

## FUEL FOR AGILITY

### EXECUTIVE SUMMARY

Woodside Petroleum Ltd., Perth, Australia

Industry: Energy

#### Business challenges:

- Outgrew present facilities, needed new network for new facility
- Simplify operations by reducing number of technology vendors
- Reduce overall cost of ownership

#### Network solution:

- LAN and data center based on Cisco Catalyst® 6500 Series Switch
- Integrated modules for Cisco Catalyst 6500 Series add security and VPN
- Disaster recovery storage network uses Cisco MDS 9500 Series Storage Networking switches

#### Business value

- *Protect*—Integrated modules for Cisco Catalyst 6500 add security and VPN capabilities for secure remote user access into data center applications
- *Optimize*—Enabled quick response to changing business conditions with flexible network infrastructure; increased business resilience; simpler operations with a single switch product from an end-to-end vendor; reduced total cost of ownership
- *Grow*—10-Gigabit Ethernet network core; reduced total cost of ownership through single platform and single vendor instead of seven point-product vendors

Woodside Petroleum moved its headquarters to a new building with a Business Ready campus and data center network based on Cisco Catalyst 6500 Series switches, gaining both converged networking and a consolidated, intelligent data center infrastructure.

### BACKGROUND

Located in Western Australia, Woodside Petroleum Ltd. is a leading natural resources company with a growing international reputation as a successful oil and gas explorer, developer and producer. Woodside is a major player not only within Australia but on the world energy stage. In the early 1970s, success came with the discoveries of the North Rankin, Goodwyn and Angel gas fields, approximately 130 kilometers off the coast of Dampier in Western Australia's harsh Pilbara region. These fields were eventually to form the basis of Australia's biggest energy resource development: the North West Shelf Venture. Liquid natural gas from the North West Shelf is shipped throughout Western Australia and to countries worldwide.

The Woodside data center is housed in its Perth headquarters. The data center has 150 servers; approximately 60 percent of them run some version of Windows, and the other 40 percent are based on UNIX. Its most critical application is a proprietary geophysical application for managing Woodside exploration, mining, and production. This application hosts many of the three-dimensional images created from drilling test wells. The data center also hosts other applications such as SAP, e-mail, and human resources.

Until recently, the data center, like the rest of the Woodside network, had several vendor point products. WAN connections used Cisco routers, and the LAN was based primarily on Cabletron switch solutions, with security products from Checkpoint, telephony from Ericsson, virtual private networking (VPN) from Aventail, wireless networking from Oronoco, and storage solutions from Brocade Storage Products.

### CHALLENGES

Woodside housed employees in six buildings throughout the Perth central business district, presenting a challenge for facilitating communications and efficiently conducting business. To consolidate its employees, improve business productivity, and reduce operating expenses, in 2001 Woodside began design and construction of a new headquarters building in town. As part of the transition from six locations to one, it decided to build an all-new network in its new building. It wanted its investment to result in lower cost of ownership and greater reliability through more efficient, streamlined operations and management.

“The value of this project cannot be overemphasized. Company growth and the diverse range of projects and locations require us to house vast volumes of critical data in the data center,” says Ralph Alexander, manager of Information Technology, Woodside Petroleum.

Although redesigning the network included the data center, Woodside primarily focused on shifting toward network convergence, especially IP telephony. It needs 2000 IP phones in its new headquarters, and wanted to move its video capabilities from room-based videoconferencing to desktop videoconferencing.

The initial requirement for the new data center network was a Business Ready infrastructure that would preserve its existing application environments, facilitating a trouble-free transition from one building to another. Woodside also wanted to optimize application availability and network performance through a larger, 10-Gigabit Ethernet core, and enhance its storage network to provide nightly backups for disaster recovery, protected with adequate security. IT wanted a flexible, scalable foundation to enable future capabilities and growth, while reducing total cost of ownership over the previous data center solution.

