

Agile Media Blueprint

EBU MCMA Workshop - 2020
Bloomberg, New York

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AMB - What Is It?

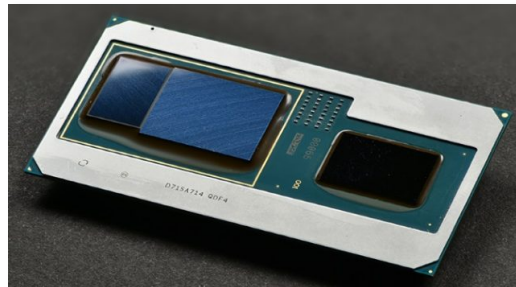
- A blueprint – a plan
- A way to build flexible, scalable media facilities
- Runs on Internet Platform
- Based on IT

Introduction

- Technical
 - Distributed, clustered computing, unimaginably parallel
 - The Internet-as-a-platform – DNS, immutability, identity (and a LOT more)
 - Fast, non-blocking networking with media transported much faster than real time
 - Clustered caches for speed and resilience
 - Accelerated & composable atomic functions
- This Is Doing Media Different

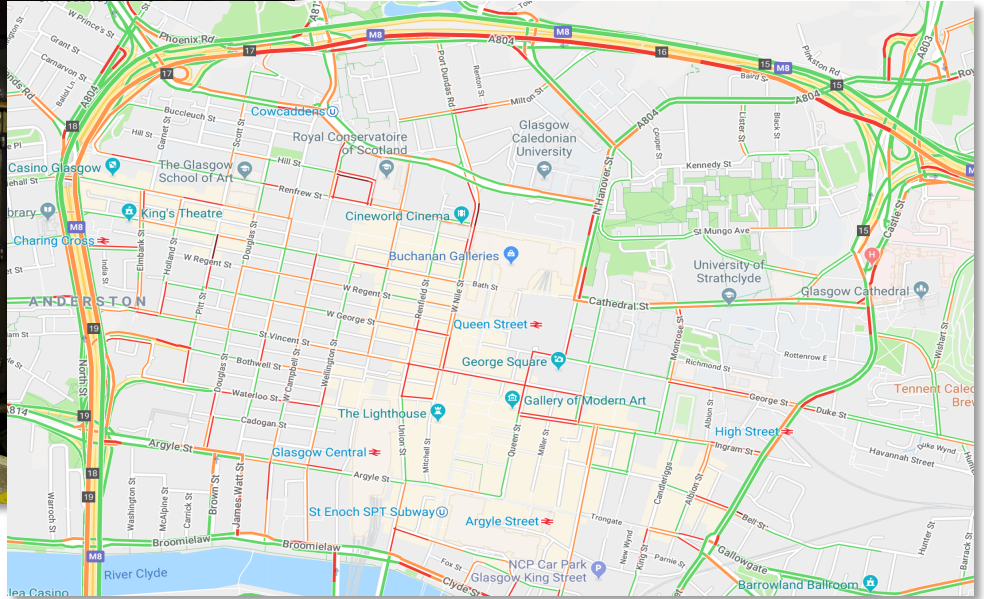
4 CPU cores

1536 GPU cores



Intel i7-8809G

Trains and automobiles



