AWS Elemental Live performs real-time video and audio encoding for linear pay TV broadcast and live streaming to connected platforms. The software-based solution provides simultaneous processing of multiple video outputs, delivering the high-quality, high-efficiency performance required for formatting live video for any device. AWS Elemental Live is designed to integrate seamlessly into an end-to-end real-time video delivery workflow, evolve as technology requires, and maximize revenue opportunities.

Experience the Benefits

**High Performance**
Deliver a premium viewing experience with the ability to encode high dynamic range video using high-efficiency video coding at resolutions up 4K. Deploy multiple channels with a full range of adaptive bitrate outputs from a single encoder.

**Versatile Deployment**
Control the Linux-based system from an intuitive web interface and comprehensive RESTful API. AWS Elemental Conductor Live provides control and redundancy for a fleet of AWS Elemental Live encoders.

**Seamless Cloud Integration**
Deliver content to viewers on a global scale. AWS Elemental Live video processing can be used in combination with cloud-based AWS Elemental Media Services to deliver premium video viewing experiences.

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**AWS Elemental Live Workflow**

1. **Contribution**
2. **AWS Elemental Live**
3. **AWS Cloud**
4. **Multiple OTT Devices**

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Why AWS Elemental Live

**Flexible Video Processing**

**Uncompromised Video Quality**
Deliver the highest quality encoding using codecs developed by AWS Elemental including HEVC/H.265, AVC/H.264, and MPEG-2. Maintain quality while cutting video storage and delivery costs with Quality-Defined Variable Bitrate (QVBR) control. Advanced image processing such as anti-alias scaling, MPEG-2 deblocking and motion adaptive deinterlacing improve performance and deliver professional quality video output.

**Adaptive Bitrate Support**
Stream live adaptive bitrate broadcasts via Adobe, Apple, Microsoft, and MPEG-DASH protocols without the need for multiple units or signal splitting equipment, reducing both cost and complexity.

**Closed Caption Support**

**Secure Valuable Content**
Protect content using encryption technologies, AES and SAMPLE-AES for Apple HLS. Microsoft PlayReady for Smooth Streaming outputs and Multi-DRM for DASH outputs. AWS Elemental Secure Packager and Encoder Key Exchange (SPEKE) offers integration with industry leading DRM solution providers to meet the requirements of pay TV operators and original content owners.

**Real-Time Controls**
A web-based user interface offers real-time controls for linear video delivery coupled with catch-up TV features as well as live event ad insertion capabilities and publishing to popular content delivery networks.

**Real-Time Archiving**
Start and stop control of output streams enable creation of high-quality VOD files, saving editing cycles and lowering the cost of content delivery.

**Monetize Multiscreen Content**
Support for SCTE35, SCTE104 and ESAM offers compatibility with ad insertion platforms. Monetize multiscreen video content using AWS Elemental MediaTailor.

**SOFTWARE-BASED VIDEO**
Deliver video to any screen, at any time, all at once.

Generate all the profiles needed for adaptive streaming in a reduced footprint.

Use real-time controls for event management and archiving content.

Lower total cost of ownership with a highly upgradable platform.

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## SPECIFICATIONS

### VIDEO, AUDIO & CLOSED CAPTION INPUTS

**Video:**
- HEVC / H.265
- AVC / H.264
- MPEG-2
- Apple ProRes 422 (up to HQ)

**Audio:**
- AAC
- AC-3 (Dolby Digital)
- Dolby-E
- E-AC-3 (Dolby Digital Plus)
- MPEG-1 Layer 2
- PCM (AIFF or WAV)

**Closed Captions:**
- Embedded CEA-608/708
- DVB-Sub
- Teletext
- TTML
- ARIB

### INPUT STREAM FORMATS & CONTAINERS

- IP: UDP / RTP / RTMP / HLS
- SD, HD, 3G SDI, Quadrant 4K, Interleave 4K
- Transport stream (MPEG-TS)
- Transport stream file
- QuickTime self-contained
- MXF Op-1A

### SYSTEM CONTROL

- Web-based user interface
- RESTful API
- Notifications and alerts
- AWS Elemental Conductor Live

### VIDEO, AUDIO & CLOSED CAPTION OUTPUTS

**Video:**
- HEVC / H.265
- AVC / H.264 (High 10-bit, High 4:2:2 & High 4:2:0 10-bit)
- MPEG-2 (4:2:0, 4:2:2)
- Apple ProRes 422 (up to HQ)
- Frame capture to JPEG (thumbnails)

**Audio:**
- AAC-LC / AAC-HEV1 / AAC-HEV2
- AC-3 (Dolby Digital), AC-3 passthrough
- Dolby-E passsthrough
- DTS Express
- E-AC-3 (Dolby Digital Plus), E-AC-3 passthrough
- PCM (AIFF or WAV)
- MPEG-1 Layer 2

**Closed Captions:**
- WebVTT
- TTML
- Embedded
- Burn-in
- DVB-Sub
- Teletext
- ARIB

### OUTPUT STREAM FORMATS & CONTAINERS

- Apple HLS
- Adobe RTMP / RTMPS
- Microsoft Smooth Streaming
- MPEG-DASH
- MPEG Transport Streams
- MPTS
- File output (MP4, TS, QuickTime)

### CDN & ORIGIN

- Amazon CloudFront
- Akamai
- AWS Elemental MediaStore
- AWS Elemental MediaPackage
- AWS Elemental MediaConnect
- HTTP PUT
- Third-Party product

### VIDEO PROCESSING

- Adaptive quantization
- AFD-driven output scaling
- Anti-aliasing scaler
- Deblocking filter
- Frame rate interpolation
- Inverse telecine support

### AUDIO PROCESSING

- Audio channel mixing
- Audio loudness management (CALM compliant)
- Multiple audio tracks (languages, surround, SAP)
- Manual channel mapping

### MONETIZATION

- SCTE-35 and SCTE-104 support
- ESAM
- Ad avail blanking & black-out capability
- Comprehensive encryption / DRM support
- Nielsen ID3 support

### RESILIENCY

- Multi-source inputs
- User-defined source failover conditions
- User-defined input loss behavior
- Output locking
- Zixi Push

### OTHER FEATURES

- Support for auxiliary data (EBIF / KLV / V-Chip / CGMS-A)

### SYSTEM HARDWARE & SOFTWARE

- CentOS
- Up to 4 High-performance GPUs
- Up to 16 SDI inputs
- RedHat Linux