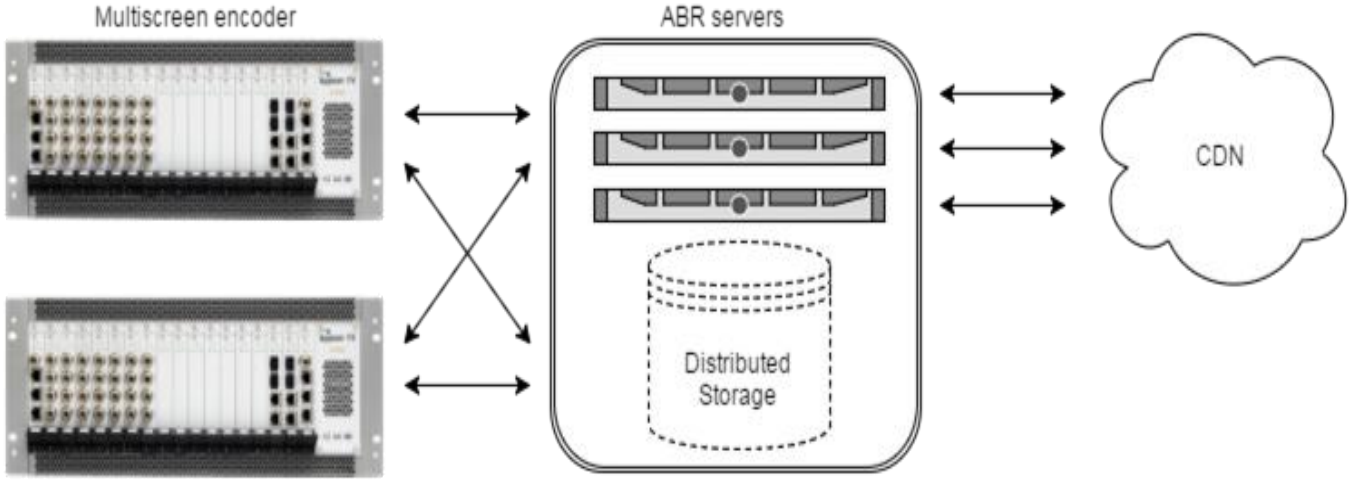
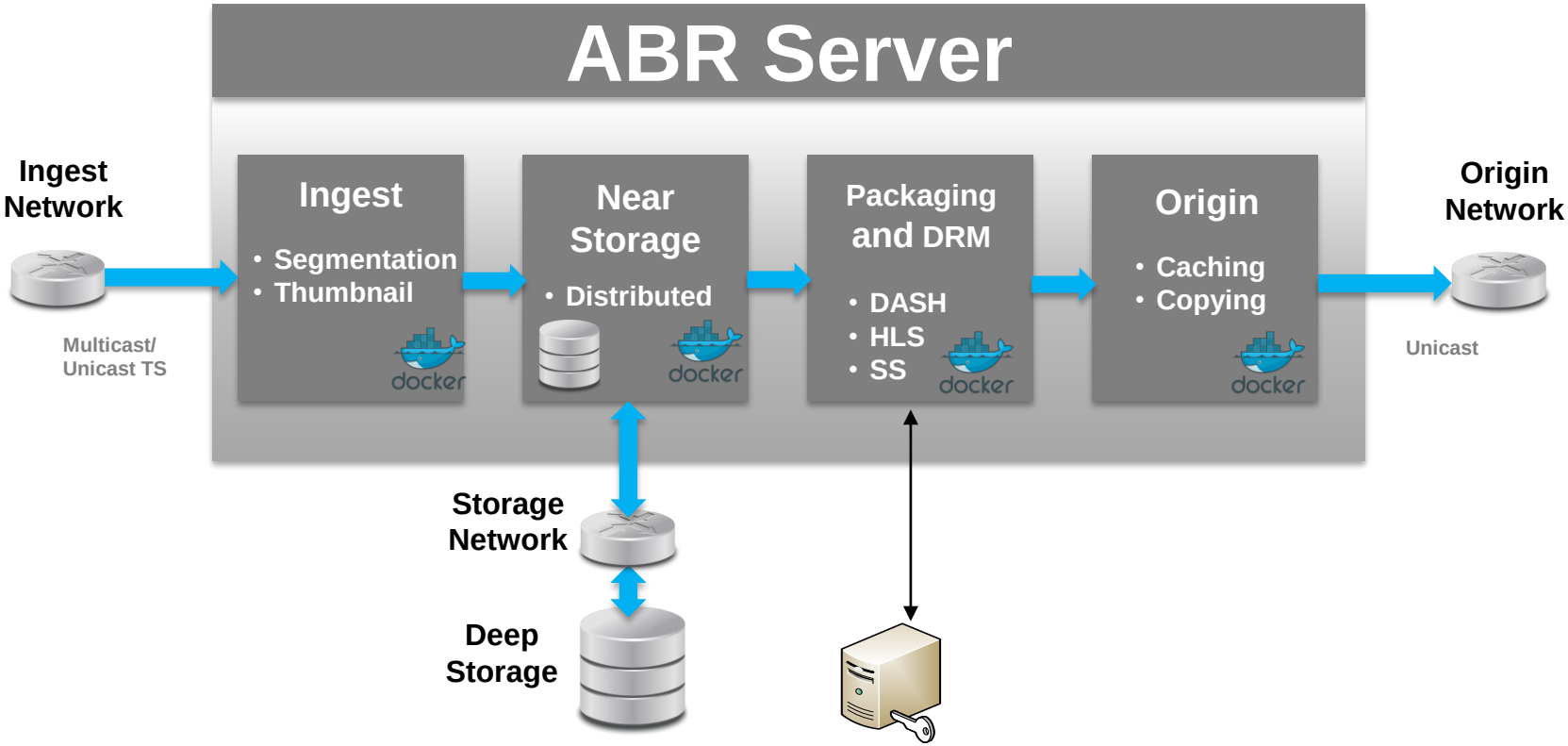
ABR PACKAGER / ORIGIN
Appear tv
redefining video delivery

