Customer
TVN

Location
Germany

TVN OB8 Case Study

Overview

TVN Live Production, a division of TVN Group Holding (https://www.tvn.de/en/), is one of Europe's leading providers of mobile television services. Based in Germany and established over 40 years ago, the company produces high-profile sporting events, music festival and political and social events for millions of viewers on behalf of major broadcasters and production houses.

Supported by experienced OB engineers, TVN Live Production's Outside Broadcast (OB) fleet comprises eight OB vans, plus equipment trucks and 13 SNG units to handle productions of all sizes and complexity, from UHD-HDR, 3D audio or simultaneous production of four programmes with up to 100 cameras. TVN Live Production is also a provider and partner when it comes to developing and launching innovative technical solutions.

Solution at a Glance

► TVN Live Production, a division of TVN Group Holding (https://www.tvn.de/en/), is one of Europe's leading providers of mobile television services.

► In 2021, TVN Live Production decided to expand its OB fleet by building a large-scale truck - OB8 – that would be fully UHD/HDR-capable and equipped with cutting-edge broadcast technology and corresponding back-up systems.

► TVN initially approached Evertz at to ask if the company could create a router of this size within the time constraints.

► Evertz was asked to build a NEXX router with 704 x 704 12G-SDI I/O FX-LINK System, 16 x 3G and 8 x UHD HDR conversion paths, and 48 standard and 14 advanced UHD multiviewer heads in 17 RU.

► For TVN Live Production, Evertz' NEXX platform offered the latest technology in routing solutions, supporting UHD/4K with 12G-SDI and allowing for future IP expansion.

