Zhejiang Provincial Electric Power Company Deploying Mission-Critical Infrastructure for a Public Utility

Customer:

The Zhejiang Provincial Electric Power Company

Challenge:

To deploy a high-capacity network backbone for a public utility company in the People's Republic of China, providing high-quality Voice over IP (VoIP) services in addition to other data traffic

Objectives:

- Solve reliability issues with an existing router from another leading vendor
- Implement a high-performance, fault-tolerant network backbone to connect isolated locations throughout the province
- Minimize total cost of ownership by reducing ongoing financial and administrative overhead
- Implement high-quality VoIP services with better than "best-effort" assurance
- Create an IP-based broadcast television service for internal communications

Solution:

Deploy Juniper Networks M-series routing platforms, replacing the legacy router, and enable IP multicasting

Benefits:

- With the legacy router replaced, Zhejiang Electric enjoys 99.9 percent network reliability, saving costly interruptions and downtime.
- Bandwidth usage is more efficient.
- Reliable VoIP service is high-quality, saving considerable telephone costs.
- Ongoing maintenance overhead reduced, for further savings.

About Zhejiang Electric

The Zhejiang Provincial Electric Power Company (Zhejiang Electric) is a provincial-wide utility in the People's Republic of China, supplying electricity to some 47 million inhabitants. The company depends on clear and reliable communications between its staff to ensure smooth operation, and requires a mission-critical IT infrastructure that is not only fault-tolerant, but which also is maintainable within a tight budget.

Critical Infrastructure with Legacy Equipment

The key network applications Zhejiang Electric depends on include inter-branch communications – including the sharing of vital business documents – and a billing system for auditing the supply of electricity to its many customers in the province. So not only must the network enable communication between people, it must also serve as a data conduit for electricity monitoring equipment and other devices.

However, Zhejiang Electric had been experiencing network outages due to problems with a router from another vendor. Because of the mission-critical nature of its infrastructure, Zhejiang Electric sought to replace the router with more dependable equipment. As part of the project, the company also wanted to ensure reliable, high-quality Voice over IP services, and implement a broadcast television service based on IP-multicasting.

Thousands of Users

Zhejiang Electric has Frame Relay and Synchronous Digital Hierarchy (SDH) digital links servicing its many branch offices across the province. Zhejiang Electric expected more than 3000 concurrent users would eventually use the network, running a variety of applications including VoIP, IP multicasting, office automation, and Internet access. Zhejiang Electric also wanted to minimise ongoing maintenance and administration overhead.

Neusoft, a local systems integrator, was selected to design and deploy the new system.

A Customized Solution

In consultation with Zhejiang Electric, Neusoft selected Juniper Networks M40e and M10 routing platforms for the new infrastructure. Despite customized network management software, which was tailored to to Zhejiang Electric's requirements, and a heterogeneous environment using products from multiple vendors, the configuration of the Juniper routing platforms was straightforward due to their support for multiple interfaces and adherence to open standards.

Juniper Networks M-series multi-service edge routing platforms are deployed in some of the world's largest service provider networks, including Telstra and British Telecom. The platforms are versatile devices providing dense, highly-redundant access aggregation at the network edge, with the ability to service IP network cores. Employing purpose-built ASIC-based architectures and leveraging Juniper's feature-rich, highly scalable, and modular JUNOS operating system, the M-series are designed to deliver non-stop mission-critical performance. They are fully redundant, with high availability features such as Hitless Switchover and In-service software upgrades, allowing enhancements without downtime. The platform is designed to deliver advanced Internet Protocol / Multi-protocol Label Switching (IP/MPLS) services at scale to enable service providers to maximize their return on investment by rapidly and efficiently deploying advanced IP services. Constructed with a clean separation between the control plane, forwarding plane and services plane, the M-series supports multiple services on a single platform without performance degradation. It uses a single modular JUNOS operating system image across all platforms for consistent services at a low operational cost.

The final topology was a ring configuration, with the legacy router replaced by the Juniper M40e at the central office. Branch sites were serviced by M10s. The IP-multicasting feature was also activated on the routers to support the broadcast digital television application.

A Flexible Future

Even with the customized programming that Zhejiang Electric had requested, the M40e and M10s had been quickly integrated into a heterogeneous environment. The Juniper Networks M-series routing platforms ensure a highly-reliable communications resource with minimal overhead and flexible scalability. Should Zhejiang Electric require additional network capability, it can choose from a wide variety of Physical Interface Cards (PICs) that plug into the M-series to offer a range of high-performance interface options.

Zhejiang Electric reported savings of more than US $500,000 due to efficiencies from its new infrastructure. The Juniper Networks platforms have helped Zhejiang Electric to improve network performance, with high reliability and investment protection. The M-series have already paid for themselves, and Zhejiang Electric is well on the way to deploying additional IP services and business initiatives.

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