ABR System

- ***The ABR server system is designed from the ground up to be highly scalable***
  - *Scalable, distributed system; allowing seamless scaling, brick-by-brick, as needed*
  - *Deployable as a single server, or as a high availability **cluster***

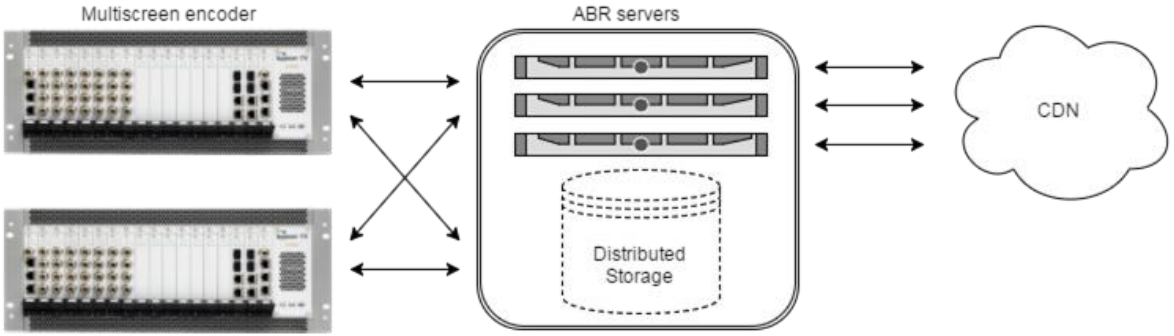


Data Flow


ABR Server
Ingest Network
Multicast/ Unicast TS
Ingest
• Segmentation
• Thumbnail
docker
Near Storage
• Distributed
docker
Packaging and DRM
• DASH
• HLS
• SS
docker
Origin
• Caching
• Copying
docker
Origin Network
Unicast
Storage Network
Deep Storage