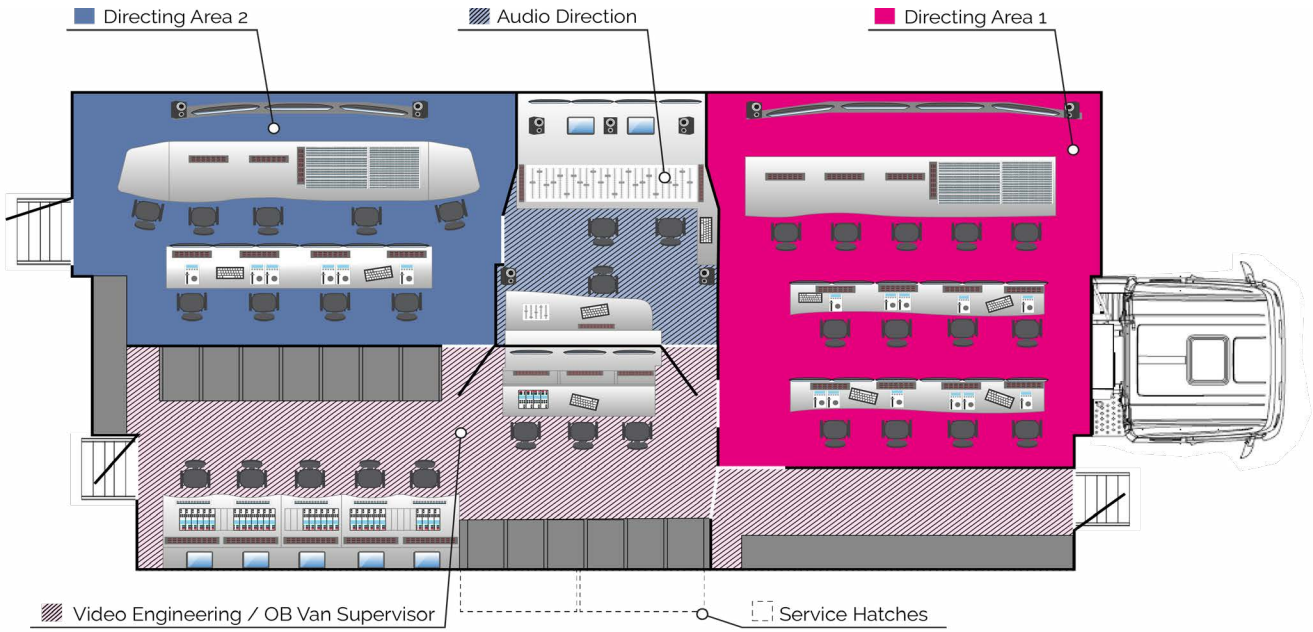
The Challenge

In 2021, TVN Live Production decided to expand its OB fleet by building a large-scale truck - OB8 – that would be fully UHD/HDR-capable and equipped with cutting-edge broadcast technology and corresponding back-up systems. With two galleries and 32 UHD cameras on board, OB8 was scheduled to make its debut at the UEFA EURO 2024 football championship where it was earmarked to capture games taking place in Berlin, including the championship final.

To cope with the demands of such large productions, TVN required a large-scale 700 square 12G-SDI UHD routing platform, which was significantly larger than any router available on the market at the time. This needed to be ready, installed and fully operational in time for the UEFA EURO 2024 championships, which kicked off in June 2024.

TVN initially approached Evertz at NAB 2023 to ask if the company could create a router of this size within the time constraints. However, the final go ahead for the project wasn't given until January 2024, leaving Evertz just months to complete the challenge.

"With its distributed floating backplane technology for hybrid audio/video routing, frame syncing, multiviewers and conversion, Evertz' NEXX routing platform was a very compelling option," says Christoph Moll, TVN Live Production's Technical Manager for Outside Broadcast. "In fact, it was the only solution that seemed close enough to be delivered in time for the EURO 2024 championship. The company's engineering team and product managers were convinced that they could make it happen, and we are delighted to say that they did."



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Why SDI UHD And Not IP?

For such a large and complex routing challenge, an IP solution using SMPTE ST 2110 would be the primary choice for the UHD routing core. However, TVN insisted that their router be SDI-based, as the OB van's use is aimed at large events where it is necessary to exchange a high number of SDI signals from 1080i to UHD 12G directly at the OB van patch panel with other broadcasters.

"In the case of a pure IP solution, there would not be enough space to install the required number of IP/SDI gateways around the switches in order to operate the patch panel to its full extent - even though the TVN OB8 is a real space wonder," Christopher Moll says.

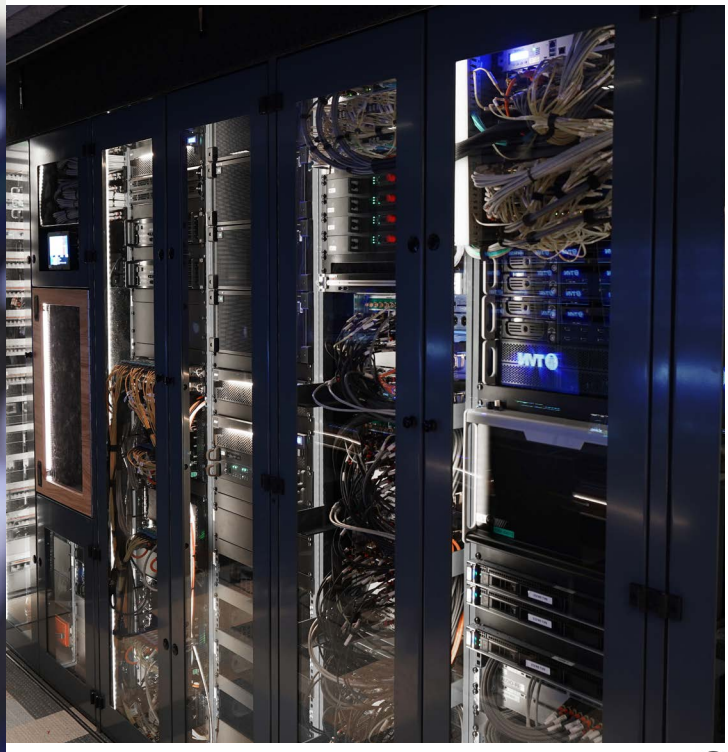
In addition, SDI is faster than IP and is therefore perfect for the instant playback of live content on large LED screens at festivals without any visual delay. Also, switching between the live camera signals on an SDI basis is still the most efficient and convenient solution for the technician when shading on the reference monitor.

