Linux® based DRM equipped Media Server designed for Unified Media Delivery with support for just in time VOD/LIVE/CDN applications. It will ingest virtually any type of feed or content and insert ads, and package it to serve live, catch up, or create origin VOD with adaptive rate streams with playlists, to ensure the best possible viewing experience with a bare minimum of hand holding. Thanks to Unified Packaging that supports both fMP4 and HLS output, we can transform any type of media into an "HLS Pull Service" which can be inexpensively monetized.

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-E™ 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. Our Packagers apply DRM or content protection keys to secure the streams. We support DAES-128, VCASTM (Verimatrix®), and Widevine® output. We can import DISH or Vubiquity™.

Packagers are typically fed the required profiles via HLS 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 Traffic Saver fully relies on Unified Packaging and VOD that allows you to ingest live HLS, TS, or stored content from a video server, or now even pull content from CDN’s, and instantly transform all these formats to any other format with or without DRM. Moreover we support rewind and fast forward support using a circular buffer you configure at any time.

DVEO’s Traffic Saver supports third party encoders and transcoders, including Harmonic®, Elemental®, and Erickson®. Our packager also works seamlessly with our Brutus™ or Gearbox™ profilers/gateways. This allows you to re-use encoded HLS content from anywhere as long as the resolutions needed are available.
Benefits of Traffic Saver

- 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 – As of April 2018

<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>
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<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>
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<tr>
<td>DRM Encryption</td>
<td>AES128,</td>
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<td>Playready</td>
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<td>DRM Vendor</td>
<td>Verimatrix®,</td>
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<td></td>
<td>Widevine®,</td>
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</tr>
<tr>
<td></td>
<td>BuyDRM™</td>
<td>BuyDRM™</td>
</tr>
</tbody>
</table>

Sample of GUIs

Scheduled IP Input Setup  |  IP Output Setup

Throughput

![Graph showing the relationship between number of simultaneous users and average bitrate]

Inputs/Outputs

- 2 each 1 Gig Ports
- Dual Power Supplies
- 2 each 10 GigE Ports
- I/O Expansion Slot

Application Example – Hotel or Stadium VOD Server

Catch Up

Atlas II 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.
TRAFFIC SAVER OVERVIEW

◆ If your content isn’t already HLS/TS, HLS/fMP4 or DASH, it ingests H.264 or H.265 over IP, satellite, capture cards or stored NAS or local content of virtually any format, even pull from CDNs, and with a simple dropdown, provides HLS inputs that the DVEO Media Server sees as “HLS pull services.”

◆ The stream can be given a "friendly" name. It also provides test URL's, self monitoring and other options, clearly displayed and easily configured. The “philosophy” of the DVEO Media Server interface is to hide complication, expose it when necessary for fine tuning, and provide easy access to test your configuration choices.

◆ Outbound protocols will almost certainly cover your viewers' universe of set top, mobile or other IP-connected devices, including serving content over multi-cast IP networks.

◆ HLS Ad Insertion for SCTE-35 or timed interval – requires only that you specify the ad server URL, whether DVEO's or a third party ad server; thus providing easy monetization of content feeds.

◆ DRM including Widevine®, BuyDRM (which you can obtain from DVEO, as well), FairPlay and PlayReady can be set individually for each HLS or fMP4 stream. For content providers who wish to serve their own DRM keys, you can optionally incorporate DVEO’s royalty-free Widevine® key server, or purchase it separately if you prefer. This means you can self host your own key server for a 100% self contained, royalty-free solution. In general, DRM is simple to set up in the DVEO Media Server; it’s mostly a matter of copying and pasting a few keys, then sitting back and letting it do the rest.

◆ Catch-Up TV support provides rewind/fast forward control for any stream. The DVEO Media Server automatically provides a circular buffer for the stream, according to parameters which you set with a simple check box and box to enter a size (in seconds). A viewer, for example, can then rewind back to the beginning of a live stream which they caught midway through, and then watch, delayed, the entire program to the end. It’s a perfect application for sports feeds or any type of scheduled TV programming. You can even configure the buffer for each type of playback protocol individually.

