Manufacturer Optimizes Data Center Network for SAP Portal

Automation expert integrates Cisco solutions for higher application availability, performance, and security and lower total cost of ownership.

EXECUTIVE SUMMARY

COMPANY

- Manufacturing
- 10,000 employees
- Central Europe

BUSINESS CHALLENGE

- Help ensure high availability for mission-critical ERP applications
- Maximize application performance for employees who rely on remote access to SAP
- Optimize the resource utilization of data center servers and network

NETWORK SOLUTION

Cisco Applications Networking Solutions for SAP including:

- Cisco Content Service Modules (CSM) integrated with Catalyst 6500 Switches
- Cisco 11500 Series CSS solutions in redundant pairs at both corporate data center

BUSINESS RESULTS

- Successful deployment of global Web-centric SAP ERP platform
- Versatile data center architecture, with ability to easily expand servers as needed
- Highly available SAP applications and anytime access over the Web

Business Challenge

Globalization and business growth increase demands on a company's employees and information technology (IT) resources. For one large European manufacturer of factory automation and process technology, globalization and growth required managing tens of thousands of products across 100 locations with a heavy reliance on enterprise resource planning (ERP) applications.

In this environment, IT was the enabler of the business, keeping the SAP ERP applications running over a Cisco® network. The SAP applications include finance, sales, marketing, manufacturing, and supply chain management modules and incorporate the SAP Enterprise Portal. The Cisco network includes a single global IP platform with wireless LAN access, allowing the company's mobile technical and project consultants to connect to the corporate LAN via public access points located in airports, train stations, shops, and other public areas.

Increasingly, availability or performance problems for the 8000 global users of the SAP ERP applications that serve as the mission-critical foundation for the business, could severely affect product production, shipments, and therefore revenue. As a result, the manufacturer embarked upon a major upgrade of its SAP applications to increase application availability and performance.

This upgrade, while necessary, brought its own risks. The company's data center already included approximately 40 servers running SAP applications-half older servers and the rest new enterprise portal servers. Accessing these servers were anywhere from 2500 to 6000 concurrent users from all over the world; all critical and requiring protection from lost connections.

Network Solution

Past experience with SAP deployments gave the company's IT organization an understanding of the challenges involved to optimize application and content delivery within a portal environment. Based on its excellent history with Cisco, and the success of the prior Cisco Local Director deployment, the manufacturer chose a Cisco Application Networking Services solution for SAP.

Today, application servers and application acceleration solutions are deployed across the two data centers, including a pair of Cisco Content Switching Modules (CSMs) for Catalyst® 6500 Switches. The Cisco CSMs are deployed in active-passive redundant mode that provides a complete application delivery and acceleration solution for the company's large-scale SAP deployment.

Specifically, the CSMs provide application:

- Availability, with the highest levels of device redundancy and enough performance for establishing up to 165,000 connections per second
- Scalability, with the ability to handle up to 1 million concurrent connections
- Ease of configuration, using the same command-line interface (CLI) as that used for the Cisco Catalyst 6500 Switches
- Transparent integration with existing infrastructure, as a module that can be added to an existing Cisco Catalyst 6500 Switch

"Cisco Application Networking Services solutions optimize SAP applications by providing higher application availability, performance, and security. These solutions lower the total cost of ownership...to help ensure the best return on investment from large Web-based enterprise business application deployments."

—Doug Silverstein, Alliance Manager, Cisco Systems

To help ensure high availability and performance of their mission-critical SAP applications, the company took advantage of the Cisco CSM session persistence, or "stickiness," capability. With this feature, the Cisco CSM can uniquely identify the client requests using the following features:

- **Source IP address stickiness**—The Cisco CSM can be configured to learn the entire source IP address or just a portion of it.
- **Secure Socket Layer (SSL) identification stickiness**—When SAP clients and servers are communicating over SSL, they maintain a unique SSL identification number across multiple connections carried in clear text.
- **Dynamic cookie learning**—The CSM can be configured to look for a specific cookie name and automatically learn its value either from the client request HTTP header or from the server "set cookie" message. Dynamic cookie learning is useful when dealing with applications that store more than just the session or user ID within the same cookie because only very specific bytes of the cookie value are relevant to stickiness.
- **Cookie insert**—The CSM inserts the cookie on behalf of the server, so that cookie stickiness can be performed even when the servers are not configured to set cookies. The cookie contains information that the CSM uses to help ensure persistence to a specific real server.
- **HTTP header stickiness**—The CSM performs stickiness based on the contents of HTTP header information such as the mobile station ISDN number (MSISDN), service key, and session ID.

Outside of their primary secured data centers, the manufacturing company also has additional servers at remote sites. Here, Cisco 11500 Content Service Switches (CSS) were deployed in active-standby pairs to replace Cisco Local Directors. One pair is dedicated to content delivery for Web services, and one or two other pairs accelerate content delivery for other business applications. The Cisco CSS was chosen for these sites because the Cisco Catalyst 6000 Series switches had not been previously deployed in these locations.

Business Results

With the implementation of the new Cisco Application Networking Services solution, the manufacturer gained both higher application availability and increased performance. In fact, the company notes that application performance has remained excellent even with the dramatic increase in the number of Web-based services in the SAP application modules, and the access of such applications over the Internet.

The manufacturer also gained a more scalable and flexible application infrastructure. With the Cisco CSM solution serving as the application traffic manager for the enterprise application servers, the data center servers can be easily changed or extended without affecting operations. The addition of more servers does not increase the complexity of the deployment.

In addition to these benefits, the company now enjoys increased application capacity. The Cisco CSM easily handles the increasing number of data center services and Web-centric SAP services without adding any burden to the servers. Finally, the company also gained increased control for application delivery and acceleration of the new SAP applications. The Cisco CSM can manage the scaling of application delivery across all ports in the data center, where the data center management team can control the domain on a port-by-port basis. This makes the Cisco CSM part of a simple, easy-to-manage solution.

Since the manufacturer's IT staff was already familiar with the Cisco Catalyst 6500 Series Switches, the introduction of the Cisco CSM was an easy transition. No additional training was required, and the IT team was able to take advantage of the familiar design, configuration, and commands to save time and money for new application deployments.

"Cisco Application Networking Services solutions optimize SAP applications by providing higher application availability, performance, and security," says Doug Silverstein, alliance manager for Cisco Systems. "These solutions lower the total cost of ownership of the SAP application. Specifically, the Cisco Content Switching Module and the Catalyst 6500 Series Switches efficiently optimize Web-related SAP traffic to help ensure the best return on investment from large Web-based enterprise business application deployments."

PRODUCT LIST

Cisco for Applications/SAP: High Availability, Scalability, SSL Offloading, and Compression

- Cisco CSM for Catalyst 6500 Series Switches
- Cisco 11500 Series CSS

For more information

To find out more about the Cisco Data Center Solutions including Cisco for Applications solutions, go to: http://www.cisco.com/go/applicationservices

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Printed in USA

C36-379417-00 11/06