Cloud Video Platform

Content rights:
Product line and capabilities

Cloud Video Platform (CVP) from Comcast Technology Solutions (CTS) provides cloud-based device rights management (DRM) security-as-a-service as a subset of CVP's "entitled plays" (i.e., playback of monetized content).

CVP offers high availability and a global footprint, with support for all major DRMs, including Apple FairPlay Streaming, Google Widevine Modular, and Microsoft PlayReady. It meets the stringent security requirements of MovieLabs and Hollywood studios for premium content. It provides secure licensing, key management and key storage services, and auditing of license acquisition events.

- **Cost-effective:** The CVP multi-DRM solution was designed as an affordable turnkey solution, offering complete end-to-end protection for over-the-top (OTT) delivered premium content (Linear/Live and on demand).

- **Scalable:** The CVP multi-DRM service supports delivery of many DRM licenses during peak viewing across a broad range of devices, with proven worldwide deployment.

- **Trusted:** CVP infrastructure uses Kubernetes' container orchestration system on AWS in a multi-region set up, providing increased monitoring, scalability, high availability, and fault tolerance.

- **Cloud-based:** CVP simplifies the flexible management of anti-piracy services across the cloud infrastructure and secures high-resiliency service with improved performances for on-demand and high-profile Live/Linear events.

CVP supports common encryption (CENC) for DRM and streaming formats such as:

- Smooth Streaming — Microsoft PlayReady

- MPEG-DASH — Google Widevine DRM or Microsoft PlayReady

- HLS — Microsoft PlayReady

Within CVP, you can encrypt media with CENC and then decrypt with either Google Widevine Modular, Apple FairPlay Streaming, or Microsoft PlayReady. For example, a video encrypted with CENC can be decrypted for playback within browsers by:

- Google Chrome

- Microsoft Edge/Internet Explorer

- Mozilla Firefox

- Apple Safari, macOS, and iOS

Distribution of DRM content requires all three encryption formats represented in your packager. CTS has established robust relationships with Just-in-Time (JIT) packaging and encryption origin suppliers as part of our CVP product strategy, while CTS' Professional Services can facilitate bespoke integration with customers' legacy JITP/E origin.

The CVP controls JITP/E workflows, so you won't have to store a multitude of destination-specific content files for each program. Instead, each playback request initiates the encryption process from one master file. As the file size of higher-quality video puts more demands on your storage space, our approach is part of a smarter workflow that helps you maintain an agile long-term delivery strategy.

Key benefits

Key management service

There are a lot of moving parts to key management — it's unique for each DRM method and not something where you can just "flip a switch." With CVP, you have the flexibility to handle as many of the key management functions as you want, or we can take care of it for you. From configuration and testing to encryption, key management, playback, and user authentication, you've got the power to streamline the process based on your unique needs and the needs of each piece of content. We create and store content keys in our own services, saving time and reducing complexity of operations.

License management

You can rely on the CVP license management service to utilize complex DRM rule enforcement, with its deep integration into commerce subscription services for end-user license grants, device-specific rules and offline playback entitlements, and varying protection levels. Granted DRM licenses allow playback of DRM-protected content for the platform and device of a specific end user.

Enable hybrid monetization

CVP simplifies entitlement setup. The "Entitlements" view within the console shows all the entitlements that have been granted to users in your CVP account through your sales system. From this view, you can modify the rights that are applied to licenses granted to users for playback or disable an entitlement entirely.

Concurrency service

CVP's content rights has built-in integrated concurrent stream management. The concurrency service limits the number of streams that can play at the same time for a particular user. While pricing, content, and package structure are at the forefront of the strategies of OTT video providers, features such as simultaneous streams, offline functionality, and parental controls can play a key role in subscriber retention.

