

# Cisco Helps China Unicom Sichuan Deliver Converged Voice, Video, and Data

## Background

China represents perhaps the largest market for telecom services in the world. For many years, China Telecom was the only service provider in the country, but in 1994, a second service provider—China United Telecommunications (China Unicom)—was established, marking the beginning of telecom reform in China. China Unicom is now the country's only full-service provider offering fixed-line, mobile, and Internet connectivity, long-distance, and video conferencing services.

## Challenge

To successfully compete against the well-established incumbent, however, China Unicom understood that it had to differentiate itself and its services. China Telecom already had the world's largest public switched telephone network (PSTN). If China Unicom were to build a similar PSTN network, it would have to compete solely on price with its much larger rival: a daunting task. Instead, China Unicom saw IP as the key differentiator that would give the newcomer the ability to offer enhanced features and economical bundled services.

China Unicom opted to build an IP infrastructure, one that would allow the company to deliver high-speed Internet access and data services to its customers, and to use that data network to offer voice services as well. When measured in terms of volume of voice traffic, the resulting voice over IP network that China Unicom created is the largest in the world.

## Solution

China Unicom Sichuan, a division of China Unicom located in China's Sichuan Province, markets its bundled data, voice, and video services primarily to small and medium-sized (SMB) businesses that need an average of 100 phone lines.

As early as 1998, China Unicom Sichuan's General Manager Tong Xiao-Yu recognized the potential of Cisco's Multiprotocol Label Switching (MPLS) technology to support multiple services over China Unicom Sichuan's IP network. Seeing MPLS as the future direction, he began a dialogue with Cisco to determine how the service provider could make the best business use of the technology.

In 2001, after evaluating a number of vendors, China Unicom Sichuan chose to deploy the Cisco Service Provider Business Voice Solution to support its converged network, and in 2003, the service provider launched converged data, voice, and video services to customers in the Sichuan Province. "The Cisco solution was the most mature from a networking and technology standpoint," Mr. Tong explains.



The Cisco Service Provider Business Voice Solution enables China Unicom Sichuan to take advantage of enterprise adoption of IP telephony by offering managed business voice services to multiple business customers over a shared infrastructure. In addition, the solution allows China Unicom Sichuan to offer a comprehensive portfolio of services to customers, including business phone services, site-to-site voice, PSTN access, unified communications, extension mobility, and corporate directory services. For multisite enterprises, China Unicom Sichuan will offer abbreviated dialing plans, least-cost routing, and call overflow to the PSTN on access or termination due to IP network congestion. Through the Cisco Service Provider Business Voice Solution, China Unicom Sichuan is able to offer any combination of business voice services to meet the needs of its customers—whether they are single-office small businesses or highly distributed enterprise clients. China Unicom Sichuan's most popular service bundle includes voice and data, but many enterprise customers also subscribe to video.

Furthermore, the flexibility of the Cisco Service Provider Business Voice Solution architecture will enable service providers like China Unicom Sichuan to take advantage of emerging revenue opportunities from managing enhanced IP applications. These include native support for XML applications on Cisco IP Phones, which will enable the service provider to add a wide range of Web-based content information services in the future. Another potential enhanced capability is hosted IP customer contact services that provides intelligent call routing based on agent availability, skill set, time of day, and other factors.

China Unicom Sichuan combines Cisco CallManager software with Cisco multiservice routers and the Cisco BTS 10200 Softswitch to create an end-to-end IP telephony service for its customers. Cisco CallManager is the software-based call-processing component of the Cisco IP Telephony solution, and is part of Cisco AVVID (Architecture for Voice, Video and Data).

In Sichuan Province, the service provider's business voice service currently provides more than 50 enterprises and 7,000 end users with local and long distance services, PSTN connectivity, managed IP phones, voice mail, fax over IP, and videoconferencing, which are fully managed by China Unicom Sichuan. The quality of service (QoS)-enabled network supports data, voice, and video, while providing customers with the convenience of a single bill. The company provides IP phones to high-end business customers who require the features and productivity IP phones afford, while customers preferring to retain legacy PBXs and analog telephones can still receive many of the same business voice services when interconnected via Cisco Integrated Access Devices (IADs), the Cisco Analog Telephony Adaptor (ATA), or voice-over-IP (VoIP) customer premises equipment gateways.

