



VIRTUAL LOUNGE
—
COMBINING XR,
GAMING
AND OTT

MICKAEL RAULET

ATEME
Captive your audience

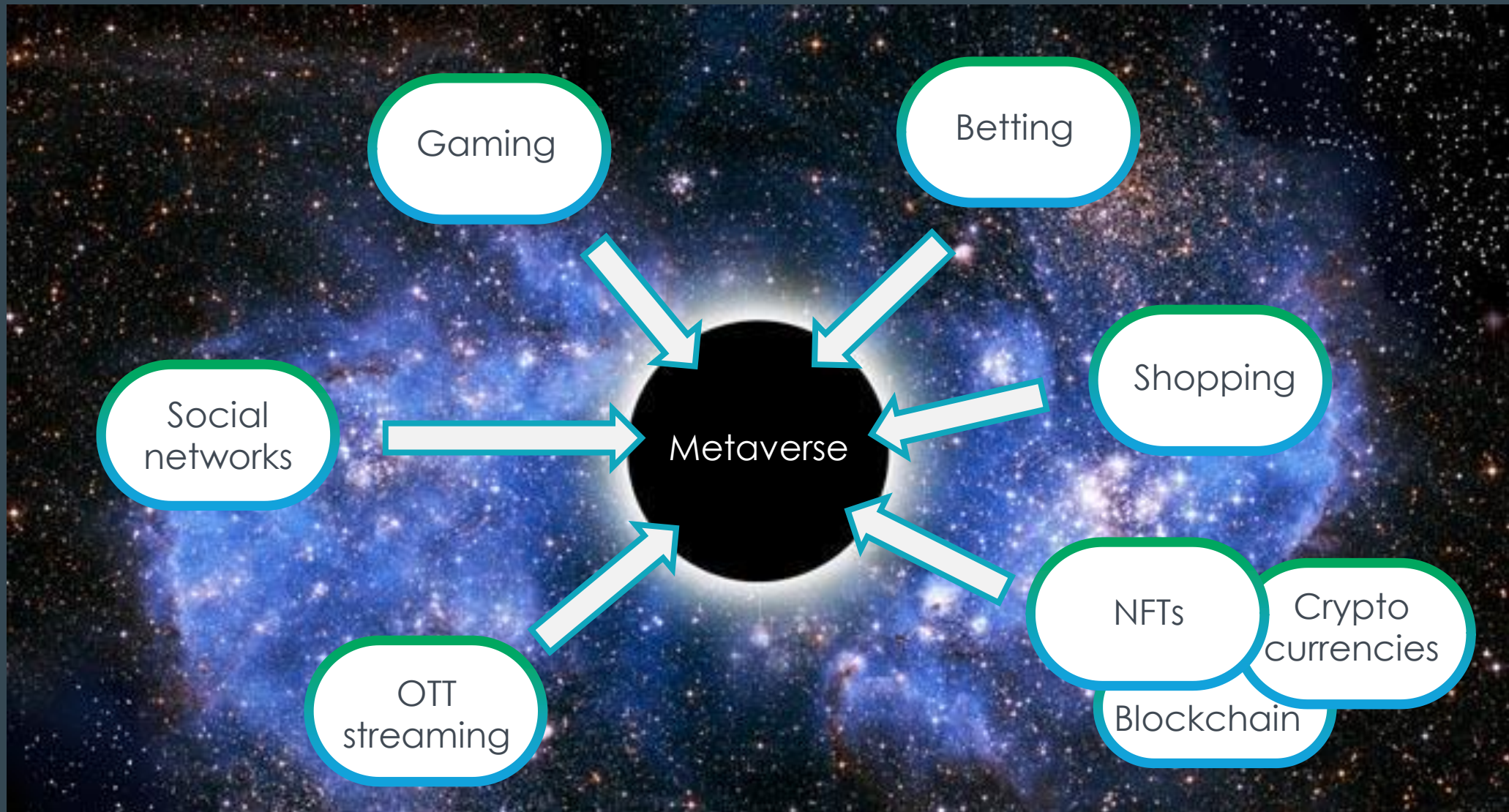
WHAT DO WE WANT TO SOLVE?

- > Attract the new Gen Z & Millennial generation
- > Enable social interaction with Low Latency in the range of around 1sec
- > Expand a current video headend “at scale” to enable multi angle distribution with content protection
- > Be a Virtual Lounge as a virtual world where you can share live events with your friends



**Can we bring OTT in a
virtual world?**

THE NEXT BIG THING?



HOW CAN WE BRING OTT INTO A VIRTUAL WORLD?

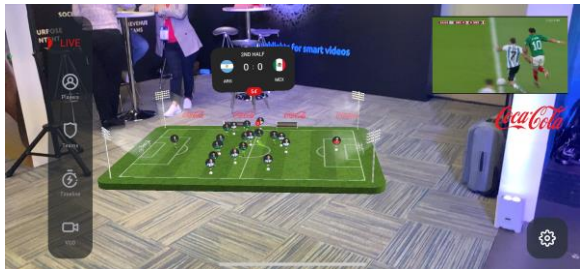
Gambling

DAZN launched betting platform,
next is migration with the content
platform



Augmented reality

Streaming + Augmented Reality
during World Cup






Metaverse and gaming



5 trillions** market

KEY BUSINESS AND TECH DRIVERS

	Drivers	Impact on business	Impact on tech
	Convergence	Engaging with younger generations and augmenting/diversifying revenues	Investing in interactivity, data, consumer experiences etc.
	Transformation	Streamlining old linear services to support new digital offerings	Investing in Cloud/SaaS while deprioritizing legacy
	Resilience	Managing risk and complexity derived from decentralization	Investing in risk mitigation initiatives and tech talent

Sources: IABM

Source : 