Railway vs road infrastructure

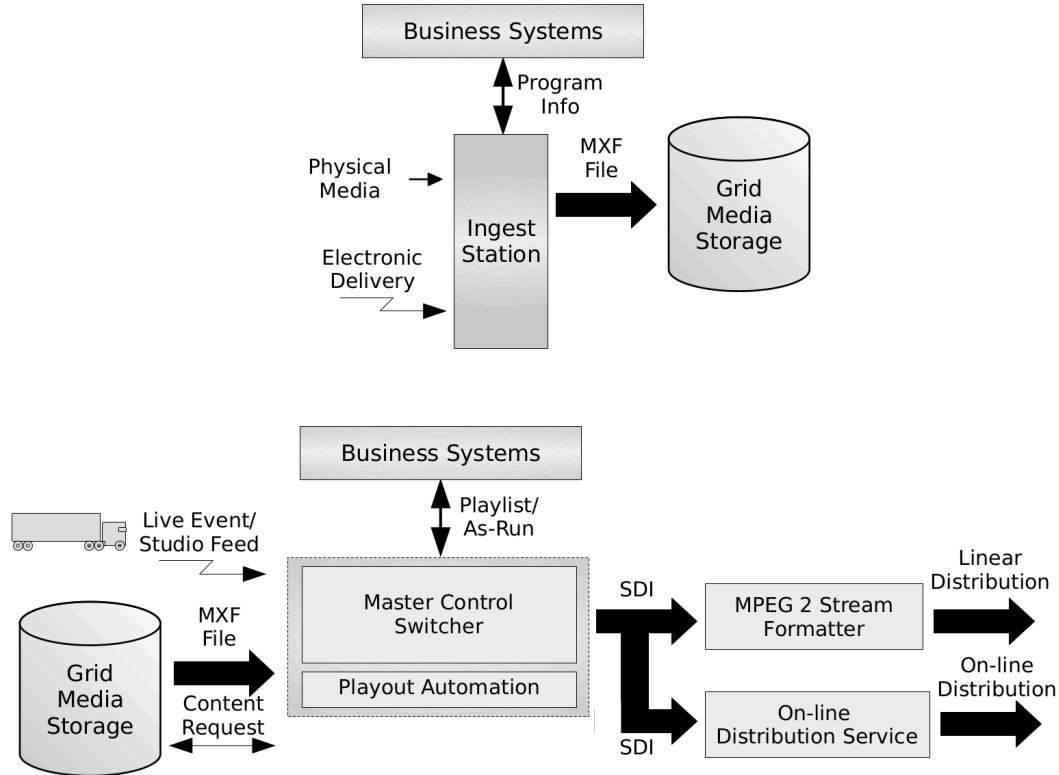
Trains

- Point-to-point
- High speed
- Sequential, high capacity train
- Managed: signals, timetables
- Engineered resilience
- Expensive to extend
- e.g. SDI-like

Road

- Multi-point to multi-point
- Fast enough when not congested
- Parallel, many small vehicles
- Localised control: traffic lights
- Reactive, i.e. GPS + traffic
- Incremental & agile
- e.g. Internet platform

Typical Media Facility



What's The Problem?

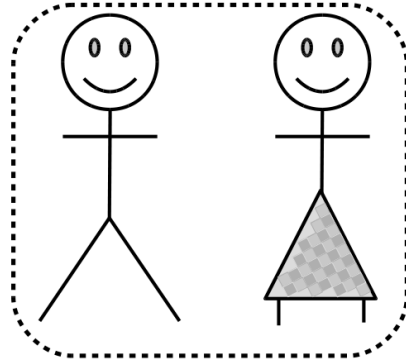
- Two-facility problem
- Fast Succeed/Fast Fail
- Scale up/down
- Resolution limit issues w/ 4K, 8K
- Future-looking product offerings

SQUARE PEG / *Round Hole?*

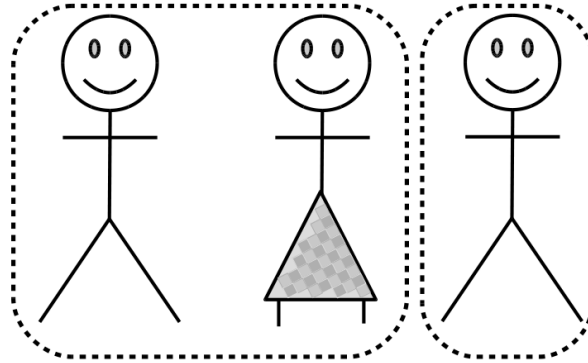


THE AGILE MEDIA BLUEPRINT (AMB)

