

Broadband Wireless Network



CASE STUDY

Introduction

China Netcom Gansu, a subsidiary of China Network Communications Group Corporation is one of the largest telecommunications companies in China. The Gansu province is located in the northwest of China and has a population of approximately 25 million.

China Network Communications Corporation is a super telecommunications enterprise in China and the leading provider of fixed-line telecom services, including broadband and Internet access, data, and business communications and is a well known telecommunications operator both in China and in the world.

Challenge

As public demand for immediate remote broadband access increases, service providers and municipalities are faced with the challenge to provide timely, cost-effective and reliable broadband access to their customers, regardless of the customer's location. WiMAX provides fixed, nomadic and portable mobile wireless broadband connectivity without the need for direct line-of-sight with a base station. China Netcom Gansu required a WiMAX network that would establish:

- Broadband wireless access system for last mile access
- Backhaul the traffic of SCDMA BTS
- Competitive and reliable solution for backhaul support



Solution



Tsunami MP.11 mounted on poles

China Netcom Gansu conducted many onsite trails to identify the wireless solution that would provide best services to their customers. Proxim's pioneering wireless solutions proved to be the best that can really meet the services and applications requirements of China Netcom Gansu customers. Hence they selected Proxim Wireless WiMAX, mesh, and backhaul products to build the most cost-effective wireless data and voice network in the country. China Netcom Gansu deployed the following Proxim end-to-end products:

- a. For providing Wi-Fi access at the edge, ORiNOCO® AP-700 high-performance access points, supporting enterprise voice and video applications were deployed. The AP-700 is perfect for mid-size Wi-Fi networks.
- b. Wi-Fi access at edge with mesh support was provided using ORiNOCO® AP-4000M WI-Fi mesh access points supporting voice and video applications, and offering high performance and flexibility in large deployments.
- c. Point to Multipoint backhaul was made possible using Tsunami™ MP.11 5054-R point-to-multipoint radios that provide the capabilities of the IEEE 802.16e standard (mobile WiMAX) and support converged voice, video, and data in both fixed and mobile applications.
- d. Point-to-Point backhaul was provided by deploying Tsunami QuickBridge outdoor bridges that installs in hours, broadens network coverage, and allows the carrier to offer competitive services quickly, reliably, and cost-effectively.

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China Netcom Gansu selected the Tsunami MP.11 5054-R as the backhaul for mesh access points as it can support voice, data and video applications. Using advanced OFDM technology and Wireless Outdoor Routing Protocol (WORP), MP.11 networks dynamically adapt to the ever-changing network load for optimum performance. WORP adapts to avoid collisions and maximizes data content with each transmission. The performance of MP.11 5054-R fulfilled the requirements of China Netcom customers.



Tsunami MP.11 5054-R

Furthermore, Tsunami MP.11 5054-R offers industry leading features e.g., IEEE 802.16e based on WiMAX QoS, mobile roaming, routing, and bridging capability, asymmetric bandwidth management, management through a Web interface, a Command Line Interface (CLI), or Simple Network Management protocol (SNMP), optional integrated antenna, and VLAN support.



Tsunami QuickBridge II

voice channels.

It provides a carrier class E1 link for backhauling the traffic of SCDMA BTS. China Netcom Gansu preferred this product as it is highly affordable and exceptionally easy to install; Tsunami QuickBridge II eliminates the deployment challenges and recurring fees associated with standard T1, E1, or DS-3 installations.

Proxim's ORiNOCO AP-4000M are being deployed for their Wi-Fi® mesh support. They support flexible, scalable, and reliable voice and data for large metropolitan and enterprise Wi-Fi deployments. The dual-radio ORiNOCO® Wi-Fi mesh access points deliver video, voice, and data over Wi-Fi to the edge of a network over a flexible, auto-forming, self-healing, near line of sight mesh backbone. The dual-radio architecture separates the mesh backbone traffic from the edge access traffic, increasing capacity compared to single-radio mesh architectures.



ORiNOCO AP 4000M

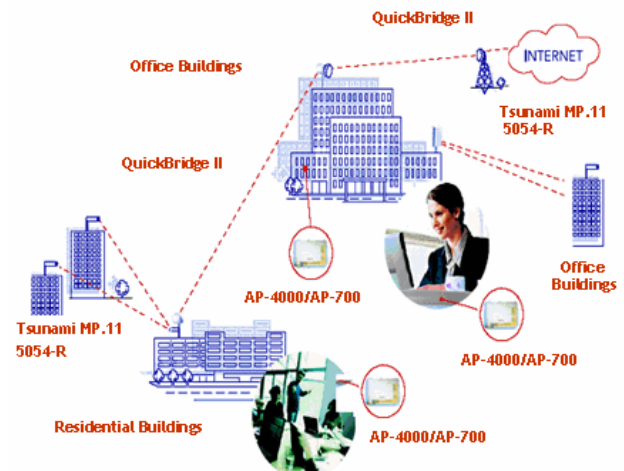
Each deployment and integration with the wired network is a critical factor in a successful, profitable wireless LAN rollout.

