

IT Outsourcing Leader Looks to Emulex to Help Drive Efficiency Across Global Data Center Footprint

About ACS

ACS, a global FORTUNE 500 company with 62,000 people supporting client operations reaching more than 100 countries, provides business process outsourcing and information technology solutions to world-class commercial and government clients. The company's Class A common stock trades on the New York Stock Exchange under the symbol "ACS". Learn more about ACS at www.acs-inc.com.

Affiliated Computer Services Chooses Emulex LightPulse[®] Fibre Channel HBAs as Preferred Connectivity Solution

The drive by corporations and government organizations worldwide to focus on core competencies has created a new class of Fortune 500 enterprises that provide specialized services. One of these companies is Affiliated Computer Services, Inc. (NYSE: ACS), a nearly \$6 billion provider of business process optimization (BPO) and information technology (IT) outsourcing services that has earned top rankings in multiple industry and vertical market evaluations for its innovation and management skills. For Affiliated Computer Services, Inc. (ACS), tightly managed, flexible and true 24/7/365 data center operations provide the basis for its core service offerings.

With more than \$1 billion in revenues derived from its IT outsourcing business, ACS carefully considers each component of its data center architecture. As it accelerates its global evolution to virtualized environments and bladed servers, the company has made Emulex connectivity solutions one of the preferred products for Fibre Channel storage area network (SAN) connectivity.

"The largest challenges we face are in efficient management to achieve the best possible control of the cost to deliver services," said Roy Singh, senior manager of storage management and architecture for the IT outsourcing business of ACS. "So, we look to standardize as much as possible and create a common infrastructure in our data centers. As the key connectivity solution between servers and storage, Emulex adapters and management tools have contributed a 5-10 percent gain in productivity for ACS."

ACS's service delivery is based primarily on consolidating each client's operations into an ACS data center or into a client selected data center and then managing distributed computing environments for hundreds of customer organizations in North America and Europe. Systems monitoring and operations are transferred around the globe daily on a follow-the-sun model to assure continuous customer support. This operating model, and the economic imperative to manage costs as the total workload scales, makes standardization of components a priority.

"In terms of physical assets, we are moving to bladed server and virtualized environments to most efficiently use data center real estate, increase deployment speed and control energy costs in our data centers," said Singh. "Component standardization also helps us in productivity, as our operations and support staff can become very efficient working on common platforms and with tools that are deployed throughout the company."

Storage and Connectivity Infrastructure

Singh estimates that, overall, the company is responsible for managing more than 5 Petabytes (PB) of client data. And while the nature of the outsourcing business dictates a heterogeneous environment, since some client environments are inherited and legacy systems may be in place, ACS is driving to common storage architecture in its own data centers. This is based on Brocade director-class switches, EMC storage arrays and Emulex LightPulse Host Bus Adapters (HBAs) for server-to-storage connectivity.

Emulex Fibre Channel HBAs are preferred at ACS for several reasons, including proven interoperability across multiple platforms, strong management tools and integrated support for VMware.

"We are advocates to our clients and will recommend what we believe is the best solution for their requirements, and the best products to get them there," said Singh. "At the end of the day, we work with what is appropriate for a specific client. In areas such as the HBA, we can implement an Emulex solution that lets us leverage our familiarity with the hardware and management tools, as well as Emulex's Virtual HBA technology."

ACS makes extensive use of VMware, and is particularly interested in Emulex's integration with VMware ESX server and its ability to support multiple VMware images from a single management console. Singh and his staff are also beginning to leverage N-Port ID Virtualization (NPIV) to manage storage on virtual machines using the same tools that manage physically attached storage. Emulex was the first HBA provider to deliver NPIV support on its standard product, beginning with its 4Gb/s LightPulse HBA product family.

Performance Priority

Based on the imperative to deliver data to clients as rapidly as possible, ACS moved quickly to 4Gb/s data rates across its SAN infrastructure in the last two years. Singh expects that 4Gb/s will remain in place for some time, with 8Gb/s connections beginning at Inter-Switch Links (ISLs) as this next generation technology becomes available. Another factor he is watching that may drive the move to higher data rates between servers and storage is the incorporation of very high-speed solid state disk (SSD) storage in arrays, which would then benefit from a faster pipe into the array.

"The ability to get data to the client with minimal latency is critical to our service delivery," said Singh. "The portfolio of data types we have in storage is heavily weighted to databases, which makes high-speed I/O a priority."

With an emphasis on low latency and overall performance, Singh sees Fibre Channel-attached SANs as the primary data center connectivity architecture for the foreseeable future. Some application requirements, such as a single client's remote manufacturing or research site with only a few terabytes of managed data, may be suited for alternative architectures. But in its main data centers, Fibre Channel is clearly there for the long term.

Driven to Efficiency

The growth in total volume of data is one factor driving ACS's focus on constant improvement in operating efficiency. With data retention requirements and the inexorable expansion of new data across all of its clients, the company is seeing storage needs grow by 30-40 percent on average, and in many cases leaping beyond 50 percent or more annually.

"We have to manage this growth while delivering on client expectations that the overall efficiency of their IT operation will improve roughly 10 percent annually," said Singh. "This means we have to improve our cost structure constantly, and the biggest element in cost will always be in the skilled personnel handling operations."

Adding capacity, and distributing that data across multiple channels to assure access, is part of a best practices approach to managing this growth. Even as more virtual servers are added, this translates to a growing number of host ports and more connections that have to be managed.

Looking to Data Mobility

In 2008, Singh expects ACS will begin to leverage its experience in virtualized environments to improve flexibility and data mobility. The data center architecture will support the ability to quickly reconfigure servers and move data as appropriate. NPIV, which greatly enhances virtual machine portability for load balancing and incident recovery, will play a big part in this stage.

Singh notes that support for NPIV and the commitment to providing a comprehensive and efficient management interface puts Emulex HBAs at the center of its plans to continuously improve the efficiency of ACS data centers. Concurrently, the performance and reliability of the adapters remains a key factor in the decision to standardize on the devices in its storage infrastructure.

"With Emulex, the bottom line comes in two parts," he says. "The management tools give our people the ability to monitor and even control server-storage connectivity remotely. Second is that HBAs should not cause any problems on the network, the quality and reliability is there in the hardware and software."



ACS, a global FORTUNE 500 company with 62,000 people supporting client operations reaching more than 100 countries, provides business process outsourcing and information technology solutions to world-class commercial and government clients. The company's Class A common stock trades on the New York Stock Exchange under the symbol "ACS". Learn more about ACS at www.acs-inc.com.

This document refers to various companies and products by their trade names. In most, if not all cases, their respective companies claim these designations as trademarks or registered trademarks. This information is provided for reference only. Although this information is believed to be accurate and reliable at the time of publication, Emulex assumes no responsibility for errors or omissions. Emulex reserves the right to make changes or corrections without notice. This report is the property of Emulex and may not be duplicated without permission from the Company.

09-154 · 8/08



www.emulex.com

World Headquarters 3333 Susan Street, Costa Mesa, CA 92626 +1 714 662 5600

Wokingham, UK +44 (0) 118 977 2929 | **Munich, Germany** +49 (0) 89 97007 177
Paris, France +33 (0) 158 580 022 | **Beijing, China** +86 10 68499547