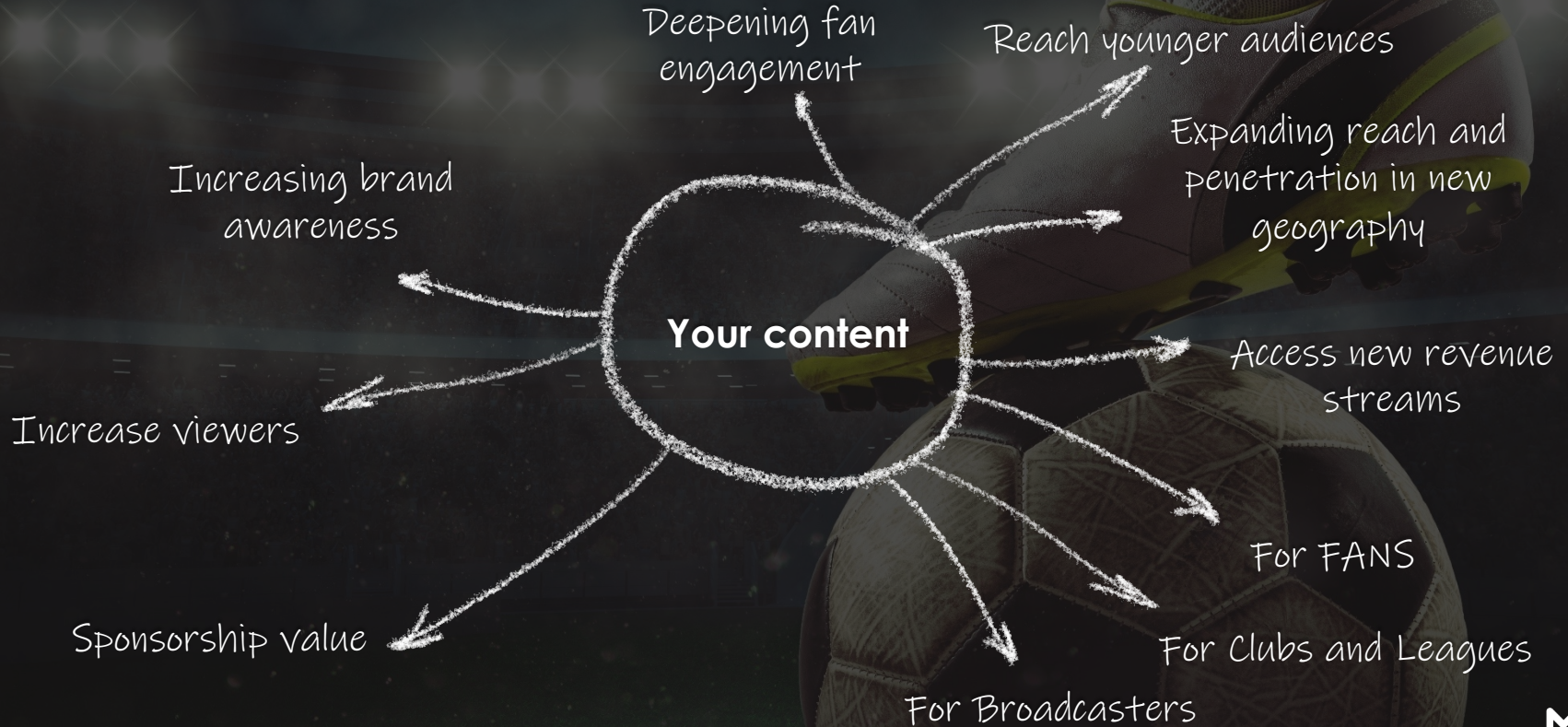


5 DECEMBER 2022

Sports, Cloud, and Streaming at scale

Carl Fergusson
Head of Portfolio Development

Where do you want to take your content on a digital journey ?



Public cloud

Flexible on-demand infrastructure with no upfront investment

- Great for event-based content processing like live streaming of sports

- Hosted Kubernetes instances makes for faster deployment



Amazon EKS



Azure Kubernetes Services



Google Kubernetes Engine

- Flexible and scalable for use

- 2 live matches or 200 live concurrent matches
- Can vary scope of production per event
- SD, HD, UHD, 3 ABR profiles, 10 ABR profiles - can change with every event

- Scalable on-demand

- Storage grows with assets
 - with potential tiering based on use/demand
- Dynamic VOD delivery that scales with viewer demand

- Peered connection to multiple public CDNs

- Test and 'sandbox' new services, ideas or technologies with minimum cost risk

Cloud – common barriers and concerns

Cost	Often cheaper once all the costs are considered, particularly for event based use. Compute rental + power + cooling + OS licences PLUS facility + networking + security + maintenance + availability KPI
------	---

Security	Each cloud Service Provider has huge cyber security teams Cloud hardening
----------	--

Reliability	Key architectural topic as cloud networking is different to on-premises Live requires proper design and choice of facilities – but so does on-prem
-------------	---

Skillsets	An industry wide challenge. Managed service provider, hosted SaaS, or Managed Cloud Application running in your cloud account are all solutions
-----------	--

Monitoring	Probes and monitoring tools exist Also metrics can be more readily accessed across whole delivery chain
------------	--

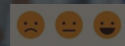
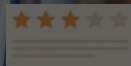
Maintenance	More frequent lifecycle maintenance required. SaaS or MCA can remove this hurdle
-------------	---

Operations	Operations will be different! But faster
------------	--

Deepening the fan relationship

Maximising user lifetime value by prolonging engagement, and fostering a fan community

- Content – live and on-demand
- UX/UI
 - Metadata
 - Viewing experiences
- Personalisation
- Rewarding user loyalty by offering a shared experience, real-time interactivity and community



Personalisation and Monetisation

Streams that can be personalized

- Contextual experiences
- Target content and advertising
- Regionalize your content and themes
- Virtual Advertising to extend sponsor reach

Opening-up elastic access

- Flexibility in subscription tiers
- Ad-supported tiers
- Conditioning for instant-access purchases
- Promotion and pay-per-X passes
- Loyalty rewards

Supporting gamified experiences

- Synchronised interactive data
- Keep everyone in the same app
- Fan polling, quizzes and interaction
- Near-real-time proposition betting

Scaling for content reach

- Multi-device synchronization
- Multiple camera and audio
- Frame-accurate Multi-camera switching



Technologies being used for Sports Streaming today

Engage

- Direct to consumer streaming service management platform
- Viewer entitlement and DRM security
- Content discovery, recommendation, and personalization
- Offer management
- Video Content Management and processing workflow for on-demand
- Universal client SDK – phone, tablet, browser, games console, smartTV, retail streaming devices
- Service insight and analytics
- Pre-integrated billing and payment

Aquila

- Cloud native live and on-demand video processing and streaming
- Public cloud or on-premises
- Hosted SaaS, or deployed in your cloud account. Cloud lifecycle management
- Cloud UI and API control
- Content conditioning for ad-insertion
- In-band metadata insertion for advanced client and event synchronization

Prisma

- Rights, regionalization and blackout management
- Stream personalization and dynamic ad-insertion via manifest manipulation



MediaKind.com