



EBU PMSE

5G content production

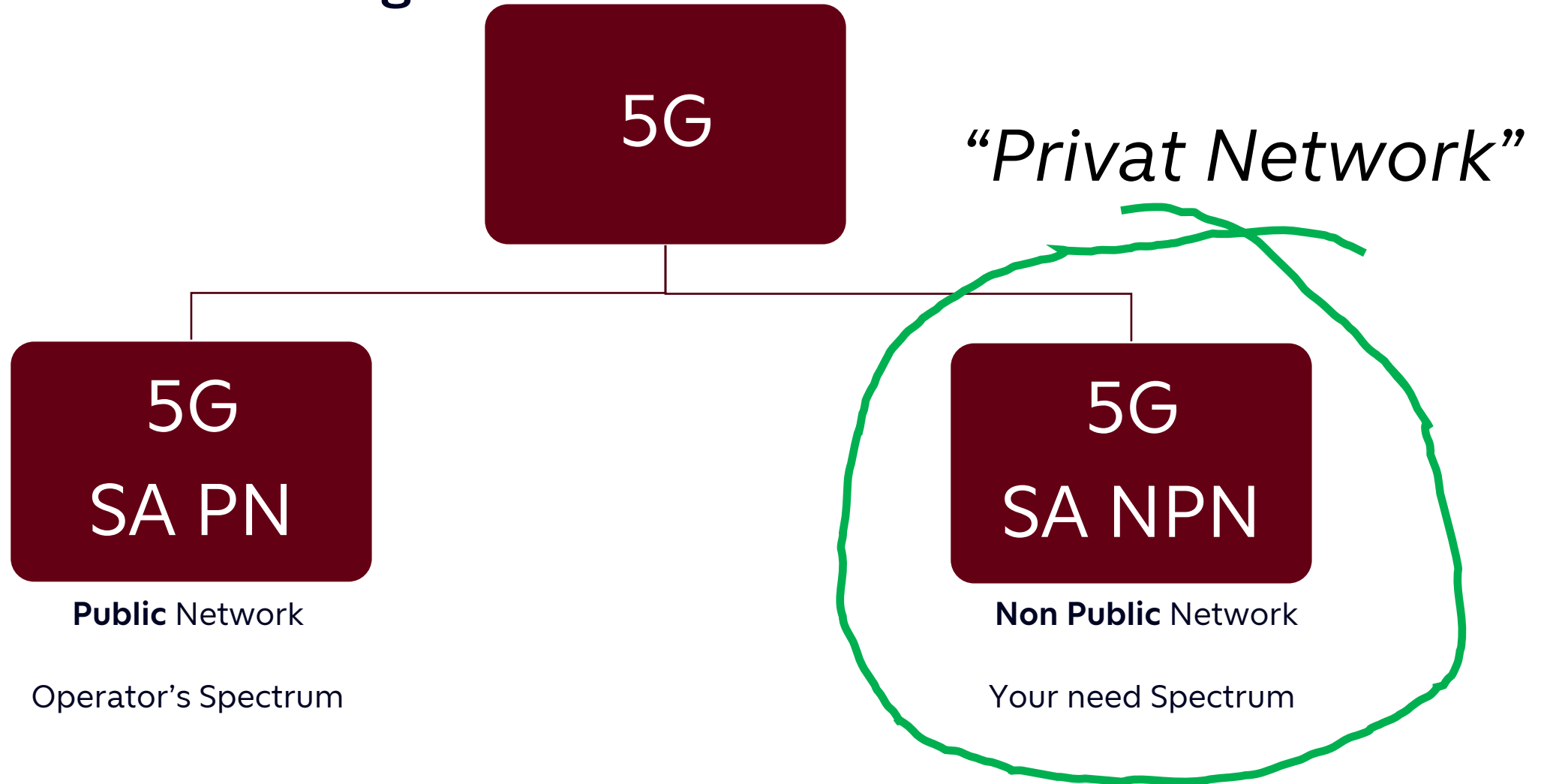
5G NPN



Morten Brandstrup
Head of Newstechnology

April 2024

What 5G are we talking?



