



IBC Accelerator Programme 2026

Network Control

Your Connection, Your Choice

Imagine the Future

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Motivation

- Bonded-cellular now ubiquitous for remote contributions (replacing satellite links)
- Any network can become **congested**
 - Particularly wireless in high-demand environments
- Sharing resources on **best effort** networks leads to unreliable workflows when they are needed most
 - Industry-wide challenge
- Open APIs **necessary** for adoption
 - Focus on CAMARA **Quality on Demand (QoD)** API

→ **Accelerate awareness, adoption and availability**



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What Is QoD?

- Network APIs provide a **programmable interface** to allow third-party developers (application service providers (ASPs) in telco parlance) to interact with the network and even initiate changes
- Quality on Demand (QoD) provides a mechanism to dynamically request **guaranteed resources** in real-time on a live network
 - ➔ Reliability to support critical workflow traffic when it is needed
 - ➔ Network-side technology does not require special end devices
- Operator (CSP) offerings can be aggregated and integrated to **abstract complexities** and provide simplified user experience
 - ➔ **Good time to engage with CSPs to define future services**



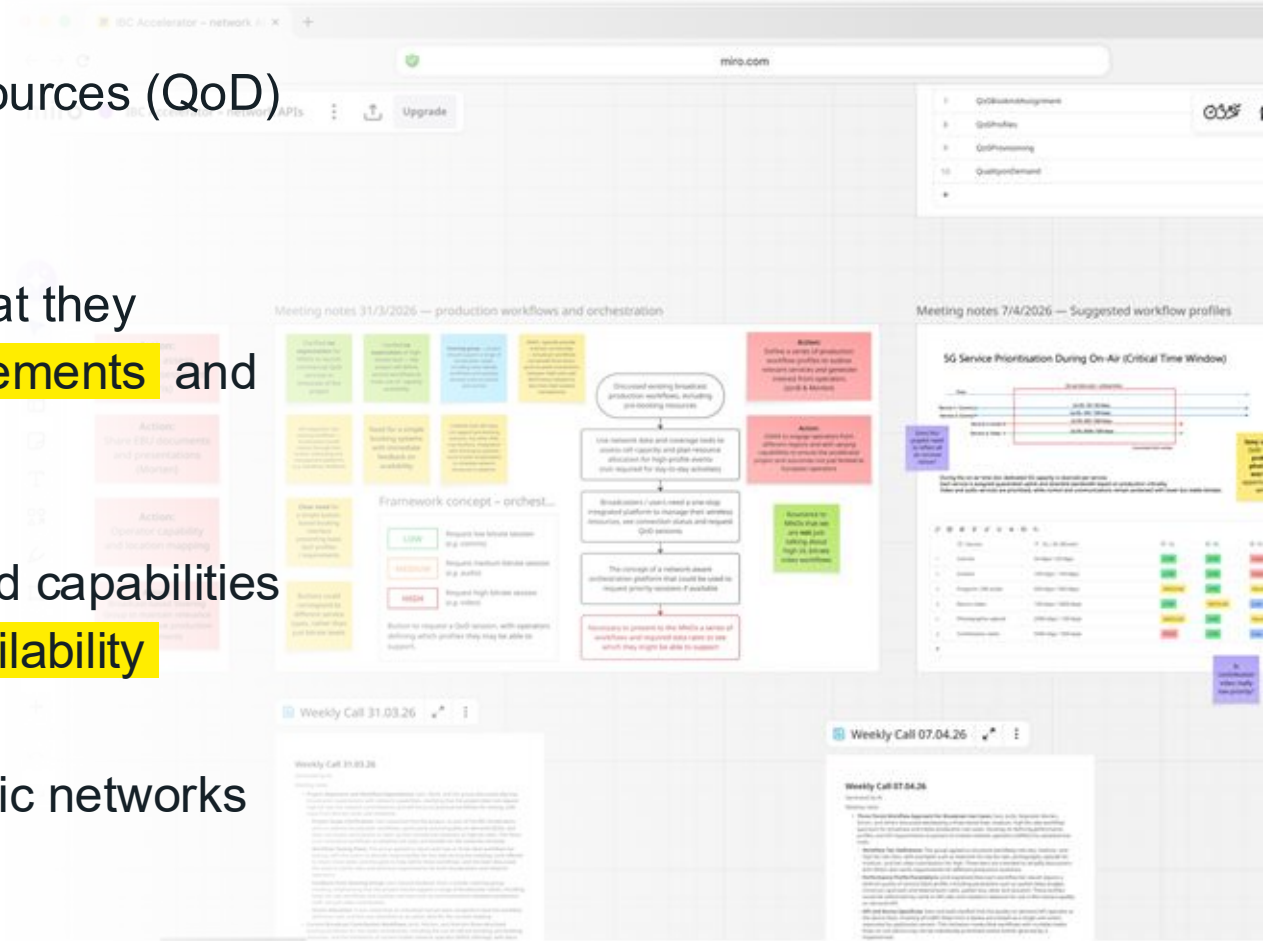


Objectives and Approach

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- Explore how **programmable** network resources (QoD) can support live production workflows