ATEME

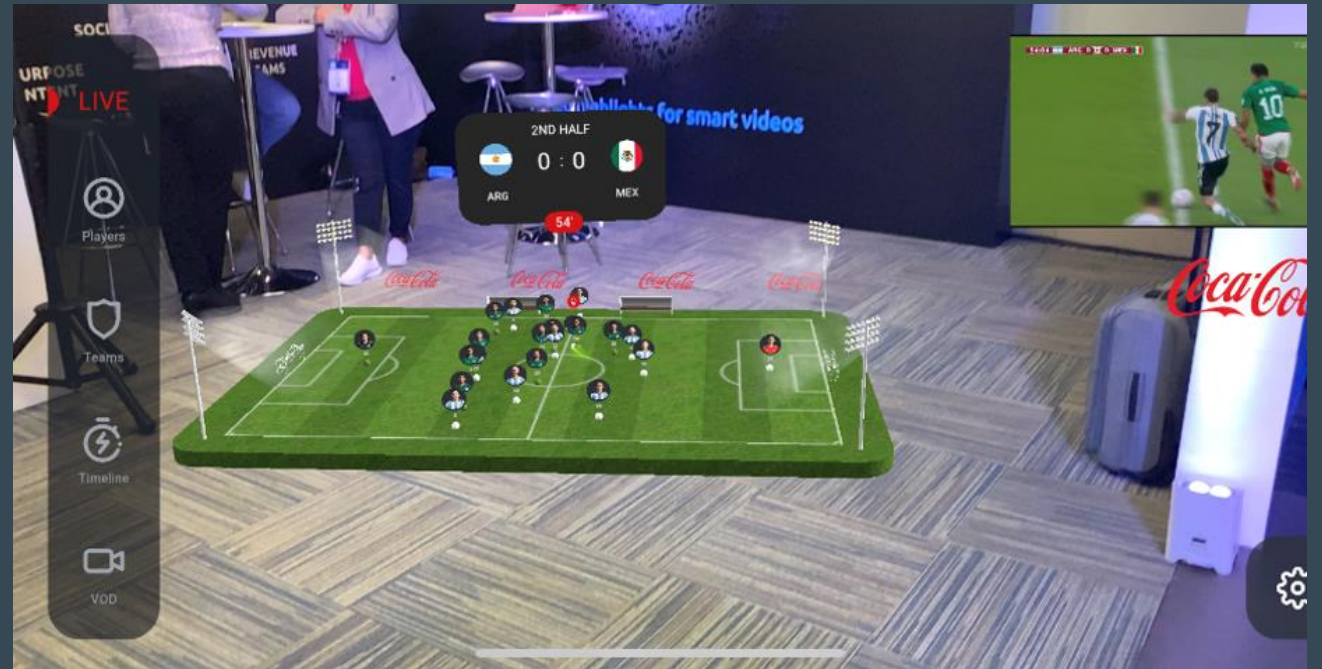
OFFER VIEWS FROM EVERY ANGLE OF THE GAME

- > Get all you Fans close to the action from any seat
- > Offer you Fans access to any angle of the game with a click/swipe
- > Enable your Fans to go back and forth to replay an action

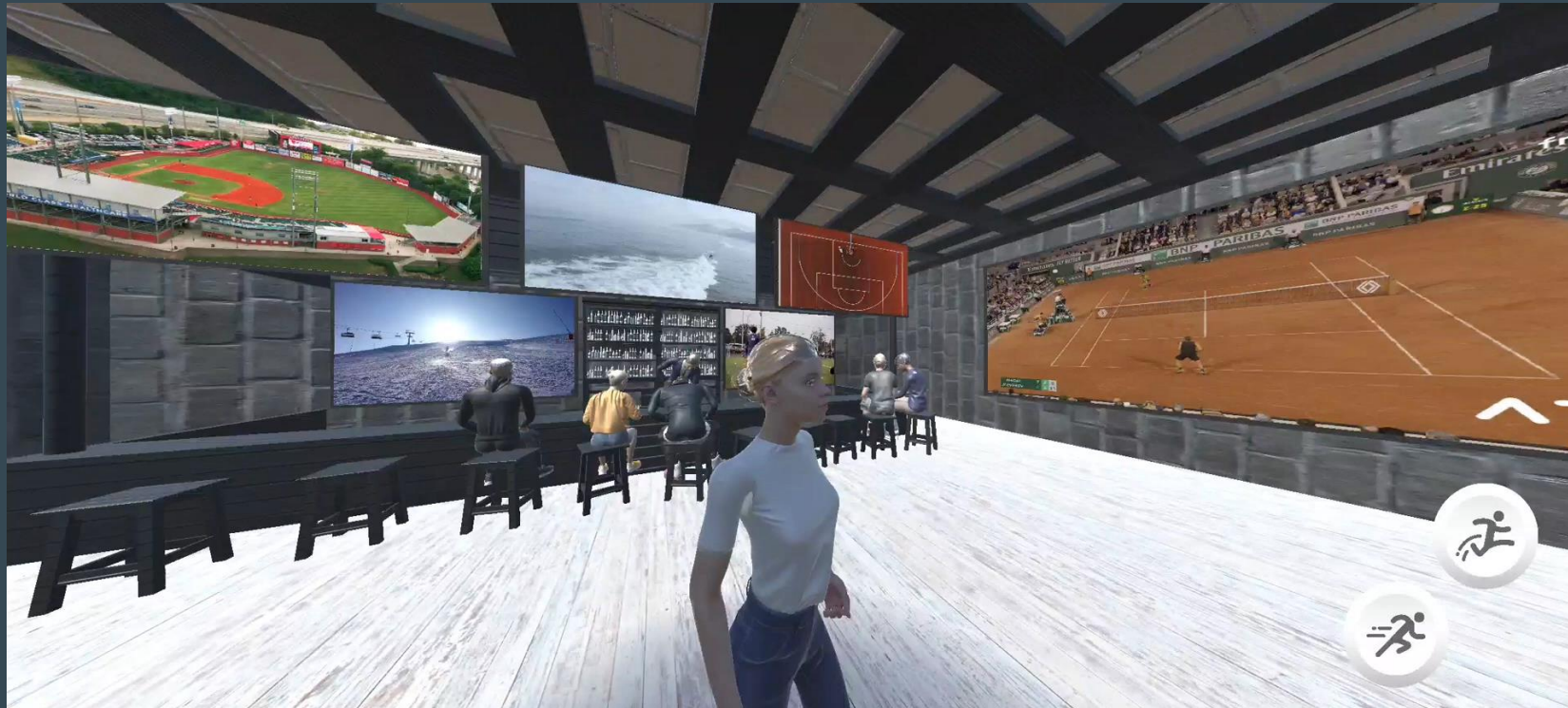


AUGMENT THE EXPERIENCE OF YOUR FANS

- > Access to enriched Multi-Angle views of the game
- > Views on important statistics and analytics per player
- > Monetization with ads insertion and sponsorship



ENABLING METaverse EXPERIENCE IN VIRTUAL LOUNGE



KEEPING YOUR FANS ENGAGED



OTT latency in a nutshell



OTT LATENCY IN A NUTSHELL

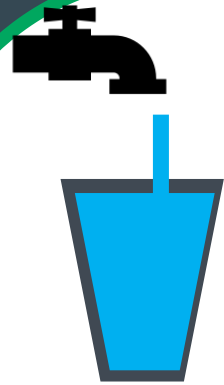
> The general live OTT distribution flow