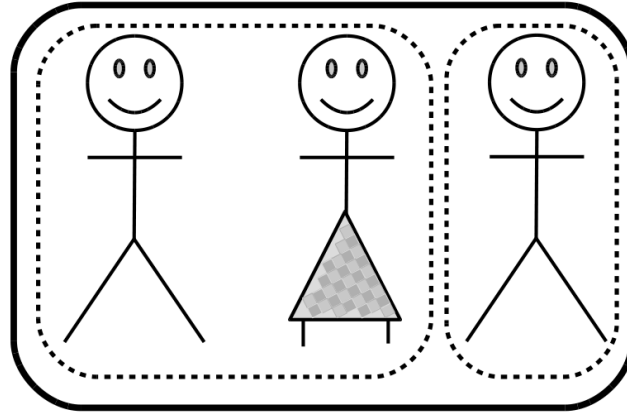
AMWA AMB Begins With People



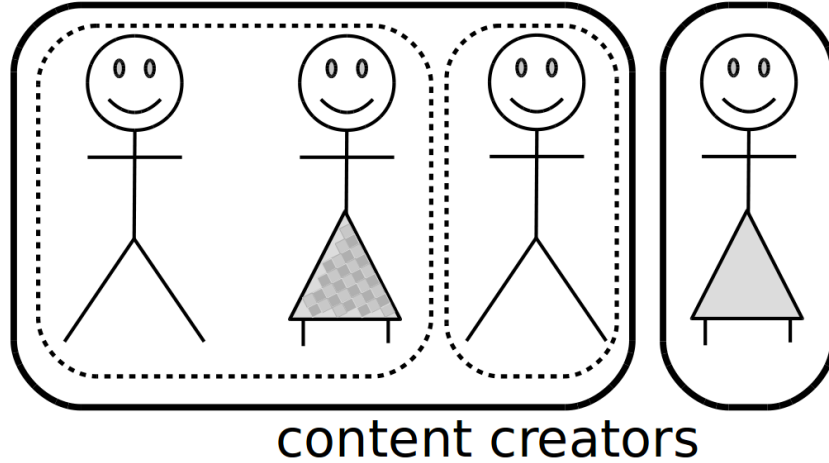
AMWA AMB Begins With People



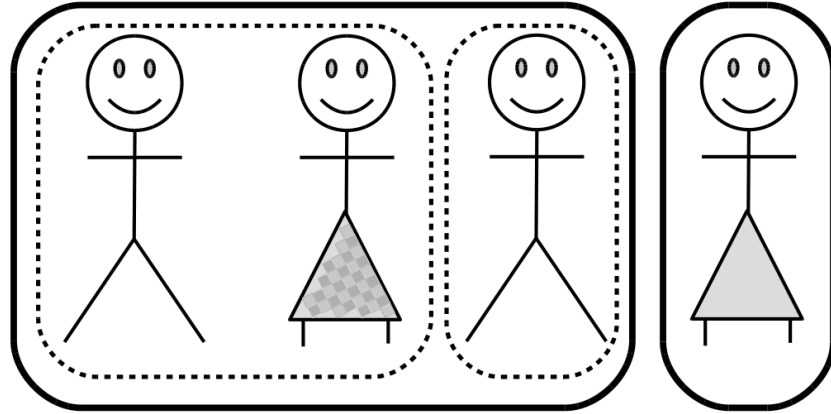
AMWA AMB Begins With People



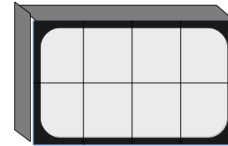
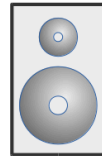
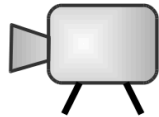
AMWA AMB Begins With People



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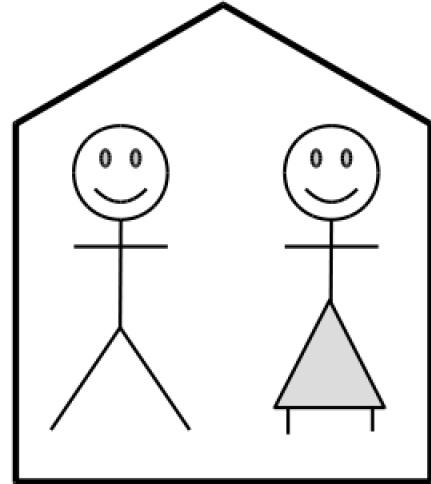


content creators

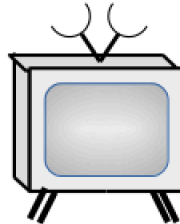


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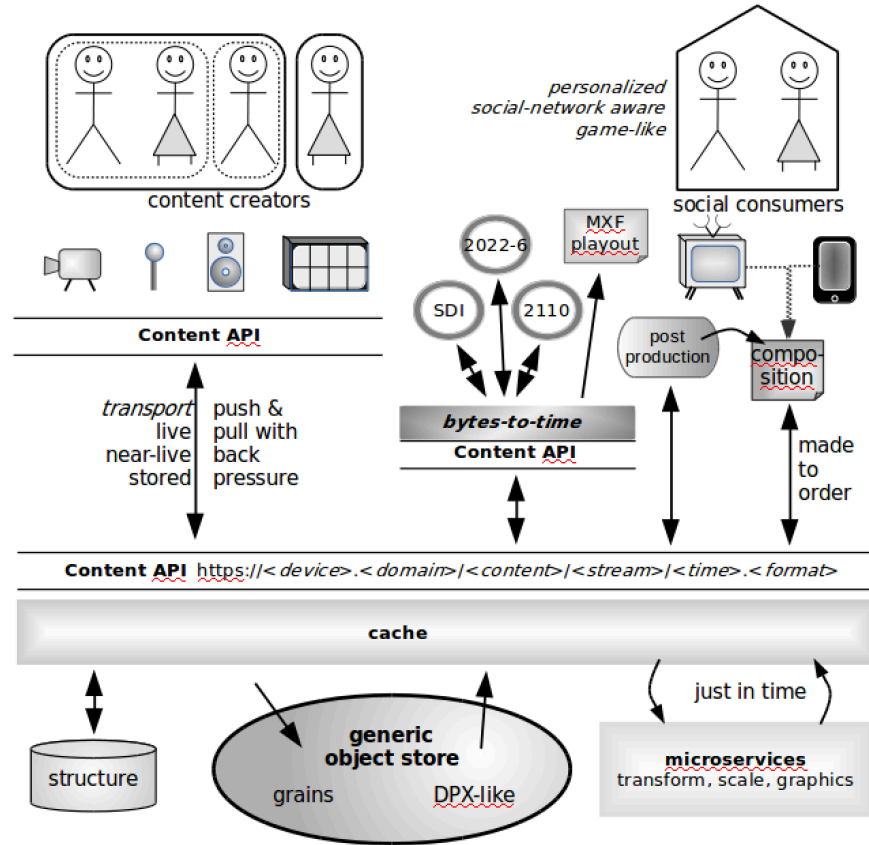
*personalized
social-network aware
game-like*