- Work with broadcasters to **determine** what they struggle with to establish use case **requirements** and suitable QoS profiles
- Work with network operators to understand capabilities and constraints in order to **accelerate availability**
- **Demonstrate** QoD workflows on live public networks

→ **Showcase reliable 5G for broadcast production**





Anticipated Risks and Challenges

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- Expected interest from mobile operators but risk/challenges around:
 - **Roadmap** – operator readiness / development
 - **Availability** – operator infrastructure / locations
 - **Timescales** – concept not commercial readiness
- Broadcast workflows **suitable** for the available QoD
- **Access** to suitable live events for testing in locations with QoD availability

→ **Need to work quickly to reach successful POC.**



The Journey // Broadcasters

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CONTROL SURFACE // CONCEPT

**Simple for crews.
Explicit for operators.**

Request by use case. Define each profile once.

Field signal → managed production

01 FIELD **Move the feed**

Video and audio must travel reliably – even in congested locations.

02 CONTROL **See the connection**

Crews need performance insight plus connectivity for intercom and control.

03 WORKFLOW **Schedule inside existing tools**

VSM / Wolftech / DataMiner or other broadcast control tools, should trigger the service without adding a new workflow.

THE OUTCOME → TIERED QoS BY USE CASE / BITRATE



The Journey // Broadcasters

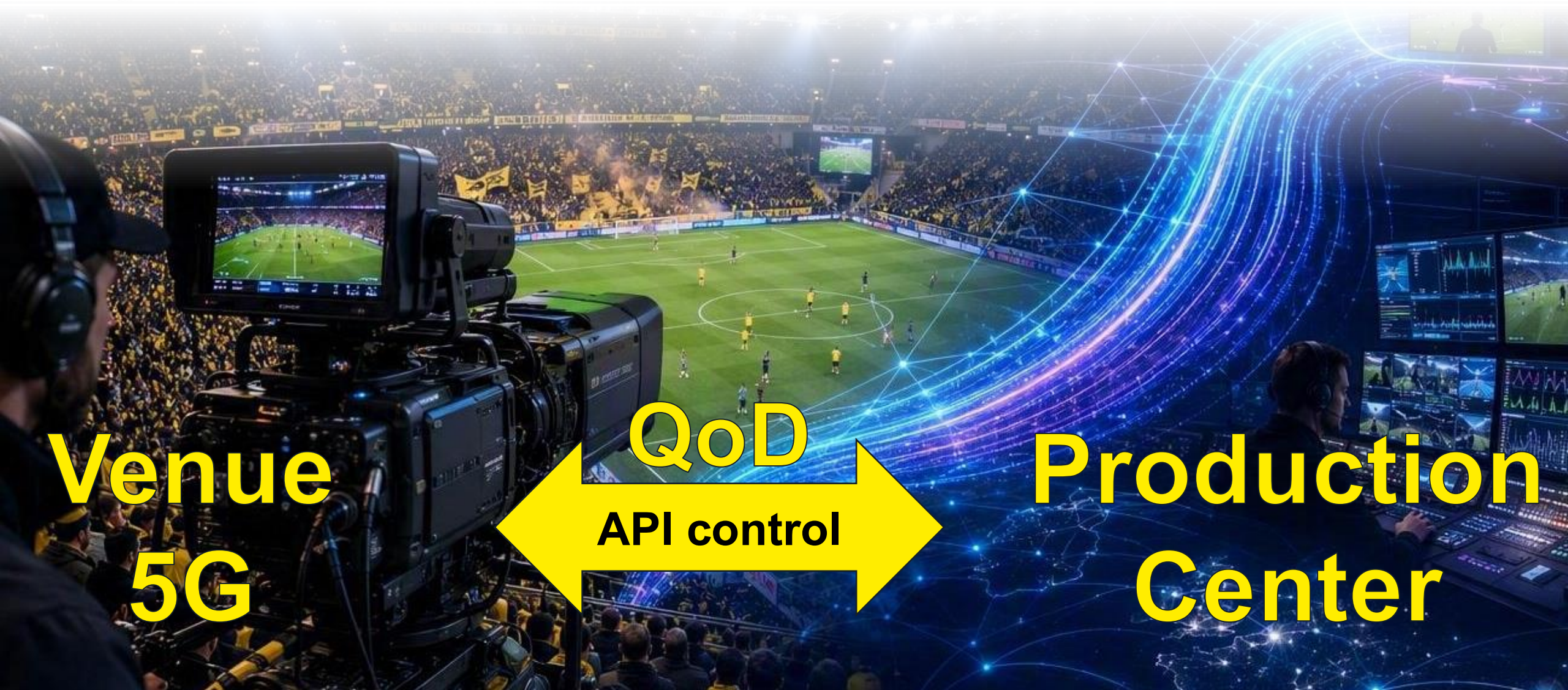
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**Venue
5G**

