III Packaging Server: TELCO

Linux® based live or VOD Media Distribution Server designed to serve 80+ channels with support for up to 42,000 users at 1 mbps. Works with most STBs and mobile devices expecting HLS and DASH. Supports live streams from IRDs, IP cameras, origin servers, and H.265 or H.264 encoders or transcoders. Used as an Origin (Main) or Edge server for live or VOD. Supports HLS Timeshift or Catch-up TV, to rewind, pause, and fast forward live streams. Converts TS, DASH, RTMP, or HLS to UDP unicast or multicast TS wrapped with HLS or DASH when needed. We provide 3 TB of SSD, network speed of 20 Gbps (up to 40 Gbps with optional fiber card), and up to 128 GB of RAM on board for sustained performance. Results affected by your bandwidth.

Features
- Media distribution server designed for both Live and Stored (VOD) applications
- Ingests H.265 or H.264 live streams over IP, then adds wrappers such as MPEG-DASH, HLS, or RTMP
- Supports both HD and SD H.265/HEVC and H.264/MPEG-4 AVC
- Packaging or Origin or Edge server
- Inbound Protocols: Multi-bitrate File, RTMP, RTSP, MPEG-TS, HLS
- Outbound Protocols: HTTP Live Streaming (HLS), RTMP, MPEG-DASH, MPEG-TS
- Converts unicast streams to multicast streams, or other direction
- Includes Catch-up TV and live timeshift functionality (rewind/fast forward) via HLS, creates X hour buffer and continuously cleans up old files
- File formats supported for VOD: TS and MP4
- Server Side Ad Insertion with HLS – Server inserts pre-encoded ads based on schedule or with SCTE markers. Dynamically targets ads at specific users.
- Adds subtitles for closed captioning or multiple languages
- Intuitive management interface
- Compatible with Verimatrix® VCAS™ and Widevine® DRM’s
- Fully Cloud manageable
- Supports Android™ private channels
- Data Base Replication – Produces device specific segments
- Carrier Class hardware
- Supports Teradek®, LiveShell Pro™, Wirecast™, Motorola®, Harmonic®, Tandberg®, Matrox®, Cisco®, Spark-ETM HDMI/IP, and most other well known encoders
- Easy FTP transfer of media for VOD of stored content
- REST and SOAP SDKs are available

Applications
- Over the Top TV (OTT)
- Live Video Auto Archive and then to VOD
- VOD support for small, midsized IPTV deployments
- Movies on demand
- Multiscreen Content delivery
- Education Video Server
- Just in Time Encryption
- Ethnic Channel Video Server
- STADIUMS and Public Venues
- Content Caching for ISP’s
- Pause and Catch-up TV

Overview
Packagers are the newly respected Swiss Army Knife of the streaming industry. They are designed to segment H.264 transport streams into pre-determined chunks and package or wrap the segmented streams into HLS or DASH. A third function they are tasked with is serving these streams to thousands of users simultaneously. Packagers often also apply DRM or content protection keys to secure the streams. We support DAES-128, VCAS™ (Verimatrix®), and Widevine® output. We can import DISH or Vubiquity™.

Packagers are typically fed the required profiles via HLS or TS from origin encoders or transcoders. They do not typically encode or transcode. They are designed to keep track and feed segments used by clients.

Our packaging server does more than many others. We support non-segmented outputs as well as segmented outputs. We also support "Go Back TV" functionality in our servers.

DVEO’s ATLAS III Packaging Server: TELCO supports third party encoders and transcoders, including Harmonic®, Elemental®, and Envivio®. Our packager also works seamlessly with our Brutus™ or Gearbox™ profilers/ gateways. This allows you to re-use encoded TS or HLS content from anywhere as long as the resolutions needed are available.

Packaging is crucial in today’s mobile oriented environment. Chunks help alleviate problems associated with bandwidth changes and mitigate out-of-order packets. This bit rate adjustment technique ensures that mobile devices are supported with the best possible video quality at all times. This is critical since there are now almost 2 billion mobile devices out there that need to be fed.

As of June 2017, ATLAS servers support Android™ private channels.
**Benefits of Packaging Servers**

- Designed for adaptive streaming protocols like HLS and DASH
- Offloads CDNs so local users pull content from local packaging servers
- Provides for re-use of live feeds for VOD delivery

**Benefits of Media Servers**

- Serve thousands of users
- Provide encryption services to each stream

**Features Matrix**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Broadpeak®</th>
<th>DVEO® ATLAS™</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS Input</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Smooth Input</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>FMP4 VOD</td>
<td>Yes</td>
<td>Soon</td>
</tr>
<tr>
<td>Adaptive TS input</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>HLS output</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dash output</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>HDS output</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Smooth output</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Time Shift output</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Start over/Catchup</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>DRM Encryption</td>
<td>AES128,</td>
<td>AES128</td>
</tr>
<tr>
<td></td>
<td>Playready</td>
<td></td>
</tr>
<tr>
<td>DRM Vendor</td>
<td>Verimatrix®,</td>
<td>Verimatrix®,</td>
</tr>
<tr>
<td></td>
<td>Widevine®,</td>
<td>Widevine®,</td>
</tr>
<tr>
<td></td>
<td>BuyDRM™</td>
<td>BuyDRM™</td>
</tr>
</tbody>
</table>

