Åre 2019 – Remote Produktion der Superlative

Klaus Weber - Principal Camera Solutions & Technology
Is this still necessary?
More platforms require more produced content. Live production must become more efficient and sustainable.
Åre to Stockholm - > 600km distance
SVT’s Requirements

- 80+ cameras remote, control at home
- No difference in the viewers experience
- Fewer staff & equipment on site
- All feeds synchronized and low latency
- No OB vans in Åre
- Sustainable workflows
DirectIP

**XF Transmission**
Communication Protocol between Camera and XCU

**SMPTE Hybrid Fiber cable**
incl. 2x single mode fiber

**Main**: 1 Channel SMPTE 2022-5+6
- 1080i50/59 = 1.8Gb
- 1080p50/59 = 3.4Gb

**Return**: 1 Channel SMPTE 2022-5+6
- 1080i50/59 = 1.8Gb
- 1080p50/59 = 1.6Gb

C2IP + Private Data + l-com +
Analog Audio + Digital Audio = ~ 8Mb

IP Trunk =
0Mb (when not connected)
DirectIP

All processing at home. Only camera heads at location. Least amount of equipment at venue.

Bandwidth requirement is high. Uncompressed video streamed to production hub.

Delay is minimal and not an issue for the production team.
Remote Production setup Åre

Venue - Åre
Field production

50 x LDX 86N
6x 6-speed
7x 3-speed
37x single speed

Arista 7280SR-48C6

2x 100Gb/s

SVT - Stockholm
Centralized processing

50x UXF XCU

Category: Teleproduction

Director wanted to be on site

Venue - Åre
Field production

GV Kayenne

Centralized processing

Nimbra 1060

SVT - Stockholm
Field production

GV K-Frame
Technical highlights

• Centralized processing
  – All processing equipment in centralized control room at SVT in Stockholm

• End to End IP remote production infrastructure
  – 2x 100Gb/s to carry all signals, cameras, video, audio, control

• Open standards architecture
  – SMPTE 2022-6, 2110-10, 20, 30, COTS IP switches
Åre FIS Alpine World Ski Championship - Sustainable remote production

More platforms require more produced content. Live production must become more efficient and sustainable.

- 900 hours content
- 1100 Mio viewers
- 10% cost savings
- Sustainable production workflow
Two remote productions close to each other

Åre -
Alpine World Championship
4th to 17th February 2019

Östersund –
Biathlon World Championship
6th to 17th March 2019

Pictures: SVT
“If we would have done Åre and Östersund – the world championships for Alpine skiing and Biathlon – 15 years ago, we would have needed at least four or five weeks between the championships.”

“With the technical facilities that we have now, I do the same operation in 24 hours. We can do much, much more with less. This is a fantastic system to work with and to face the future with.”

Adde Granberg, CTO, SVT
All processing at home. Only camera heads at location. Least amount of equipment at venue.

Bandwidth requirement is reduced up to 90% with compressed video transported to the production hub.

Slightly higher, but no operationally significant delay for operation due to compression workflow.
Minimum deployment on the venue site

JPEG2000 compression with Net Insight’s Nimbra
Saving up to 90% of the bandwidth

Depending on the overall system 100 ms plus network latency

DirectIP+
Summary

• Remote productions are a big topic today

• Different solutions are required depending…
  …on the specific production requirements
  …on the infrastructure available

• Multiple use cases have proven the different workflows and solutions
Danke !