QoD

API control

**Production
Center**





The Journey // Request to Operators

The ask: Be able to test QoD on their live public networks

Timeline: Opened discussions with operators in UK, Netherlands, France, Italy, Australia, Spain, Germany, Japan

- Tight timeframes for technical readiness meant that Netherlands, France and Italy were immediately ruled out
- A couple of months too early for UK; resourcing challenges in Australia

→ Operators in Germany and Spain ready – need an event and broadcaster





The Journey // Operators

- Operators actively developing open network APIs (CAMARA)
e.g. fraud prevention
- On **shared networks**, **assured quality** must be managed alongside capacity available to other users
- Strong operator interest in QoD, but not all could meet project timescales
- Availability of QoS profiles optimised for **different application needs**
- Technical did not always mean **commercial** readiness

→ Operators ready for live testing





The Journey // Connecting the Dots

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Broadcasting Connectivity



- CAMARA QoD APIs exposed by participating operators

My Schedules

Select a phone number to view all associated schedules.

+491792239628

LiveU — +491792239628

PDT1 — +491792239125

Commentary — +491792239125

✓ 8 schedules for +491792239628

1

b1f2fe3a-4501-409f-b2ce-64

● INACTIVE

📅 2026-09-01T18:00:00.000Z · ⌚ 3600 seconds

2

55f632a8-90b7-403f-8e87-b8

● INACTIVE

📅 2026-09-01T18:00:00.000Z · ⌚ 3600 seconds

3

b5ce0002-ce23-4eb6-8f64-0d

● INACTIVE

📅 2026-09-01T14:57:00.000Z · ⌚ 180 seconds

4

7c76ae2c-7957-42f0-bb34-a2

● INACTIVE

📅 2026-09-01T14:47:00.000Z · ⌚ 60 seconds

5

a10927a4-746e-4a29-871c-b3

● INACTIVE

- Key question: **how** and **where** should QoD be activated?
 - **How** — on-demand, scheduled, or automated
 - **Where** — direct integration or management platform

- SliceFinity consumes Vonage APIs to access operator QoD capability
➔ abstracts operator complexity into a user-friendly workflow

