Case Study

Digital Broadcast in Macedonia

Ceragon builds a high-capacity IP broadcast network for Macedonian Broadcasting Company

Background

Macedonian Broadcasting Company (MRD), the public broadcasting organization of the Republic of Macedonia, provides broadcasting services to the entire country including three TV channels on three terrestrial networks. To reduce operating expenses and to meet the requirement of switchover from analog broadcasting to digital TV, MRD had to upgrade its networks to provide nationwide digital transmission.

The Challenge

Unlike analog TV where the signals are usable even under difficult weather conditions, digital broadcasting is much more affected by interference and signal fading resulting in inferior quality of the received video. To avoid picture freezing and pixelation, digital broadcasting equipment must minimize packet loss and jitter. The upgrade to digital required a comprehensive turnkey solution that would not only provide high signal quality and high availability, but also allow for uninterrupted network monitoring all the way down to the transport-stream packet level. Special tools were required to maintain uninterrupted delivery of audio and video to television viewers.

The Solution

MRD's video contribution and distribution network required a future-proof, reliable solution that would be able to handle large amounts of IP traffic while providing continuity-of-service for real-time video and audio. Taking advantage of its vast expertise and decades of experience in the broadcast transport market, Ceragon provided a robust, field-proven microwave solution that provided a robust, flexible and resilient IP transmission network.

By deploying Ceragon IP core, MRD ensured that the network would be capable of carrying today's services as well as future technological and business requirements. The IP-based architecture ensures a flexible and versatile network capable of delivering services such as transport of television signals to transmitter towers (analog or DTT), feeding cellular base stations, trunk transport of Internet traffic, voice-over-IP, video conferencing and IPTV multicast distribution.

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Implementation

Providing a full, turn-key solution, Ceragon empowered MRD with its advanced Evolution Series microwave platform coupled with compression and proactive monitoring solutions from selected 3rd parties. The network is deployed primarily with radio/television distribution in mind. The architecture ensures that other services such as high-capacity data transfer, voice-over-IP and Internet transport are possible to add anytime. The solution is based on a high-capacity wireless IP infrastructure that is cost-effective, reliable and quick to deploy. Ceragon's solution combines the advantages of traditional SDH with the flexibility of IP-based infrastructure.

Evolution Series radio
TDM and all-Ethernet

All-Indoor or Split Mount installation

In today's MRD network, three TV channels are distributed from the central/national studio to four regional locations using IP multicast. The regional locations are either local studios or transmitter-tower locations for TV broadcasting. All four locations are currently evolving to DVB-T allotment zones with each zone supporting two-way contribution feed transferring high-quality video material between the regional studio and the main studio. Each allotment zone has different multi-service video/audio transport streams generated from the head end.

Ceragon wireless IP core architecture relies on deploying radio links in a ring topology to provide automatic redundancy and 50 millisecond fail-over switching. The solution is very flexible and is currently being upgraded to higher capacities as the network evolves to support the transmission needs of the upcoming DVB-T network.

Conclusion

Employing its extensive expertise and experience in broadcast network rollout, Ceragon efficiently addressed MRD's challenges and helped facilitate a quick and cost-effective switchover from analog to digital broadcasting. Using its field-proven, high-quality microwave, Ceragon built a reliable network capable of handling large amounts of digital video/audio. The flexible, high-capacity wireless IP infrastructure attains the high levels of resiliency and redundancy required by migration to DVB-T.

"Partnering with Ceragon enabled us to complete our network upgrade cycle quickly, allowing our viewers to enjoy a full range of high-quality digital content," said Julijana Spirovska, MRD. "We were impressed not only by the technological innovation of the Evolution radios, but also by the complete set of services the company provided. This combined offering provided the piece of mind we required in order to focus our efforts on serving our customers. "

About Macedonian Broadcasting Company

Macedonian Broadcasting Company - Skopje (MRD) is a public broadcasting operator in the Republic of Macedonia, providing TV and radio broadcasting services on the entire territory of the republic. It operates 135 broadcasting facilities and serves more than 750 national radio and TV studios. For more information about Macedonian Broadcasting Company, visit http://www.jpmrd.gov.mk/

About Ceragon

Ceragon Networks Ltd. (NASDAQ: CRNT) is the premier wireless backhaul specialist. Ceragon's high capacity wireless backhaul solutions enable cellular operators and other wireless service providers to deliver 2G/3G and LTE/4G voice and data services that enable smart-phone applications such as Internet browsing, music and video. With unmatched technology and cost innovation, Ceragon's advanced point-to-point microwave systems allow wireless service providers to evolve their networks from circuit-switched and hybrid concepts to all IP networks. Ceragon solutions are designed to support all wireless access technologies, delivering more capacity over longer distances under any given deployment scenario. Ceragon's solutions are deployed by more than 230 service providers of all sizes, and hundreds of private networks in more than 130 countries.
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