Smart Media Asset Management

IRT Kolloquium, April 11\textsuperscript{th}, 2016

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Agenda

• What is Smart Media Asset Management?
• The industry is changing
• Media Central Platform
• Platform enabled MAM “Smartness”
What is Smart Media Asset Management?

• Rather then playing smart and have a direct answer, we want to assess the needs
  • Requirements for Media Asset Management change very frequently
  • Our customers need to modify their workflows from ingest to playout / distribute to adopt to those requirements

• Be ready to quickly react on coming changes!
The industry is changing: Creation, Consumption and Distribution - All Growing Rapidly

Rate of Content Creation: 2x – 4x

Distribution Platforms: >10x

Content Consumption: 1.5x

Note: Growth is measured by comparing metric today to 10 years ago. Source: eMarketer.
The industry is changing – Our customers

FOX

Industry Shift Pressures

Industry Shift Lift

NETFLIX

hulu

amazon studios

Industry Shift Lift
The industry is changing - Shift on Technology Vendors

Legacy Technology Vendors
Revenues decline

New Vendors
Revenues grow

Note: Derived from publically available financial filings.
The industry is changing - Common Needs

Avid MediaCentral Platform
The industry is changing - Common Needs

Create
High quality content

Distribute
Across channels & devices

Collaborate Everywhere

Maximize
Asset value

Ensure
Efficiency
The industry is changing - Common Needs

Create
High quality content

Distribute
Across channels & devices

Maximize
Asset value

Ensure
Efficiency

Collaborate Everywhere

Security
(Known) Changes in the industry

• New user behavior result in new business requirements:
  • New generation of consumers (Generation Facebook)
  • New media consumption modes (OTT / Second Screen, VOD)
  • New media generation modes

• New Security requirements
  • Watermarking (visible and forensic), Fingerprinting
  • Encryption
  • DRM

• New Technical requirements:
  • Tri-media-News
  • 3D video
  • IP TV
  • Resolutions: SD, HD, UHDTV, 2K, 4K, 5K …
  • Codecs: DV, H262/MPEG 2 (XDCam), H264/MPG 4 AVC (AVC-I, XAVC, AVC-LongG, XAVC-L), HEVC (H265), …
  • HDR imaging / HFR media

• What comes next? …
The industry is changing

• What is Smart Media Asset Management?
  • *Be ready to quickly react on coming changes!*

• How?
  • => Implement these requirements once in a generic platform (Avid Media Central Platform)
  • => Integrate the MAM (*and other systems*) with the generic platform that provides these and future capabilities
Set of shared components and services that connect together under common frameworks using APIs to derive new apps, solutions and workflows
Platforms transform industries

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Platforms transform industries

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Core OS

Kernel and Device Drivers
Platforms transform industries
Platforms transform industries
Media Central Platform

Customers: Tier 1 - Tier 2 – Tier 3

Platform-Connected Applications

Heritage Applications

Connectivity Toolkit / API

Interconnectivity

FOUNDATION and FUNCTIONAL MICRO-SERVICES

Gfx, Audio, Video Engines

Service extensions

Plugins

Asset Management

Service extensions

Plugins

Enterprise – Cloud – Common services

Portability
At the heart of the Platform: The Message Bus

Lean message bus
- RabbitMQ – proven and scalable
- Excellent Performance
  - 64,000 messages/sec (single RAM node)
  - 1,000,000 messages/sec (30 RAM node cluster)
- High availability and queue load balancing (60K-80K queries/sec per service)
- Additional security through encryption
- Federation (ability to communicate with other regions/zones)

Access
- Connector API – Asynchronous access to the Platform
  - Supports Node.js, Java, C++, .NET
  - I/O multiplexing (non-blocking network calls) for in-proc scalability (C10K)
- Uniform service registration, auto-configuration and control
- Controlled access via secure gateway service
Massively Distributed Middleware

Interconnectivity BUS Core
- RabbitMQ
- 64,000 messages/sec
- Fully asynchronous operation

