Construction Services Company Optimizes WAN Bandwidth

Tompkins Builders, Inc. implemented Wide Area Application Services in its remote offices, avoiding costly bandwidth upgrades.

EXECUTIVE SUMMARY

Tompkins Building Products

- Richardson Texas
- 2500 Employees

Challenge:

- Improve centralized application performance
- Avoid costly WAN bandwidth upgrades
- Save time for IT staff

Solution:

- Implemented Cisco Wide Area Application Services (WAAS) in branch offices and central data center

Results:

- Decreased companywide weekly outbound WAN traffic by 50 percent
- Decreased weekly outbound traffic in one office from 8.4 GB to 233 MB
- Increased Oracle database response time by 50 percent

Challenge

Based in Washington, D.C., Tompkins Builders, Inc. offers a full range of construction-related services for private- and public-sector customers. The firm specializes in base-building construction, renovations, restorations, additions, and tenant fit-out projects. One of the largest general contractors in the mid-Atlantic region of the U.S., Tomkins Builders has received over 200 construction awards. The firm's projects have included the Washington D.C. World War II Memorial, National Museum of Natural History renovations, and the American Red Cross Headquarters.

Since its founding in 1911, Tompkins Builders has expanded to 60 offices, most in the U.S. and a few in Mexico, most with 50 to 100 employees. To reduce branch IT infrastructure costs, Tompkins has consolidated its local servers into a centralized data center. Branch office employees connect to the data center over a T1 connection. "Performance had become slow for tasks ranging from opening a spreadsheet and file transfers to simple web browsing," says George Murphy, enterprise network management, Tompkins Builders. "When we implemented Oracle as a replacement for AS/400 we definitely needed more bandwidth, because slow response times were affecting productivity."

Adding a second T1 circuit for each office would cost between US$850 monthly for each office, and more than $3000 monthly in Mexico. "A WAN optimization solution would be far more cost-effective," says Murphy.

Solution

After evaluating WAN optimization solutions, Tompkins Builders selected Cisco Wide Area Application Services (WAAS). "Cisco WAAS eliminates the risk of having a single point of failure, because it uses WCCP [Web Cache Communications Protocol]," says Murphy. If a WAN circuit becomes unavailable, employees can continue accessing centralized applications over Tompkins' backup VPN, avoiding interruption to the business. Similarly, if someone inadvertently unplugs the Cisco WAE appliance, application traffic continues flowing over the primary WAN connection, just without acceleration. "Another reason we chose Cisco WAAS is that we have had a very positive experience with Cisco support, and we are confident that Cisco will have the longevity to support us in the long-term," Murphy says.

Tompkins Builders has so far deployed Cisco Wide Area Engine (WAE) 574 and 674 appliances in 12 offices as well as the centralized data center. Cisco WAAS accelerates all Transmission Control Protocol (TCP) traffic, including Oracle Access Manager for AS/400, a computer-aided design (CAD) program, Microsoft Exchange email, and web browsing. The Cisco WAE in each office is configured to cache web traffic. After an employee in a particular branch accesses a web page, requests for the same web page do not have to travel over the WAN, accelerating response while also decreasing WAN traffic.

> “In the week after we deployed Cisco WAAS, companywide outbound WAN traffic decreased more than 50 percent, from 19.68 GB to 9.46 GB.”
> **—George Murphy, Enterprise Network Manager, Tompkins Builders**

Results

WAN Optimization

Cisco WAAS optimizes the firm’s existing WAN bandwidth using compression and acceleration techniques. “In the week after we deployed Cisco WAAS, companywide outbound WAN traffic decreased more than 50 percent, from 19.68 GB to 9.46 GB,” Murphy says. The change was even more dramatic in the Mexicali office, where outbound traffic decreased from 8.4GB the week before Cisco WAAS was implemented to just 233MB the week after.

Compression techniques in Cisco WAAS decreased the average file transfer size for all application types from 291.64 Kbps to 171.48 Kbps. For email, FTP, and Oracle traffic, the average file transfer size shrank from 120.62 Kbps to less than 1 Kbps.

Using a third-party NetFlow Analyzer, the IT team measured WAN optimization for individual applications:

- 60 percent optimization for Oracle traffic
- 60 percent optimization for web traffic
- 50 percent optimization for Microsoft Exchange

Rapid Return on Investment

Implementing Cisco WAAS in the firm’s Mexicali office avoided the US$3000 monthly cost of a second T1 line. The investment in Cisco WAAS paid for itself in less than three months in the Mexicali office, and in less than nine months in the other offices.

Accelerated Application Performance

Since Tompkins Builders deployed Cisco WAAS, response time for Oracle Access Manager for AS/400 has improved by 50 percent. Employees who query the database receive a response in just two minutes, down from up to five minutes before Cisco WAAS.

The improvement in response time is even better for simple file transfers: “In our tests, Cisco WAAS accelerated transfer of a 100MB file over a 10MB circuit from 20 minutes to 2 minutes,” says Murphy.

Ease of Support

Cisco WAE Appliances are easy to deploy, which eliminated the time and expense of sending IT staff members to branch offices. Instead, the IT team spent 10 minutes to configure an appliance and then shipped it to the office. Then a branch-office employee followed a simple instruction sheet that the IT team developed to connect the appliance to a power source and switch port, turn it on, and notify the IT staff that the appliance is ready. Then the IT staff completes the configuration remotely.

Convenient Reporting for Capacity Planning

The firm’s IT team takes advantage of the built-in reporting in Cisco WAAS to monitor performance, plan capacity, and share results with the company’s executive team. “While Cisco NetFlow provides statistics on application traffic, Cisco WAAS Central Manager provides information specific to Cisco WAAS so that we can see the volume and type of application data that is cached and optimized,” Murphy says. “This helps us plan when we’ll need more WAN capacity.”

Reduced Operational Overhead

Previously, when offices experienced slow WAN performance, IT personnel had to interrupt their projects to discover the cause. As an example, when the Mexicali office opened a trouble ticket for intermittent episodes of slow Oracle application performance, the IT team spent many hours troubleshooting, finally discovering that a local employee was downloading very large files over the Internet. “Since implementing Cisco WAAS, we’re no longer receiving calls about slow application performance,” Murphy says. “By optimizing WAN bandwidth, Cisco WAAS has saved us from increasing IT staff, and also allowed existing staff to devote their time to strategic projects instead of production issues.”

PRODUCT LIST

- Cisco Wide Area Engine (WAE) Appliance 574 and 674 at branch offices
- Cisco WAE Appliance 612 at main data center

Next Steps

Tompkins Builders plans to implement Cisco WAAS in 15 more sites, including offices from a newly acquired company. Tompkins also plans to implement Windows on WAAS in the future.

For more information about Cisco Data Center 3.0 solutions, visit: http://www.cisco.com/go/dc

For more information about Cisco WAAS, visit: http://www.cisco.com/go/waas

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