social consumers



Using the AMB



AMB And Security

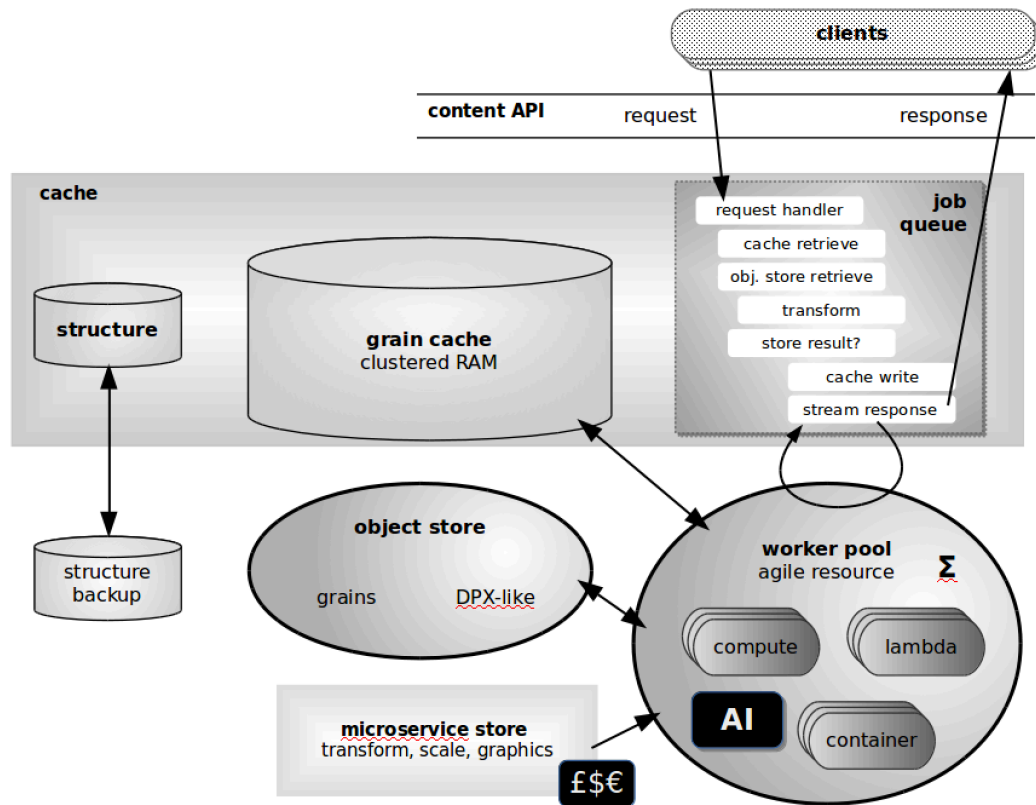
(boring)

- Can be done well...
Or Poorly
- Just the typical stuff
 - OAuth
 - Certificates
 - People & Roles

AMB and Security

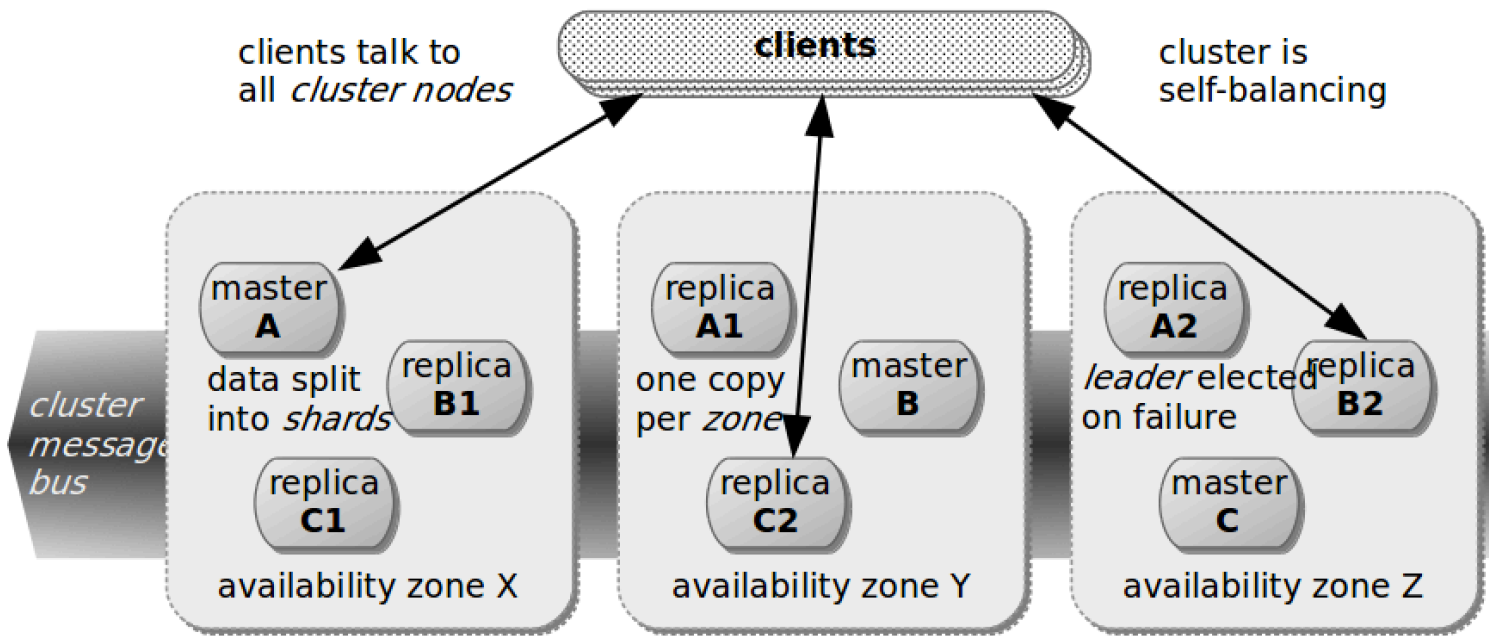
- One point though...
 - Essence secured “in flight”
 - HTTPs Essence Transport w/
Best Current Practices
 - Uncompressed HD transported over HTTPS faster
than real time (on generic compute)

