



Case Study

FIS Ski World Championship

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IP SHOWCASE THEATRE AT IBC2019 : 13-17 SEPT 2019

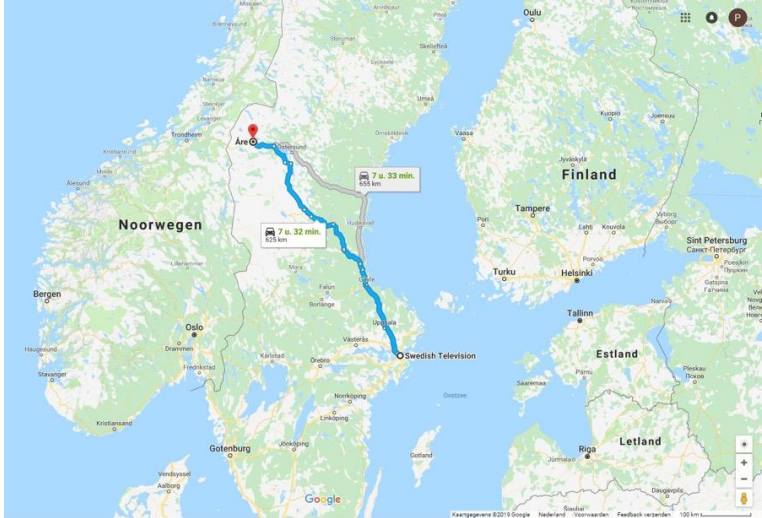


We must start creating new workflows
that can make better use of emerging
technology!!!

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Åre to Stockholm is about 600km



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SVT's Requirements



80+ cameras remote, control at home



All feeds synchronized and low latency



No difference in the viewers experience



No OB vans in Åre



Fewer staff & Equipment on site



Sustainable workflows

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Setup

Åre



SVT Broadcast Centre Stockholm



80

150

1

2x100Gb/s

3
World feed
World feed plus
Unilateral SWE

40

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SVT Production in Stockholm



Pictures: SVT

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Technical highlights

- Centralized processing
- End to End IP remote production infrastructure
- Open standards architecture



