Case study: PLAZAMEDIA

IP-based Broadcasting Center

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About me!
About PLAZAMEDIA

- Germany-based content solution provider (since 1976)
- Leading producer of sports TV in the German-speaking area
- Clients include:
  - Public and commercial broadcasters
  - Platform operators
  - International sports associations
  - Sports rights agencies
  - Enterprises
Move in 2018 to new broadcasting center in Ismaning near Munich, Germany

Create a **more scalable and future-proof** media network – based on IP

Enable **faster and more cost-effective deployment** of new services

**Share resources** to reduce cost
We are leaving behind the world of conventional broadcasting center technology altogether, consciously opting against a hybrid solution and creating the most modern and future-proof system conceivable.

PLAZAMEDIA chairman, Jens Friedrichs
Scope of project

All-IP production network with SMPTE ST 2110 workflow

Redundant path
(in case production network fails)

All-IP playout network

Live external feeds

Redundant SDN control

Redundant SDN control

Playout feeds
Ultimate flexibility
multi-function room

Any workstation in any room can be connected to any function in the equipment rooms

Multi-function room

Multi-function room

IP-based SDN

Equipment room(s)

On-air graphics
Playout
Live playout

Slo-mo
Voice-over
Audio-mix

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Some numbers from the completed project

1st playout provider in Europe to have a fully IP-based solution

17 SDI routers with associated tie-lines replaced

8,000 IP audio and video endpoints

17 multi-purpose operating rooms

Potential data throughput of 12.8 Tbps

10,000 SDN-controlled audio, video and data flows
Benefits

Opportunity for increased revenue
More services and productions with the same resources (people, equipment, etc)

Reduced costs
Fewer costly operational tasks, e.g. tie-line management

Future proofing
Scope for cost-effective expansion and scaling
Able to support technological evolution (e.g. 4K/UHD, AR)

Lower carbon footprint
Energy and space efficient
Project partnership

SHOWCASE THEATER

PLAZA MEDIA GROUP

FAIRNESS & KOMPETENZ

nevion
Previous project with Nevion & partner
Positive experiences with earlier Remote Production project (same technology)

IP-fabric control
Nevion VideoIPath

SDN flexibility
Ability to hook up “unknown” equipment as virtual devices

Optimum use of resources
Bandwidth management for best performance

Future proof
Commitment to broadcast standards driven like NMOS
Project elements

- Media network design
- PTP sync distribution design
- System integration
- Project delivery
- Testing
- Support
Short time scale – on time delivery
The IP facilities solution was delivered on time by Nevion services and LOGIC – despite a very tight schedule dictated by our move to the new premises – and we are pleased with its performance.

PLAZAMEDIA chairman, Jens Friedrichs
Chosen network architecture

Centralized Star

True Leaf-Spine

Pseudo Leaf-Spine (Dual Star)
### Control Architecture

<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadcast Control Layer (VSM)</td>
<td>Broadcast control system is not changed now to maintain existing workflows:</td>
</tr>
<tr>
<td></td>
<td>- Ember+ control protocol to VideoIPath</td>
</tr>
<tr>
<td>SDN Control Layer (VideoIPath)</td>
<td>SDN control layer manages connectivity between media functions</td>
</tr>
<tr>
<td></td>
<td>- Multi-vendor connectivity</td>
</tr>
<tr>
<td></td>
<td>- Video/audio essence routing</td>
</tr>
<tr>
<td>Media Functions (Virtuoso)</td>
<td>Media Functions pre-provisioned, connected using NAT in the network</td>
</tr>
<tr>
<td></td>
<td>- ST2110-30/31 audio, ST2022-6 video streams</td>
</tr>
<tr>
<td>Network Infrastructure</td>
<td>- Network infrastructure is controlled via OpenFlow</td>
</tr>
<tr>
<td></td>
<td>- Network address translation of ST2110 flows</td>
</tr>
<tr>
<td></td>
<td>- PTP distribution</td>
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</table>
**Control**

3 x Nevion VideoIPath
Full orchestration and SDN control of the IP infrastructure

Lawo VSM
Broadcast control and panels to maintain familiar production control

**Media functions**

49 x Virtuoso HBR
- SDI-IP adaption
- MADI-IP adaption
- Video processing
  - Frame sync
  - Audio processing
  - Embed/de-embed
  - Delay and gain control

Lawo C100
IP Multiviewers and gateways

Lawo Ruby Audio Mixer
IP Audio Monitors

Wohler IAM Audio
IP Audio Monitors

**Network**

12 x Nevion eMerge
SDN-controlled leaf switches
(10/40/100 Gb switches)

4 x Mellanox SN2700
SDN controlled spine switches controlled by VideoIPath
(32-port 100 Gb switches)

Tektronix SPG8000A and Meinberg M3000
PTP/1588v2/2059-2 grandmasters
Interfaces

Media flow control (SDN)
- OpenFlow
- Nevion eMerge
- Mellanox SN2700

Equipment configuration and/or monitoring
- Nevion Virtuoso
- Lawo Multiviewer
- Lawo C100
- C100

Nevion VideoPath
- VSM
- Ember+
Uses of new media network

Network operations center (NOC)
Signal reception, distribution, and contribution

Running live and near-live signals

Integrated playout & content refinement
Graphics and highlight editing

Integration plans
Post production services, a new streaming platform, and a new MAM system
## Example use of Multi-Functional rooms

<table>
<thead>
<tr>
<th>Large multi-functional room</th>
<th>Live turn around</th>
<th>Live graphics</th>
<th>On-server voice-over</th>
<th>Live / playout</th>
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<tbody>
<tr>
<td>Playout</td>
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<td>Audio-mix</td>
<td>Audio-mix</td>
<td>Live playout</td>
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<tr>
<td>On-air graphics</td>
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| Voice-over                  | Voice-over       | Voice-over    | Voice-over          | Voice-over     |

Nevion Confidential
Live on-air August, 2018
With remote launch support from Nevion
We have designed our new broadcast center for maximum flexibility and scalability. This will enable us to realize a significantly higher volume of IP-based projects in the future, in parallel, even at short notice - and at a lower operating cost.

PLAZAMEDIA chairman, Jens Friedrichs
PLAZAMEDIA – IP Facilities
Germany-based content solution provider (since 1976)

Situation
- Move to new broadcasting center near Munich in 2018
- Wanted a more scalable, flexible and future-proof media network – based on IP, but connecting SDI equipment

Solution
- Spine-leaf media SDN
- Controlled by VideolPath, with VSM as user interface
- SDI-IP adaption by Nevion Virtuoso and Lawo C100
- Video and audio processing by Nevion Virtuoso
- Nevion services for network design, integration, support
- 4 months from PO to going live

Benefits
- More services and productions with the same resources
- Fewer costly operational tasks, e.g. tie-line management
- Scope for cost-effective expansion and scaling
Thank You
Do come and see us SU5510
We do a nice cup of tea!

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