

## Engineering Firm Gains Business Continuity with WAN Optimization

ENGlobal Centralizes Data Centers, Speeds Applications, and Reduces Risk and Costs with Cisco WAAS and ISRs

### EXECUTIVE SUMMARY

#### ENGLOBAL CORPORATION

- Industry: Engineering and Professional Services
- Location: Houston, Texas
- Number of Employees: 2200+

#### BUSINESS CHALLENGE

- Improve business continuity through application and data center centralization
- Maintain employee productivity and LAN-like application performance
- Lower capital and operating costs of applications, bandwidth, and servers

#### NETWORK SOLUTION

- Cisco 3845 ISRs, WAE 612 and 512 appliances, and WAAS software in the data center
- Cisco 2821 ISRs, WAE 512 appliances and WAAS software in larger offices
- Cisco 2821 ISRs, WAE 502 network modules and WAAS software in smaller offices
- Verizon MPLS WAN circuits

#### BUSINESS RESULTS

- Reduced disaster risk with uninterrupted employee productivity
- 50% WAN usage savings for 12 month ROI and improved network services
- Increased IT productivity and enhanced server backup and maintenance

### Business Challenge

ENGlobal Corporation (AMEX: ENG)—an engineering and professional services firm serving all segments of the petroleum, gas, chemical, power, and petrochemical markets—has grown substantially over the last five years through customer success and strategic acquisitions.

Named the “Fastest Growing Architecture, Engineering, and Environmental Consulting” firm in 2004 and 2005 by ZweigWhite, ENGlobal now has over 2200 employees in 18 offices and 20 customer sites across the U.S. and Canada. Further, the company’s dedication to sources of renewable energy such as ethanol is spurring additional growth and investor interest.

Its business success notwithstanding, by fall 2005 ENGlobal was supporting six decentralized data centers with aging equipment, over 100 application servers, 170 computer-aided design (CAD) and simulation applications, and more than 13,000 software license combinations, and all with an IT staff of only 11. And like many other companies in

the Gulf Coast region, the 2005 hurricane season, made infamous by Hurricanes Katrina and Rita, was a tough one for ENGlobal—data centers and systems went down, and business was severely impacted.

Thus, Abraham Madha, ENGlobal’s newly appointed CIO, was tasked to significantly improve business continuity and disaster recovery, while simultaneously reducing IT expenses. In March 2006, Madha and his team launched a major data center centralization, data integrity, and software licensing project with an aggressive goal to finish the project by September 2006.

A Verizon strategic co-location in Houston, Texas was selected as the new primary data center site, while a second backup data center was planned for Tulsa, Oklahoma. Yet, since some critical business applications require over 100 MB file transfers, a large concern was maintaining continuous LAN-like CAD, simulation, and licensing performance across the WAN to the 18 company offices. With diligent planning and execution, and the help of Verizon, Cisco®, and other vendors, the team was celebrating their success by September 15, 2006.

“By predicting the problems that we would face in setting up primary and backup data centers, we were able to search for solutions and build those into our deployment plan,” says Madha. “Our main challenge was to make sure that more than 170 engineering applications could execute just as fast after centralization. We also needed to control our WAN expenses while providing enough bandwidth for critical applications.”

**“This project has been a huge success as we have been able to maintain LAN-like performance of the CAD, simulation, and license management applications over the WAN and reduce bandwidth utilization by an average of 50 percent.”**

—Abraham Madha, Chief Information Officer, ENGlobal Corporation

### Network Solution

First, new Verizon Multiprotocol Label Switching (MPLS) circuits between the Houston data center and the 18 ENGlobal offices replaced older WAN connections between sites. Second, new Cisco Integrated Service Routers (ISRs) were installed in the 18 offices, replacing older network equipment. And third, the Cisco Wide Area Application Services (WAAS) solution was installed both in the data center and the offices to replace previous software-based optimization techniques.

As ENGlobal's IT staff was limited—some offices had no IT person on-site—they selected the Cisco ISR and WAAS solutions for the following reasons:

- Fast deployment—WAAS can be quickly deployed with existing network equipment with no impact on existing network services.
- Manageability—Cisco WAN optimization, when combined with Cisco ISRs and switching, reduces complexity associated with multi-vendor deployments.
- Performance and reliability—Cisco WAAS and ISRs deliver enterprise-grade availability and performance.
- Network transparency—Cisco WAAS and ISR deployments do not effect existing quality of service.