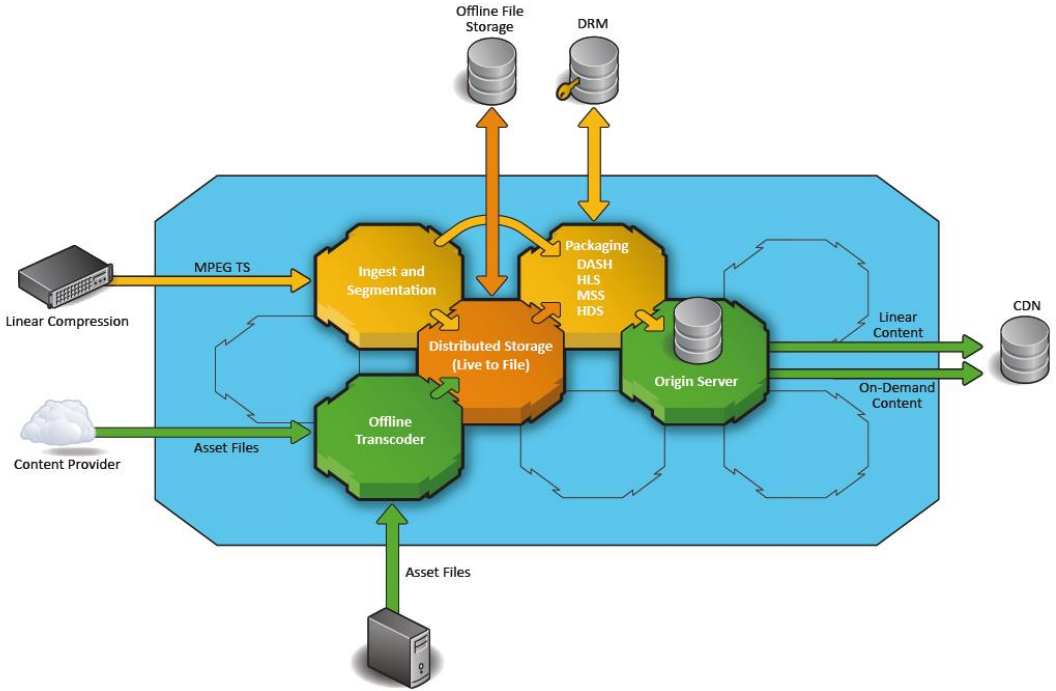
Redundancy

- ***Fault-tolerant architecture with no single point of failure***
  - ➢ *Ingest of each service on two or more servers in the cluster*
  - ➢ *Distributed storage with data replication*
    - *A server failure will only reduce the streaming capacity*
  - ➢ *Updates can be performed when the system is running without loss of service.*