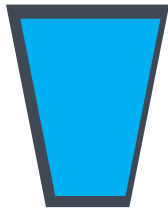
Latency

~ 5 x segment duration

OTT LATENCY IN A NUTSHELL



2s

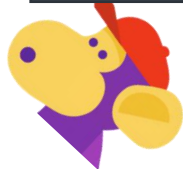


2s

**NON-
CHUNKED
DELIVERY
(HLS OR
DASH)**

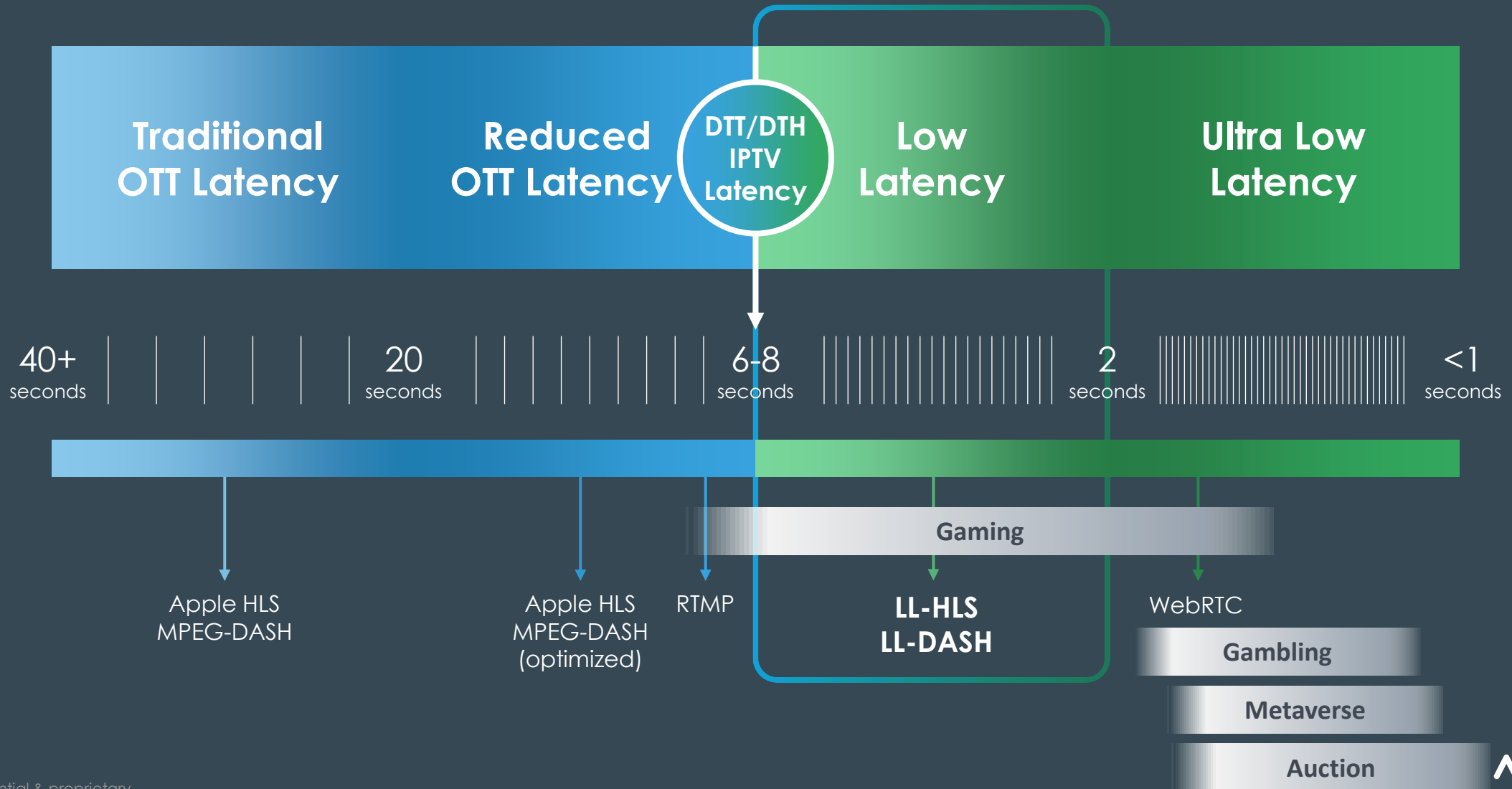


2s



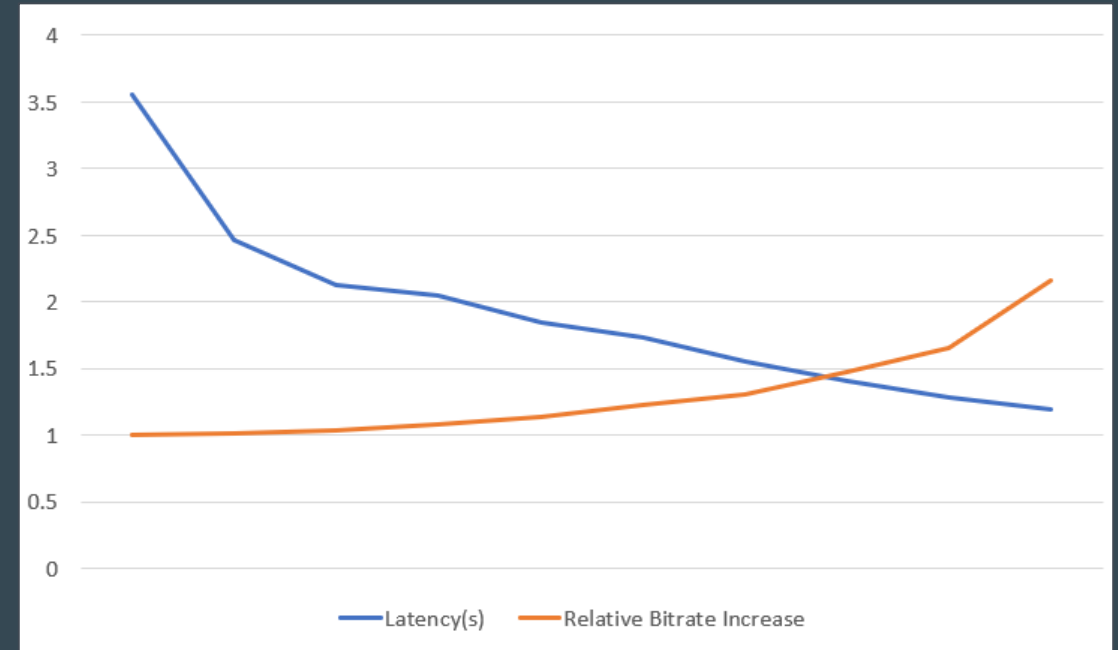
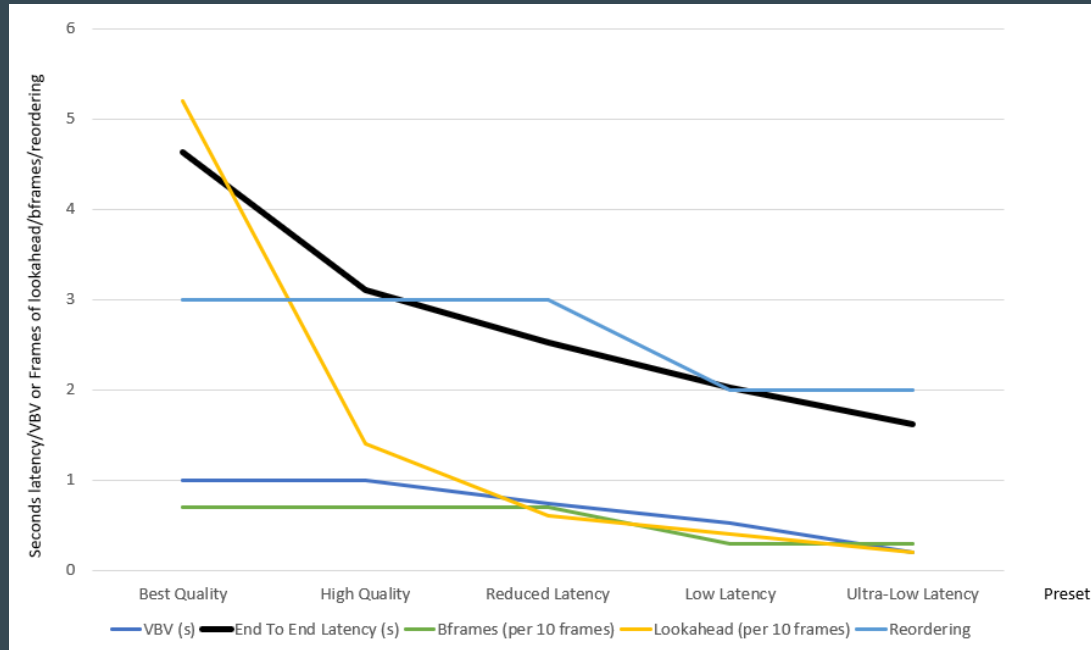
*Courtesy of Will Law Akamai

OTT STREAMING - TARGET LATENCY



REACHING ULTRA-LOW LATENCY

