applications

Radio distribution

Despite all of the buzz, hype and innovation surrounding television, radio is still a mass communication medium that reaches the widest audience and provides the widest coverage. With high penetration, particularly in rural areas, there is no doubt that radio represents a powerful platform for both broadcasters and advertisers.

Radio has significant advantages over other mass media like linear TV, IPTV or printed media, by being highly convenient for audiences to access with inexpensive receivers.

Traditional radio broadcast networks are often built over legacy point-to-point infrastructure such as microwave or leased lines, with high operational costs. However, managed IP networks enable service providers to offer broadcast customers enhanced service quality at a lower operational cost. The benefits of radio distribution over IP are an improved listening experience for the audience, as well as creating a greater competitive edge for both broadcasters and service providers.

Nevion provides an industry-leading portfolio of audio over IP and service management solutions to help broadcasters and service providers distribute their terrestrial radio services over IP networks. The solution supports distribution of both FM and DAB+, as well as other types of radio services, and is designed to maximize the inherent benefits of IP, while, at the same time, eliminating its risks.

Whether radio services are built on analog audio, digital audio AES, MADI, linear or compressed, E1/T1 circuits or a mix of these signal types, the Nevion Ventura product portfolio offers the latest IP adaptation technology that includes various protection mechanisms, to ensure 100% quality of service, even in non-ideal IP environments.

Robust radio distribution solutions

Using IP infrastructure for next-generation radio distribution networks offers a multitude of benefits. However, in the past, transporting a large bouquet of radio channels over Ethernet, IP or MPLS infrastructure with effective, end-to-end stream protection did not provide sufficient quality for broadcasters and service providers. The biggest barrier was the quality of IP networking, particularly in terms of uptime, latency and packet loss.

However, Nevion has developed a range of innovative solutions to significantly improve the quality of services of IP radio distribution networks. These are implemented across the Ventura VS906 product line for improving end-to-end quality of service. These key innovations led to Nevion being selected to deliver the next-generation distribution network for FM and DAB+ services to many hundreds of transmitter sites across the entire German republic, helping to provide the largest radio audience in Europe with a better listening experience.

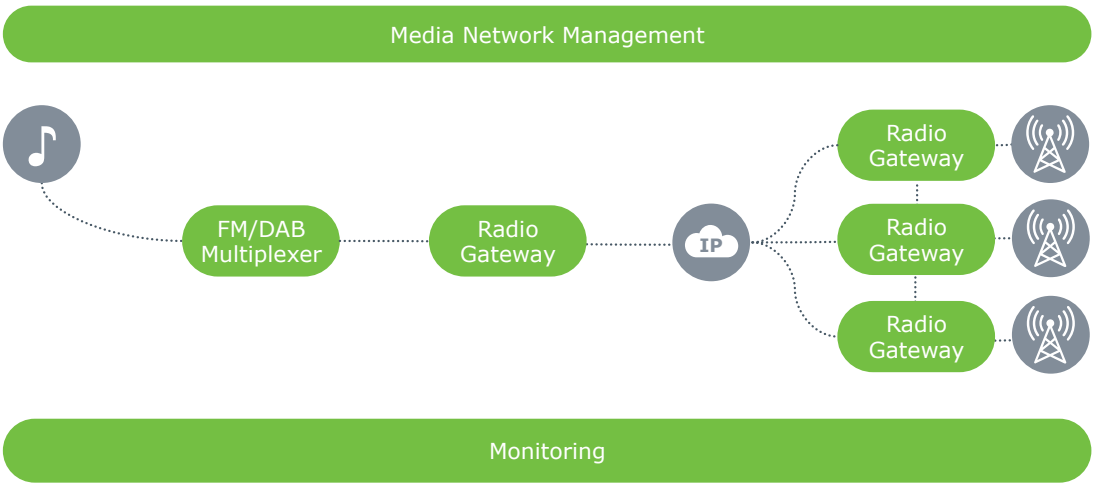
Combining the VS906 audio adaptation hardware with Nevion's VideoIPath control platform adds a range of inventory management, service monitoring and protection options to the overall solution.

Nevion technologies such as error correction and seamless switching can ensure high availability of the radio distribution network by bridging significant outages in the underlying IP network infrastructure, without affecting radio services.

Benefits snapshot

- True IP point-to-multipoint distribution
- 100% quality of service through SIPS protection technology with IP seamless switching over dual and single path IP networks
- Standardized forward error correction (FEC)
- Unmatched handling of network jitter
- Ultra-low end-to-end latency for FM services
- SFN capabilities
- E-APTX audio compression and linear audio over IP

Radio distribution



Forward error correction (FEC)

Nevion's forward error correction (FEC) compensates for packet loss in IP transport networks by recreating lost packets compliant with SMPTE 2022-1. While FEC is effective for correcting intermittent and short bursts of packet loss—Nevion has developed an extended FEC algorithm to cope with longer network outages, address requirements for low latency, protect against path or link failures caused by momentary outages, as well as fast re-routes and automatic protection switching at lower transport layers—new mechanisms are needed.

RTP seamless switching (SIPS)

For even greater protection, Nevion's patented Streaming Intelligent Packet Switching (SIPS) technology will provide seamless perfect protection switching of audio and video streams across dual, geographically independent IP links. Diverse path routing combined with RTP/IP diversity delivers seamless switching at the receiving end to give the highest possible quality of service. This greatly diminishes the effects of random packet losses, burst packet losses, losses due to fast re-routes, and link failures.

Launch delay offset (LDO)

When IP path diversity is not possible or can't be guaranteed, intelligent use of sender-induced buffering can yield tremendous performance benefits. Launch delay offset (LDO) technology enables RTP seamless switching, even in situations where both IP paths are affected by correlated short outages.

Encoder Partner Protection (EPP)

To remove all single points of failure in the adaption layer, Nevion has developed a technology called encoder partner protection (EPP). EPP provides hardware redundancy to ensure continuous transmission in the event of a power or hardware failure. The basic concept is to provide 1+1 hardware redundancy that can be deployed in separate chassis, separate racks, and even separate power sourcing.

Radio transport modules

- VS902-MA
  MADI over IP
- VS906-AA
  Analog audio over IP
- VS906-DA
  Digital audio over IP
- VS906-E1
  E1/T1 over IP
- Nevion VideoIPath
  Monitoring, connection and inventory management