

Case Study

Open storage solution from Rohde & Schwarz at tpc

At a glance

tpc Switzerland AG in Zurich contacted the Swiss systems integrator Jordi AG, asking them for a flexible and extremely fast storage platform for the tpc MEX ingest transcoding of alien codec/container media. Besides having to serve 32 transcoder instances and two four-channel Rohde&Schwarz R&S®VENICE servers in transcoding mode, the platform had to cope with the already existing network infrastructure that provided only a limited number of available ports and constrained rack-space. Jordi AG solved the problem by supplying a Rohde&Schwarz storage system powered by four SSD-based R&S®SpycerBox Cell units and the IBM SpectrumScale file system. Advanced IT technologies such as SMB/CIFS clustering were implemented to create a low-maintenance approach for tpc's automated ingest mechanisms.

Products in use

R&S®SpycerBox Cell, R&S®Venice



"As system integrator, we greatly value the technical expertise of our long-standing partner Rohde&Schwarz and its professional collaboration with us. Like no other manufacturer, Rohde&Schwarz offers a product portfolio in the media sector that effectively optimizes today's demands of workflow-based media production."

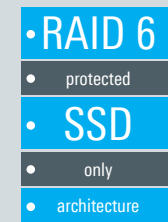
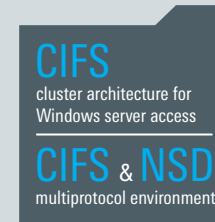
Michael Jordi, CEO at Jordi AG



Highlights

80x

80 transcoding streams
faster than realtime



Challenges

Infrastructure

Hosting different network interfaces was a key challenge during the project. Out of the range of available interfaces and protocols, 40 GbE NICs transferring NSD blocks and 10 GbE interfaces running SMB/CIFS were selected. That led to a perfect integration into tpc's existing network infrastructure.

SpectrumScale file system

The IBM SpectrumScale file system allows a highly individualized and feature-rich storage design with a distributed data and metadata layout. Since each R&S®SpycerBox Cell contains a local PC, the entire SAN functionality such as metadata management, NAS-head tasks/protocol conversion, SMB/CIFS clustering and general configuration can be implemented without further need of external servers.

Open storage architecture

The architecture supplies fast storage for two Rohde & Schwarz four-channel R&S®VENICE servers mainly in transforming mode, as well as eight automated third-party transcoder units with four transcoding instances each. As a result, between 60 and 80 faster-than-realtime read and write streams have to be served via CIFS protocol and NSD block access.

High data throughput and number of IOPs

Since many independent media streams with an ever-changing stream composition had to be served, the four R&S®SpycerBox Cell units were equipped with SSDs. The read and another write cluster consist of two storage units, providing up to 6 Gbyte/s and hundreds of thousands of IOPs per cluster.