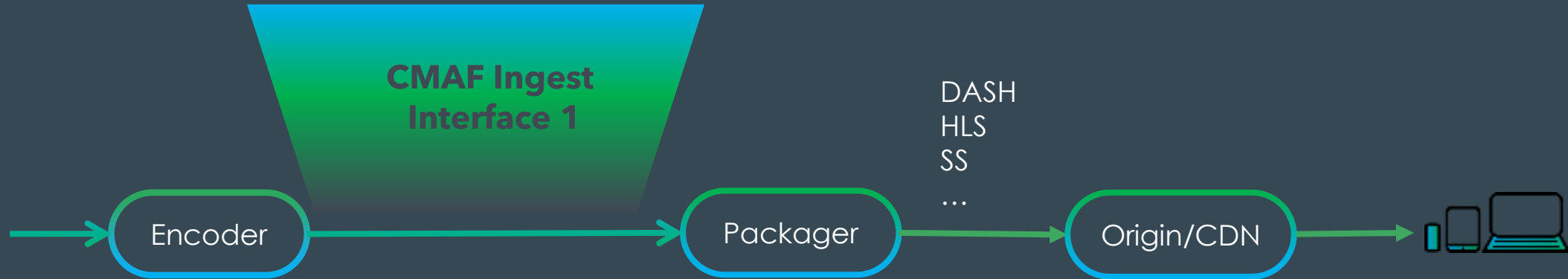
> Compression tuning



Curves are not linear and small changes have tremendous impact on latency

REACHING ULTRA-LOW LATENCY

> Encoder – Packager communication improvement



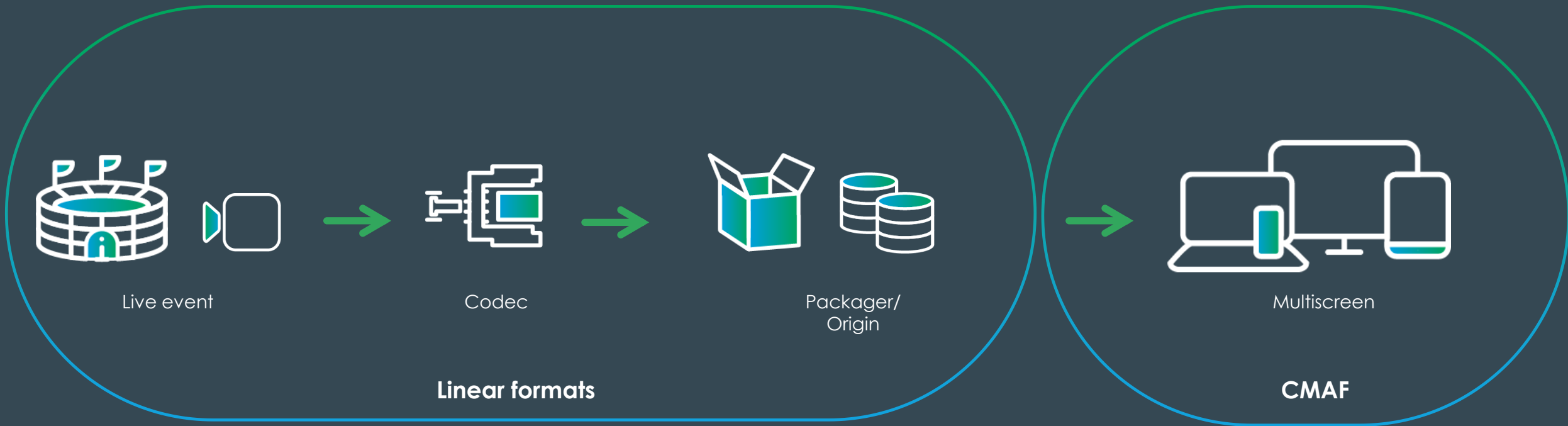
The live media ingest protocol to replace classic MPEG2-TS communication between encoders and packager has tremendous impact on latency