◆ Publishing/Push streaming can be set individually for each stream in either WebDAV or Akamai format with HLS/fMP4/DASH segment control and playlist publishing.

◆ VOD Service can be made available on the same or separate IP(s) from the Media Server, with support for many protocols such as RTMP, RTSP, formats such as MP4, Flash or DASH, guides in formats such as JSON, with independent control over maximum connections and bandwidth. It provides independent delay options for each type of VOD feed. VOD storage is a simple procedure of choosing folders and naming. The DVEO Media Server provides a liberal amount of local storage, which can be extended through attaching network storage (Windows, NFS, ftp, and other file protocols).

◆ Using network attached storage and a simple REST API call to mark segments as “protected” (in effect, defining them as recorded media), the DVEO Media Server provides a network DVR framework. You can even use its playlists as the basis for your program guide.

◆ Statistics and Reporting (via web browser) ensure that not only will you be able to monitor normal performance, and measure your audiences but provides debug logging options to diagnose any issue. A stream statistics page not only provides an essentials dashboard with status and bitrates, but also preview links for quick checks. The TV APPMAKER™ module provides support for creation of IPTV apps for Android™, increasing audience boundaries beyond, for example, proprietary cable networks. These features make DVEO Media Server a turnkey platform for any entity that monetizes its content via advertising, especially ad insertion, and IP-broadcasts that content over either Internet or proprietary network such as a cable system. It protects the content, ensures it reaches the widest possible audience with the least amount of technical effort, measures performance and ensures the best viewing experience for that audience. Whether you’re a provider of live feeds, an aggregator of specialized cable channels, a telco or cable company, the DVEO Media Server, sized for your needs, provides your own IPTV services almost as quickly as you can attach its rails and slide it into your rack.
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 zXORA™ player.

General DRM + CAS Support

- Verimatrix® VCAS™, 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

Limitations

- UDP, RTP, TRMP, RTSP inputs only convert to single rate HLS, DASH outputs (use HLS input for ABR outputs)
- No Cloud DVR support (Live timeshift and Catchup TV only available with rolling buffer)

Ordering Information

Traffic Saver: 2 TB SSD, 256 Gig memory

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

<table>
<thead>
<tr>
<th>Resolution</th>
<th>1920 x 1080</th>
<th>1280 x 720</th>
<th>720 x 576</th>
<th>720 x 480</th>
<th>640 x 480</th>
<th>480 x 480</th>
<th>480 x 320</th>
<th>320 x 240</th>
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<tbody>
<tr>
<td>Width (x)</td>
<td>1920</td>
<td>1280</td>
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<tr>
<td>Resolution</td>
<td>qHD</td>
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<td></td>
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</tr>
</tbody>
</table>

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
- Remote: REST, SOAP

CPU Peripherals

- CPU: Intel® Xeon® processor
- OS: DVEO embedded Linux® on SSD
- Hard Drive: 1 TB SSD Standard, Optional 3 TB maximum RAM: Optional up to 128 GB

Network

- Network: 2 each 10 Gig, 2 each 1 GB (Copper)

Physical & Power

- Size (W x D x H): 19 x 20.5 x 1.75 inches (483 x 521 x 44 mm)
- Voltage: 00V-240Vac, 47-63Hz, 5-2.5A, 300 watts
- Operating Temperature: 0°C – 40°C (32°F – 104°F)
- Non-operating Temperature: -40°C – 70°C (-40°F – 158°F)
- Operating Humidity: 20% to 90% RH non-condensing
- Non-operating Humidity: 5% to 95% RH non-condensing
- Weight: 17 lbs. (7.7 kg)
- Redundancies: Dual power supplies, Port redundancies
- Memory: 32 GB DDR3
- 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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