**Input/Output**

<table>
<thead>
<tr>
<th>IP In or Out</th>
<th>Fiber Optic 10 Gig</th>
<th>PS 1</th>
<th>PS 2</th>
</tr>
</thead>
</table>

**Application Example – Hotel or Stadium VOD Server**

Catch Up

Atlas III uses variable sized buffers. This means we provide a 1-X hour buffer for each program. Each user then can pause and/or go back in their buffer and watch segments again should the person be interrupted or wish to restart the program at an earlier point in the timeline.
**Supported Input Devices**

- Arris®, Cisco®, Ericsson®, Harmonic®, LiveShell Pro™, Matrox®, Spark-E™ HDMI/IP, Teradek®, Wirecast™, DVEO Brutus™, DVEO Gearbox™
- New: TV APPMAKER™ – Direct support for Android™ private channels

**Supported Output Devices**

- Any device that runs HLS or DASH: This includes all Apple®, Android™, and Chrome® based devices.
- Supports DVEO’s IPTV or OTT Dashboard that manages JW Player™, THEOplayer™, and zXORATM player.

**General DRM + CAS Support**

- Verimatrix® VCAST™, Microsoft PlayReady, Widevine®, BISS, Simulcrypt standard (ECMG), AES-128 Encryption
- Hospitality Oriented Support: DISH Simulcrypt in from PD-1600
  - Input: Simulcrypt
  - Output: Widevine or Verimatrix

**Ordering Information**

**ATLAS Options**

**ATLAS I**
- Packaging Server
  - Small affordable live streaming and VOD server
  - 8 GB memory

**ATLAS 1.5**
- Packaging Server
  - 1 RU live streaming and VOD server
  - 8 GB memory

**ATLAS II**
- Packaging Server: TELCO
  - Live and stored asset server
  - 1 RU Rackmount
  - 128 GB memory
  - 2 10 Gbps and 2 each 1 Gbps Ethernet
  - 1 TB SSD, optional up to 10 TB

**ATLAS III**
- Packaging Server: TELCO
  - 3 RU Rackmount
  - 128 GB memory, optional up to 256 GB
  - 4 10 Gbps and 2 1 Gbps Ethernet
  - Optional Android/iOS/PC Players

**ATLAS IV**
- Packaging Server: TELCO
  - Live and stored asset server
  - 1 RU Rackmount
  - 128 GB memory
  - 2 10 Gbps
  - 48 TB SSD, optional up to 256 TB

**Optional DOZER™ Packet Loss Correction**
- Optional DOZER™ Automated UDP Packet Recovery protocol, enabling error-free video delivery over UDP

**Specifications**

**IP Input**
- Input protocols: HLS cache, HLS push via web dev, Multi-bitrate input/output file, RTMP, RTSP, MPEG-TS (UDP), HLS, TS, MP4

**IP Output**
- Output protocols: HTTP Live (HLS), RTMP, MPEG-DASH, MPEG-TS

**Some Supported Resolutions – Input and Output**

- 1920 x 1080
- 1280 x 720
- 720 x 576
- 720 x 480
- 704 x 480
- 640 x 480
- 480 x 480
- 480 x 320
- 320 x 240
- qHD
- H.264up
- Also supports any custom resolution not listed here, including computer formats like 1280 x 1024, etc. Note: Supports closed captions.
- H.265 output resolutions supported are 1080, 720, 576, 480.
- H.265 576/480 resolutions only have 4:3 aspect ratio.

**Administration**

- Access: Web interface, SSH (Secure command line interface)
- SNMP: Monitoring and alerts
- Scheduling: On, Off support for timeslots

**CPU Peripherals**

- CPU: Intel® Dual 16 Core processor
- OS: DVEO embedded Linux® on SSD
- Hard Drive: 3 TB SSD Standard
- RAM: 128 GB, Optional up to 256 GB

**Network**

- Network: Four 10 Gbps and two 1 Gbps Ethernet

**Physical & Power**

- Size – 3 RU high: 19 x 5.25 x 25.2 inches (W x H x D)
  - 48.26 x 13.34 x 64 cm (W x H x D)
- Power Supply: 3U 760W – Redundant
- Temperature Range: Operating: 0°C ~ +50°C on Full Load
  - Storage & Shipping: -20°C ~ +70°C
- Non-operating Humidity: 5% to 95% non-condensing
- Weight: 39 lbs. (17.69 kg)

**Conformities:**

- UL, BSMI, CSA, FCC, CE, RoHS

**Security**

- Ports security scanned to MIL requirements prior to shipment

**Ad Insertion**

- SCTE Ad Marker insertion via RS232, USB, IP, Contact closures

**Block Diagram**

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