Content API @ The Core

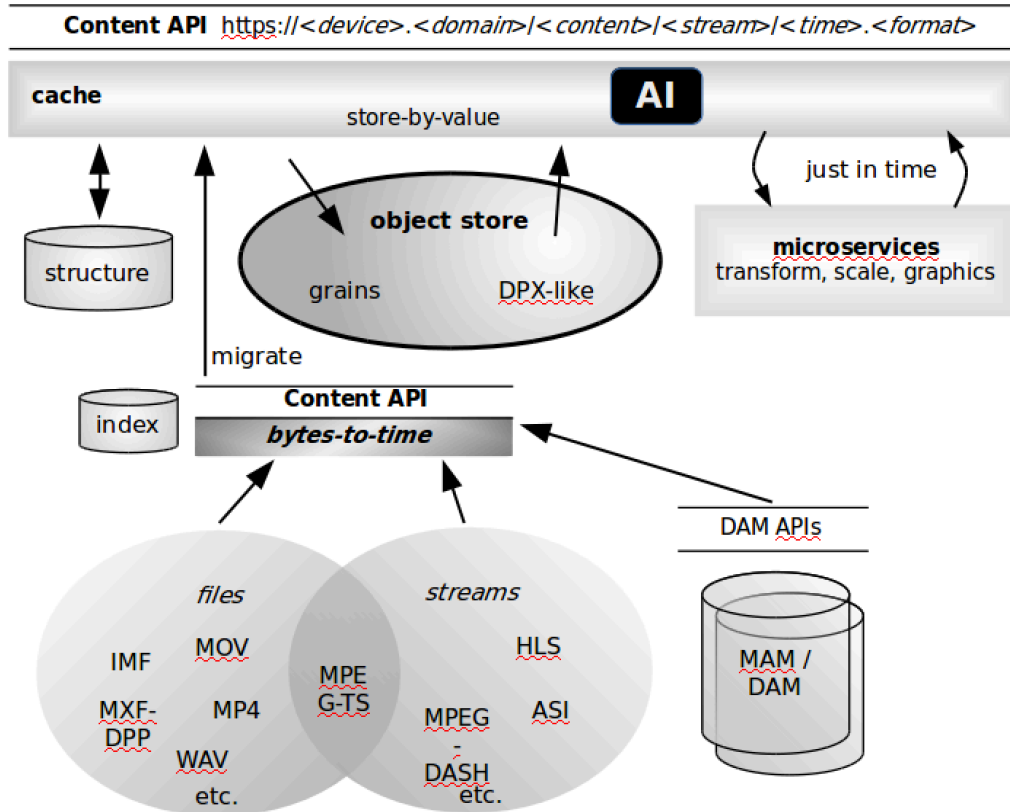


AMB Leverages IT Redundancy

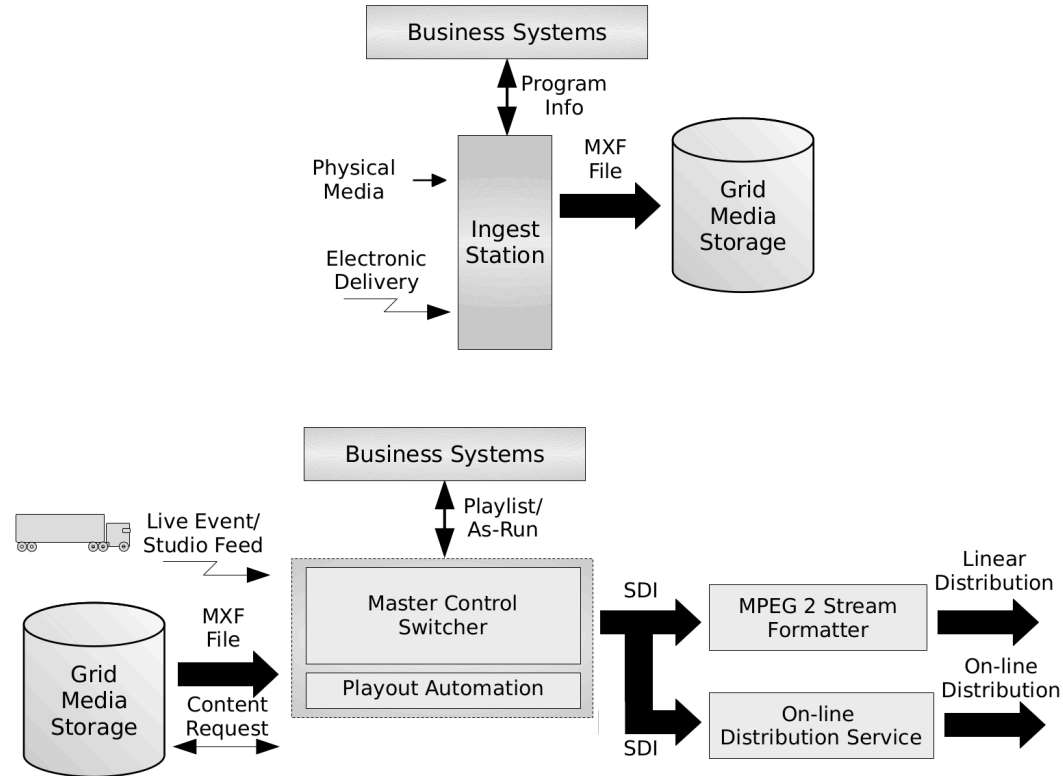
