Immersive Content – the impact of 5G
Richard Mills: Technical Director - Sky VR Studios
Sky VR – The Journey

April 2016: Formation of Sky VR Studios

1st UK broadcaster to launch VR aggregator app

Sky VR Productions & Commissions

Engagement & Interactivity
Content genres/types

Sports

Entertainment

Doc/News

Drama/Entertainment
VR and Entertainment

What should VR achieve?

A unique experience, designed expressly for VR
Credible Immersion in an environment
Achieve a true sense of presence
Immersion into the narrative
Best of all:
Involve a viewer in the action and outcomes by giving them agency
Sky VR – Research and Learnings

Extensive Audience research: How can VR be best employed?
• Original content – novel and unique, designed for VR
• Live/event content – alternative approaches
• Extension to existing content – Bonus experiences
• Extensive research into favorite genres

Audience research: Quality of experience
• Best Playback quality important
• Comfortable experience
• Less fiddly the better
• Long battery life and no overheating
Sky VR – Techniques

360 Shooting

Volumetric Capture and Visual Effects

Photogrammetry and Scene Scans

Character Scans
Volumetric capture use cases

Assets can be deployed in:

VR, AR, and traditional broadcast

Sky VR has captured VolCap assets for:

Sports talent showcase – Anthony Joshua

Meet your heroes – David Attenborough

VR Drama – Principal Characters

On-stage assets for events
Sky VR – Optimised Playback

- Low latency - achieved by:
  - Deployment of 5G and 5G SoC, eg: Qualcomm Snapdragon 855
  - Enables VR, AR and MR on multiple devices
  - 855-Phone tethered nREAL AR system
  - HTC VIVE COSMOS Standalone 5G headset

- In Home 5G repeater Hubs- Ultra-highspeed home network
FOV Adaptive: Real-time delivery

Sky VR – Optimised Playback

Master Content

Image Subdivision
Tiles/Mesh

Adaptive learning

HMD Positional Metadata

HMD

Real-time DASH Delivery

Cloud View - Rendering Server

Real-time call down
Sky Sports

Closer: reality

David Beckham at Silverstone with Williams F1 Team

360 Silverstone clip had been shot previously
Project Spherical image as Cube Projection
Subdivide Cube Projection into a Tiles and Encode each tile
Using HMD Positional Info: deliver respective tiles: 8 x 4 per view:

ie 1/3 of total number of tiles

Therefore 1/3 of bandwidth 10-20ms latency
Sky VR: Hold The World with David Attenborough

HOLD THE WORLD
with David Attenborough
at The Natural History Museum

Experience on Sky VR
VR Storytelling – a new genre

Sky VR has explored:

- VR Scripting
- Spatial narrative
- Embodied narrative
- Branching narratives
- Location-based experiences
- Audience research:
  - Testing on naïve and habituated audiences
VR Storytelling – a new genre

Sky VR has explored:

- VR Scripting
- Spatial narrative
- Embodied narrative
- Branching narratives
- Location-based experiences
- Audience research:
  - Testing on Naïve and habituated audiences
Immersive Content – the impact of 5G
Richard Mills: Technical Director - Sky VR Studios