



CASE STUDY

SWITCHING TO BETTER TV - CISCO IP AND OPTICAL SOLUTION EMPOWERS HONG KONG BROADBAND NETWORK TO PROVIDE HIGH-TECH, INTERACTIVE PAY-TV

Hong Kong Broadband Network Limited (HKBN) is a leading fixed telecommunications network service (FTNS) provider in Hong Kong. It is a subsidiary of Hong Kong's City Telecom Limited, which is listed on both the Hong Kong Stock Exchange and Nasdaq in the United States. Today, Hong Kong's telecommunications market is one of the most open markets in the world and HKBN is one of the nine companies licensed to operate a local wireline-based FTNS.

To compete in this market, HKBN's revenue strategy is based on the delivery of three services: broadband Internet access, telephony, and pay-TV services. HKBN needed outstanding networking solutions from trusted partners to develop a highly resilient, integrated, and scalable infrastructure. These needs led to its decision to invest in the Cisco Systems[®] Metro Ethernet IP Network and Optical Networking solution.

THE CHALLENGE: HKBN NEEDED BETTER NETWORK INFRASTRUCTURE TO PROVIDE PAY-TV SERVICE TO CUSTOMERS

Hong Kong is one of the most connected places in the world, with some 4 million exchange lines and telephone density of 56 lines per 100 people.



To execute its stated strategy, HKBN leaders knew that they needed to invest in a state-of-the-art network infrastructure. Mr. Ricky Wong, chairman of HKBN, says, "We needed a modern, robust, and scalable network that could easily handle voice, video, and data. Cost was also a major factor because of the difficult market conditions. "We researched all the different options, and it was quickly clear that Cisco[®] Metro Ethernet IP solution was the only one that really answered all our needs."

Work began on implementing the extensive Metro Ethernet IP network in September 2001, which called for the installation of more than 10,000 Cisco Catalyst[®] switches and more than 800 Cisco routers. By June 2002, HKBN had made a splash on the global scene by installing the world's largest Metro Ethernet IP network, covering 1.2 million homes passed in more than 2500 buildings, representing 60 percent of all Hong Kong households.

HKBN first rolled out its broadband access service in 2000 and its telephony service in 2002. Because of these services, for the financial year 2003 HKBN was able to report a 183 percent increase in profit over 2002.

Turnover had increased 13 percent and the gross profit margin increased to 75 percent.

Having delivered on the first two of its revenue streams, HKBN had to deliver the third part of its "triple-play" strategy: pay-TV service. Because HKBN did not own its own optical core, it leased circuits from other telecommunications operators to supplement its network. The local multipoint distribution service (LMDS) network required more bandwidth to deliver quality carrier-class services.

"We knew that pay-TV would be vital for our success, and the sooner we got to market, the better," says Wong. "We were faced with a difficult decision: we had to either make do with leased circuits, or upgrade our network and buy an optical core."

When HKBN factored in the likelihood of introducing new services in the future, it recognized that it would need significantly more bandwidth. According to Wong, this was one of the main drivers behind HKBN's decision to invest in building its own network with an optical core.



THE SOLUTION: A CISCO IP AND OPTICAL SOLUTION OFFERED HKBN AN OPTICAL CORE THAT PROVIDES BROADCAST-CLASS SERVICE

Because Cisco had delivered HKBN's Metro Ethernet solution, HKBN asked Cisco to propose a solution for an optical core. HKBN also examined options from other vendors.

"HKBN needed a reliable network to help ensure smooth and uninterrupted services," says Wong. "We needed an advanced yet cost-effective technology."

In a study comparing Cisco next-generation optical core solutions with legacy SDH/SONET solutions, Cisco optical core solutions showed a three-year cumulative operating-expense savings of 49 percent, and a three-year cumulative capital-expenditure savings of 39 percent. Cisco optical core solution's support for Resilient Packet Ring (RPR) topology also meant that HKBN would enjoy double the bandwidth.

In addition, the capacity available to HKBN from using an optical core allows it to oversubscribe its bandwidth allocation while helping to ensure quality of service (QoS) during periods of heavy traffic congestion from increased customer traffic, or from circuit or equipment failure.