Benefits



Seamless integration into
existing IT infrastructure



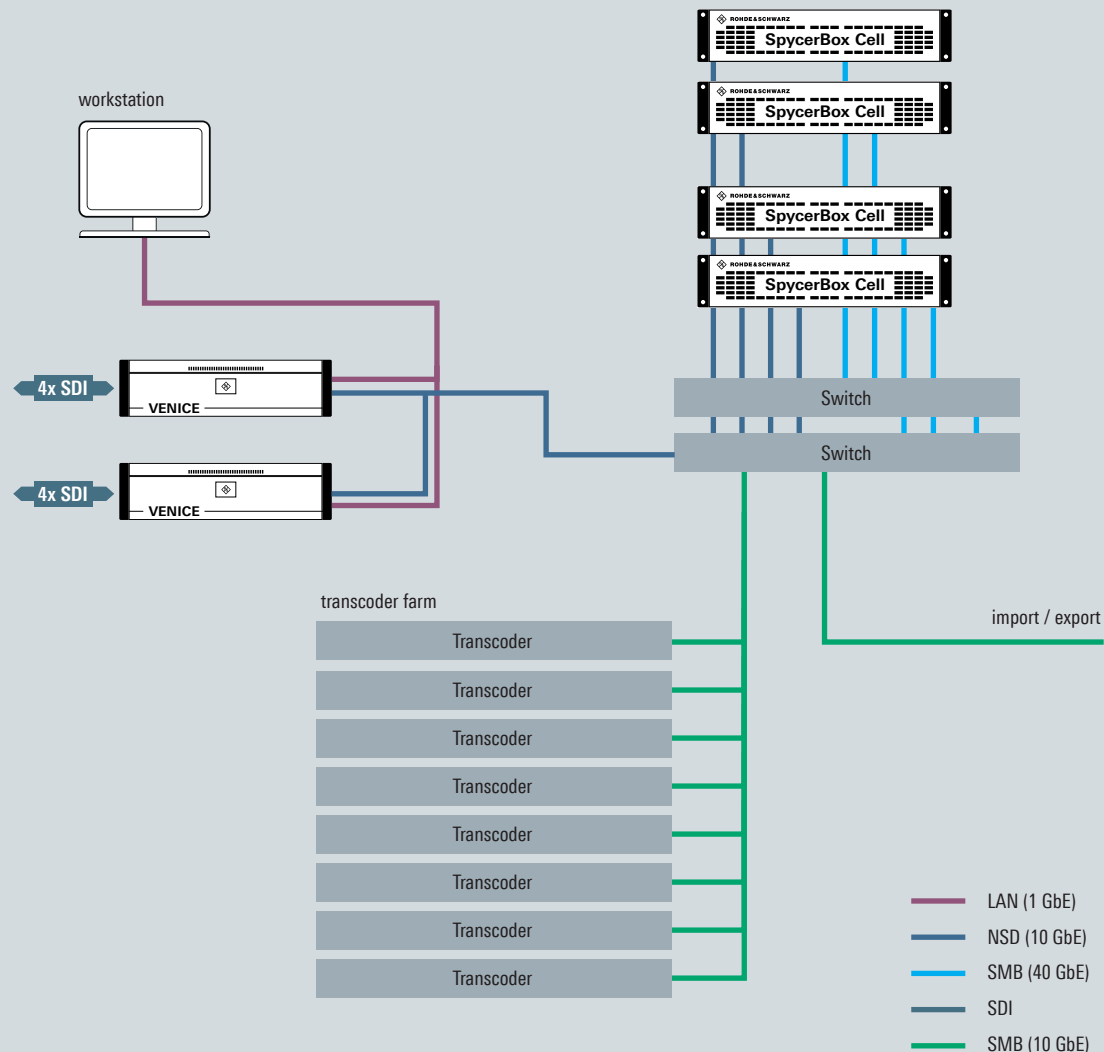
Turnkey solution



Small footprint and
low energy consumption

Solution

Two clusters, each consisting of two R&S®SpycerBox Cell units equipped with SSDs in a RAID 60 configuration with the SpectrumScale file system, form one read and one write cluster. The backbone between the two clustered units is formed via a 40 GbE link running the NSD protocol. Another 40 GbE link with a clustered SMB/CIFS server protocol runs from each unit to the existing central 40/10 GbE switch, supplying the media links for the transcoder farm and providing the media I/O spigots for the entire system. Each R&S®SpycerBox Cell features another bonded 10 GbE link, running NSD blocks via the central switch to the attached R&S®VENICE servers. The nearly complete separation of read and write operations makes it possible to buffer the extensive dynamic data rate and fulfill IOP requirements.



About tpc Switzerland AG

tpc is the leading broadcast service provider in Switzerland. As a subsidiary of the Swiss public broadcasting association SRG SSR, tpc is responsible for all technology and production, including all TV, radio and multimedia contributions, of the Swiss broadcasting company SRF. tpc handles customer projects from different industries in Switzerland and other countries. With state-of-the-art studios, modern workshops and a multifunctional vehicle fleet, tpc sets technological standards and has received many awards.

Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, monitoring and network testing. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.



<https://www.rohde-schwarz.com/broadcast-media>

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