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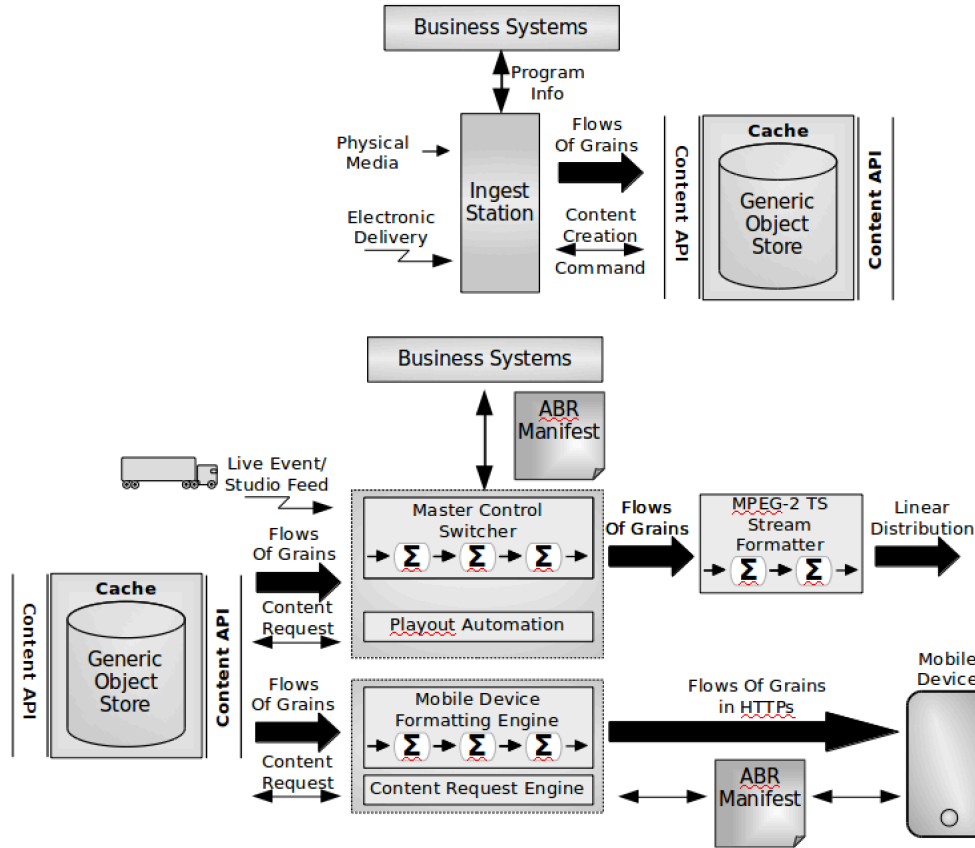
AMB and Files