What you need to make you own 5G network setup:



Spectrum – here it was n77 3.8-4.2GHz



Change TDD pattern to favor Uplink, instead of Downlink like commercial network does



5G network setup: RAN (radio) and a Core

EBU PMSE

“As a technology, 5G has reached the point where devices and services are becoming available, marking the start of a potential transition from the experimental usage to every-day operations.”



“However, suitable regulatory conditions are required to make this transition a success:

Spectrum access is crucial for the deployment of non-public 5G networks, including:

- Affordable pricing and flexible licensing similar to the current regime for PMSE applications (e.g., fixed location/long-term, temporary location/short term, nomadic)*
- Flexible technical conditions that allow 5G network implementation tailored to content production use cases (e.g. higher uplink than downlink capacity).*

Additionally, conditions of use must be harmonised across Europe. This is essential to facilitate cross-border use of the 5G equipment.

Telecom operators need to be allowed to provide professional services with guaranteed QoS to permit public 5G networks to be successfully used in content production.”

<https://tech.ebu.ch/publications/tr080>

5G SA NPN

or “Privat Network”

5G Stand Alone Non-Public-Network

Consortium

x11 countries

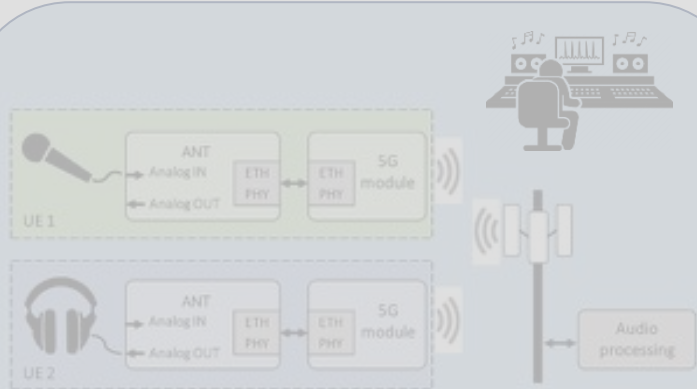
x18 partners



TV2 Danmark

Live Audio Production

5G RECORDS



- Open and Virtualised RAN
- NR-RedCap & URLLC
- Software Defined Radio
- Dynamic Spectrum Access



Design

of 5G components for professional content production

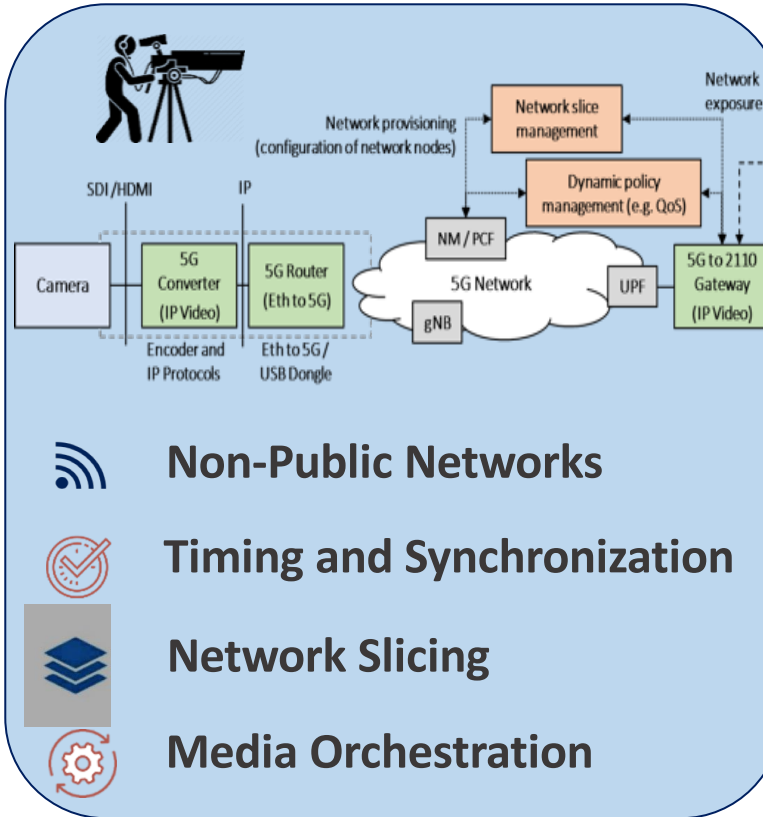


Development

of state-of-the-art 5G prototypes

Multiple Camera Wireless Studio

5G RECORDS



- Non-Public Networks
- Timing and Synchronization
- Network Slicing
- Media Orchestration