IP SHOWC



Remote Production setup Åre

Åre

SVT Broadcast Centre
Stockholm

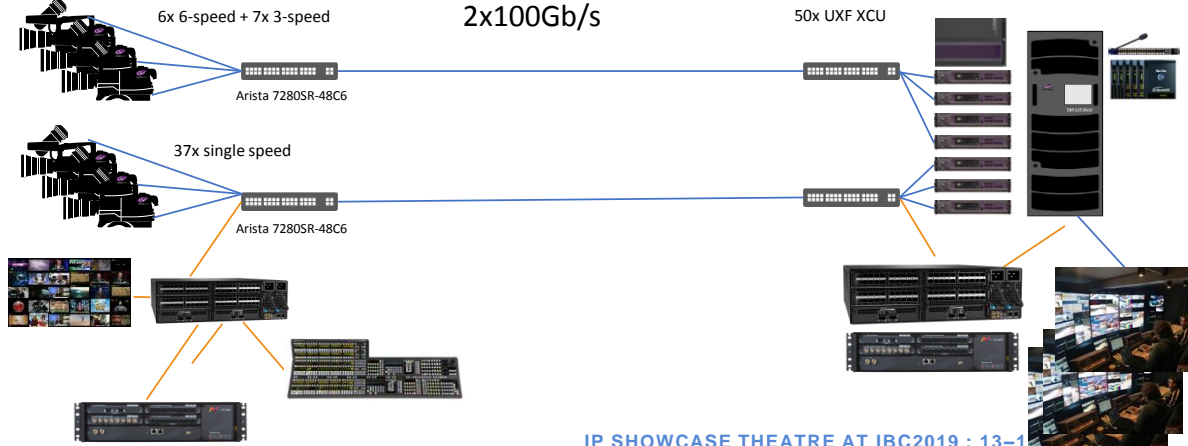
50 x LDX 86N

6x 6-speed + 7x 3-speed

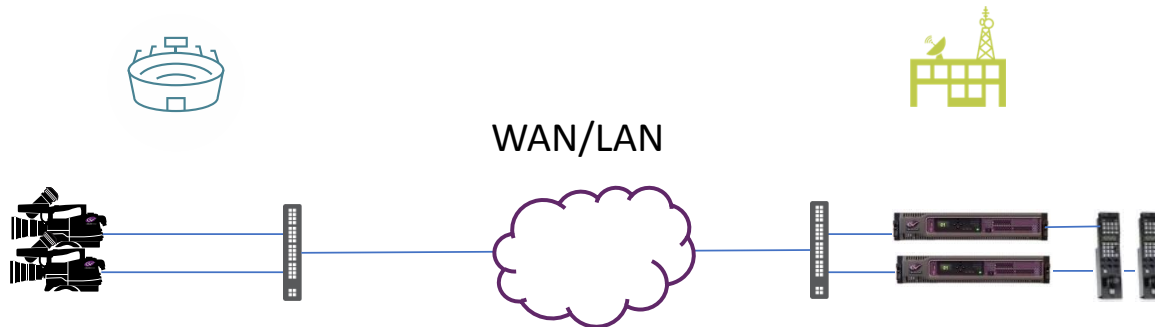
2x100Gb/s

Centralized processing

50x UXF XCU



DirectIP

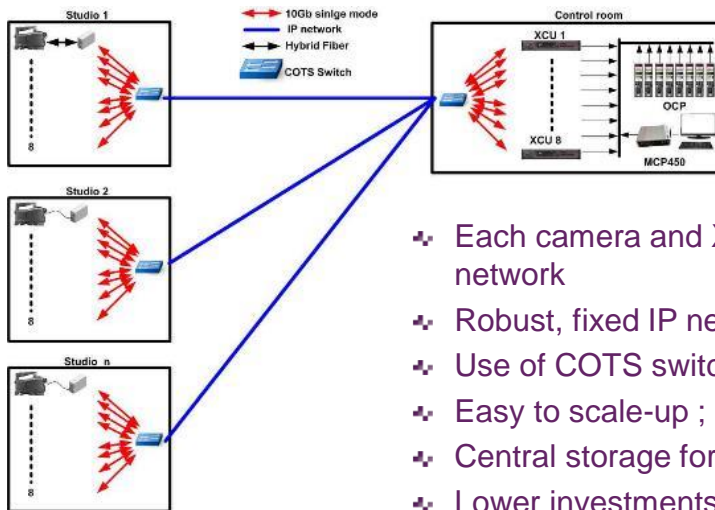


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1
2



DirectIP camera configuration

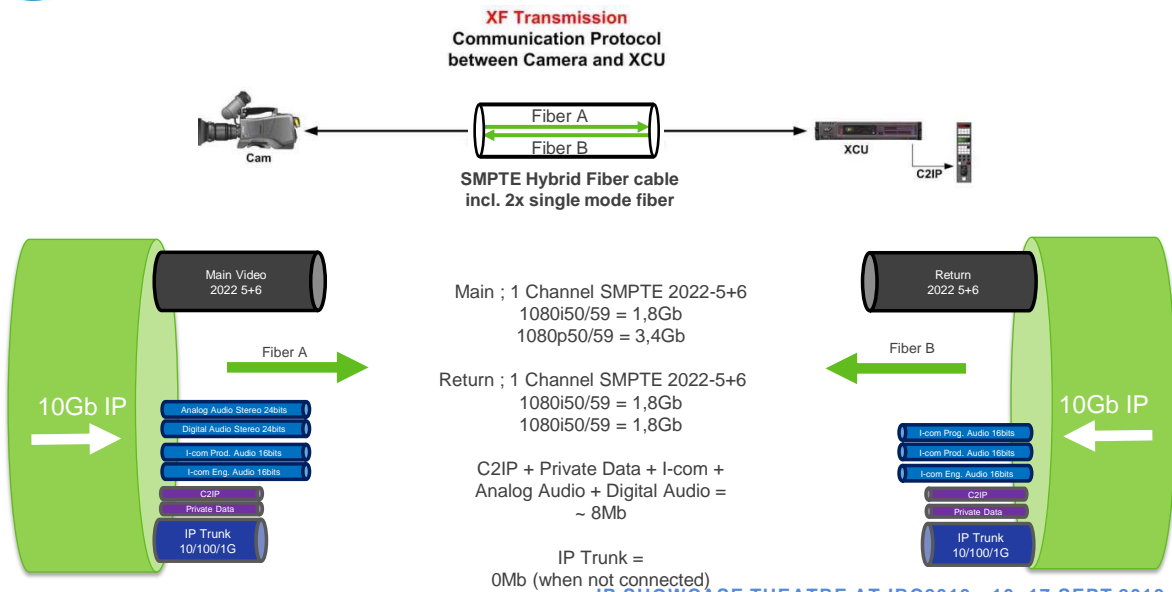


- ❖ Each camera and XCU direct connected to IP network
- ❖ Robust, fixed IP network infrastructure
- ❖ Use of COTS switches
- ❖ Easy to scale-up ; only cameras needed
- ❖ Central storage for content in Data Center
- ❖ Lower investments (shorter ROI)

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DirectIP - XF Transmission 10Gb IP based



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DirectIP - Overview of the bandwidth requirements