Connectivity Toolkit
- SSL for secure communication
- REST API / REST endpoints for Clients
- Mapping of REST to platform events
- No business logic == stateless

Micro-services on the bus
- Individually scalable / redundancy
- Highly available
- Versioned (supporting multiple versions deployed simultaneously)
- Event-driven / event-based API
Event enabled architecture

fileTransferCompleted Event

transcodeCompleted Event

QCCheckCompleted Event

Watcher Service

QC Checker API Cluster

Publish to CDN

3rd party Slack Connector

Event enabled architecture
Media Central Platform: Example - Audio Collaboration
Media Central Platform: Example - Remote Editing

Interconnectivity Bus

- Media Central Core Services
  - Containers
- Media Central Playback Service
  - Containers
- Interplay Asset Management
  - VM

Platform Abstraction

Shared Storage

iNews
VM

Web Editing Client

Thick App Editor

iPad
Media Central Platform

Common Services and Engines

- Media Services
  - Search across your entire network
  - Media access and playback on any device

- System Administration
  - Centralized system configuration, management and monitoring

- Connectivity Toolkit
  - Tie third parties into the workflow
  - Platform level connection for end-to-end integration

- Resolution Independence
  - Work with any resolution
  - Fluidly scale playback to bandwidth available

- Collaboration
  - Work on-prem or remotely
  - Projects and media always stay in sync

- Asset & Meta Data Management
  - Persistence of metadata across apps
  - Dynamic data model for changing needs
  - Global Index across all systems

- Orchestration Engine
  - Workflow and process automation
  - Flexible resource allocation

- Security Services
  - Content protection
  - User authentication and policy-based access

- Video Engine
  - Real time video encoding and decoding
  - Scalable, highly responsive and flexible

- Graphics Engine
  - Foundation for real-time graphics solutions
  - Reliable, modular, high-performance graphics rendering

- AudioEngine
  - Real time audio Mixing
  - Extensible for effects
Media Central Platform – Partner Integrations
Interplay | MAM Modular service landscape

- Modular
- Service-oriented
- Scalable
- Flexible data model
  - Time based Meta Data
- Business Processes
- Platform-enabled
  MAM => SMAM
Platform enabled MAM “Smartness”

- Use MAM through the Media Central Platform
- For new requirements (and they will come)
  - Add capabilities to the platform
  - “Plug In” the services and Apps from Platform Partners
  - Integrate your own Services
  - Build your own Apps
Platform enabled MAM “Smartness”

- Playback of any asset on any device
- Global Media Index
- Resolution Independence
- “Plug In” functionality into the platform
  - Watermarking / DRM / Encryption…
  - File Transport optimizations
  - Social Media Connections
  - …
Platform enabled MAM “Smartness” -> Rio Olympics

- Huge amounts of content
- 500 connected users on average
- Clustered and load balanced
- Platform deployed across 2 continents
- Simplified view (only 4 locations)
Platform enabled MAM “Smartness” - Key Workflows

**Ingest**
- Up to 120 channels concurrent Ingest between US & Brasils
- Depending on event, ingest can be MAM (US) only or parallel into MAM & PAM (multiple locations)
- Heavy use of Edit While Capture (EWC)

**Transfer**
- Intelligent Transfer extension to be “location aware”
- Always uses material location which creates the least amount of WAN transfers
- Delivery -> integration of file transfer optimizers
Platform enabled MAM “Smartness” - Key Workflows

**Logging**
- Platform based logging
- Heavy use of Strata (time based meta data)
- Additional data is being ingested from commercial sports logging services

**Shot Selection**
- Search for logged content in global Media Index
- Includes current and archived material
- Material can be located everywhere
- Shot list will be exported to Production
- Shot list can also be exported directly to web / Social Media
Platform enabled MAM “Smartness” – Location awareness

1. Search in Media Index

2. Content found in different zones (and different backends)

3. Play - content is streamed off closest source
Smart Media Asset Management

Be ready to quickly react on coming changes by integrating new capabilities once into the platform rather than integrating it into each module / component.
THANK YOU

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