HKBN selected a solution that included the Cisco ONS 15454 Multiservice Transport Platform (MSTP) as the optical backbone core and Cisco Catalyst 4507R switches.

According to Mr. Sam Leung, the technical director at HKBN, the Cisco solution was technically superior to the others. "Cisco's ONS DWDM platform is the only one in the market that can offer HKBN all the optical legacy services to support our future revenue growth," he says. "It is also able to offer Layer 2 and Layer 3 IP services on the same platform using Cisco's industry-leading RPR-ready multilayer functions—a feature we very much wanted."

Apart from this, the Cisco ONS 15454 MSTP solution offers efficient protection and restoration schemes that span all layers of the network. The platform also simplifies the delivery of new services such as optical VPNs, wavelength leasing, and bandwidth exchange.

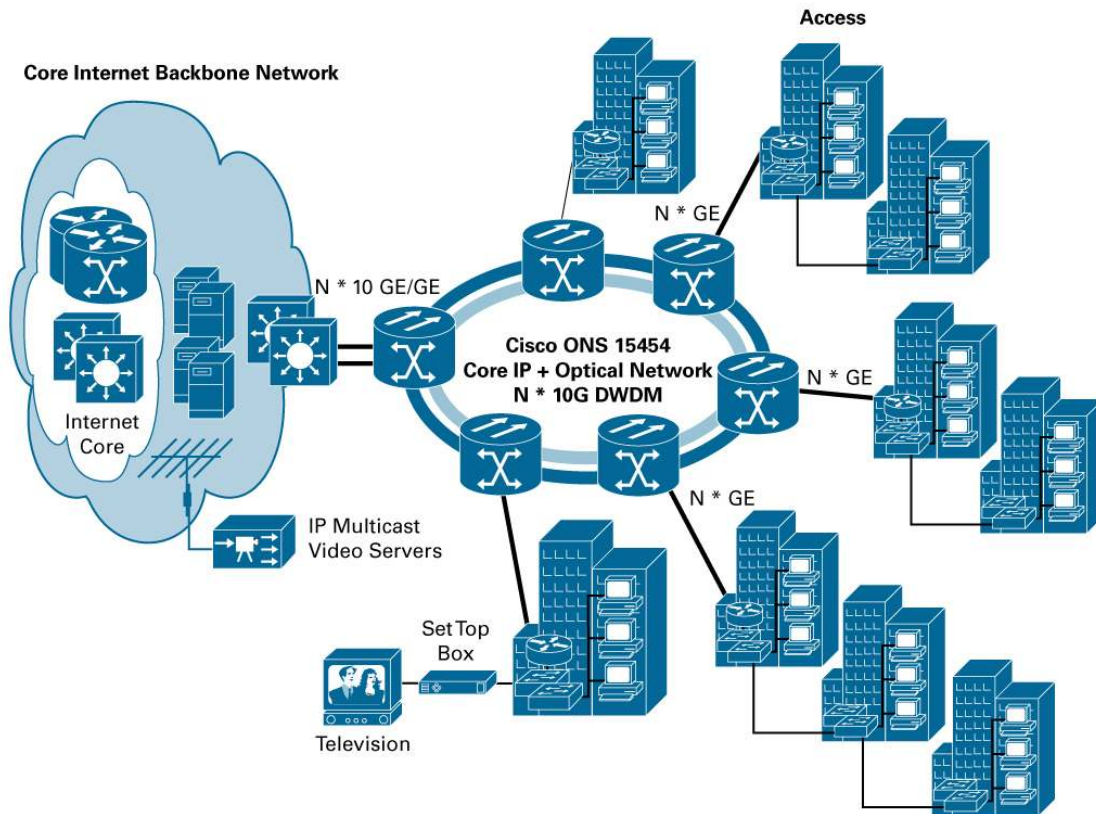
Because HKBN is offering data, voice, and video services over the same pipe, it is critical that the network is able to prioritize the different types of traffic. This is achieved using Cisco Catalyst Series switches. The Cisco Catalyst Series family of switches offers wire-speed, multilayer switching with integrated resiliency, control, and intelligent services, including granular QoS, predictable performance, advanced security, and comprehensive management for converged network deployments. For example, the Cisco Catalyst 4507R deployed by HKBN has a 7-slot chassis and supports redundant supervisor engines.

