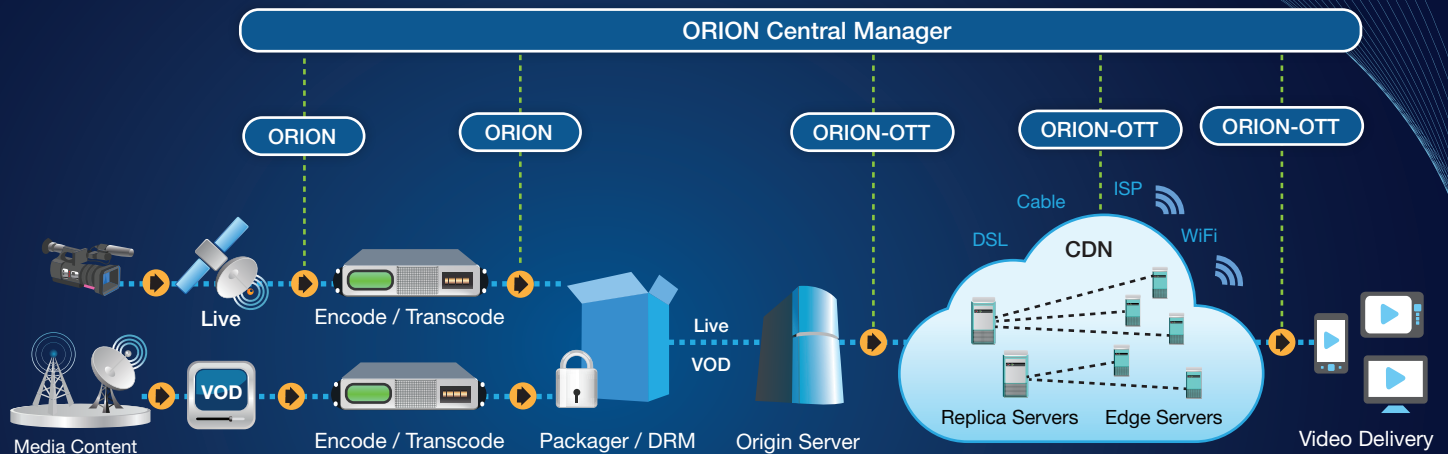# ORION®-OTT
Quality Assurance of ABR Streams

With the explosive growth and increasing demand of video services over Internet, monitoring the quality of OTT content for a large consumer base over a variety of end user devices, has become a significant challenge.

Interra Systems' ORION®-OTT is a software-based over-the-top (OTT) monitoring solution for checking content integrity and related network performance of ABR content for multiscreen service delivery. Leveraging industry-proven audio/video quality analysis technologies, ORION-OTT enables OTT service/equipment providers, content delivery networks (CDN) providers to seamlessly monitor online video delivery for quality and compliance.

ORION-OTT monitors ABR content, both VOD and Live, using user-defined automated / manual schedules. It checks for inconsistencies pertaining to ABR package compliance, manifest / playlist syntax, download errors, content quality and more. It can also be used for origin server load testing.

The intuitive user interface of ORION-OTT presents the monitoring results of assets in an effective manner. You can drill down the monitoring runs to identify the most important issues, their location and occurrence(s) in an asset, along with more contextual information for debugging the issues. The web-based interface of ORION-OTT allows remote monitoring through any browser-enabled device giving users a comprehensive monitoring and reporting tool at their fingertips.

Created For

- OTT service providers
- CDN providers
- OTT equipment providers

Benefits

- Seamlessly deploys in cloud-based environment
- Ensures superior QoS and QoE for Live and VOD OTT services
- Checks ABR package integrity and audio/video quality
- Checks for HTTP responses
- Helps debug issues related to origin server and network performance
- Provides real-time alarms for quick on-the-go decision-making
- Provides access on any web-enabled device
- Provides Historical Alert Search for VOD Assets and Live Services
- Discovers assets using customizable plug-ins
- Provides Watch Mode for automated monitoring of new assets
- Provides Priority-based scheduling
- Supports client device monitoring to monitor user experience based on join time, buffering ratio, number of stalls, play failures, and more
- Provides active and passive monitoring of origin server performance
- Supports DRM protected content and key server integrations

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Key Features

- **In-depth monitoring of Live and Video-on-Demand OTT services**

  - Real-time monitoring of OTT Services for content integrity and network performance
  - Creating groups for automated, manual or time-bound monitoring schedules for Live and VOD assets
  - Performance scaling on multi-CPU systems
  - Live thumbnails and Wallboard Mosaic view for Live Services
  - QoE Scoring
  - Integrated player application - for playback and debugging
  - HTTP Response Header logging and view
  - Custom HTTP Header injection for CDN debugging
  - SCTE 214 - 1/2/3 and Apple Media Stream Validator Compliance checks
  - Ad-Insertion monitoring
  - Service Availability monitoring