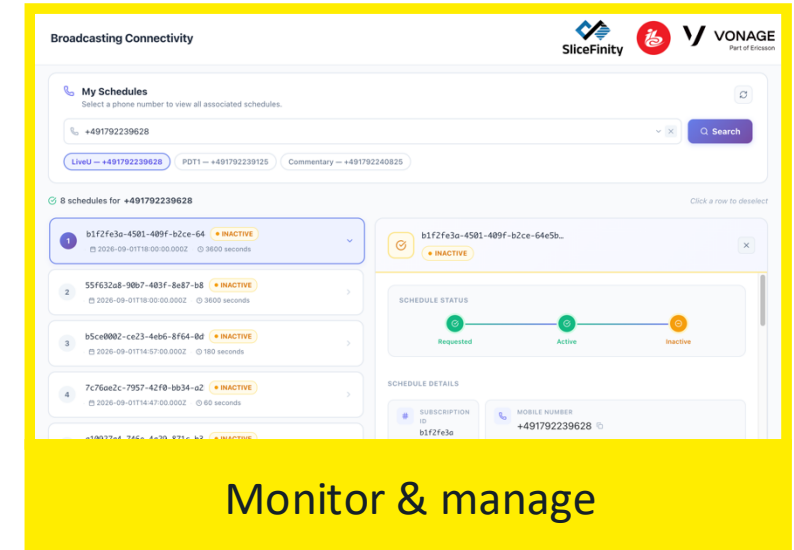
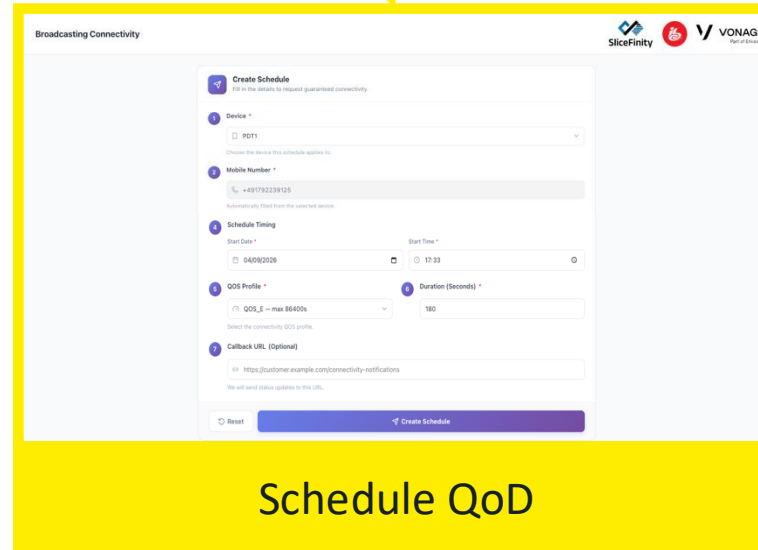
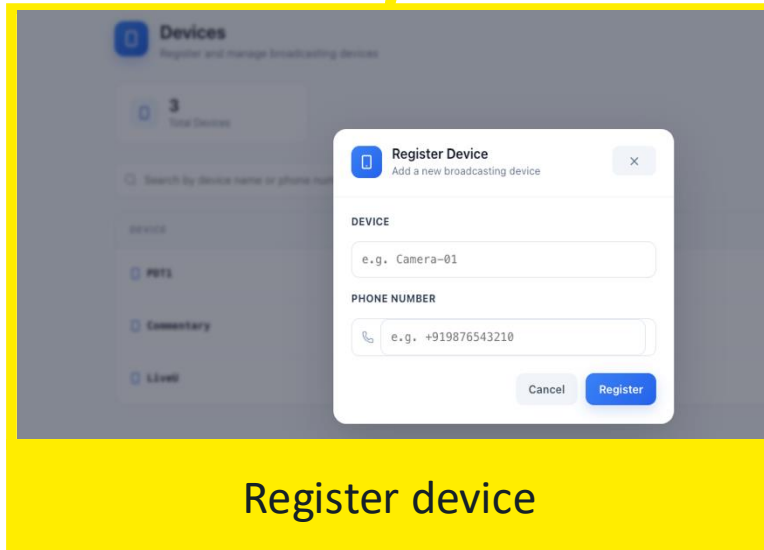
- Operators, broadcasters, and technology vendors aligned around the right events, locations, and equipment

➔ **From network capability to production workflow**



The Journey // QoD Management Platform

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→ QoD can also be embedded directly into the tools broadcasters already use



Initial PoC – Tour de France

Stage 1 Barcelona // **france**•tv 



Objectives

- TV 2 and France TV raised this potential PoC opportunity the week before the event
- Focus on live video contributions where bonded cellular expected to struggle due to network congestion
- PoC workflow will be parallel to live production
 - Additional equipment used to receive a live test feed
- Integrate API consumption directly into production system
- Telefónica to source SIM connectivity with QoD enabled
- Comparison of QoD to best-effort connectivity



france.tv





Lessons Learned

- The Vonage API was **integrated directly** into Haivision StreamHub to allow the application to dynamically elevate its connected 5G devices to available QoS profiles
- Could get equipment and production crew, but ...
- Operators have **red tape** to overcome, especially in tight timeframes during holiday season
 - ➔ Could not overcome regulation and contracts in the time available to get approval to test QoD on live network
- These learnings fed into RTL (Germany) PoC planning





