

EXECUTIVE SUMMARY

CABLE & WIRELESS

INDUSTRY:

International Telecommunications

LOCATION:

Provides enterprise and carrier solutions across the United Kingdom, United States, continental Europe and Asia

BUSINESS CHALLENGES

- Deliver faster simple, yet innovative business solutions to corporate customers
- Transform customer service, reduce operating costs and shorten time to market for new services
- Support growth in traffic

NETWORK SOLUTIONS

- Cisco CRS-1 Carrier Router System routers as new core backbone in next-generation network
- Convergence of previously disparate networks and services

BUSINESS RESULTS

- Fast payback
- Transparent growth path to 40G interconnects in the core
- Increased reliability, stability, and high availability (extremely short failover times)

Cable & Wireless Upgrades Network to Deliver New Services and Reduce Costs

Business Challenges

Cable & Wireless is recognized for customer service and business leadership in the international telecommunications market. Business customers value Cable & Wireless for its ability to deliver innovative solutions that help them address some of their most critical business challenges. Cable & Wireless provides enterprise and carrier solutions to the largest users of telecom services across the United Kingdom, United States, continental Europe and Asia, and wholesale broadband services in the United Kingdom.

In early 2005, Cable & Wireless announced its intention to transform its disparate networks into a single, converged, integrated IP infrastructure. This next-generation network (NGN) initiative is motivated by the challenge of delivering industry-leading services to its customer base. Numerous and diverse legacy systems and an increasingly complex global network led to the need for a converged IP network. By collapsing the existing networks into a next-generation infrastructure, Cable & Wireless would also realize cost savings in terms of both capital and operating expenses.

The company also designed the new network architecture so that it could accommodate a significant growth in traffic. Cable & Wireless recognized that a less complex, highly scalable network could more effectively support customer demand for advanced services by providing greater functionality. It also recognized the need to deliver services to customers more rapidly, with lowered deployment costs.

“Our challenge was to future proof the network to benefit our customers’ businesses,” said John Lonergan, chief architect, voice and data platforms at Cable & Wireless. “We wanted a resilient NGN infrastructure designed specifically to deliver the service experience that our major corporate and government customers require.”

The goal of a single converged network supporting all voice and data services has been reached one step at a time. The first efforts focused on the core network in the United Kingdom where Cable & Wireless has substantial ownership of core assets and resources, and experienced increasing operating costs. Cable & Wireless defined the vision for the convergence project to include:

- **A single platform for core network traffic, with separate control and traffic planes.** The platform had to support all services and traffic including Ethernet, IP VPNs, Frame Relay, and voice.
- **Support for feature-rich capabilities including multicast, IP version 6 (IPv6), and other innovative functionality.** The Cable & Wireless reputation has been established by leading the industry in these areas, and the company’s next-generation network cannot compromise any vital capabilities such as IPv6.
- **High availability.** The core is especially critical for delivering 100 percent reliable and stable services to customers, and Cable & Wireless envisioned a network where failures could be quickly isolated and worked around without affecting customer service.

Network Solutions

Cable & Wireless selected the Cisco® CRS-1 Carrier Routing System routers for the core of its next-generation network. The decision was made after analyzing the responses to the company's request for proposal (RFP) and after an extensive lab test phase. The RFP included rigorous requirements and requests for information about both the solution and the support organization backing up the products and technology. An extremely tight timeframe governed the entire selection and deployment process – ten weeks from start to finish. The first live traffic was transmitted over the new Cisco CRS-1 core network on August 15, 2005.

For the first deployment in the United Kingdom, four Cisco CRS-1 routers were configured in a partial mesh. Further Cisco CRS-1 routers have since been added to this initial deployment, with a total of 15 sites now used to provide the basis of a high-speed backbone across the United Kingdom.

As core network deployments occur in geographies outside the United Kingdom in support of customer demand, smaller-scale, lower-bandwidth core network requirements can be met through the deployment of Cisco 12410XR routers.

During the lab phase, Cisco demonstrated compliance with all of the performance requirements. In particular, Cisco offered the leading implementation of standards-based Multiprotocol Label Switching-Traffic Engineering (MPLS-TE) fast re-route and Resource Reservation Protocols (RSVPs) (20,000 RSVP-TE for Label Switched Paths [LSPs]). The Cisco team also demonstrated a long-term commitment to the support of the solution, and proved Cisco CRS-1 to be the superior solution provider in terms of a number of key project requirements:

- **High availability** – The combination of built-in redundancy within Cisco CRS-1 routers and the modular Cisco IOS® XR software contributed to superior availability of services over the entire core network. The software also supports modular software upgrades, making it easy to install fixes to affected modules only. This speeds the upgrade process and reduces the risk of affecting services by keeping change to a minimum. The Cisco solution excelled when it came to testing and installing patches quickly, and also in the overall architecture of the Cisco IOS XR software.
- **CRS-1 architecture** – The separate control plane and traffic plane give the CRS-1 platform excellent scalability in a large-scale deployment. The modular design and high throughput also equip the CRS-1 system for the most demanding traffic situations. The MPLS-TE fast reroute implementation on CRS-1 routers was proven to improve five-fold (10 milliseconds, down from 50 milliseconds) compared to the previous network equipment, even for performance of traditional SONET/SDH restoration. Additionally, the choice of 40-Gbs interfaces and also IP over dense wavelength-division multiplexing (IPoDWDM) tunable, colored interfaces provides the potential opportunity for attractive investment protection. The CRS-1 platform will be a cornerstone of the Cable & Wireless next-generation network.
- **Interoperability** – Critical to the success of the project was the demonstrated ability of the Cisco CRS-1 platform to interoperate with platforms from other vendors. The distribution and access layers of the Cable & Wireless network include a broad range of equipment and must be effectively utilized by the new core.
- **Traffic engineering and fast reroute capabilities** – The Cisco solution gives Cable & Wireless the ability to steer traffic around specific links, avoiding congestion and making the best use of overall resources. These characteristics, along with the superior fast-reroute

performance (~10 milliseconds), translate into a very resilient network for voice integration and triple-play (voice, video, and data) services.

Business Results

With Cisco's CRS-1 Carrier Routing System routers, Cable & Wireless has now completed the rollout of its Next Generation Network and, importantly, is taking a completely different approach to others in the industry. Instead of a forced "rip and replace" approach, Cable & Wireless will work with customers to migrate them only if, and when, it suits their business needs. In addition, Cable & Wireless will work with customers to pinpoint and deliver the next-generation services that they want to have on their network.

Next Steps

Following the successful completion of the United Kingdom network build and the deployment of the first service offerings, Cable & Wireless is focused on expanding its next-generation service portfolio. In parallel, Cable & Wireless teams are investigating deployment within other geographic regions.

The design can scale to connect hundreds of Cisco CRS-1 routers, and will accommodate higher-bandwidth connections as technology advances to 40-Gbs in the short term (two to three years) and higher than 40-Gbs in the long term.

The outlook for new services is bright. Cable & Wireless is confident that the new network will support the current and future service portfolio that its customers need.



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