

A case study of

KPN European video IP transmission over MPLS network

In Brief

In rolling out a pan-European media network, KPN is leveraging the Net Insight Nimbra VA platform and functionalities of own fibre and MPLS networks to increase the QoS and to reduce the operational cost of the solution for content providers and applicants.

The Challenge

KPN Media Services has an enviable reputation of providing media transport services for major broadcasters and events on a national and international level. Traditionally, many broadcasters would use satellites for their international distribution. With continuous roll-out of fiber networks and hence increased availability, business increasingly shifts to a more modern media network. Increasing rollout of such networks and their growing capacity provides greater flexibility and availability at reduced cost. Therefore the natural choice of technology has been to consolidate video services over a terrestrial network, using IP/MPLS as an underlying technology.

Looking to scale its infrastructure for broadcasters and wanting to expand into new markets across Europe, KPN sought to leverage the MPLS network run by its wholly owned subsidiary Neutral Internet Exchange (NL-ix). The exchange is distributed across seventy-four data centres in thirty-one European cities in 13 countries.

KPN's ambition is to use the network as the backbone of a new transport network optimised to distribute media services across the continent. It would offer broadcasters the flexibility, quality of service and OPEX they need to launch new business models, such as on-demand video and pop-up channels, in new territories as well as for regular linear channels transmission without compromising on quality requirements.

Shifting to a new technology is not without its challenges. Even with the strictest QoS classes, an IP/ MPLS grade network is prone to jitter, delay and packet loss – those are the risks which the demanding broadcasters are not willing to take. Implementing high quality services on top of an MPLS network is complex and requires a large degree of configuration to ensure that the different types of traffic do not conflict with each other.

THE COMPANY

KPN is the leading provider of telecommunications and ICT services in the Netherlands. Its services are offered on international scale. KPN Media Services supplies wide portfolio of media-related services. The offerings range from services for the entire media production and content distribution process, CDNs and the provision of radio and television signals. KPN supports traditional & new content distribution chains. It operates TV-ix, an IP/Ethernet-based transmission solution designed for media companies and based on the MPLS network.



Another big challenge is to offer greater flexibility and reduce the operational cost for providing video services. Once connected customers can easily set-up the distribution to various locations at limited additional costs.

Flexibility in this case means the ease of setting up the connectivity, of establishing short term contract terms if required and flexibility in bandwidth allocation – all of which exceeds the capabilities of satellite transmission.

Additionally, the network should offer services for broadcasters and publishers of the content such as on-demand service provisioning, with the ultimate aim to offer customer self-provisioning.

While it is true that the Internet was never designed to handle the stringent requirements of broadcast services, new solutions have emerged that bridge the gap between the best-effort nature of the Internet and the high reliability and quality requirements broadcasters require. Broadcasters expect the same carrier class operational simplicity, traceability and performance follow-up regardless of the underlying transport media.

Combining these requirements in one solution was KPN's challenge when looking into the different architectural choices.



“The Net Insight media transport platform ensures that we can offer the highest quality services to our customers.”

The Partnership

For over a decade, Net Insight has been a trusted technology partner for KPN. Since 2006 KPN's Media Exchange Network a large multi-service network is based on Net Insight's Nimbra platform.

The network provides services like video, data and audio connectivity between all major TV studios in the Netherlands, all TV feeds for the digital terrestrial TV and mobile TV services. It also reaches several international destinations in Western Europe.

KPN selected the Nimbra Video Appliance (VA) which combines the advantages of a powerful MPEG encoder and decoder, together with an integrated video transport solution. Built on the same rugged software baseline as that of the proven Nimbra MSR family, the Net Insight VA series brings a unique set of advantages, such as rock solid operations, and tools to quickly understand when and where in the network any issue occur. This powerful combination provides both the operational simplicity of one point of management, as well as a reduction of network complexity – both minimizing potential sources of errors and maximizing service availability.

The Nimbra VA offers KPN's broadcaster customers the possibility to use Internet grade transport and still maintain the same strict broadcast quality standards they have become accustomed to. The technology's functionality is sufficient for KPN to offer strong SLAs to its customers.

The Innovation

For the expansion of its pan-European media network, KPN combined its existing MPLS network with newly developed Nimbra VA 220 and VA 225 appliances. The idea is to strengthen the possibilities offered by a dense European network by adding error correction equipment at its edges.

KPN kicked-off its new service by installing Nimbra VA 225 platforms at PoPs in London, Stockholm, Warsaw, Amsterdam and Rotterdam. This was the beginning of the expanding TV-ix service which is being followed by adding other major media hubs to KPN's coverage. The Warsaw PoP is particularly important for broadcasters wanting to reach the Polish and wider East European market where demand for content is booming, and populous audiences are to be reached.

The VA platform offers capabilities to increase the QoS over an IP/MPLS network and to reduce the operational cost of the solution. The provisioning of services has been greatly simplified by separating the services from the transport and incorporating the use of individual connections for each service.

This approach offers perfect control, a simple service activation and the possibility to monitor each service individually.

KPN could extend the network reach on demand to connect multiple destinations in Europe. Whenever there is a request from a broadcaster to reach into a new territory, KPN would light up a new PoP.

KPN further plans to enable customers, and even applications and workflows to do the provisioning and monitoring of the network services themselves and provide elevated levels of flexibility. Customers provisioning their own services through an online self-service portal increases network usage and increases insight and control of the network. Having live and file-based workflows automatically request transport capacity where and when needed finally enables true media workflow agility.

The Results

The flagship customer for the network is Discovery Eurosport Europe. It contributed 16 channels from each of the four ATP Tennis Grand Slam tournaments from venue (Roland Garros, Paris; Wimbledon, London; US Open and in 2018 from the Australian Open) to the KPN source point in London.

The feeds are transmitted with the backbone MPLS network of KPN and enhanced with the edge equipment of Net Insight. The channels are routed to the Warsaw PoP and picked up by Poland's leading broadcaster Polsat. The broadcaster adds its own produced presentation layer and branding before onward distribution to its audiences. Polsat is offering two pop-up channels for its viewers for the duration of each tournament, after which the channels will close. Network capacity is only taken for the time required, saving all parties in the chain the cost of maintaining a permanent network infrastructure.

KPN's Magdalena Domagalik comments, “We have found this approach to video transport to be the best choice for our customers, and the fastest to deploy. We offered our IP/MPLS media transport solution to the world's most demanding TV companies, for their contribution feeds and it has performed extremely well.”

Going forward, we see multiple possibilities to expand our service offering based on the advanced VA platform. In addition, the strong QoS functionalities combined with the advanced monitoring capabilities of the Net Insight Nimbra platform ensures that we can offer the highest quality services to our customers.”

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