

CCN's media transport network based on Nimbra

China Cable Network's Nationwide Media Backbone Network

The Company

China Cable Network (CCN) is the main inter-provincial transmission operator for broadcasters and CATV operators in China. CCN has more than 40,000 km of national optical backbone network. Delivered services include primary cable TV distribution of main TV channels from Beijing to 29 provinces, contribution of safe broadcasting services, event contribution, distribution of central national radio, and other media and data services.



The Issue

China Cable Network's existing network was getting saturated due to the company's drive towards providing more services. In addition, some of the network infrastructure was also approaching the end of its shelf life, having been implemented more than 10 years ago.

The previous network used ASI-to-DS3 adapters to carry video over a Synchronous Digital Hierarchy (SDH) backbone, which had several limitations, such as:

- The transmission equipment did not have the signal interfaces commonly used by radio and television, therefore requiring separate adapters for service access. The adapters imposed a rigid structure with low bandwidth utilization, and there were many cable connections in the system causing great difficulty for daily maintenance and troubleshooting of problems arising in the network.
- The SDH layer was too complicated to provision and lacked dynamic routing. Provisioning involved multiple steps using various equipment, which resulted in low levels of efficiency.
- Network protection adopted a combination of different SDH mechanisms, which took up a great deal of bandwidth in order to ensure high service availability.
- The network management solution was also fragmented, with a variety of Network Management Systems (NMSs) for different equipment, vendors and models.



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The Solution

Following a rigorous evaluation of various technologies, CCN concluded that it was necessary to set up a switched transport network specifically for radio and television based on Net Insight’s Nimbra platform, replacing the current transmission network, which was based on SDH.

CCN had already successfully deployed Net Insight’s Nimbra solution on a trial basis in 2010 to transport HD-SDI live video feeds over more than 3000 km from the Asian Games in Guangzhou to Beijing. As a result, CCN selected Net Insight’s Nimbra solution to upgrade the full nationwide backbone network.

Using Net Insight’s Nimbra MSR equipment offered CCN the following benefits:

- ASI services could now directly interface transport equipment and without the need for DS3 adapters.
- The network architecture was simplified with the Nimbra transport layer connecting directly to the Dense Wavelength Division Multiplexing (DWDM), making network operations and maintenance much easier.
- High and flexible bandwidth utilization with support for many different services.
- Faster service provisioning using a unified network management solution. Using Net Insight’s Nimbra Vision NMS only source and sink has to be defined. The network can then automatically route signals through the network.

The Results

The new CCN Nimbra network connects Beijing with 29 provincial capitals in a meshed network topology.

The majority of the backbone links have a capacity of 2 x 2.5 Gbps supporting all existing services with room for future expansion. Most sites are equipped with Nimbra 680 nodes, while the main Beijing site accommodates multiple Nimbra 688/680 nodes and some of the smaller sites use the Nimbra 380.

Following the initial order that focused on ASI transport, CCN has expanded the solution with Ethernet boards to support file transfer for CCTV remote news gathering. Many provincial broadcasters have also procured their own Nimbra MSR equipment that connect to the CCN network.

“During the National Games, Net Insight’s Nimbra platform provided us with a more efficient, highly-reliable and future-proof solution. With its unified network management, Nimbra was the only solution that could meet all our requirements for existing safe broadcasting services and flexibly support a variety of new services. That’s why we chose Nimbra for our network upgrade project.” Mr. Li Ge, Vice President, China Cable Television Network Co., Ltd.

Net Insight AB (publ)

Phone +46 (0)8 685 04 00, info@netinsight.net, www.netinsight.net

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