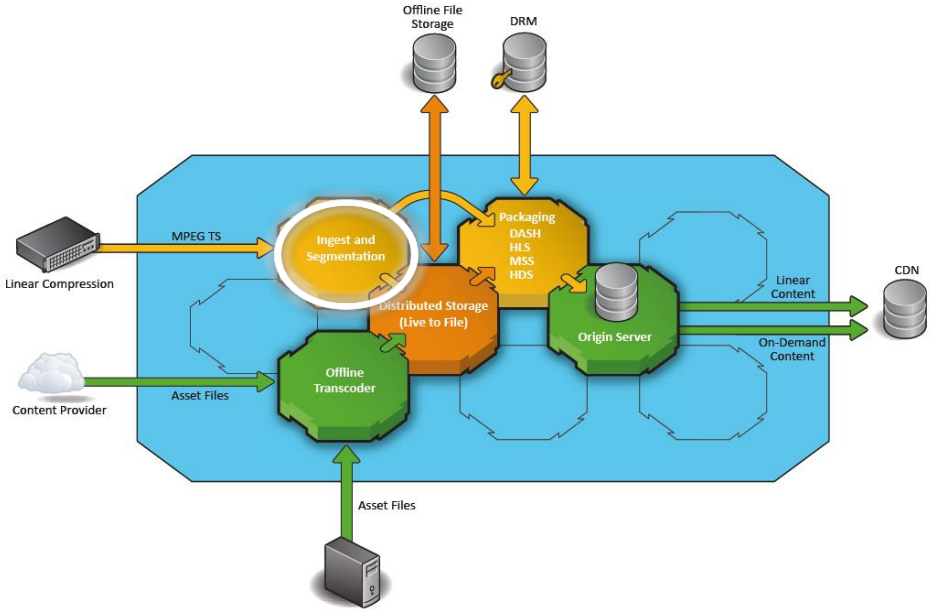
Just-In-Time (JIT) Packaging

- *Capable of serving both Live and VOD*
- *Supports HLS, HDS, Smooth Streaming and DASH*
- *Just-in-time / On-the-fly packaging reduces storage requirements*



Input Formats

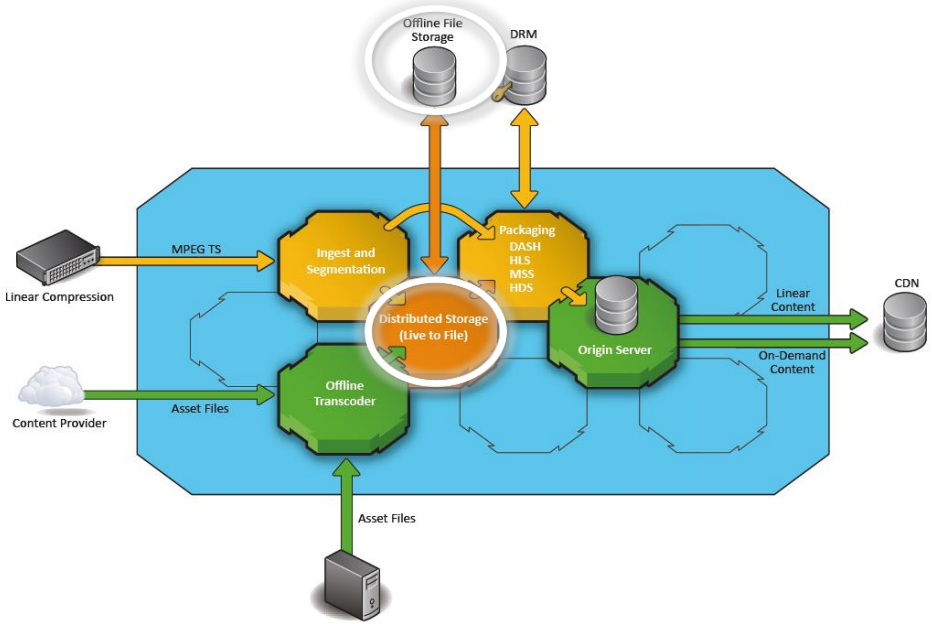
- Unicast/multicast MPEG TS over UDP IP CBR (and VBR) supported
  - Video : MPEG-4 (H.264) and HEVC (H.265)
  - Audio : AAC-LC, HE-AAC v1/2



- ***Ingest Capacity:*** *100+ services / 1 Gbps per server*
- ***Redundant Input:*** *Seamless across servers*

Storage

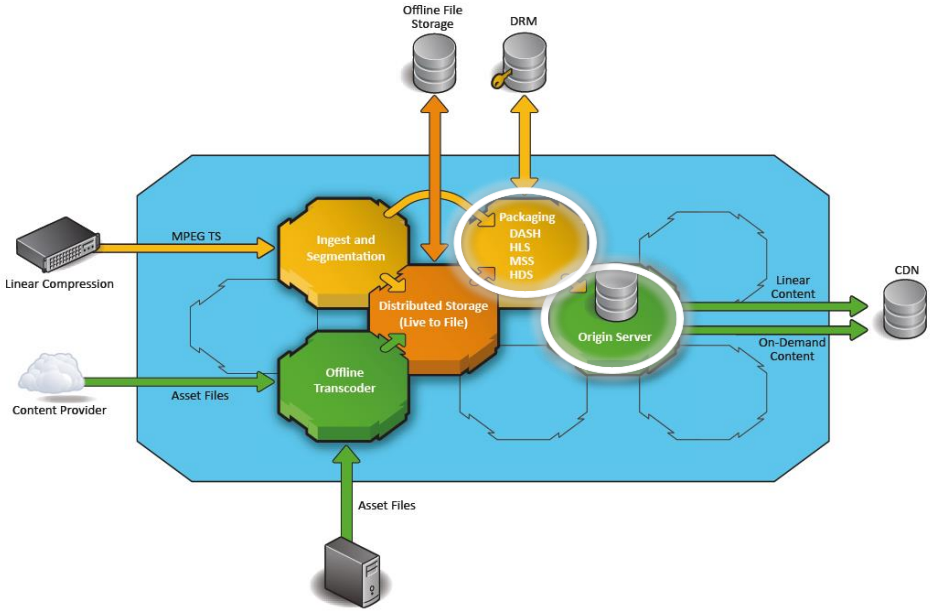
- External storage can be used for
  - Long catch-up
  - NPVR recordings and
  - VOD