ORiNOCO access points

excel with key capabilities that simplify WLAN deployment.

Also deployed were Proxim Wireless' industry-leading AP 700 Wi-Fi access points that deliver enterprise-class 802.11 a/b/g functionality; standards based networking, high capacity, extensive security and Quality of Service.

Below is a network view of the China Netcom Gansu deployment of Proxim products:



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Benefits

Tsunami MP.11 5054-R enabled China Netcom to bridge the digital divide, increase productivity, cut network costs, and create new business opportunities – all through advanced broadband wireless networking.

It supports WiMAX

Quality of Service (QoS), roaming with seamless handoffs at speeds up to 200 km/hour, dynamic frequency selection (DFS) and extended range.

Tsunami MP.11 5054-R is a secure and high performance broadband wireless solution for Last Mile Access, Metropolitan Networking and Security and Surveillance.

ORiNOCO AP-4000M access points enable Wi-Fi access. The solution provides industry-leading throughput with 802.11g and 802.11a simultaneous operation and robust RADIUS accounting and authorization interface for detailed subscriber usage tracking. WMM/802.11e Quality of Service support is available for data, voice and video applications.

Proxim's ORiNOCO access points and Tsunami MP.11 5054-R have tools to speed installation and optimization. Installation of the products is easy as they support automatic channel selection, adjustable transmit power and external antenna connectors.

Secure and Robust

Tsunami MP.11 5054-R supports dynamic data rate selection that automatically compensates for temporary link degradation, maintaining robust connectivity and mitigating service calls for the China Netcom Gansu network.

Multiple security mechanisms of Tsunami MP.11 5054-R protect operator, residential customer and enterprise privacy.

Advanced encryption feature of Tsunami MP.11 5054-R protects over-the-air transmission. Mutual authentication between the base station unit and subscriber units eliminates unauthorized use of system by rogue subscriber units and man-in-middle attacks. All remote management methods are password protected.

Tsunami QB II provides a wireless alternative to a wired network and allows greater control over network quality. China Netcom Gansu indicated that Tsunami QuickBridge II solutions meets or exceeds wired network security and offers the highest security for their network. The proprietary Link ID used in this product provides secure wireless transmission.

Proxim's access points support the latest security standards, including IEEE 802.11i and AES encryption, and add proactive security measures.

Mutual authentication is performed according to IEEE 802.1X. Rogue access points will be detected and notified. Secure management interfaces are provided using SNMPv3, SSL and SSH. Intra-cell blocking is implemented to prevent client-to-client snooping.

Intra-cell blocking and traffic redirection prevents subscriber-to-subscriber attacks. Broadcast bandwidth throttling prevents broadcast attacks.

Reliable by Design

Proxim products are reliable by design. Weatherized enclosure of Tsunami MP.11 5054-R allows collocation on rooftops – limiting physical access. Proxim's Wireless Outdoor Routing Protocol (WORP) prevents snooping common to Wi-Fi systems.

Backed by more than twenty years of wireless design innovation, Proxim's Tsunami QuickBridge solutions offer the highest security and reliability available in networking today. They provide up to 99.995% RF link availability.

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Proxim's ORINOCO access points have robust features for metropolitan Wi-Fi and enterprise applications. In the event of power loss, Proxim access points perform automatic reconfiguration of security policy. They also have dual firmware image support for rollback in the event of software or configuration change problems and provide Power-Over-Ethernet support.

Summary

China Netcom Gansu required a cost-effective, stable and reliable wireless solution. This was made possible with the deployment of Proxim Wireless products. Proxim has already provided broadband wireless solutions to more than ten other provinces in China.

Base station backhauling was enabled with Tsunami QB-II, broadband access with a combination of MP.11 and AP4000M for residential customers and Wi-Fi coverage for China Netcom Gansu office building with Proxim AP-700 and AP-4000.

Proxim products are a preferred choice due to their ease of deployment, high throughput, high reliability, superior network performance and extensive security features.

Background

Proxim Wireless Corporation is a leader in core-to-client solutions for broadband municipal wireless networks and wholly owned subsidiary of Terabeam, Inc. (NASDAQ: TRBM). Our systems enable a variety of wireless applications including security and surveillance systems, mobile workforce automation and machine-to-machine communications. We have shipped more than 1.5 million wireless devices to more than 200,000 customers worldwide. Proxim is ISO-9001 certified. Information about Proxim can be found at www.proxim.com.