*CMAF ingest specification

*Encoder / packager synchronization Specification

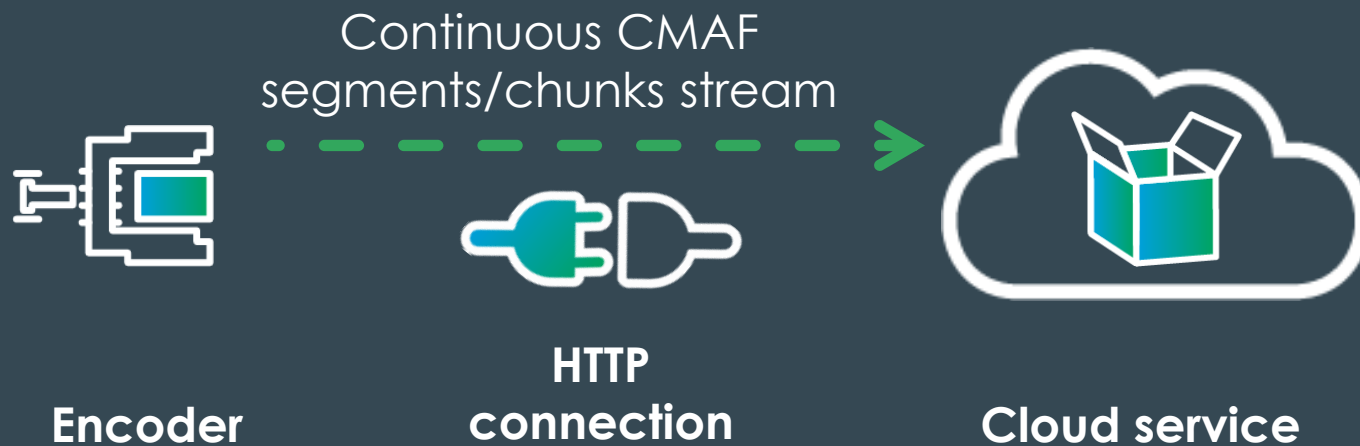
CMAF AS AN INTERCHANGE FORMAT

- > Several OTT protocols: DASH, HLS, Smooth Streaming
- > Different ways of packaging: MP4, TS
- > Unification with ISO-BMFF: CMAF (Common Media Application Format)
- > CMAF used mainly for last mile delivery to end-users
- > MPEG2-TS is dominating the rest of the scope



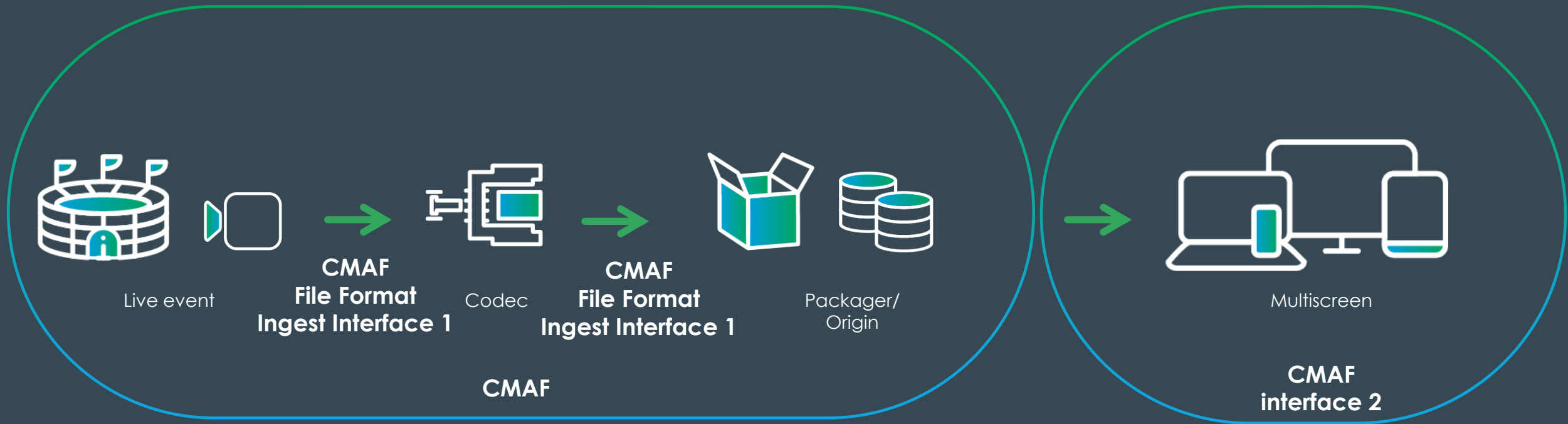
LIVE MEDIA INGEST PROTOCOL

- > Released in March 2020
- > Describes the communication and interoperability between an ingest source and a receiving entity (packager, CDN...)
 - > Communication interfaces and protocol (HTTP)
 - > File format (ISO-BMFF)
 - > Meta data transmission (thumbnails, SCTE35...)
 - > Tracks synchronization and redundancy



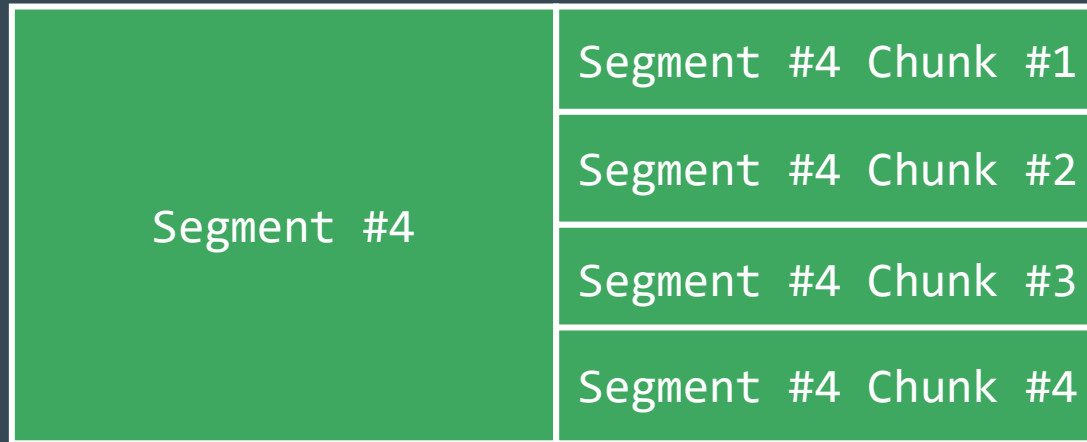
LIVE MEDIA INGEST PROTOCOL INTERFACES

- > Interface 1 to ingest CMAF segment only
- > Interface 2 to ingest classic DASH (manifest + segments)