- ***NFS or ATV AMS***

Packaging/Origin

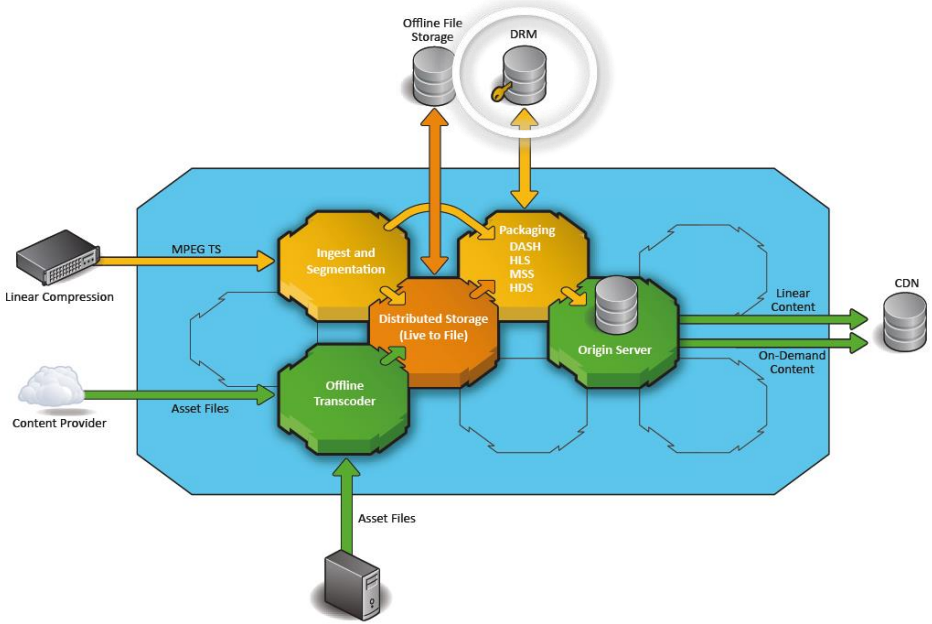
- Streaming capacity
  - Streaming capacity is dependent on many factors, e.g. live vs on-demand streaming ratio
  - CDN/caching, network capacity, delivered format



- ***Server capacity***
  - *3-5 Gbps*
  - *1500-3000 Clients*

DRM

- *Multi-DRM (Microsoft Playready, Apple Fairplay, Google Widevine)*
- *Integrated with Conax, Verimatrix, DRMToday & Microsoft Azure key servers (additional under integration)*
- *DASH Clear Key, AES-128, Conax OTT access, Verimatrix Viewright*



Feature List - Input

- *Multicast TS input*
  - *CBR and VBR*
  - *Constant and variable length IDR*
  - *SCTE-35*
  - *Teletext to WebVTT / TTML conversion*
  - *Seamless redundancy*
  - *Interface failover*
  - *Time offset adjustment w/encoder drift tracking*

- *HLS Input coming in next release*

Feature List - Storage

- *Storage interface:*
  - *NFS, S3 or*
  - *Appear Media Storage (AMS)*

- *Extensive NPVR API's*
  - *Scheduled recordings*
  - *Recordings of recordings*