Integration

into end-to-end 5G infrastructures



Validation

in the context of real production use cases

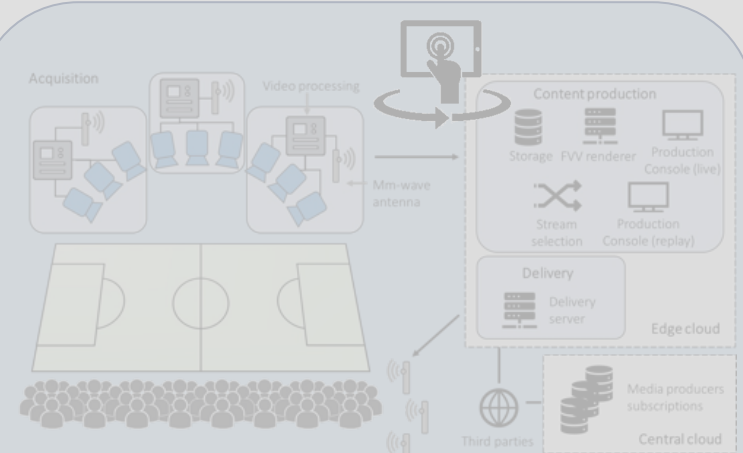


Demonstration

of the potential value for the sector

Live Immersive Media Production

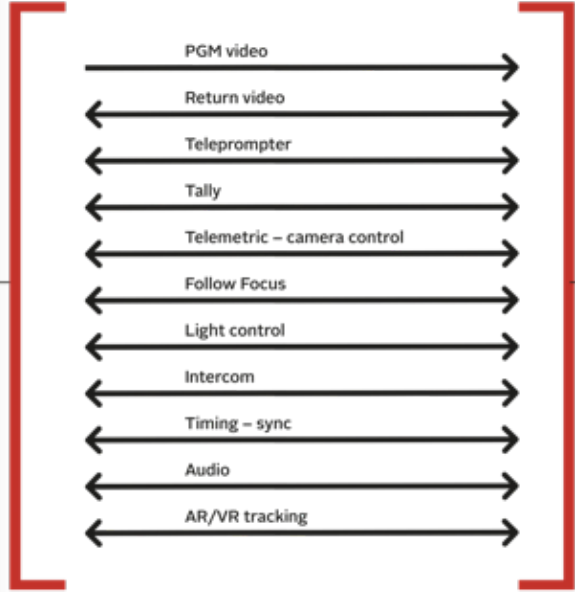
5G RECORDS



- Edge Computing
- mm-Wave Antennas/Devices
- Centralized/Distributed 5GC



One camera unit



5G privat network – 5G-RECORDS.EU

GO' studiet – TIVOLI – June 2022



5G production



**100Mhz – n77
5G SA NPN**



**2x 5G camera &
Wireless audio**

5G PoC GO' studio TIVOLI



Onair 1st November 17:20 on national TV 2





Rene Sonne
Technical director
Boffins Technologies AB

“I had full control of camera, if I didn't know it was 5G connected, I would never have noticed it.

Video quality was stunning, crisp and without artifacts, same look as all the cabled cameras.

We are ready to take this technology into daily production here at GO' Tivoli studio”



TV 2 national – GO' Aften from Tivoli Studio

Copenhagen 1st November 2023





5G netværk i studiet



NodeB
RAN

5G device på kamera



Serverrum



5G radio

Cumcore + Node-H RAN (Askey HW)