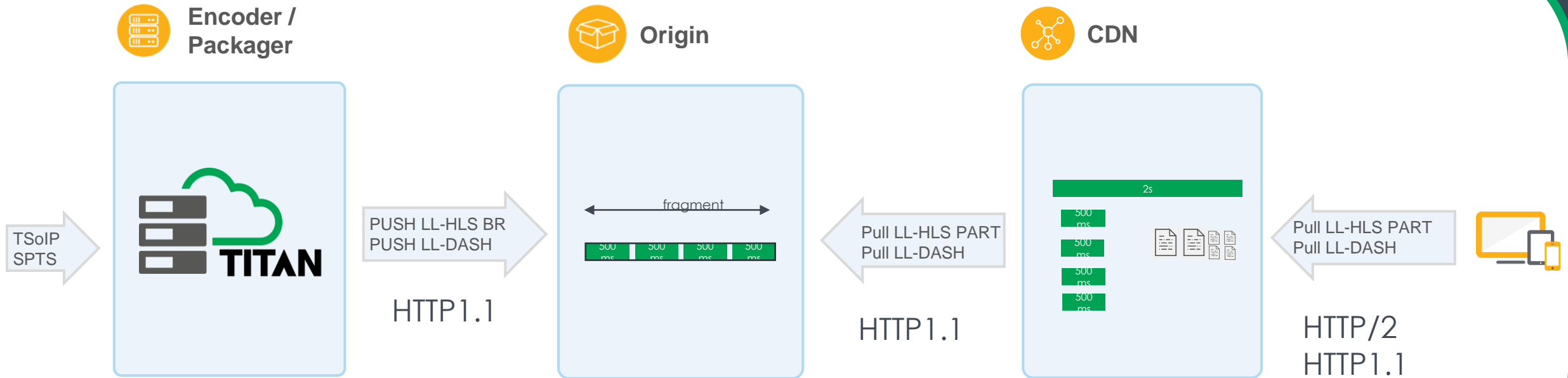
REACHING ULTRA-LOW LATENCY

> CDN optimization using ByteRange addressing

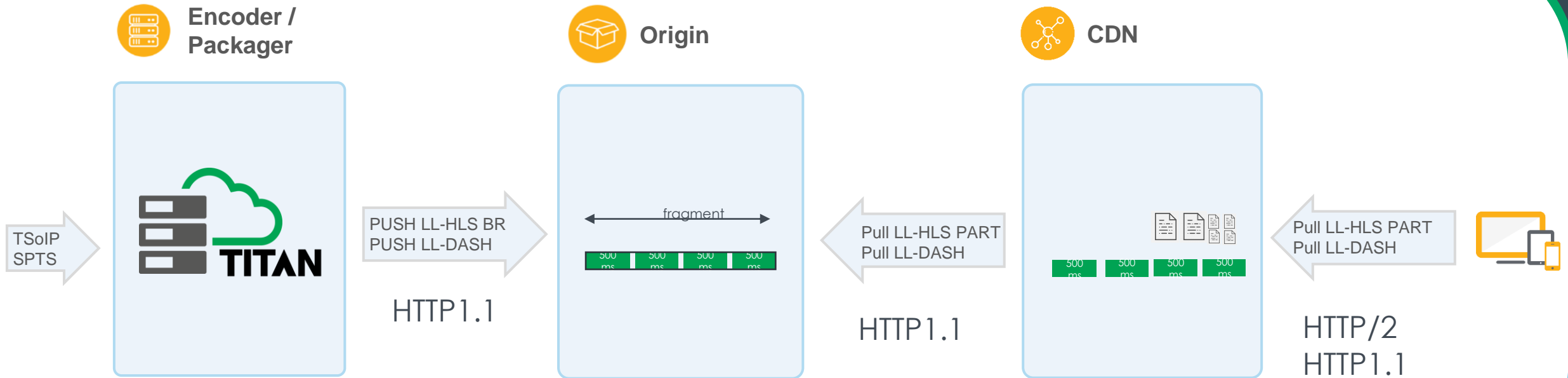


```
#EXTINF:4.000,  
v1_1-3.m4s  
#EXT-X-PROGRAM-DATE-TIME:2022-03-18T15:52:14.940Z  
#EXT-X-PART:DURATION=0.500,URI="v1-  
4.m4s",BYTERANGE="314361@0",INDEPENDENT=YES  
#EXT-X-PART:DURATION=0.500,URI="v1-4.m4s",BYTERANGE="258178@314361"  
#EXT-X-PRELOAD-HINT:TYPE=PART,URI="v1-4.m4s",BYTERANGE-START=572539
```

CDN OPTIMIZATION : LOW LATENCY IMPACT OF LL-HLS (PART)



CDN OPTIMIZATION : LOW LATENCY IMPACT OF LL-HLS (BYTERANGE)