- *Content and Service level blackouts (API)*

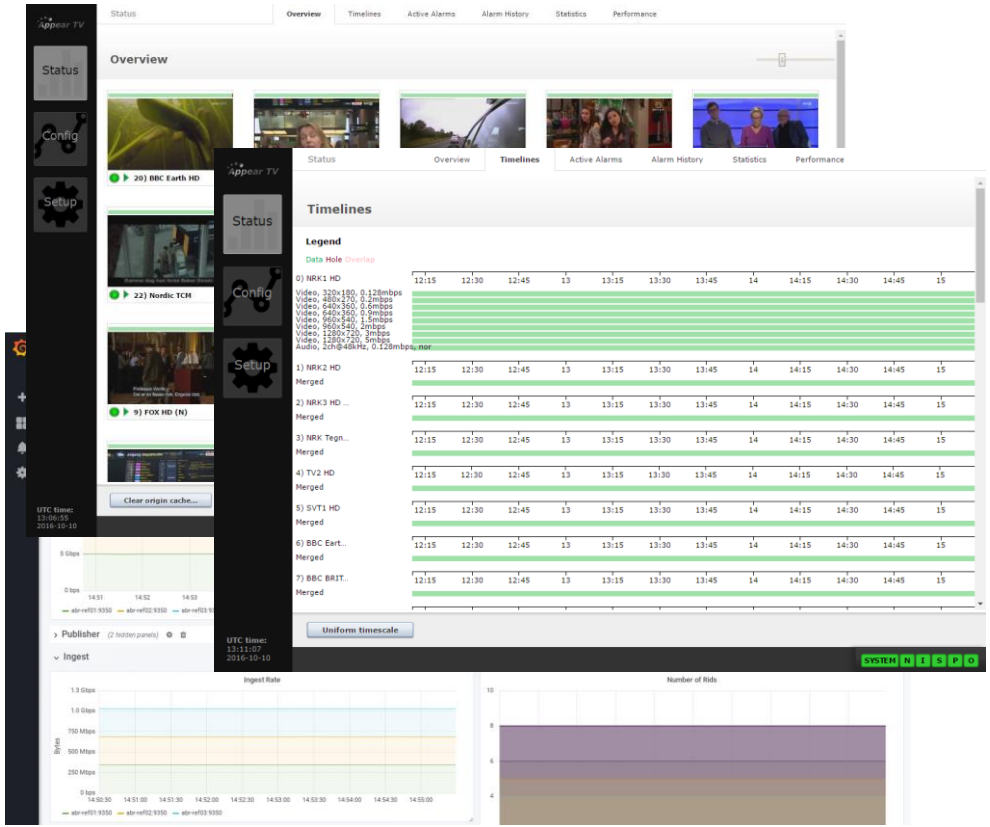
- *"Unlimited" catch-up archiving to external storage*

- *VOD*
  - *Directly through Appear TV offline encoder solution*
  - *API for uploading pre-encoded content*
  - *Full set of APIs for creating/managing assets*

Feature List - Output

- *DASH, HLS, HSS (and HDS)*
- *Adjustable manifest segment lengths*
- *Comprehensive manifest control parameters*
- *CENC Multi-DRM for DASH*
- *Widevine, Playready, Fairplay encryption*
- *SCTE35 event signalling (DASH and HLS)*
- *Thumbnails and I-frame only playlists (HLS)*
- *Services from stitched assets*
- *Content and service level blackouts (API)*
- *“Hole” filling to cover source/ingest issues*
- *Basic firewall and access lists*
- *Application for MP4 export (non-fragmented)*
- *+ Much more*

Current Focus - Next release



- *HLS ingest*
  - *Integration against ABR SW enc.*
- *Improved database redundancy*
  - *Management failover*
- *Prometheus instrumentation*
  - *Built-in metric end-point*
  - *Simplifies operations monitoring*
- *ABR Media Storage (AMS)*
  - *Deep storage option*
  - *Performance optimized for video*

THANK YOU!
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