#### WHY CISCO?

Cisco was the only network vendor that could deliver a Business Ready System with all the components that Woodside needs. Cisco demonstrated the value of an integrated, end-to-end network design, where all layers work together to maximize its inherent flexibility and intelligence, delivering consistent, predictable, and reliable service. Woodside has realized excellent performance from its Cisco routers at the WAN edge, and trusts the reliability of Cisco products and the power of Cisco IOS® Software.

“Our experience with Cisco gear has been a good one. The equipment is extremely reliable and we expect that the new Cisco network will increase overall resilience. A significant factor in our decision was the ability to obtain ongoing support from the Cisco TAC [Technical Assistance Center],” says Alexander.

Cisco proposed a design for the LAN and data center based on Cisco Catalyst 6500 Series switches. It evaluated designs that mixed Catalyst switch models, but determined that with Woodside requirements for security and high availability, the least expensive and most flexible solution used only Cisco Catalyst 6500 Series switches. “The Catalyst 6500 offered all the advantages. There were quality of service, security, redundancy—everything we needed to run a secure, high-quality network,” says Craig Simpson, communications analyst at Woodside.

This solution gives Woodside the following capabilities:

- **Scalability**—With a modular platform that allows Woodside to add line cards as the company grows, and virtual LAN (VLAN) segmentation for per-application management
- **High availability**—With dual Cisco Catalyst 6500 Series Supervisor Engine 720s, redundant links, and software features for rapid failover

“The value of this project cannot be overemphasized. Company growth and the diverse range of projects and locations require us to house vast volumes of critical data in the data center.”

—Ralph Alexander, manager of Information Technology, Woodside Petroleum

- *Integrated services*—With specialty modules that tightly couple intelligent network services to the infrastructure, services such as content switching, security, management, and virtual private networking
- *Security*—With support for IEEE 802.1x authentication, VLAN segmentation, and high-performance, integrated security modules such as the Firewall Services Module (FWSM)
- *10-Gigabit Ethernet*—For high-performance switching through the core and to the offsite storage facility
- *High switch port density*—For server farm aggregation using flexible 10/100/1000 Ethernet line cards
- *Investment protection*—With a flexible, modular platform that can adjust to changing requirements
- *Interoperability*—With storage network switches such as Cisco MDS 9500 multilayer director switches
- *Lower cost of ownership*—Through centralized, automated CiscoWorks tools, network convergence, and other benefits

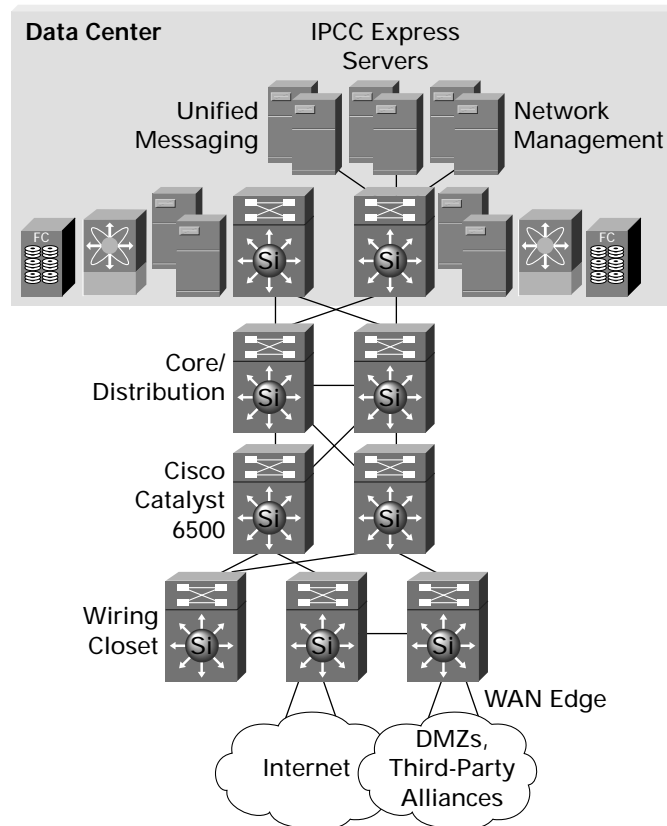
The end-to-end Cisco Catalyst 6500 Series design offers inline power for Cisco IP Phones and Cisco Aironet® Wireless LAN (WLAN) Access Points, simplified sparing to reduce expenses, and a single point of contact for customer support. The integrated, end-to-end design allows the IT team to use only one network operating system, Cisco IOS Software, instead of managing interoperability issues between seven operating systems from seven vendors as in the previous network. The convergence of data, voice, and video capabilities into a single infrastructure saves money over managing separate networks, particularly with long-distance toll charges to offshore oil rigs. It also conserves valuable rack space and power, reducing operational expenses.