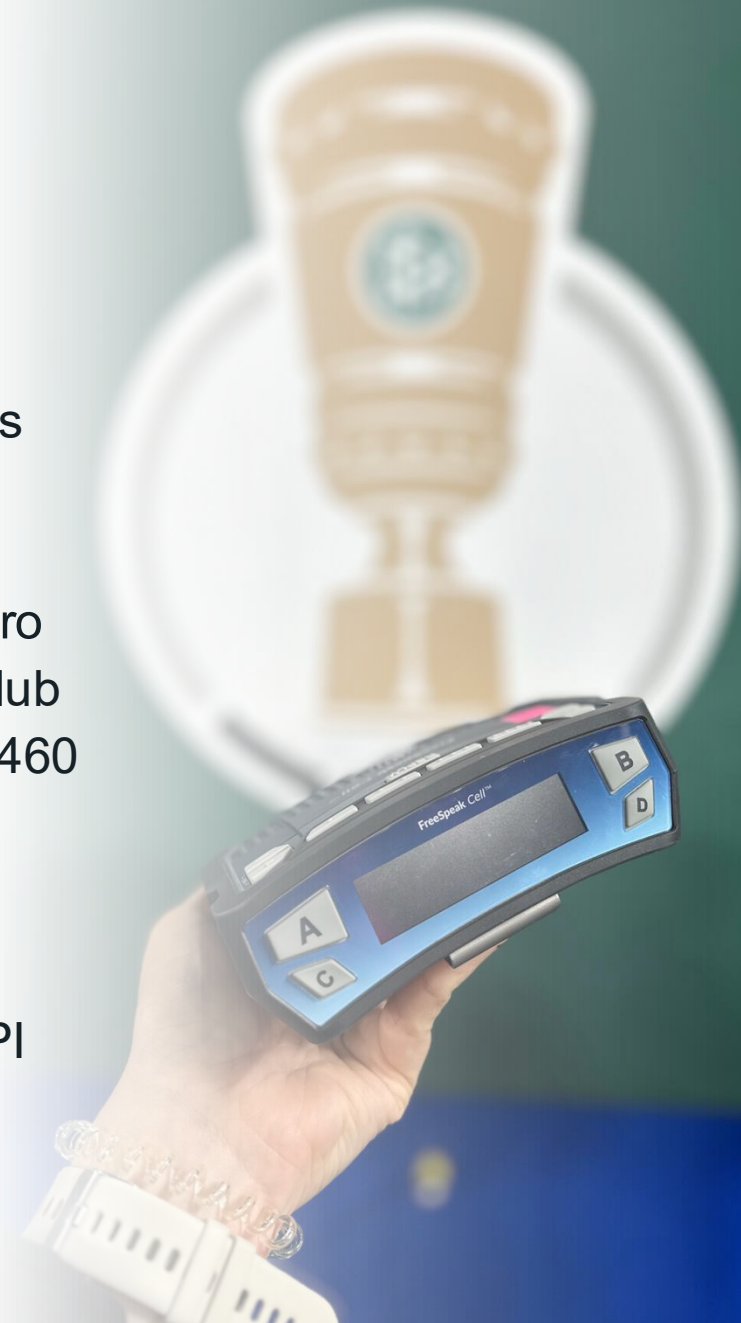
PoC – HEBC v Borussia Dortmund

Hamburg // **R T L**



Objectives

- Explore multiple workflows using different profiles/slices across all three German operators
 - **Intercom** / 500 kbps GBR – Clear-Com FreeSpeak belt-packs
 - **Commentary** / 512 kbps GBR – Prodys/sip 192 kbps audio
 - **Live contribution** / 2 Mbps GBR – LiveU LU900Q (bonding)
 - **Mobile journalist** / 2 Mbps GBR – PDT-FP1 Haivision MoJoPro
 - **Return video** / 2 Mbps GBR – PDT-FP1 return from StreamHub
 - **Live video** / 8 Mbps LVP slice – Haivision Falcon X2 and Pro460
- Direct **comparison** of the same workflows with and without QoD
- Control QoD from the remote production gallery using Vonage API through the SliceFinity QoD scheduling portal and ASP platform





