

case study

nevion



Nevion meets distance challenge for Finnish broadcaster YLE

Transporting data, video and audio at 10Gbps over 200 kilometers over existing fiber infrastructure using Nevion Flashlink transport system incorporating dispersion compensation module

Plug and play technology / **Scalability** / **Cost-effectiveness**

Yleisradio (YLE), also known as Finnish Broadcasting Company, is Finland's public service broadcaster. Founded in 1926, YLE operates four national television channels and six radio channels that account for 44% of the nation's daily television audience and 52% of radio listeners.

When a new production was launched at the broadcaster's studios in Tampere, approximately 200 kilometers from its head office in Helsinki, there was a need to increase in the amount of video and audio data that was transported between the two locations. The adoption of high definition (HD) file-based traffic also contributed to an increase in wide area network (WAN) traffic.

The broadcaster's existing link used a dense wavelength division multiplexing system (DWDM), installed in the early 2000s, which was not designed to cope with the increased traffic as it offered just 1Gbps speeds. Clearly more transport capacity was needed.

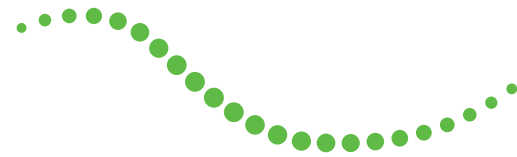
"We investigated the possibility of renting a 10GbE to add capacity," said Jarkko Haapa-aho of YLE. "However, given we already had some unused fiber capacity between Tampere and Helsinki, adding our own 10Gbps link to our existing DWDM system was more cost-effective and future proof."

The challenge

Because of the transport distance involved, the signals on the existing DWDM system are re-clocked and regenerated in two locations between Tampere and Helsinki to compensate for jitter and attenuation. However, with the new link transporting traffic at the greater speed of 10Gbps, the signal would also suffer from signal degradation and optical dispersion. A cost-effective solution needed to be found to this problem in order for the proposed addition of 10Gbps links onto the existing fiber to be workable.

"We could add additional 10Gbps links for WAN traffic at a fraction of the cost of renting 10Gbps links, not just once, but whenever we needed them."

Jarkko Haapa-aho
YLE



The solution

YLE turned to Nevia, a leader in transporting media from the camera to the home. The two companies have a long-standing relationship, with many Nevia products—like the Flashlink transport system—being an integral part of the broadcaster's infrastructure.

Flashlink is a family of award-winning optical fiber distribution and signal processing solutions that offer ultra-low power requirements, compact form factors and high reliability perfectly suited for broadcast environments.

Flashlink was, in many ways, the ideal solution for the challenge YLE was facing. However, when YLE first approached Nevia, the Flashlink range did not include a filter that could overcome the effects of optical dispersion. Nevia took on the challenge and developed a dispersion compensation module in just a few months.

Thanks to the Nevia solution, the signal from Tampere is able to reach two existing regeneration points—the first 47 kilometers away, and the second another 85 kilometers further—before travelling final 83 kilometers to the studio in Helsinki. The system also features an erbium doped fiber amplifier (EDFA) that is used to boost the optical signal before transport.

The system went live in August 2015.

The benefits

The Flashlink solution, incorporating 10Gbps regeneration, optical amplification and dispersion compensation, brings complete reliability to the system, ensuring that the signals can be transported reliably between Tampere and Helsinki with no loss in quality or degradation of the signal.

For YLE, this means that the solution was more future proof than a rented 10GbE link, and the dark fiber more reliable. Furthermore, as additional signals can be added to the link in future without the addition of more EDFAs or dispersion compensation modules, the solution provides a great degree of flexibility and cost-effectiveness.

"It's always a challenge transporting data with a high bit rate over long distances, but it's something Nevia does very well. Furthermore, Nevia understands the specific requirements of broadcasting," said Haapa-aho. "They met their delivery dates, which meant our business was able to benefit from the extra capacity on schedule."

About optical dispersion

Optical dispersion occurs because different colors and different light polarizations move at varied speeds through fiber. As a single channel of DWDM has a color spectrum rather than being just a single wavelength, and also has two polarizations, different parts of this signal will reach the destination at different times. This means that the rising and falling edges which indicate the 1s and 0s of the bit pattern are slowed down and become less distinct, until it is no longer possible to detect the bit-pattern of the signal.

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We assess and design before we deploy, ensuring that the solutions provided best meet immediate needs, long-term goals, and your overall environment. From there, we're always a phone call away.

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