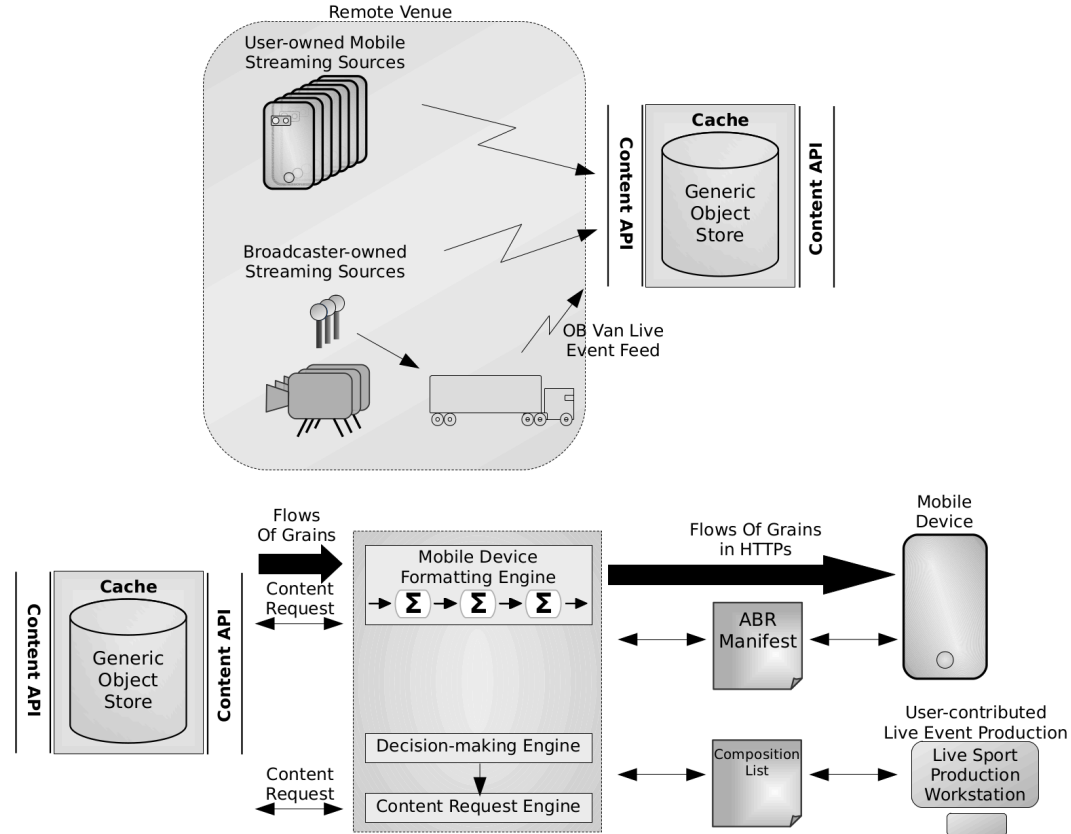
Typical Media Facility (again)



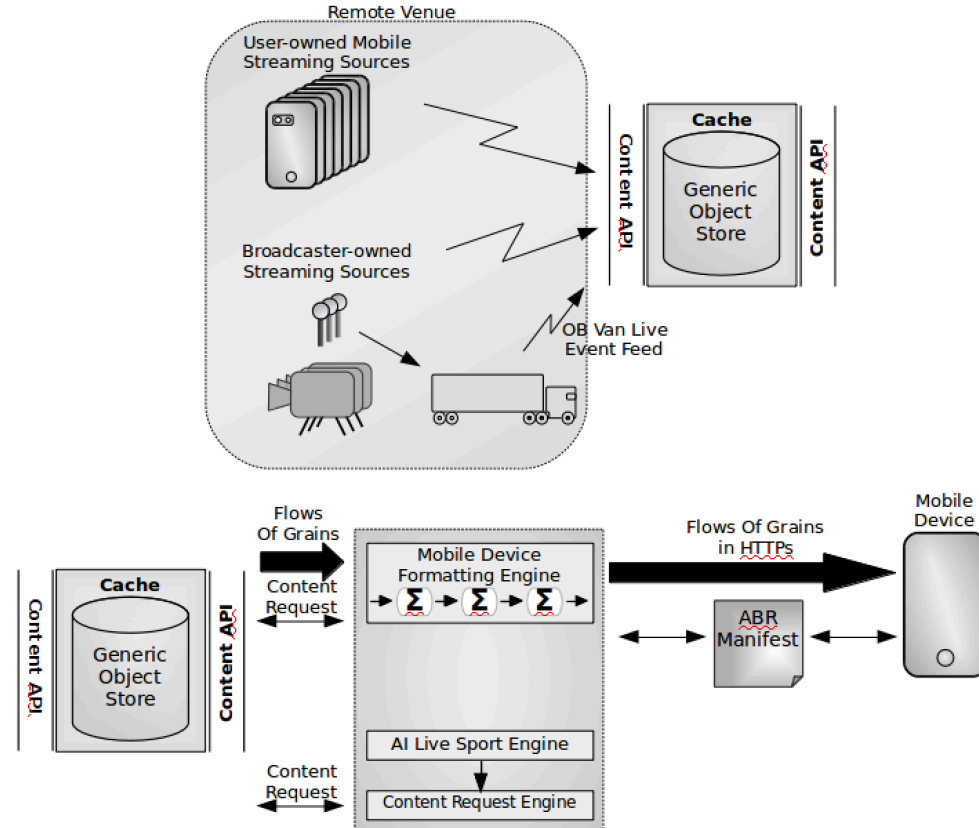
Use Case: AMB Un-Facility



Use Case: User Contributed Content



Use Case: AI-Created Content



Importance of stable names

- Media data is immutable
 - It gets created once – by a camera, a microphone, a mixer ...
 - It may have one of more stable identifier
 - Globally unique: flow ID & timestamp
 - Location-specific URL – two names pointing to the same file on two different servers
 - Version-specific URL – one name providing indirection to a current version
- A DNS name provides device name and domain
 - Device may be real – direct to camera
 - Device may be virtual – load balanced content server, redundant pair switch
- Media data should be:
 - self-describing – so a decoder knows what to do with it
 - can be navigated by timestamp – so you know what comes next
- Name can be used to create versions on-the-fly

What's in a name?