Specifications summary

- Integrated rights management
- Integrated key and certificate management
- Integrated concurrent stream management
- Integrated geo restriction management
- Rental, subscription, PPV, AVoD, EST support
- Live and VoD, TimeShift, Catchup TV support
- Cloud (fully managed in AWS) architecture support
- Audio-track and video-track key separation
- Key separation by video resolution
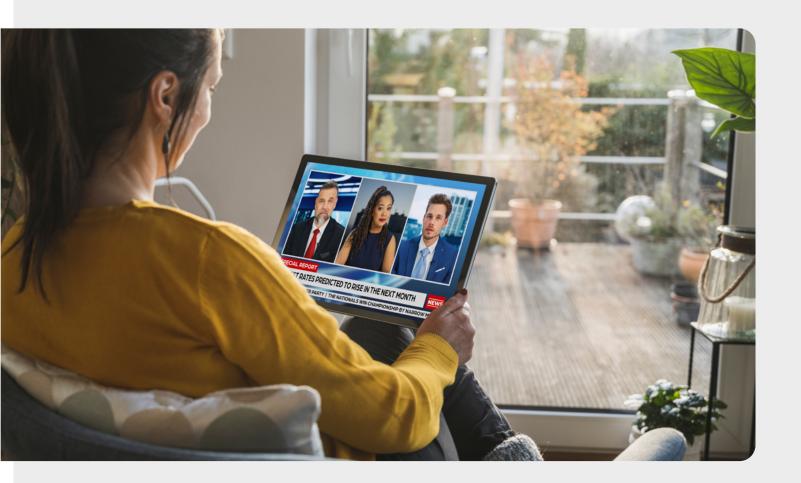- License persistence

Features

Microsoft PlayReady is one of the three main DRMs supported under CVP, along with Google Widevine and Apple FairPlay. The current CVP supports PlayReady Server SDK v4.6.

Support for CENC, KMS API based on DASH-IF CPIX v2.3, CBCS, and CTR encryption methods

- Implementing PlayReady Server SDK v4.6 was an evolution of our PlayReady 3 service and opens up new possibilities not previously available. These include new runtime platforms and broader support for common key encryption.

- Microsoft has expanded support for multiple CENCmodes — CBCS supported in addition to CENC.

- The incorporation of PlayReady 4 service under the CVP can accommodate Common Media Application Format (CMAF)-compliant devices.

- The incorporation of CMAF within the CVP key management services enables monetization of low-latency services for high-profile live events in DASH and HLS.

For OpEx-sensitive businesses, the reduced compute requirements with CMAF can create operational cost savings. The amount of storage space for TimeShift, Catchup TV, nDVR, and VoD is greatly reduced as only one copy of every encoding profile is to be stored, regardless of the streaming.

Apple FairPlay Streaming (FPS)

- FPS allows securely streaming encrypted content from a server to an Apple device
- Persistence of FPS licenses: available starting with iOS 10
- Offline rental service
- Track keys, using different keys to protect different types of content (e.g., audio, SD, HD & UHD)
- Analogue & digital output control

Browser & device support

- Supports all major browsers & operating systems
- Support for browser-based mobile DRM (iOS + Android)
- Support for iOS & Android

Example of 3rd party packagers

- Harmonic
- Broadpeak
- Unified Streaming
- Shaka Packager
- Others (upon DASH-IF CPIX ver2.x)

Google Widevine

- Google Widevine-hosted services across CTS' cloud over AWS
- Improved latency, availability, robustness, security, privacy & more
  - Widevine Proxy SDK
  - Widevine License SDK
- Persistence of Widevine licenses
- Offline rental service
- Widevine device security levels: Level 1 (TEE), Level 3 (software client)
- Analogue & digital output control

Supported formats

- HLS, DASH, MSS
- Multi-device support (web, mobile, casting, STB)
- CMAF* (ISOBMFF)
  *CMAF offers low latency for Live TV and brings large savings of the encoding, packaging, and storage costs.

Health & monitoring

- System logs
- Status page
- Analytics

Admin GUI & dashboard

- Intuitive web interface
- For internal use at CTS — License statistics per DRM
- System health status for all global PoPs
- For internal use at CTS — Splunk logs, "DataDog" dashboard for extended stats (User Agent String, Token Details, License Errors)

Advanced content security

- User ID authentication per playback per license request
- Token generation
- Key generation & exchange
  - Multi-key
  - Key rotation
- GEO-IP restriction

Performance distinctives

- Self-healing architecture, high availability (up to 99.99%)
- Highly scalable container-based platform, prescaled to handle traffic burst
- Multi-region AWS cloud server infrastructure
- Built-in redundancy
- Actively monitored by the CTS 24x7 NOC

Authorization options

- Geo-blocking
- HDCP-level enforcement

Business logic

The flexibility of the CVP supports different business models including Live, SVOD, TVOD, EST, and FAST, as well as the ability to create hybrid business models that incorporate multiple monetization options. Offline playback with persistent license sessions offers solutions for offline viewing using download or wireless onboard entertainment scenarios.

CTS helps your content to be securely seen on more screens.

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