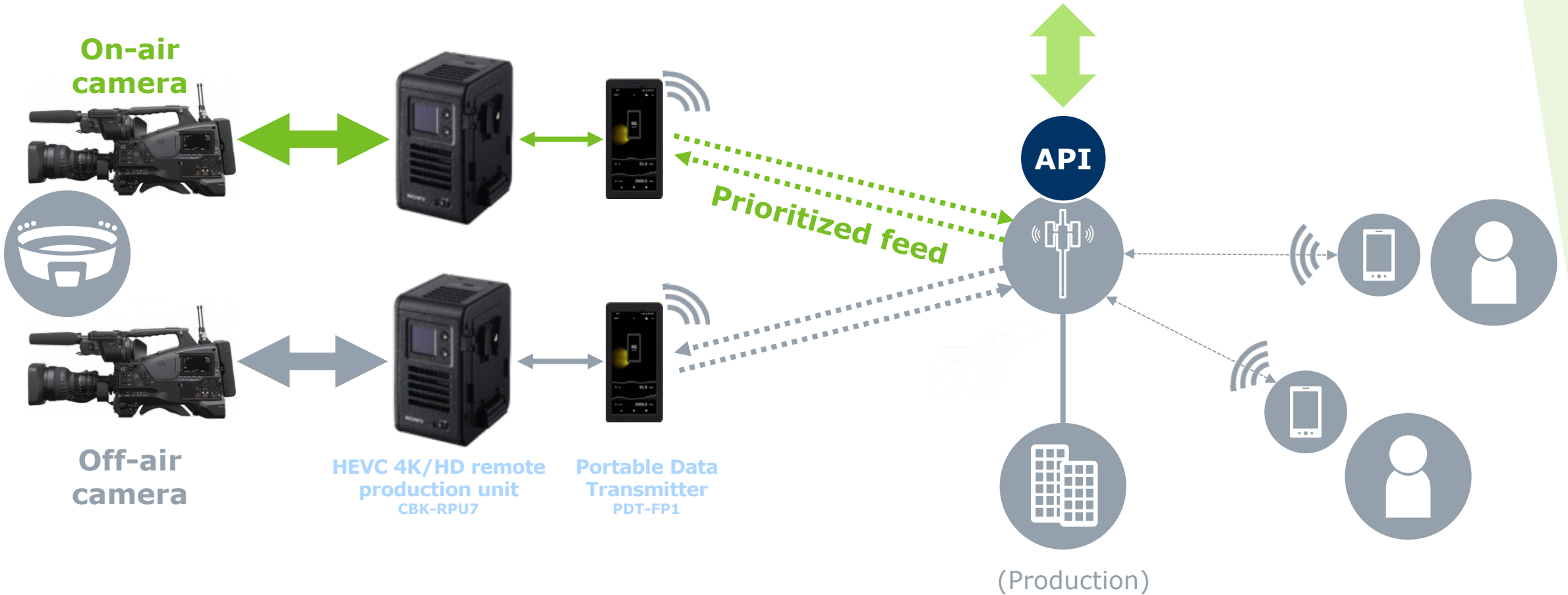




5G live production – optimized connectivity



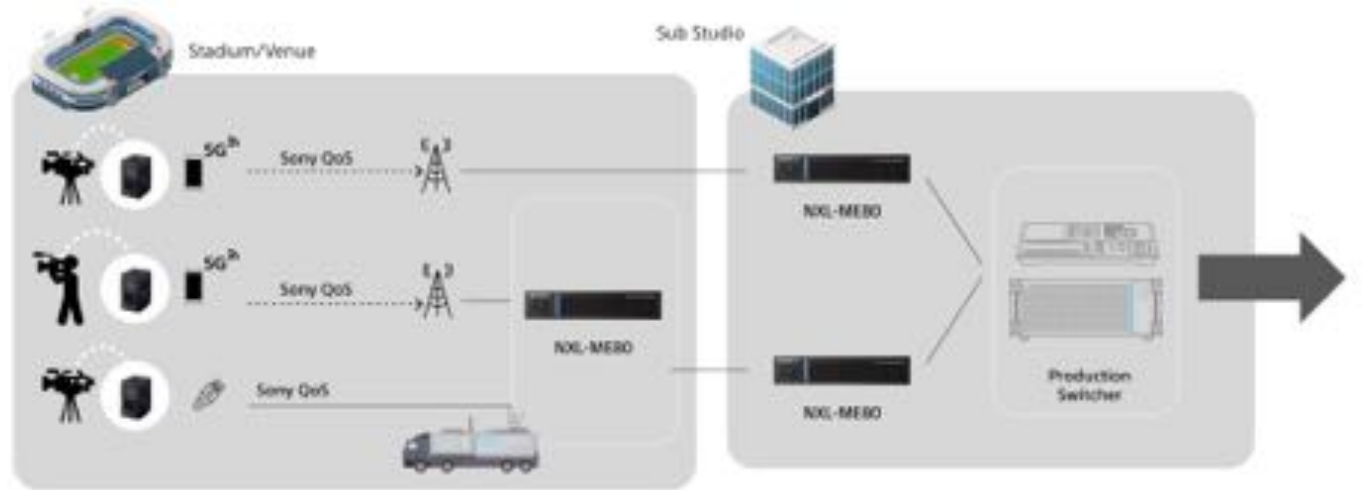
Neveon VideoIPath - media orchestration platform