“When we originally defined the requirements for WAN optimization, we wanted to simplify the combination of switching, routing, and acceleration,” says Madha. “Cisco was able to give us a single-vendor solution, and also help us avoid the deployment of network caches that would have complicated our support efforts since our offices are so spread out geographically.”

To tie offices into the MPLS-based WAN, ENGlobal chose the Cisco 2800 ISR Series. Cisco 2821 ISRs with the WAE-512 appliances and WAAS software were chosen for larger offices, with the ability to add capacity as needed. For the smaller offices, Cisco 2821 ISRs with the WAE-502 network modules and WAAS software were selected.

As the ISRs were rapidly deployed, application servers, including those running document management software, were consolidated back to the data center. And combined with the Cisco WAAS solution, the application performance over the WAN connections was equivalent to the levels achieved with local servers over the LAN.

Cisco WAAS accelerates applications and data, allowing customers to consolidate application, file, and print servers from their branch offices for easier management, improved backup, and lower cost. WAAS accelerates the performance of any TCP-based application across the WAN, including data protection, database, e-mail, remote desktop, and Web-based applications, as well as accelerating file and print services. Cisco WAAS includes best-in-class application acceleration and WAN optimization techniques such as compression, redundancy elimination, transport optimizations, caching, and content distribution, thus overcoming the limitations of TCP/IP and popular application protocols.

“The Cisco WAAS solution not only satisfies our most demanding users, but it gives us a WAN acceleration solution that is reliable and easy to support,” says Jim Heuton, Network Administrator at ENGlobal. “Six-nines reliability is a must for us, and Cisco comes through with solid platforms, and also gives us a ready-to-use approach that fits even our smallest offices with remote IT support.”

Network transparency of Cisco versus other WAN optimization solutions was also a stated benefit of WAAS. “The tuneless Cisco WAAS design makes it very easy for me to manage VPNs and other network-based services so I can remain focused on projects that contribute to the company’s success,” says Jim Heuton.

### PRODUCT LIST

#### Cisco Application Networking Services:

- Cisco Wide Area Application Engine (WAE) Appliances and Modules
- Cisco Wide Area Application Services (WAAS) Software
- Cisco 2800 Integrated Service Router (ISR) Series
- Cisco 3800 Integrated Service Router (ISR) Series

### Business Results

The data center centralization project’s success positions ENGlobal’s IT organization to economically provide world-class business continuity and disaster recovery to help the company keep up with its fast growth rate. “We have expanded from a small-scale shop into a large multi-disciplined engineering and professional services company,” says Madha. “Our new data centers, WAN network, and acceleration

solution give us confidence to withstand natural disasters, increase control of our systems, and reduced operating expenses,” says Madha.

“This project has been a huge success as we have been able to maintain LAN-like performance of the CAD, simulation, and license management applications over the WAN and reduce bandwidth utilization by an average of 50 percent,” says Madha. “This translates to savings in bandwidth costs, and the acceleration helps ensure high levels of productivity throughout our company.”

ENGlobal now estimates that their application availability is above 99 percent, a significant improvement from 2005 when weather cut application access to many of the company's employees. Further, the use of the Cisco WAAS solution as part of the centralization project has resulted in US\$7,500 in bandwidth costs avoidance each month for ENGlobal, which translates to a 12-month return on investment (ROI) for the WAAS solution.

Additionally, the centralization of 25 application servers that were previously located in the 18 ENGlobal offices has resulted in increased productivity of the remote IT staff as their time can be reallocated from server maintenance to other IT projects. Further, the centralized servers now enjoy more cost-effective data center operations, such as standardized backup and routine maintenance.

As an additional benefit, the new Cisco ISR and WAAS solution, and the associated 50 percent bandwidth savings, give ENGlobal room to add additional network services in the future over the same MPLS circuits. One such future plan is to expand the deployment of the Cisco CallManager voice over IP solution, already installed at ENGlobal's Houston headquarters.

The Cisco WAAS solution has also delivered other benefits to ENGlobal including:

- Acceleration of back-office business applications over WAN, including Microsoft Dynamics-Solomon, for increased application ROI and improved employee productivity.
- Acceleration of file and print solutions over the WAN.
- Ability to migrate to new applications and business processes without introducing WAN performance barriers.
- Ability to easily assimilate acquisitions through rapid deployment of office networking and acceleration solutions readily accepted by new employees.

"We are very pleased with the Cisco solution and the associated business benefits that it provides," says Madha.

### **For More Information**

To find out more about Cisco Application Networking Services, go to:  
<http://www.cisco.com/en/US/products/hw/contnetw/index.html>.



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