



# Cisco Systems China

## Chinese Power Company Uses Network to Improve Connectivity

### EXECUTIVE SUMMARY

#### CUSTOMER NAME

Guangdong Power Grid

- Electrical Power Industry
- Guangdong, China
- 120,000 employees

#### BUSINESS CHALLENGE

- Need to support multi-service system operations while protecting investment
- Aim to improve infrastructure and management for power grid digitization

#### NETWORK SOLUTION

- Segmented GPG's converged network into different logical networks
- Enabled centralized digital management system

#### BUSINESS RESULTS

- Enabled effective communication between different departments of the company
- Reduced repetitive investment and increased network usage
- Created a foundation for future integration of the data and operation of multiple services

**Guangdong Power Grid deploys a new network to enable centralized management and improve communications.**

#### BUSINESS CHALLENGE

Guangdong Power Grid Corporation (GPG) is a subsidiary of China Southern Power Grid (CSPG), the largest provincial power grid company in China, with registered capital of 48 billion RMB and 120,000 employees. The company has 42 subsidiaries, including 21 local power supply branches and other companies for electricity dispatch, communications, design, construction, and supplies. It manages the power grid investment, operation and maintenance, electricity trade and dispatch, marketing and sales, and power supply design and construction. GPG is also responsible for managing 50 county power supply branches.

GPG's goal is to build a modernized power grid with solid structure, advanced technology, high security, and reliability. At the 2005 IEEE/PES Transmission and Distribution Conference of the Asia Pacific region, Yuan Maozhen, chairman of the board of CSPG, thought that the company should take advantage of advanced technology to improve its infrastructure and management for the digitization of its power grid. Accounting for 70 percent of CSPG's total capital, GPG was well positioned, according to Yuan, to lead the process of digitization and network construction.

With the rapid economic development of Guangdong province, GPG encountered problems in developing its information network. Previously, GPG had built a single office automation metropolitan area network (MAN) for administration. Later a financial management network was established. As more systems for human resources, marketing, and decision making have also been added to the company's goals, building an independent network for each system would not only increase the cost but also make it difficult to interconnect and communicate between the networks.

"The way of building a MAN platform has changed," says a GPG spokesperson. "An advanced MAN can avoid reconstruction efforts and reinvestment. Logical segmentation, not physical network allocations, can securely and reliably support the operation of a multiservice system, thus truly increasing network availability and management efficiency."

Therefore, GPG determined that it could enhance the efficiency of its management by installing an integrated service network, which would improve information exchange; reduce the cost of manpower, sales, and marketing; and shorten the decision-making process. After thorough evaluation and selection, GPG chose Cisco Systems® as its MAN solution provider. Cisco's in-depth understanding of China's power industry and the advantages of its solutions allowed GPG to speed up the building of its information network.

## NETWORK SOLUTION

### PRODUCT LIST

#### Routing and Switching

- Cisco Catalyst 6509 Series Switch
- Cisco Catalyst 6506 Series Switch
- Cisco Catalyst 3550 Series Switch
- Cisco Catalyst 3560 Series Switch
- Cisco Catalyst 2950 Series Switch
- Cisco Catalyst 2960 Series Switch
- Cisco 3845 Series Router
- Cisco 2811 Series Router

#### Security

Cisco Firewall Services Module

Cisco believes that the technology system and the management system are equally important for a power grid company to improve management quality. In addition, the technology platform should be built with an understanding of the company's business. Cisco's experience in digitalizing electric power grids and its understanding of the power industry were helpful in its better understanding of the overall operation of GPG and its networking needs.

To understand GPG's needs more accurately, Cisco engineers met with managers of the 21 local branches to determine the corporation's needs. Based on thorough research, Cisco provided GPG with a Multiprotocol Label Switching virtual private network (MPLS VPN) solution, which effectively segments GPG's converged network into different logical networks. The virtualization of GPG's network enables data connection and access between logical networks while securely separating different business operations.

To date, GPG has deployed more than 200 Cisco Catalyst® 6500 Series Switches with MPLS VPN to enable its centralized digital management system. The Cisco Catalyst 6500 series switches

are used at both the core level, connecting core servers, and the distribution level, connecting small towns. The Catalyst 3500 series switches are used in small villages for access-level deployment.

## BUSINESS RESULTS

GPG centralized its management of office automation, real-time financial data transmission from local branches, province-wide staff dispatch, and automated electricity billing for the province of Guangdong on a MAN. This new converged management system also enables effective communication between the company's finance, human resources, and sales and marketing departments.

GPG's multiservice MAN system undoubtedly sets an example for its peers in the China Southern Power Grid (CSPG) and the State Grid Corporation of China (SG), both of which envision building a digitized power grid.

Office automation, financial operations, human resource, sales and marketing, and decision-making systems are now integrated onto one network. Installing a new application requires GPG to simply establish a logical network allocation, which largely reduced repetitive investment, increased network usage, and created a foundation for future integration of the data and operation of multiple services.

## TECHNICAL IMPLEMENTATION

The 200 Cisco Catalyst 6500 Series switches play a critical role in GPG's MAN platform. With an installed base of more than 350,000 chassis, the Catalyst 6500 Series Switches are proven to be stable, secure, and reliable.

The Cisco Catalyst 6500 Series offers several integrated services modules, including network security, content switching, voice, and network analysis modules. All modules in the series have adopted consistent operating system software, forming a system that is adaptive to future development. GPG's adoption of the Catalyst 6500 will enable them to implement these services modules as their network evolves. The integrated approach, versus individual hardware purchases, will allow for lower total cost of ownership, infrastructure simplification, and exceptional embedded security.

In addition, the Cisco Catalyst 6500 Series with Cisco IOS Software Modularity set a new standard for network availability, with fault containment and faster downtime recovery. This enables network administrators to install new patches for urgent needs, such as fixing serious security threats, while leaving network operation unaffected.

“Electricity is a necessity in the work and life of the people,” says the GPG spokesperson. “We cannot afford a single interruption in the operation systems of the power grid. Cisco’s reliable products, advanced solutions, and successful experience in the informatization of the electric power industry not only helped us form an effective and secure MAN to integrate all application systems, but also accelerated the centralized digital management process of GPG.”

With the policy and system reform in China’s power industry, more and more electric power companies are facing severe competition. They may find GPG’s approach to building its information network useful for increasing their management efficiency and competitive advantage.

## NEXT STEP

In 2006, the first year of its eleventh five-year development plan, GPG’s office automation, financial operations, sales and marketing, production, human resources, and decision making systems have all been integrated onto one network. GPG plans to gradually add 14 new applications, including customer relations management, engineering management, inventory management, and assistant decision-making management to maximize the network advantage and improve the quality of management.

In the mean time, GPG expects to integrate data, voice, and video to run applications of administrative calls, production call dispatching, videoconferencing, and video on demand on the same IP MAN to enable more effective internal communication and further increase management efficiency.

GPG aims to build a digital power grid based on application management in the next two to three years and a network for production and management, forming a new communication approach on IP+optical with focus on its core production business.



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