REACHING ULTRA-LOW LATENCY

> Other options

Network



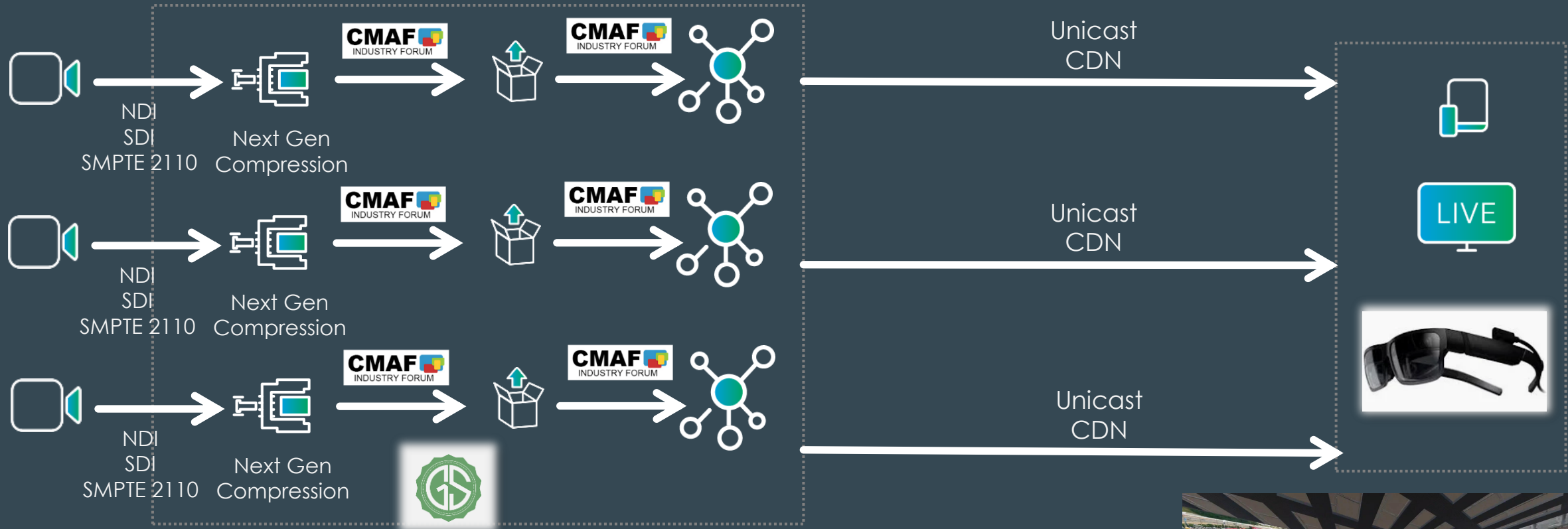
Player



A large, semi-transparent watermark consisting of the letters 'O' and 'S' in a stylized, outlined font is centered in the background. The 'O' is on the left and the 'S' is on the right, both rendered in a light blue/cyan color.