Implementation for the optical core began in late 2003 for 11 nodes and was handled by systems integrator Macroview Telecom, a Cisco partner, and was supported by the Cisco Customer Advocacy support services department.

"The flexibility and technological superiority of Cisco's solutions has laid a solid platform for our future growth."

—Ricky Wong, Chairman, HKBN

Figure 1
Broadband + Optical Solution



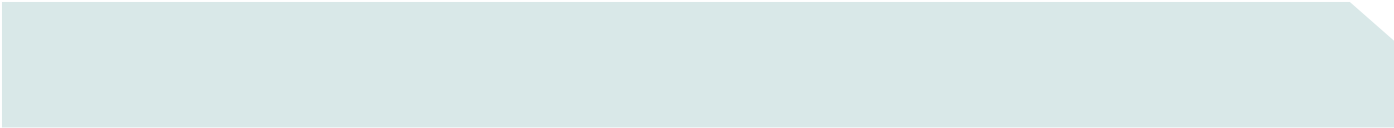
THE RESULTS: HKBN BENEFITS FROM A CISCO IP AND OPTICAL NETWORK THAT MAKES INNOVATIVE PAY-TV SERVICE POSSIBLE AND PROTECTS ITS LEGACY INVESTMENTS

Like its earlier Metro Ethernet rollout, HKBN’s optical network was implemented quickly and smoothly and the pay-TV service was launched in August 2003.

“The Cisco optical network solution means that we can now offer broadcast-class service with our network’s higher and more flexible bandwidth. We no longer have to lease expensive circuits from our competitors,” says Leung. “Plus, it helps enables us to offer pay-TV as well as IP and legacy services over the same infrastructure.”

“Cisco made our decision easier by clearly demonstrating the business case for investing in their optical network solution,” he says. According to Leung, HKBN’s investment in the Cisco optical network solution will pay for itself over the next three years in operating and capital expenditure costs alone.

HKBN expects that pay-TV will provide revenue contribution in a few years’ time. To achieve this, HKBN plans to use its optical core platform to provide other high-quality and cost-effective services, and is actively looking into the possibility of other new services.



The HKBN pay-TV service now has 33 TV channels, including a 24-hour news channel, several movie channels, EUROSPORTNEWS, CCTV 4, CCTV 9, cartoon channels, and specialty channels for topics such as Chinese opera and tourism. The network will scale to allow HKBN to deliver up to 200 channels with DVD-quality video.

Because HKBN is running IP over the optical core, it can offer a host of services that most pay-TV operators cannot. For example, HKBN's pay-TV service offers another 11 interactive channels that allow its customers to send and receive e-mails and mobile short messages, obtain live stock quotes, shop online, and play TV games. It has also introduced a unique tuition channel which allows customers to answer questions about HKBN's TV platform and view their ranking among other players.

"We have been exploring the potential of interactive media on TV over our existing infrastructure, and the launch of pay-TV is the culmination of that investment," Wong says. "It also symbolizes a significant step forward for HKBN as we transform our company into a comprehensive telecommunications operator and become an essential participant in the industry."

Wong calls the flexibility and technical features of Cisco solutions "invaluable." HKBN can now introduce a range of new services on the same network platform, which translates into opportunities for the company to expand its business into different fields and strengthen its position in the market.

THE PARTNERSHIP: CISCO AND HKBN ENJOY LONG-TERM RELATIONSHIP

HKBN's long-term partnership with Cisco began with the use of Cisco products in its IDD and data services departments. "We keep returning to Cisco for our solutions because Cisco understands us," says Wong. "The customer service has been great and both the Cisco sales and technical teams have been supportive and helpful."

HKBN's belief that innovative solutions are necessary for it to become a well-rounded, fixed telecom network operator has reinforced the case for investing in Cisco solutions.

"We need to be able to do everything, and to do it very, very well," Wong says. "Cisco's networking solutions help enable us to achieve this." Wong says that HKBN is extremely likely to use Cisco solutions again because of their ease of deployment, which make them easy to integrate with its existing infrastructure. "Cisco is aware that we need to stay on the forefront to compete, so they've been active in helping us look ahead."

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