Sony NAB 2024



Shoot → Contribute → Produce → Distribute



Camera + CBK-RPU? + 5G Device or Ether

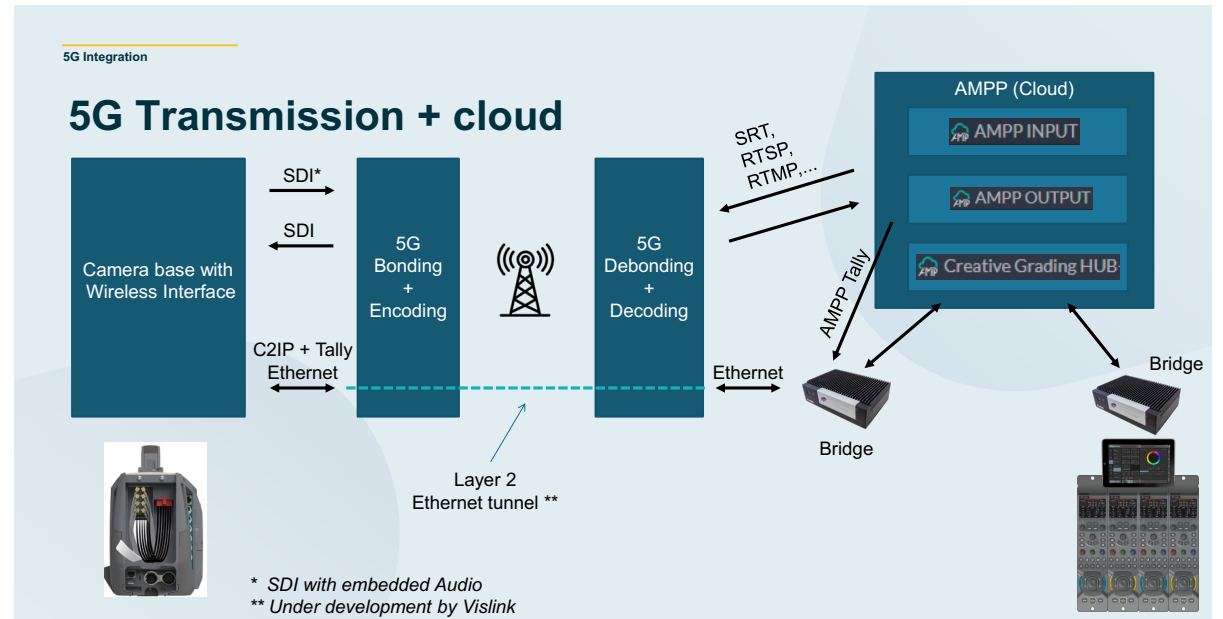
GV
NAB 2024

Grass Valley showcases integrated wireless RF and 5G cameras

Developed with RF system vendors, the LDX 135 RF and LDX 150 RF offer an EMI-approved mechanical interface accommodating third-party transmission models without the need for external cables



= Vislink encoder/5G modem



NEP - BSI NAB 2024



Verizon – AWS

NAB 2024

NAB 2024: NHL, Verizon Business, and AWS Roll Out 5G-enabled Cloud Broadcasting Solution

By Jason Dachman

Verizon Business has partnered with the NHL and Amazon Web Services (AWS) on a new 5G-enabled cloud broadcasting solution that they are demoing at NAB 2024. Running on AWS Wavelength Zones, a mobile edge compute service that delivers ultra-low-latency applications for 5G devices, this solution accelerates the speed from content capture on ice to broadcast going from seconds to milliseconds.



The NAB Show kicked off with a session featuring (from right) the NHL's Grant Nodine, AWS's Julie Souza, Verizon's Tom Zimmerman, and moderator Joe Zaller of Devoncroft.

Q&A