**Synchronization & Ultra low
latency & Interaction**

METAVEVERSE EXPERIENCE – THE VIRTUAL LOUNGE



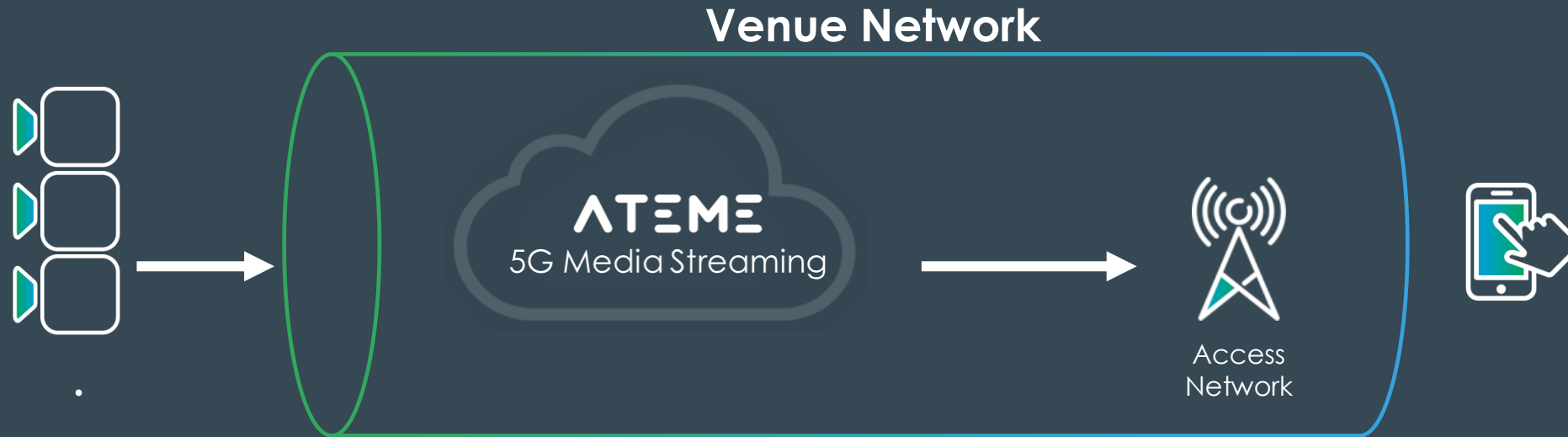
← Ultra Low Latency < 2s

Compatible with



ATEME

In-Venue Video Services



Mutli-Angles Live & Key Actions Replay



Multi-angle with Augmented Reality

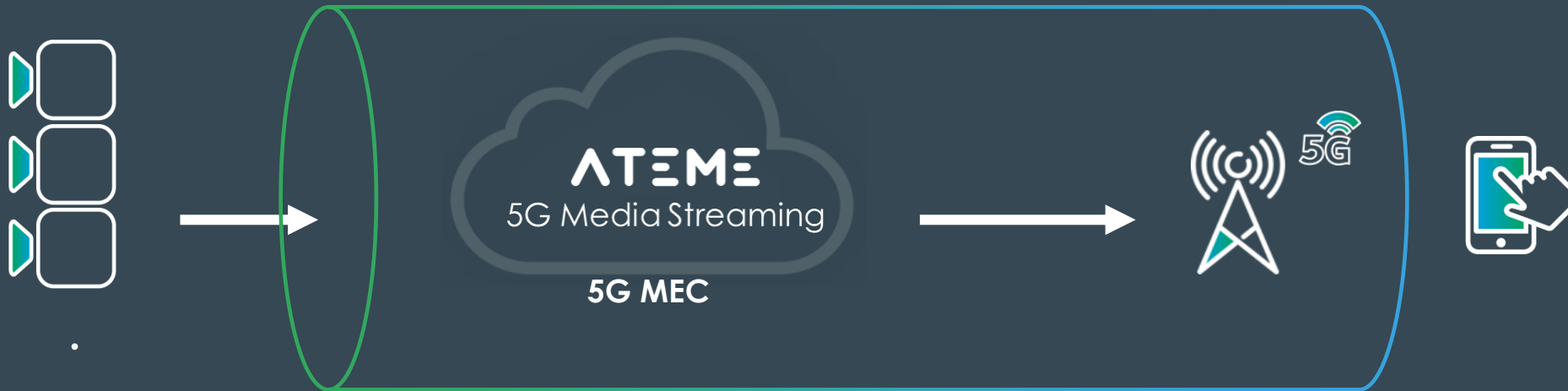


- Immersive experience
- Monetization
- Reduced cost/energy

- CSPs/MNOs
- Sport content owners

In-Venue Video Services with 5G-NR

Venue Private 5G Network



Mutli-Angles Live & Key Actions Replay



Multi-angle with Augmented Reality

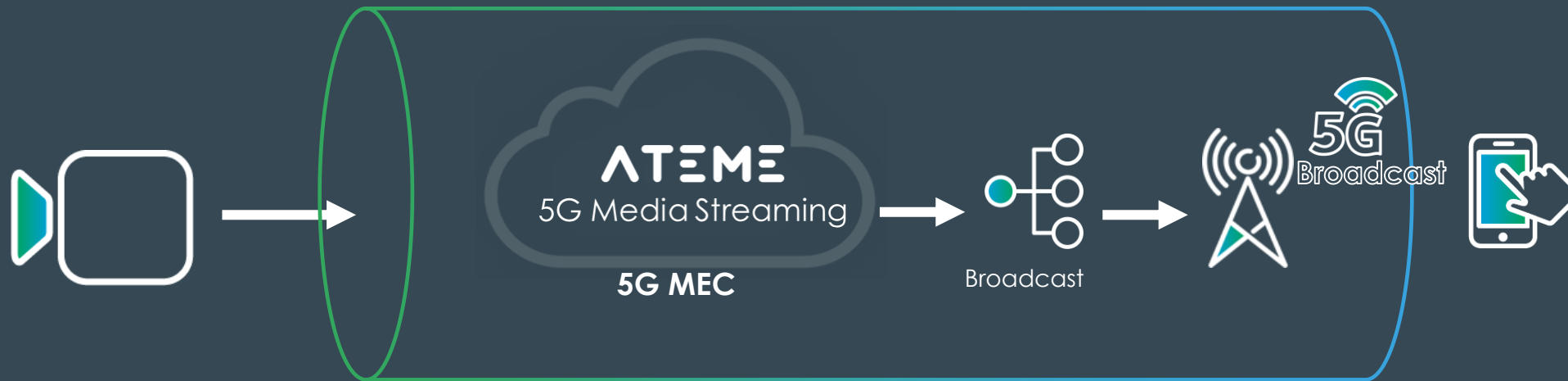


- Immersive experience
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MNO-Agnostic In-Venue D2C Video Services with 5G-Broadcast

Venue Private 5G Network



Mutli-Angles Live & Key Actions Replay



Multi-angle with Augmented Reality



- **Monetization**
- **Immersive experience for youth**
- **Reduced cost/energy**

- **MNOs**
- **Broadcasters**

DETECT AND CLIP MULTI-ANGLE KEY ACTIONS

- > Detection and storage of key actions automatically
- > Offer a library of Multi-angle key actions with associated filter information



TARGETED PUSH NOTIFICATIONS TO FANS

- > Send Fans automatic personalized notifications of key actions
- > Monetization through advertising and sponsorship



Delivering on the 5G vision

A platform of innovations for the next decade

*courtesy of Qualcomm



5G

Indoor enterprise

Fixed wireless access

Factory

XR

Smart transportation

Public networks

Private networks

Extreme Broadband

Massive IoT

To sum up

The Virtual Lounge Benefits



Enhanced Venue Attractiveness

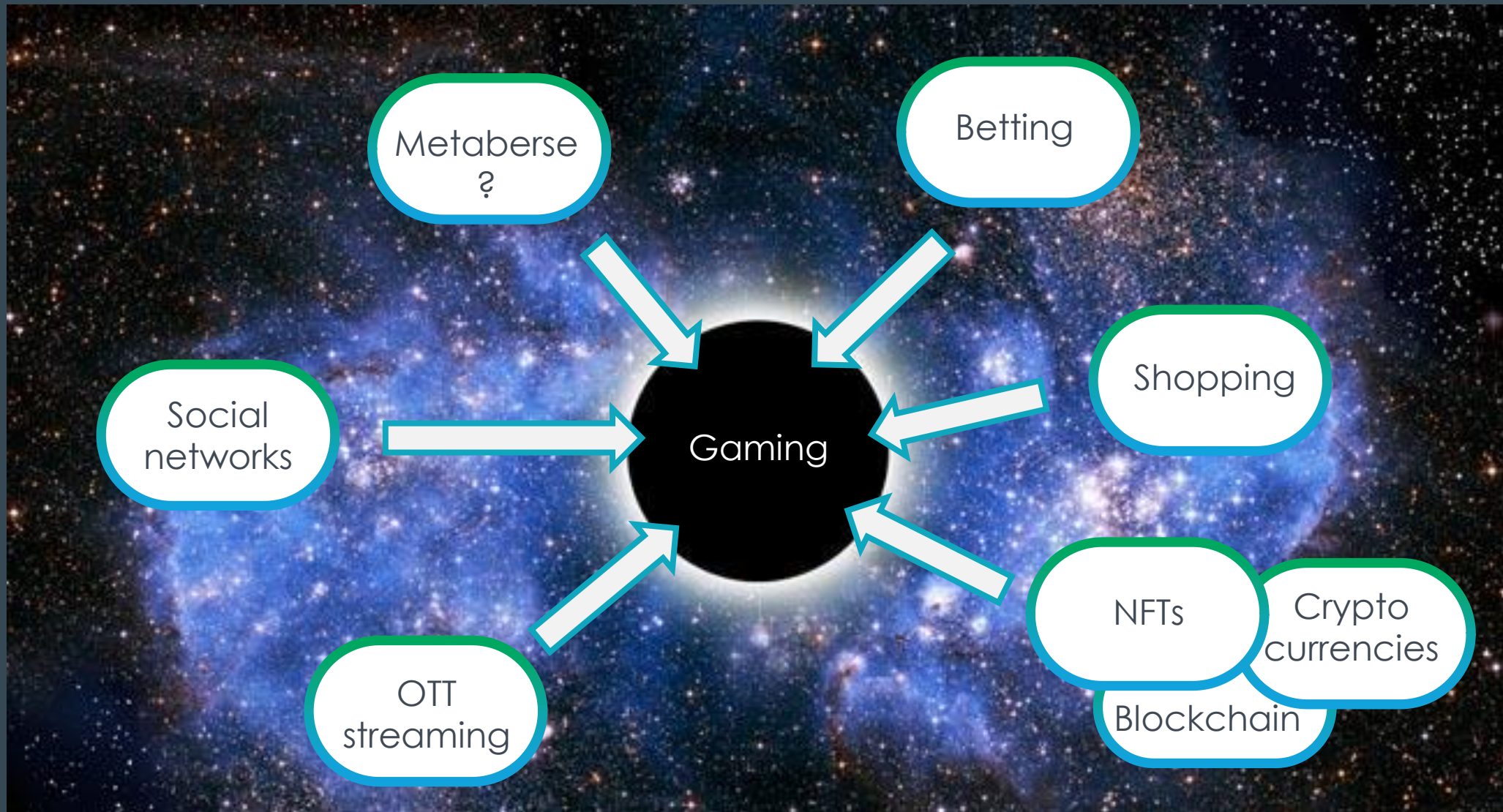


Maximized engagement



Further Monetization

TO CONCLUDE?



Broadcaster Challenge #1: New Media Formats



UHD
Social
3D
Immersive
Personalized
Interactive
Gaming-like
Short & long
Live
On-Demand
User Generated
AI-supported
Location
Global
Secure
Time-shift
...

ATEME
Captive your audience

THANK YOU.