Case Study
FIS Ski World Championship

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We must start creating new workflows that can make better use of emerging technology!!!
Åre to Stockholm is about 600km
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

Setup

Åre

SVT Broadcast Centre
Stockholm

80

150

1

2x100Gb/s

3

World feed

World feed plus

Unilateral SWE

40

3

IP SHOWCASE THEATRE AT IBC2019 : 13–17 SEPT 2019
SVT Production in Stockholm

Technical highlights:

- Centralized processing
- End to End IP remote production infrastructure
- Open standards architecture
Remote Production setup Åre

50 x LDX 86N

6x 6-speed + 7x 3-speed

2x100Gb/s

Centralized processing

50x UXF XCU

SVT Broadcast Centre
Stockholm

Arista 7280SR-48C6

DirectIP

WAN/LAN

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**DirectIP camera configuration**

- Each camera and XCU direct connected to IP network
- Robust, fixed IP network infrastructure
- Use of COTS switches
- Easy to scale-up; only cameras needed
- Central storage for content in Data Center
- Lower investments (shorter ROI)

**DirectIP - XF Transmission 10Gb IP based**

**XF Transmission**

Communication Protocol between Camera and XCU

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

**Main Video**

- SMPTE 2022-5+6
  - 1080i50/59 = 1.8Gb
  - 1080p50/59 = 3.4Gb

**Return**

- SMPTE 2022-5+6
  - 1080i50/59 = 1.8Gb
  - 1080p50/59 = 1.8Gb

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

- IP Trunk = 0Mb (when not connected)
DirectIP - Overview of the bandwidth requirements

- Bandwidth requirements depend on the operational mode
- Transmission through 10G SFP+ modules (Single Mode) in IP switches

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<th>Bandwidth (Gb)</th>
<th>2022-6</th>
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Plus in addition for Audio, I-comm, C2IP, Private data, etc. = about 8Mb
Director wanted to be on site

WAN/LAN

GV Kayenne  
Nimbra 1060  
Nimbra 1060  
GV K-Frame

Åre Alpine World Championship

Östersund Biathlon World Championship
More platforms require more produced content. Live production must become more efficient and sustainable.

Åre FIS Alpine World Ski Championship - Sustainable remote production

- 900 hours content
- 1100 Mio viewers
- 10% cost savings
- Sustainable production workflow

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