## SOLUTION

The new data center network houses dual Cisco Catalyst 6513 Series switches, with dual Supervisor Engine 720 modules, dual power supplies, and a mix of 10/100/1000 and 10-Gigabit Ethernet interfaces. Each server connects to both switches for redundancy. Protecting the data center are switches with integrated FWSM, and IP Security (IPSec) VPN Services Modules (VSMs) provide secure connectivity between data center applications and offsite locations such as oil rigs.

Dual 10-Gigabit Ethernet links between the data center and the off-site disaster recovery site provide high-bandwidth storage networking. The disaster-recovery site houses one Cisco Catalyst 6513 switch with dual Supervisor Engine 720 modules, dual power supplies, and Fibre Channel interface modules. At both ends of the connection, Cisco MDS 9509 multilayer director switches manage storage clusters using virtual storage area network (VSAN) technology from Cisco. Communication between the clusters uses Fibre Channel over IP (FCIP) for simplicity and reliability. Currently, the entire data center is backed up once weekly, with nightly incremental backups.

**Figure 1**  
Woodside Petroleum Data Center Network



The entire network is managed using CiscoWorks tools, a more streamlined solution than the previous network, which required separate management of the seven vendor solutions. Woodside can use the automated configuration capabilities of CiscoWorks to distribute software image and configuration updates to its many Cisco Catalyst 6500 switches, while the advanced troubleshooting and monitoring tools enable them to quickly identify and resolve issues.

### RESULTS AND NEXT STEPS

Woodside expects its Business Ready Cisco data center network to provide greater stability and resilience and be far easier to manage than its multivendor predecessor, boosting productivity for the IT staff. “The decision to utilize the Catalyst 6500 Series product was one born largely out of risk mitigation,” says Alexander. “The simplicity of the platform, the smaller numbers of switches, lesser number of spares required, are definitely key to the decision-making process.” These factors also contribute to a lower cost of ownership. With a single-vendor solution, Woodside can also resolve issues more quickly, rather than negotiating among several vendors.

Woodside moved into its new building in early 2004. Although the IT staff is initially focused on the Cisco IP telephony rollout and videoconferencing gateways, it has already prepared a solid foundation for its data center network because the Cisco Catalyst 6500 Series platform is in place, and its offsite storage network is poised for rapid

disaster recovery. The switching foundation allows Woodside to add integrated capabilities to its data center without adding rack space. It is considering greater data center security using the Intrusion Detection System Module (IDS-M-2).

Woodside expects that its Business Ready Cisco data center network will protect its resources, optimize its ability to do business, and support both capacity and revenue growth. The network delivers greater business resilience along with flexibility for rapid technology adjustments to support the dynamic business of the energy industry.

#### FOR MORE INFORMATION

For more information please visit: <http://www.cisco.com/go/datacenter>



Corporate Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

European Headquarters  
Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
[www-europe.cisco.com](http://www-europe.cisco.com)  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

Americas Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-7660  
Fax: 408 527-0883

Asia Pacific Headquarters  
Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
[www.cisco.com](http://www.cisco.com)  
Tel: +65 6317 7777  
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the  
**Cisco Web site at [www.cisco.com/go/offices](http://www.cisco.com/go/offices)**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Cyprus  
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland  
Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland  
Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden  
Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

All contents are Copyright © 1992-2004 Cisco Systems, Inc. All rights reserved. Cisco, Cisco Systems, the Cisco Systems logo, Aironet, Catalyst, and Cisco IOS are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company.  
(0402R) JM/LW5714 03/04