"Customers have been very enthusiastic about the service because of the single network and the menu of new and advanced options they have to choose from," says Mr. Tong.

China Unicom Sichuan deployed the following components in launching its customer services: Cisco BTS 10200 softswitch, Cisco CallManager software, Cisco IAD 2421 and 2430, Cisco ATA 186 analog telephone adaptors, Cisco 5350 Gateways, Cisco 7206 Gatekeepers, Cisco 7940 IP phones, Cisco Unity™, Cisco Catalyst® switches, Cisco 2600 Series routers, the Cisco PIX® Firewall, and Cisco Intrusion Detection System (IDS).

The Cisco CallManager servers and BTS 10200 softswitches are hosted in China Unicom Sichuan's Chengdu data center to support their business customer base. China Unicom Sichuan has been working with ChinaTech, a third-party developer, to design both an operations support system (OSS) and management application to help manage the CallManagers. Approximately 10 percent of China Unicom Sichuan's business voice service subscribers have IP phones while the remainder rely on traditional telephone sets connected to the IP network via IADs.



Within Sichuan province, the IP network covers 10 cities and 67 exchange offices. After only a few months of commercial availability, the service already has 7000 subscribers and is growing rapidly. While most of China Unicom Sichuan's customers are small and medium-sized enterprises with 100 employees, one of the largest deployments is expected to have over 3000 users when fully implemented.

#### Sichuan West Information and the Net, Ltd

Another of China Unicom Sichuan's clients that has taken advantage of the new services is Sichuan West Information and the Net, Ltd. In March 2003, Sichuan West Information signed a contract for bundled data, voice, and videoconferencing services over China Unicom Sichuan's IP network. The private, 70-employee company—headquartered in Chengdu—manufactures network hardware, develops software, and provides network integration services. It maintains a research facility in another Sichuan Province city and a field office in Lhasa, Tibet.

According to Mr. Li, general manager of Sichuan West Information, "We wanted to be able to operate like a single location with full communications capabilities. China Unicom Sichuan provided a single network offering data, voice, and video services."

China Unicom Sichuan's bundled solution appealed to Sichuan West Information, which did not have an in-house staff of IT professionals. "This was a single offering requiring minimal resources to maintain the service," Mr. Li says. "The alternative would have been to purchase service from a number of vendors, which would demand a lot of internal resources."

While cost savings were secondary to services, Sichuan West Information concluded that the bundled services from China Unicom Sichuan would cost 20 to 30 percent less than purchasing the same unbundled services from a number of different suppliers. In addition, the flat-rate pricing structure provides a better prediction of costs.

Sichuan West Information is looking forward to new features from China Unicom Sichuan as they become available, such as integrated wired and wireless network services that will enable a Sichuan West Information employee to send a message from a desk phone to another employee's mobile phone.

#### The Results

China Unicom Sichuan's business voice services provide its customers increased productivity with advanced services not available through traditional service providers. In addition, convergence of data, voice, and video reduces capital costs for CPE and lowers access circuit costs and network expenses because multiple sites can be administered as a single system. Customers also realize a significant cost savings in operations by out-tasking management responsibilities to China Unicom Sichuan.

China Unicom Sichuan's experience has proved Mr. Tong's confidence in IP-based services to have been well placed. The Cisco Service Provider Business Voice Solution has enabled China Unicom Sichuan to effectively compete with the much larger incumbent, China Telecom, by offering advanced, cost-effective bundled services delivered over IP. "We have a great competitive advantage today, and with Cisco's help, we will be able to offer even more services in the future," he predicts.

## About China Unicom

China Unicom Ltd is the second-largest telecom operator in China and the only service provider that is licensed to offer the full range of telecommunications services including fixed-line and mobile. It provides nationwide local, domestic, and international telephony, IP telephony, data, Internet access, a Global System for Mobile

Communication (GSM), Code Division Multiple Access (CDMA) mobile, and paging. It has the second largest fiber optic network in China, metropolitan fiber-to-the-building access, the largest IP telephony network in the world, and the nation's largest paging network.



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