Smartlabs

SmartMEDIA

Datasheet

SmartMEDIA is a comprehensive software solution that performs transcoding, encryption, storage and delivery of content for digital interactive TV broadcasting.

- **Optimized performance**

  SmartMEDIA is optimized for HTTP streaming of heavy video content. We choose nginx software for HTTP streaming, which proved as reliable and high-efficiency solutions. One of them is nginx HTTP server.

- **Fault tolerance by design**

  SmartMEDIA is based on a cluster that does not allow any vulnerabilities. SmartMEDIA is comprised of high-efficiency and reliable components.

- **Compatibility with user devices**

  SmartMEDIA provides guaranteed compatibility with STB and OTT user devices due to support for a lot of formats: RTSP, SmoothStreaming, Apple HTTP Live Streaming, MPEG-DASH and DRM methods.

- **Cost efficiency**

  SmartMEDIA is a software-based solution that works on x86 servers with Red Hat Enterprise Linux OS. This allows to re-duce the total cost of system ownership.

- **Scalability & flexibility**

  SmartMEDIA architecture facilitates scalability and functional flexibility of SmartMEDIA solution. Thus, the solution has a wide variety of applications ranging from the small and cheap OTT solutions to geographi-cally distributed and high-loaded IPTV/OTT intelligent systems.

Components

SmartMEDIA components can work together in one system or as separate elements of the digital broadcasting network.

| Inputs | Transcoding | Encryption, Store | Delivery | Consumtion |
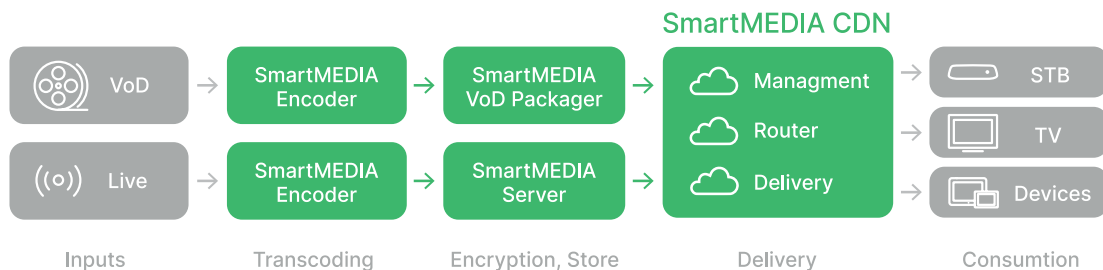
Optimized performance

- Converts Linear TV inputs to HLS/DASH
- Provides DRM encryption for Linear TV
- Provides DVR services
- Provides HLS/DASH, SmoothStreaming and RTSP streaming
- Can be used as the origin server in a CDN

SmartMEDIA CDN

- Manages content distribution and delivery
- Provides smart load balancing

SmartMEDIA Encoder

- Transcodes input for adaptive streaming

SmartMEDIA VoD Packager

- Converts VoD input to HLS/DASH
- Provides DRM encryption for VoD
- Can be used as an ingestion server in a CDN

Specifications

Digital television services

IPTV & OTT services
Linear TV with DVR, nPVR, TSTV, Pause Live functions
VoD

Linear TV is a service for delivery live TV programs to subscriber. VoD is a service where a subscriber can select the individual content items that he or she wants to watch from the list of available content. nPVR is a service for individual live TV recording. TSTV is a service where a subscriber can see the archive of live TV. Pause Live enables pause for live TV.

Formats and streaming protocols (output streaming)

Output streaming protocol	Output container	Codecs
Apple HTTP Live Streaming	MPEG-TS	Video: h.265/hevc, h.264/avc, h.262
RTSP		Audio: aac, mp3, ac3, dts (core) and oth. MPEG-TS compatible
MPEG-DASH	mp4	Video: h.265/hevc, h.264/avc, h.262 Audio: aac, mp3, ac3, dts (core)
SmoothStreaming		Video: h.264, audio: aac

The use of codecs may be limited by end-user devices and players.

Live input formats

Output streaming protocol	Input container	Input codecs
for HLS streaming	MPEG-TS over multicast UDP	Video: h.265/hevc, h.264/avc, h.262 Audio: aac, mp3, ac3, dts (core) and oth. MPEG-TS compatible
for MPEG-DASH streaming		Video: h.265/hevc, h.264/avc, h.262 Audio: aac, mp3, ac3, dts (core)

VoD input formats

Output streaming protocol	Input container	Input codecs
for MPEG-DASH streaming	MPEG-TS, mp4, mkv	Video: h.265/hevc, h.264/avc, h.262 Audio: aac, mp3, ac3, dts (core)
for HLS streaming	MPEG-TS, aac/adts (for audio only)	Video: h.264 Audio: aac, mp3, ac3, dts (core) and oth. MPEG-TS compatible

CAS/DRM

Output streaming protocol	CAS / DRM
Apple HTTP Live Streaming	WideVine Modular DRM (CENC for MPEG2-TS encryption), PlayReady (CENC for MPEG2-TS encryption)
MPEG-DASH	WideVine Modular DRM (CENC), PlayReady (CENC)
SmoothStreaming	PlayReady

Additional broadcast features

Adaptive streaming support

SmartMEDIA CDN specification

SmartMEDIA CDN improves significantly the performance of a digital television network and reliability of content delivery to end users.

Content distribution

Flexible politics of content pre-distribution

Simultaneous use of several origin and ingestion sites

Simultaneous use of several data networks for content delivery within a CDN

Content delivery & intelligence request routing

BGP support for integration with ISP networks and retrieving routing information, which can be used for request routing decisions

URL rewriting in playlist and manifest files can be used for user pointing to specific EDGE server as well as generic HTTP redirects

Decision making process can be customized to implement some specific or already retrieved metrics, such as link quality, site load etc

Simultaneous use of multiple networks for delivering content to subscribers

CDN maintenance

Centralized management of distribution & delivery policies for CDN components