqualLogic, Shiloh had evaluated FalconStor® iSCSI storage, but ultimately rejected it because of the high cost of software modules for the advanced features Shiloh wanted to implement. Says Meckling, "We fell in love with EqualLogic's product very quickly because all the functionality was built into the array. With FalconStor, every time we wanted to add a feature it cost another \$10,000 or \$20,000 in software license fees. But what really put us over the top for EqualLogic was the commitment that we'd have access to any new software feature added to the code as part of our standard support agreement, again without expensive license fees."

#### **TODAY'S INFRASTRUCTURE: STRONG BUT FLEXIBLE**

Today, Shiloh has standardized on EqualLogic for enterprise storage with two EqualLogic PS200Es at the primary data center, a PS100E in the Michigan plant, and one PS300E at the disaster recovery site in Brunswick, Ohio. With VMware, they run their applications on 30 virtual servers hosted on five physical servers each having high performance access to the EqualLogic iSCSI SAN. As the need arises, they can quickly deploy additional virtual servers within this virtualized infrastructure. A clustered file system from Sanbolic, Inc. spans across the physical servers enabling rapid migration of virtual servers from one physical host to another.

An important element of the infrastructure is the tape backup infrastructure, particularly for all the remote sites. The nightly full backups at each remote location are no longer required; instead file system changes in the local Netware server at each site are mirrored back to one of three central locations onto EqualLogic storage where tape backup procedures are centrally managed.

Within the central data centers, data protection strategies have also evolved to take advantage of the core data protection features of the EqualLogic iSCSI SAN. Online snapshots of each virtual server's system and application data are taken each day and maintained online for immediate data recovery as well as being the data source for nightly tape backups. EqualLogic auto-replication is deployed to mirror each virtual server's data between the production data center and the Shiloh disaster recovery site located 60 miles away.

Shiloh's multi-operating system, multi-application, virtualized environment operates efficiently with the EqualLogic arrays, with excellent performance. "The central piece of our infrastructure is the EqualLogic SAN with its advanced storage management and data protection features. Everything revolves around it. Something has to be in the center, and this is the piece that we chose. We're very happy with that decision."

#### **SIMPLIFYING NETWORKED STORAGE**

EqualLogic PS Series solutions deliver the benefits of storage consolidation in an intelligent, enterprise-class storage system that is easy to install, manage and grow. Let us show you what simplifying networked storage can mean for your business, visit our web site at [www.equallogic.com](http://www.equallogic.com).

Compliments of:  **EQUALLOGIC**  
SIMPLIFYING NETWORKED STORAGE™



**3835R East Thousand Oaks BLVD. #315**  
**Westlake Village, CA 91365**  
**Tel 877.230.2837 / Fax 805.435.2500 / [www.ess-direct.com](http://www.ess-direct.com)**