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

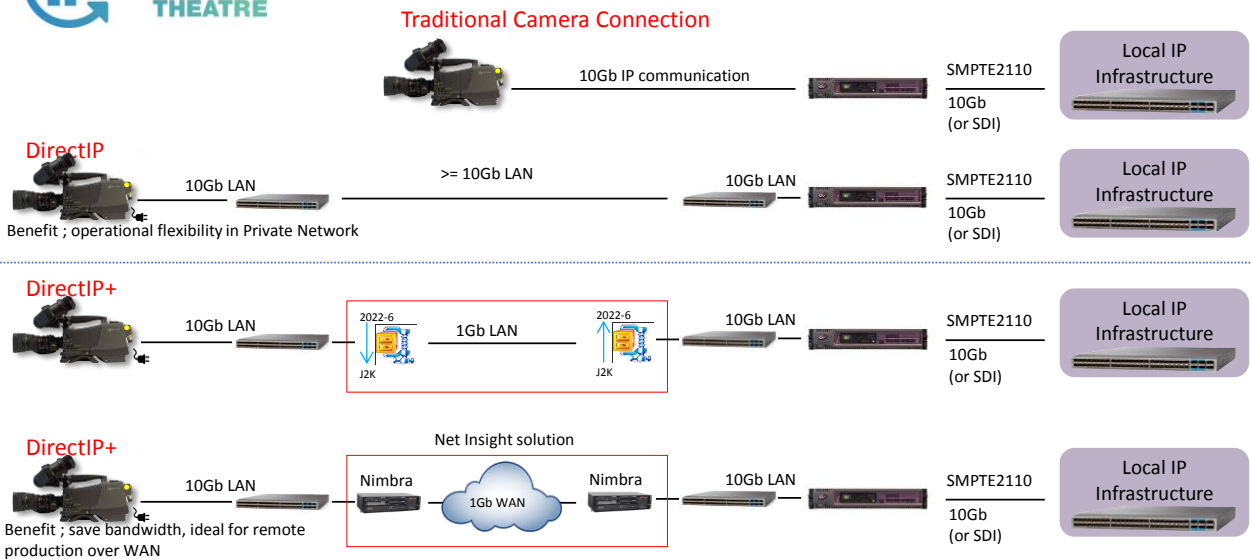
		LDX86N				
		Bandwidth in Gb				
	(Hz)	2022-6	2022-6	2110	2110	Total
1080i	50	(HD)	1,75			1,75
1080p	50	(3G)	3,4			3,4
3x1080i	50	(HD + HD + HD)	1,75		1,25	4,25
6x1080i	50	(3Gb + 3Gb + 3Gb)	3,4		2,4	8,2
3x1080p	50	(3G + 3G + 3G)	3,4		2,4	8,2
UHD	50	(3G + Tico)	3,4	3,4		6,8
HD-HDR	50	(HD-SDR + HD-HDR)	1,75	1,75		3,5
3G-HDR	50	(3G-SDR + 3G-HDR)	3,4	3,4		6,8
UHD-HDR	50	(3G-SDR + Tico-HDR)	3,4	3,4		6,8

Plus in addition for Audio, I-comm, C2IP, Private data, etc. = about 8Mb

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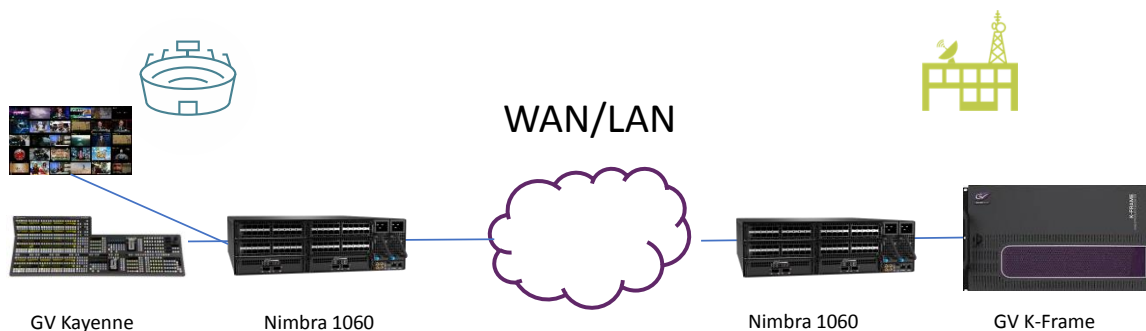
DirectIP and DirectIP+ options



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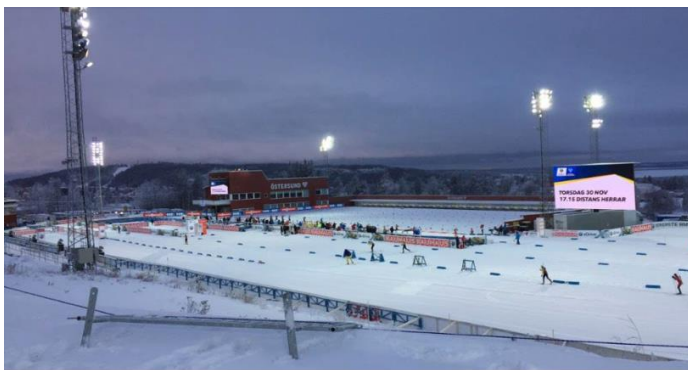
Director wanted to be on site



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Åre Alpine World
Championship



Östersund
Biathlon World
Championship

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Are FIS Alpine World Ski Championship - Sustainable remote production



900 hours content
1100 Mio viewers



10% cost savings



Sustainable production workflow

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

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