`https://mxfstore.zbc.com/content_in_mxf/...`

AMB Content API

/cable.json

v_1 /video[

a_1 /a

a_2 /audio[1]/...

u_2

u_2

u_2

u_2

d_1 /anc[0]/...

d_1

d_1

d_1

/15182:3700000000 /15182:4100000000 /15182:4500000000 /15182:4900000000

MXF OP1a file

hdr

v_1

a_1

a_2

d_1

v_1

a_1

a_2

d_1

v_1

a_1

a_2

d_1

v_1

a_1

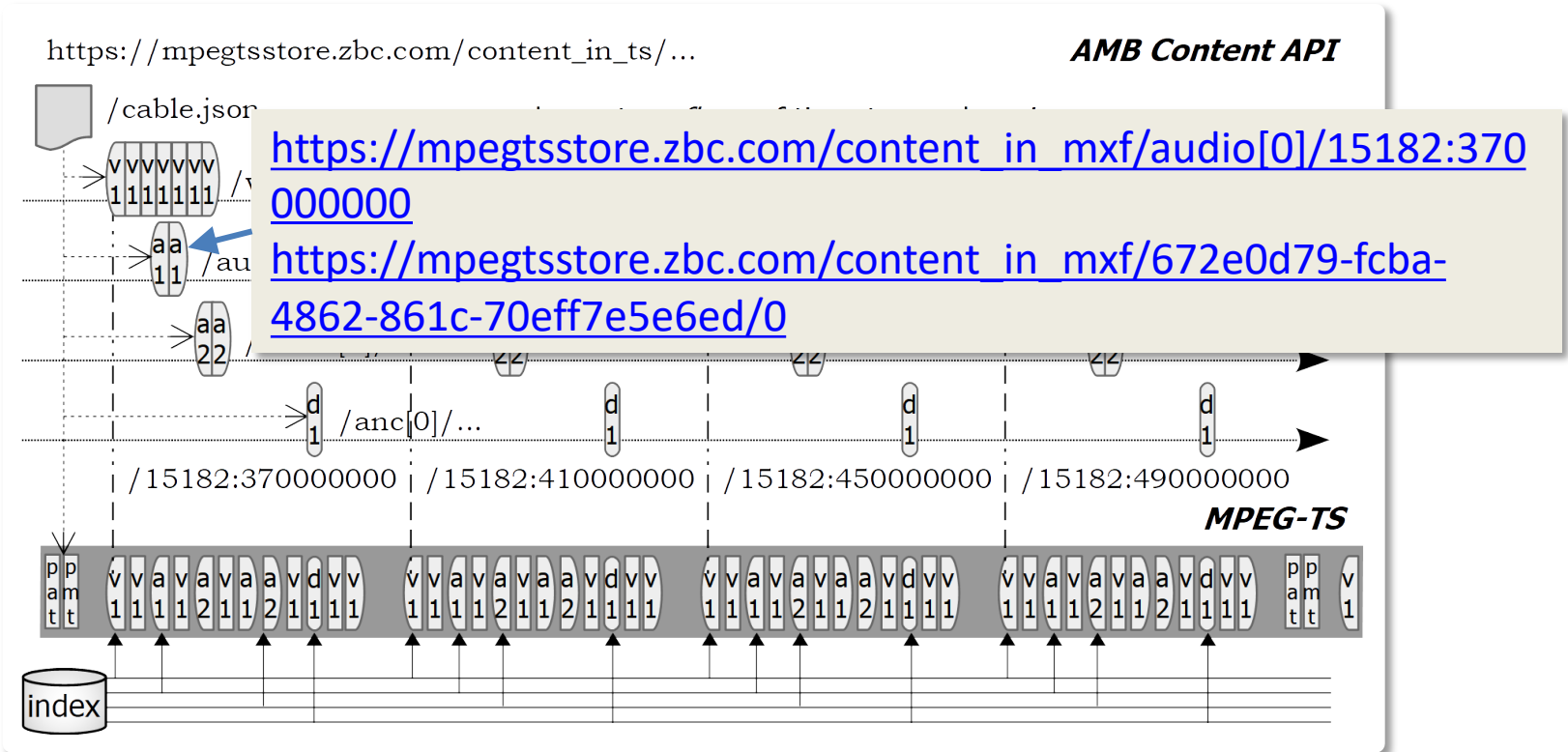
a_2

d_1

idx

index

... and in a stream?



Additional Information

- AMWA Agile Media Blueprint Whitepaper
https://www.amwa.tv/downloads/reference_documents/The_Agile_Media_Blueprint.pdf
- Streampunk Media Technical Paper
https://docs.wixstatic.com/ugd/ba2ca6_747b5d54a33a49308e047c62aed67109.pdf

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QUESTIONS?