

# A case study of

## A scalable multiservice cable tv network

### The Issue

In 2009, ZTV began planning to update its regional cable TV distribution network. The existing TV distribution from headend to hub nodes was using legacy Intermediate Frequency (IF) modulation over fiber, which made integration with other services difficult. The IF transport platform was also reaching its end-of-life. Until now, ZTV relied on separate backhaul networks for TV, voice and data.

The company recognized the need to integrate more services over the same fiber in order to save capacity for the future as well as improve and simplify management of the network. The new transport solution should support multicasting of SDTV and HDTV, high-speed broadband internet, voice over IP, file transfer for exchange of local programs as well as enterprise data services over the same network. With so many services carried over a single platform, the new solution should support network and equipment redundancy and include a comprehensive network management system for monitoring and provisioning of services. And because ZTV coverage areas are at risk of service outages caused by seasonal typhoons, a more stable and resilient backbone network is necessary.

### THE COMPANY

ZTV is one of the best-known Cable TV Multi-service Operators (MSOs) in Japan. The company first began operating in a single area in 1994. Since that time, it has expanded to cover 31 areas with more than 300,000 subscribers in the west central region of the country.

Today, ZTV is the leading communications service provider in the region with over 100 TV and FM radio channels, including many HD programs, together with 160 Mbps high-speed broadband internet and primary voice over IP telephony services. In addition to bundled services offerings to consumers, ZTV also provides enterprise ICT services such as Ethernet



**“We were attracted by the multiservice capabilities of Net Insight’s Nimbra products, which offer Ethernet and video transmission over SONET/SDH on a single platform – to meet both consumer and enterprise customer demands.”**

## The Solution

The Net Insight Nimbra platform was selected because it was considered technically superior in regard to multi-service support for broadcast TV and different types of IP data – not only for the initial ring network but also for future expansions of the network into a meshed topology.

The capabilities of the Nimbra Vision network management system and strong local support that Net Insight’s business partner Itochu Cable Systems provides were also key reasons why ZTV chose Net Insight. The phase 1 network consists of eight Nimbra 680 switches with the main headend connected to seven hub nodes over a dark fiber ring. Each Nimbra 680 node is equipped with flexible 8-port video access modules for ASI multicasting and the 8-port Gigabit Ethernet access module for data services.

ZTV selected the 10 Gbps STM-64 trunk interface for the fiber ring to have a future-proof network supporting service expansions. The carrier-class Nimbra 680 switch comes with redundant power supply, redundant 80 Gbps switch modules and redundant control modules. The ZTV network also implements redundant access modules and separate trunk modules for the east/ west fiber ring interfaces to maximize service availability.

The Gigabit Ethernet access card supports a variety of services thanks to its built-in layer 2 switch. The Ethernet Switching functionality includes full IEEE802.1D/Q multipoint-to-multipoint MAC layer switching – allowing ZTV to tailor its IP data and voice services to customer demands. In addition, guaranteed 100% QoS transport is available to carry realtime IP/ Ethernet services in secure, bandwidth-configurable channels.

## The Results

The new ZTV cable TV network was installed during the first half of 2010. Initially the network was used only for TV distribution of 19 ASI transport streams from the main headend, delivering both DVB-C and ISDB-S services to the hub nodes where QAM modulators are located. This will later be expanded by 29 transport streams over the same network for HDTV. The installed Gigabit Ethernet cards will deliver consumer and enterprise data services in a second phase.

For consumers the network offers high-speed internet backhaul circuits from DOCSIS cable modems. For enterprise customers the Nimbra solution provides high-quality Ethernet private line services. Future expansion plans include VoIP distribution circuits between telco soft switches and local CMTS. If demanded by enterprise clients, there are also plans to add multipoint-to-multipoint LAN services.

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