- **Support for Client Device Monitoring**
  Monitor end-device user experience based on

  - Startup or Join times
  - Buffering Ratio
  - Number of stalls or interruptions
  - Play failures

- **Monitoring Origin Server Performance**
  Monitor Origin Server Performance based on

  - Average Response times and Bandwidth served
  - Number of Requests served
  - Total bytes served
  - Server availability - Requests served per Requests received
  - HTTP Response codes

- **Monitoring of network performance for OTT delivery**

  - Monitoring of download delays and buffering/stalling issues

- **Monitoring of ABR package integrity**
  Extensive set of tests including:

  - URL validation: Check for presence of referred content
  - Playlist validation: Presence of required tags and metadata
  - Playlist Integrity: Consistency of transport / video / audio properties across all chunks and across bitrate variants
  - Manual Recording of VOD and LIVE ABR content

- **Monitoring of audio / video quality**

  - Conformance checking
    - Smooth Streaming conformance, Adobe HDS conformance, HEVC Decoding, FLV container conformance, RTMP conformance
    - Check for First Video Frame Sync across variants
    - Ignore Freeze for Color Bars and Credits
  - Video Quality (blockiness, black frames, freeze frames)
  - Audio Quality (Loudness: CALM, ITU, EBU), level, silence, stereo pair detection, audio peak level, Mono vs Stereo, true peak
  - HEVC Decoding

  - Detecting absence/presence of specific video codecs
  - Detecting Audio Language Codes in manifest files
  - Detecting caption language
  - Checking picture scanning type
  - Checking IDR-Frame interval duration

- **Alarms & triggers to debug and take actions**

  - Error categorization according to severity levels - major, minor, outage, critical
  - Diverse alerting mechanisms - Email, SNMP
  - Custom alerting actions, such as Slack, HTTP
  - Configurable alerts based on counts and persistence
  - Triggered and manual recordings for profiles and LIVE content

- **Reporting mechanism & analytics**

  - Audio alerts
  - Detailed representation of content delivery quality
  - Different drill-down monitoring views from high level to specific details for assets and services
  - Alerts/data analytics, rich reports for all tests run over last 60 days
  - Scheduled tasks for auto-mailing of reports
  - Global Live Alerts page for LIVE Services
  - Post-monitoring actions - executing scripts and notifying callbacks
  - Scheduled reports for individual LIVE channels
  - Export Measurement statistics, such as loudness, blockiness, download bitrate, and more

- **REST APIs support**

  - Managing and monitoring content, groups, profiles, system configuration
  - Managing Reports
  - XML and PDF reports for VOD or LIVE content

- **Monitoring setup**
  - Secured access with HTTPS support
  - Multiple Built-in Profiles to detect most severe to moderate issues
  - Creating and managing groups:
    - Create groups for VOD assets or Live Services
    - Automatically monitor groups using Watch Mode
  - Schedule groups for monitoring based on priority
  - Tag assets or asset groups
  - Reserve bandwidth for VOD and LIVE assets
  - Authentication/authorization using LDAP

- **Monitoring DRM protected content**

  - Monitoring content encrypted using
    - AES-128, CENC, CETS, PIFF
    - SAMPLE-AES, Apple FairPlay (HLS)
  - Key Server Integrations by fetching keys using Widevine License Server APIs, PlayReady Key-Seed, Verimatrix Client, Irdeto, BuyDRM
  - Option to provide Key ID - Content Key mapping for other DRMs

- **Supports Linux operating system; also available for Windows**

- **Dark and Light theme based UI for better user experience**

Formats & Protocols Supported

Packages - Apple HLS, MPEG-DASH, HSS, Adobe HDS

Wrappers - MP4, MPEG-2 TS, FLV

Audio Formats - MPEG, AAC, Dolby AC-3 and EAC-3

Video Formats - H.264 / AVC, H.265 / HEVC, Dolby vision

Embedded Data Formats - Closed Captioning (EIA-608, EIA-708, SCTE-20, DIVICOM, NADBS), DVB Subtitle, WebVTT, TTML, SCTE35, ID3 Metadata, External XML Subtitles, SMPTE Image Subtitle

Network Transmission Protocol - HTTP / HTTPS, RTMP

Checks - Content Integrity Checks, Download Failure and Delays, HTTP Errors, Audio/Video Quality Checks, CMAF Compliance checks

DRM/Encryption - All Encryption schemes (CENC, AES-128, SAMPLE-AES, PIFF) supported by Google Widevine, Microsoft PlayReady, Apple FairPlay, Verimatrix, Irdeto, BuyDRM