"This is where the SDI matrix comes into its own," Moll adds. "At just 17 RU, it is more compact than any other solution on the market, with 62 integrated multiviewers, 24 UHD/HD cross converters, 96 frame syncs, and an audio router for all SDI embedding, de-embedding and MADI sources. It also offers a complete solution in the smallest of spaces."

Evertz Product Specialist Ray Kasprzyk, who played a lead role in developing TVN's router, says: "In recent years the narrative surrounding the transition from SDI to IP has changed because people are recognizing that large SDI routers are capable of doing everything that an IP system can do. SDI remains simpler for people to use, and broadcasters don't have to get their engineering staff up to speed with IP or have IP specialists on board the OB vehicle. It's a different solution to the same video problem, and it proves that you don't have to transition to SMPTE ST 2110 to achieve great results."

Kasprzyk adds that all Evertz SDI routers have ST 2110 gateway capabilities, making it easy for customers to transition to IP in the future.

"All they need to do is change out the modules – it is that simple," she says. "With Evertz routers, customers have the perfect hybrid solution because they are not only getting the best SDI system, but they are also future proofed as well."



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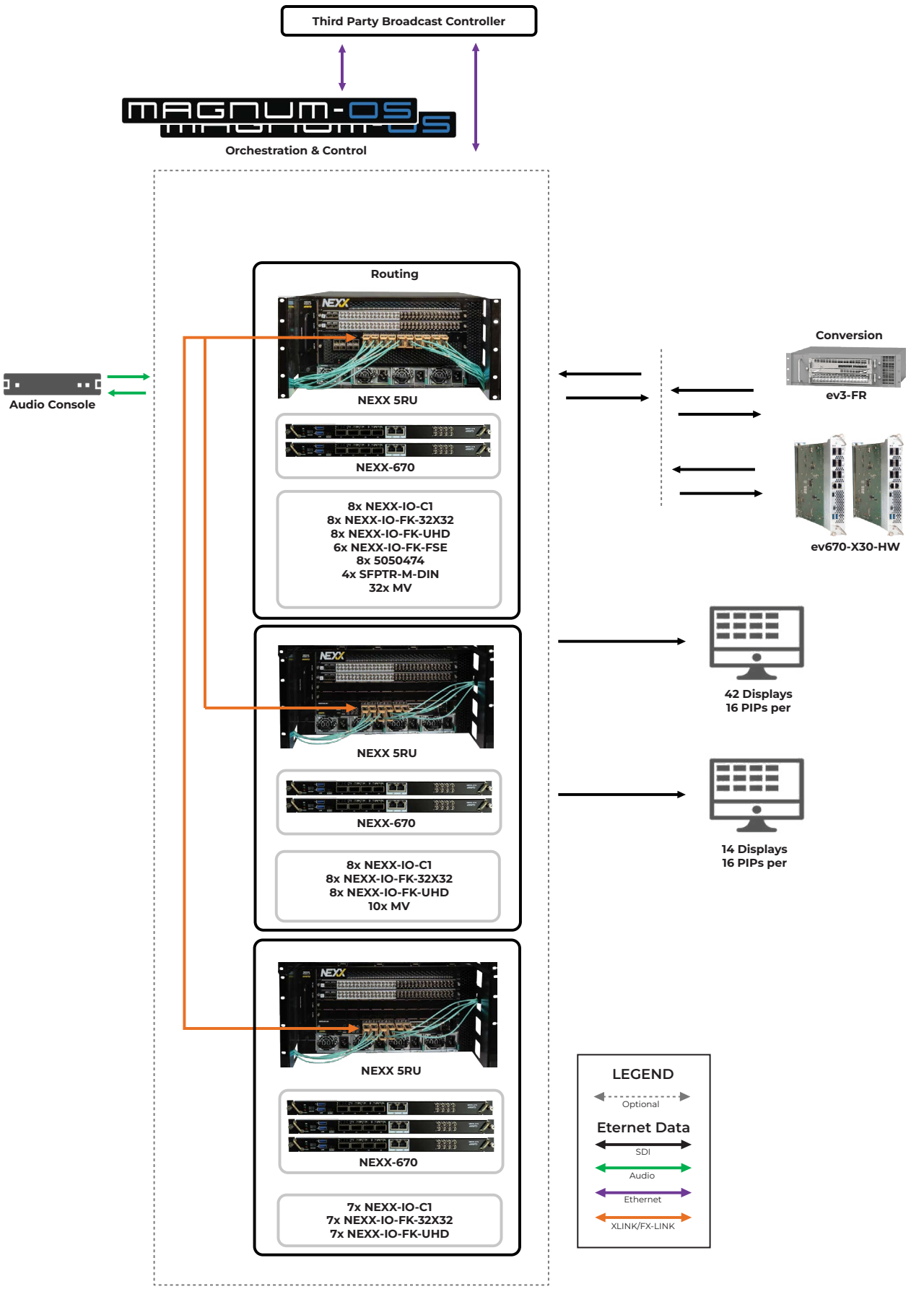
The Solution

