

No Longer Just Watch TV — Use It, Too

Background

The new Shanxi Broadcasting Television Information Network Group (Shanxi Group) in China soon will be able to integrate 170-plus dispersed CATV networks. As a result, users will be able to “use” TV with integrated information services — they’ll no longer just “watch” TV. As computer, telecommunications, and television networks gradually converge, CATV network service traffic is being transformed from video transmission into broadband, multimedia telecommunications, making it possible for television companies to provide flexible, diversified services. However, a network upgrade is required to transform a single video service into integrated information services.

Challenges

Television companies are ramping up their development of networks for many reasons — to encourage triple-play services, to meet changes in user requirements, industry competition, and technological developments. However, television Metropolitan Area Networks (MANs) still face many problems that restrict the full scope of their operation. The rapid growth of broadband subscribers and HD video services is resulting in a rapid increase in bandwidth use, especially Video on Demand (VoD) traffic. This creates a bottleneck in MAN bandwidth. Since CATV companies do not have Internet access, they must lease individual lines from telecommunications carriers, leading to high network costs. However, a backbone network can be built that will reduce required network access ports.

Solution

To meet the needs of the Shanxi Group, Huawei built VoD service platforms at both provincial and municipal levels, successfully reducing bandwidth use for the dual network/dual platform. Huawei also has proposed building a city-level and county-level VoD platform in large cities.

The core nodes of the new video platforms are comprised of two Huawei CE12800 data center switches that have been virtualized into one to simplify maintenance and management and improve core node reliability. The two CE12800 switches are connected through a high-speed transmission network to a CE12800 data center switch on the municipal platform. This creates a high-performance, low-latency VoD network that can handle bursty video traffic.

For its broadband provincial backbone network, the Shanxi Group uses an NE5000E router as the core node. Using a high-speed transmission network, it is connected to Huawei’s NE40E router at the municipal level and to a Broadband Remote Access Server (BRAS). A BRAS is a broadband network gateway that routes traffic to and from broadband remote access devices such as digital subscriber line access multiplexers on an Internet service provider’s network. The Huawei NE5000E and NE40E can build a high-performance broadband MAN to provide fine-grained deployment capabilities and upgrade the original MAN. The new network is fully compatible with the original, completely safeguarding a company’s initial investment.

Benefits

- This design increases the Shanxi Group’s ROI. Generally, building dual networks costs more than building a single network. However, if one of the networks is based on switches, and transmits 80 percent downstream traffic of all services, it is more economical. Despite providing the same bandwidth, a switch may cost less than a fifth of a router or BRAS.
- The dual-network/dual-plane design builds a customized, agile network that meets the Shanxi Group’s development requirements. The VoD network, built separately, is physically isolated from the broadband network, preventing the rapid growth of VoD traffic from affecting other broadband services. In addition, the CE12800 switches’ slight delay of 2 μ s to 3 μ s fully meets the stringent requirements of VoD signaling and offers a better ordering experience for the Shanxi Group’s customers.
- A separate VoD network can be completely immune to the impact brought by changes in broadband networks. Compared to an integrated network, it is easier to divide responsibilities in a separate VoD network, thus completely avoiding inter-departmental buck-passing if a network problem occurs.
- The number of Shanxi Group’s VoD subscribers is growing rapidly, while that of broadband is growing slowly. The dual-plane transmission strategy makes it possible to upgrade and expand the network accurately based on the annual growth rate of VoD and broadband priority services.