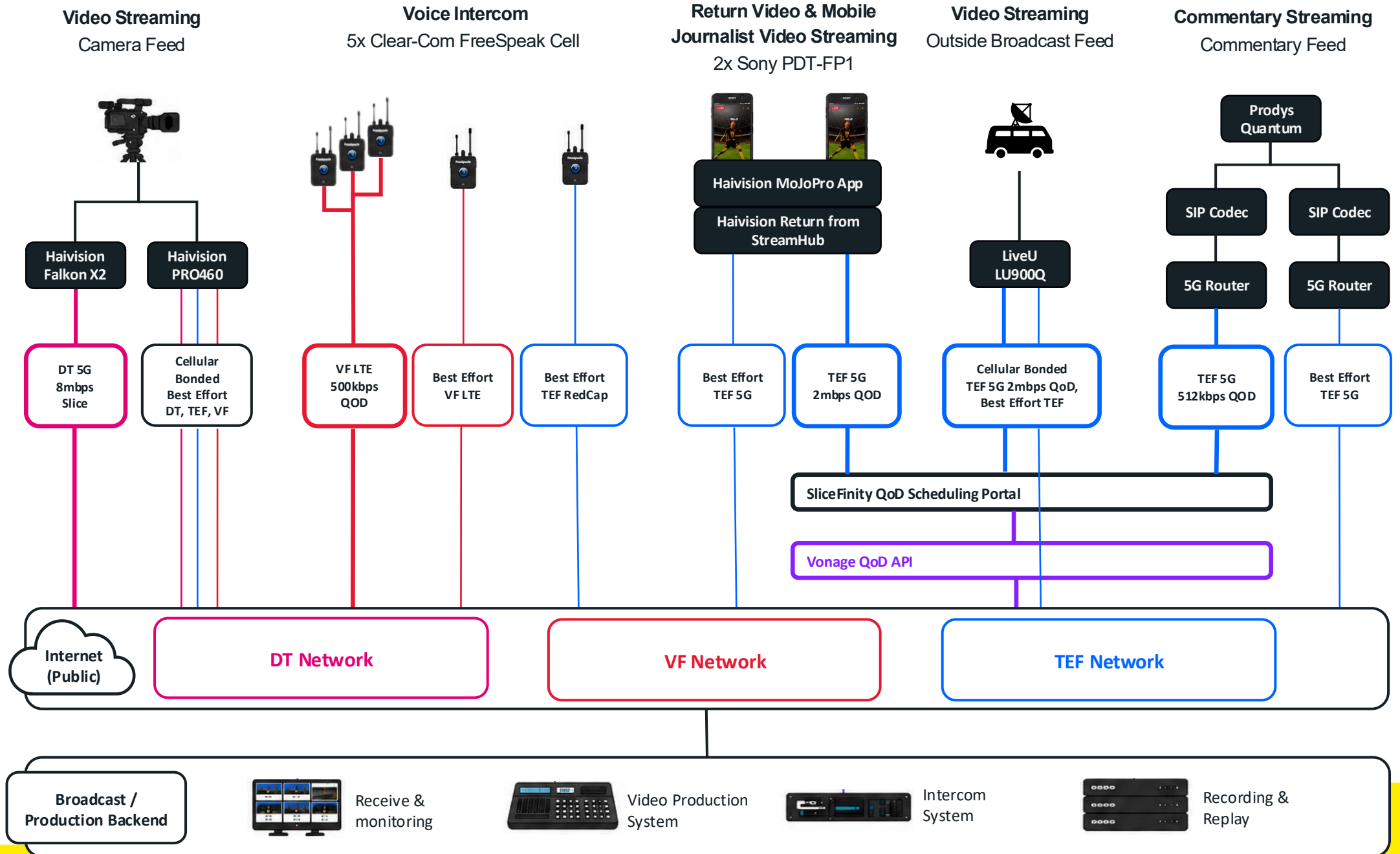
Workflow

RTL



VOLKSPARKSTADION
Hamburg, Germany

DFB Pokal
HEBC vs Borussia Dortmund
1st September 2026





In the Stadium ...