Evertz NEXX next generation processing and routing solution provides broadcast facilities, OB trucks, venues and stadia with the building blocks for 3G/12G-SDI. Based around a compact modular frame with a main interface/backplane, the NEXX processing and routing platform gives broadcast facilities access to UHD (4K) and HDR technology. By supporting SD/HD/3G/6G/12G data rates, this solution also provides a clear pathway to future IP expansion, allowing customers to transition to SMPTE ST 2110 and adopt more remote services as part of their workflow.

For TVN Live Production's OB8, Evertz was asked to build a NEXX router with 704 x 704 12G-SDI I/O, 16 x 3G and 8 x UHD HDR conversion paths, and 48 standard and 14 advanced UHD multiviewer heads in 17 RU. This compact routing and processing platform also needed to include flexible modules for conversion, processing, and non-SDI interfaces.

"This was a massive engineering challenge because nothing of this size had ever been done before," says Sebastian Ruchti, Sales Engineer for Evertz in Germany. "What we built was certainly a first for the broadcast industry – the largest 12G UHD single link router anyone had ever made."

Kasprzyk adds: "NEXX truly routes UHD single essence through its non-blocking core. It converges a great deal of technology inside the router so that everything is truly in one place. You don't have to think about what you have or where anything is because everything is interfaced and therefore much easier to use."



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What The Customer Thinks

For TVN Live Production, Evertz' NEXX platform offered the latest technology in routing solutions, supporting UHD/4K with 12G-SDI and allowing for future IP expansion.

"The density of the router Evertz has built for us is phenomenal," says Christoph Moll. "It's 960 x 960 UHD with Frame syncs, Embedders/De-Embedders, Multiviewers and Up/Down/Cross Conversion – and all in a non-blocking architecture, which makes it very reliable and easy to use."

Moll adds that the Evertz engineering team was incredibly helpful, especially during the final days of commissioning prior to the start of EURO 2024 and pulled out all the stops to ensure the system worked.

"They listened to my concerns and got fixes and new features developed very quickly and in a highly professional manner," he says. "The router was the core component of this project and a cutting-edge development. Having direct access to Evertz' engineering team was very valuable for us, and we continue to feedback ideas for improvements that they are happy to work on."

The Conclusion

TVN Live Production's OB8 made its debut at EURO 2024, capturing the action from the Championship, which was watched by 350 million people.

Describing the development of the NEXX router as a 'massive engineering feat' and one that required enormous effort by the entire Evertz team, Kasprzyk says: "I'm not going to lie, we partied when it was done because it was so huge. It really was the challenge of a lifetime!" TVN-OB8 was showcased at IBC 2024 and received a large amount of buzz and was very well received from the broadcast community who visited this technical marvel.