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... and RTL Remote Production Centre

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Outcomes

Intercom:

Successfully delivered belt-pack intercom where best-effort failed
Peak congestion avg. traffic

→ **QoD 365 kbps vs. 73 kbps best effort**

Commentary:

Stable audio transmission with QoD where best-effort failed
127 packets lost during game
vs. **2,316 packets lost** on best effort (**18x better**)

2 Mbps GBR:

Working with operator to understand poor performance on profile

- Major German operators launching QoD, and investigating slice-backed profiles
- Used SliceFinity to schedule Vonage QoD from the RPC





CALL PROFILES

unnamed
PCC-HAV-NET
PCC-HAV-NET

Download

CONNECTION STATISTICS

	Transmit	Receive
Quality:	97%	90%
Duration:	04:14:42	04:14:42
Total Bytes:	367526809	367126938
Packets - Total:	764089	764089
Packets - Lost:	2344	838
Packets - Discarded:		0
Packets - Duplicated:		0
Packets - Reordered:		0
Jitter - Average:	3 ms	5 ms
Jitter - Max:	90 ms	111 ms
Buffer - Latency:		240 ms

TEF QOD 500KBPS

CONNECTION STATISTICS (CODEC 2)

	Transmit	Receive
Quality:	98%	91%
Duration:	04:14:13	04:14:15
Total Bytes:	366842027	365906079
Packets - Total:	762887	762887
Packets - Lost:	0	1881
Packets - Discarded:		0
Packets - Duplicated:		0
Packets - Reordered:		3
Jitter - Average:	3 ms	5 ms
Jitter - Max:	23 ms	125 ms
Buffer - Latency:		260 ms

TEF BE

CONNECTION STATE

Status: **Established**
Network: Ethernet
Remote Number: 89803@10.98.204.154
Coding Algorithm (Tx): OPUS 48kHz 192kbit/s Mono
Coding Algorithm (Rx): OPUS 48kHz 192kbit/s Mono

Load

Release

CONNECTION PARAMETERS

Bit Rate: 192 kbit/s

Send

CONNECTION STATE (CODEC 2)

Status: **Established**
Network: Ethernet
Remote Number: 89802@10.98.204.154
Coding Algorithm (Tx): OPUS 48kHz 192kbit/s Mono
Coding Algorithm (Rx): OPUS 48kHz 192kbit/s Mono

Load

Release

Connections

CALL PROFILES

You can select one profile and click the button to set up a connection.
[Manage Profiles](#)

QoD SIM

Best Effort SIM





Review

Looking back ...



Key Learnings – What Was Achieved

- Facilitated necessary **operator engagement** with wider international broadcaster community
- Identified numerous production workflows **ideal for QoD**
- **Accelerated API access** to 5QI priority-based profiles
- Developed and used a QoD session management platform to **unify API consumption**
- Demonstrated **live use of QoD profiles** to simultaneously support multiple workflows

→ **QoD provided reliability in congested environment**

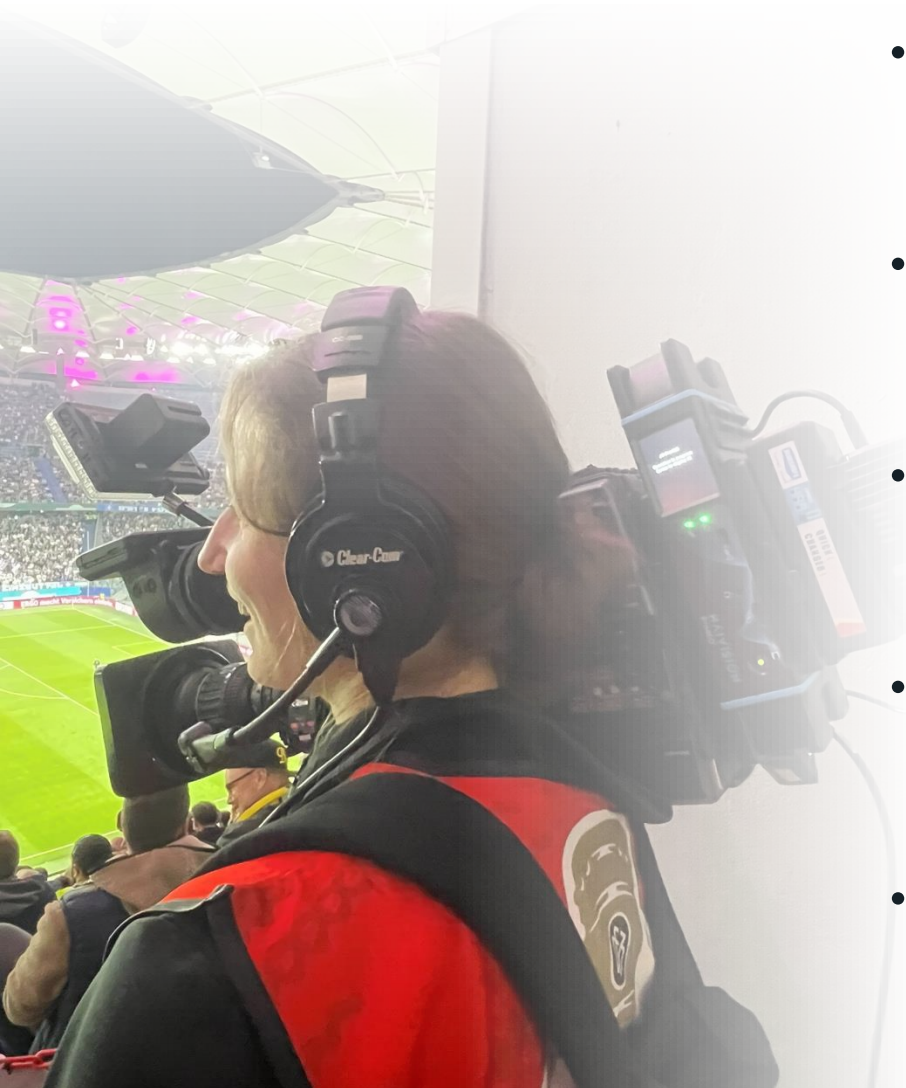




Key Learnings – What Needs More Work

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- Optimise the push-to-talk profile and define future profiles, including higher-bandwidth requirements
- Develop integration and commercial models to make QoD easy to adopt
- Scale the ecosystem across broadcasters, technology partners, and production use cases
- Evolve QoD as adoption grows with simpler device identification, advance booking, and other capabilities
- Expand global availability across operator footprints and markets





Impact

- **HUGE** potential to redefine and reinvent wireless connectivity for broadcast:
 - **Live video** – Newsgathering, additional feeds ...
 - **Production audio** – Commentary, interviews, effects ...
 - **Auxiliary services** – Intercom, tally, return video ...
- Integrated solutions – tally-driven, automatic, booking ...
- Revolutionise connectivity for venues without infrastructure
- Reduce on-site infrastructure and increase sustainability, equality, diversity, accessibility ...

→ **Impact extends well beyond broadcast**

PPDR, security, payment systems, factories, smart cities ...





Impact

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- Significant direct project outcomes:
 - **GSMA SoR** – Published SoR to encourage operator adoption of QoD
 - **Live QoD profiles** – GBR priority-based profiles available/launching
 - **QoD management** – Demonstrated how QoD can be controlled
- Wider ongoing operator engagement and **commitment** beyond the project
- Built knowledge, understanding and **relationships** to continue delivering
- Project will be **showcased** at major international events: MWC Barcelona, NAB
- **Transformative** workflows and integrations to ensure robust 5G connectivity





Final Remarks

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Facilitated communication between broadcasters and operators

Accelerated implementation and integration of QoD to address genuine challenges

Validated on live networks at a **real** live production

TL;DR

Demonstrated interaction with **live public networks** to dynamically request guaranteed resources, controlled by third-party remote devices in the production gallery

→ Where next?

- Wider operator/service availability
- More broadcast profiles and integrations
- More APIs – QoS booking, network insights
- BYOE – bring your own event for testing!

→ CALL TO ACTION

- Broadcasters → GSMA Fusion
- Operators/CSPs → GSMA Open Gateway
- Tech. vendors/devs → Vonage
- Private 5G QoD → Neutral Wireless



Challenge

- Public 4G/5G is now regularly used as an **alternative to satellite**
- Performs well for **day-to-day** newsgathering ...
- ... but can **struggle in high demand** environments
- More than just video workflows



Innovation

- **Network APIs** provide an interface to **interact** with a 5G network
- **QoD** provides **dynamic control** allowing live production to **guarantee** resources
- Implement **Quality on Demand** and build broadcast **QoS Profiles**
- **Live tests** on congested public networks



Impact

- Delivered intercom and commentary
- Implementation of **open standards** to drive adoption and interoperability
- Works across **public** networks, network **slices** & **private** networks
- Increase **reliability** and **confidence** in 5G for live production and more ...



**Thank
You**