STREAMPROBE

IPTV

QoS & QoE monitoring throughout the entire video delivery chain

STREAMPROBE SOLUTION PROVIDES A CENTRALIZED OVERVIEW OF THE **SERVICE AVAILABILITY AND VIDEO QUALITY THROUGHOUT ALL THE STRATEGIC STAGES OF THE MEDIA PROCESSING & DELIVERY FLOW, BY 24/7 MONITORING.** IDEAL FOR ALL **TV SERVICE PROVIDERS & NETWORK OPERATORS** – LINEAR BROADCAST TV, IPTV, CABLE TV, SATELLITE TV, OTT, VOD, NPVR – **TRANSPORT** CONTRIBUTION & DISTRIBUTION AND **SERVICE PLATFORM** PROVIDERS, LOOKING TO **ENSURE THE BEST END-USER QUALITY OF EXPERIENCE** ALL WHILE **OPTIMIZING OPEX**.

APPLICATIONS

- **Service oriented** end-to-end **Availability (QoS)** and **Quality (QoE)** assurance
- **Increase uptime** by detecting issues before your customers do
  By 24/7 real-time supervision & alerting
- **Optimize OPEX** daily operation & maintenance
  Drill down analysis, on-error proof recording
- **Quality Reports** generation for **SLA commitments**
- **Compliancy** 24/7 recording
- **Secure Ad Insertion revenues** by 24/7 control of all SCTE-35 triggers

BENEFITS

- **One single comprehensive & easy to use web GUI** to manage a wide variety of Streams & Services
  Studio, contribution, encoding, packaging, live/VOD, ad insertion, multiplexing, broadcast transport signalling...
  Ready for future Services diversification
  Fast training of operational teams to work with a single tool
- All Services Quality view at-a-glance: **Live Thumbnail Mosaic Wall**
- Powerful NBI/API for 3rd Party **NMS integration for Orchestration**
- **Pay as you grow** with flexible licensing & deployment architecture
  HighDensity full SW solution installed on-prem bare-metal / virtualized, cloud AWS

QoS - Service Availability & Integrity

- Full **MPEG-2 TS** monitoring (SPTS/MPTS)
- **IP transport** issues detection (RTP, FEC)
- **ETSI TR 101 290** compliancy (priority 1, 2, 3, MDI)
- TS structure: **PSI/SI, service(s), bitrates**

QoE - Service Audio/Video Quality

- Full content monitoring
- **Audio & Video defect** detection: freeze, black screen, silence
- **Subtitles** DVB and Teletext: decoding and display
- Video display: thumbnails & video streaming

Live Thumbnail Mosaic Wall

- **All services view at-a-glance** on a thumbnail wall, real-time update
- **Highly customisable per user**: grouping, audio levels, subtitles, penalty box
- **Monitoring by exception**: display only faulty services – penalty box
- **MacroService view**: track Service Quality in several monitoring points throught the delivery chain
- **Live service streaming** over low bandwidth links (service compression)

Recording

- 24/7 **compliancy recording**
- **Proof recording on-error** on fault detection
- **Schedule recordings** at predefined date – event recording
- **Easy access** to all recordings directly via the **web GUI**

Confidence monitoring - visual video check

- **Live service streaming** over **low bandwidth links** (transcoding)
- GUI display, with **3rd party dashboard integration/display** capabilities

Control Access monitoring

- Check the scrambling information EMM/ECM: presence, repetition, bitrates
- **FTA <-> scrambled transition monitoring**: transition timing alarms with detailed graphical display
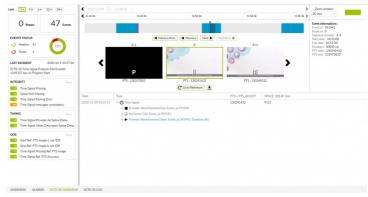
Ad Insertion monitoring

- Make sure the **Ad Inserter receives and can use the triggers**: triggers presence, integrity and timing
- **Prevent video defects on the Ad Inserted stream** by checking the splice point quality/integrity: IDR frames, PTS accuracy
- Make sure the **triggers point the correct frame** and **prove the Ad Insertion**: splice point thumbnails, frames analysis for automatic detection of change of scenery, video recording

System Integration & NBI

- **Configurable alarming thresholds**: general, daily and weekly alarm profiles **configurable per service**
- NMS integration: **SNMPv2** support for alarm traps
- Monitoring information available via an **open API** (HTTP/JSON API)
- **Service thumbnails** & **video streaming** capability for **3rd party dashboard** display

HighBitrate monitoring capacity

StreamProbe IPTV: up to 3Gbps of services monitored in // per Appliance (COTS, AWS, VM): full monitoring features (QoS, QoE, Video Streaming, Recording, SCTE-35, CAS, HEVC/4K)

StreamProbe IPTV HighBitrate: up to 10Gbps (1000 services) monitored in // per Appliance (COTS): QoS, QoE, SCTE-35, CAS monitoring features

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MONITORING FEATURES

QoS - Service Availability & Integrity check	MPEG-2 TS (SPTS/MPTS) ETSI TR 101 290 Priority 1, 2, 3 FEC support (packets recovered/lost), IP jitter MDI: Delay Factor, Media Loss Rate, Delta (min, max, average), Drift & Period Drift PSI/SI repetition rates, scrambling Bitrates: TS, service & service components, PSI/SI
QoE - Service Audio/Video Quality	Video defect detection: freeze, black screen, missing Intra frame Video encoding information: type, pixel format, profile, level, GOP structure and size, image count and weight, width, height, aspect ration, frame rate and type, VB delay Audio defect detection: silence, level too low/high Audio encoding information: type, channel number and layout, sample rate and format Subtitles DVB and Teletext: decoding and display Formats: MPEG-1 audio, MPEG-2 audio/video, AAC, HE-AAC, HE-AACv2, AC3 Dolby Digital, EAC-3 Dolby Digital Plus, SD & HD MPEG-4 AVC/H264, 4K HEVC/H265
Thumbnail Mosaic view	All services view at-a-glance on a thumbnail wall, real-time update Highly customisable per user: grouping, audio levels, subtitles, penalty box Monitoring by exception: display only faulty services – penalty box MacroService view: track service quality in several monitoring points throught the delivery chain Live service streaming over low bandwidth links (service compression)
Recording*	24/7 compliancy recording with predefined history depth On-error recording on fault detection Scheduled recording at predefined date & time Access the recordings directly via the GUI Preview of the recorded video Download capability (full or partial) Associated alarms timeline Storage capacity to dimension depending per project *temporary limitations for IPTV HighBitrate mode deployment: recording limited to 10 services
Confidence monitoring	Live service streaming over low bandwidth links (transcoding) 300kbps by default, possibility to configure the target bitrate, video resolution, audio PID GUI display or 3rd party dashboard integration display
CAS monitoring	EMM/ECM presence, repetition, bitrates; configurable alarm thersholds FTA <-> scrambled transition monitoring: transition timing alarms with detailed graphical display
Ad Insertion monitoring*	Based on SCTE-35 TimeSignal and SpliceInsert Triggers presence, integrity and timing check, log export Reference Frame QoE: IDR and PTS check Splice point thumbnails extraction (50 images around the splice point) and frame analysis for automatic detection of change of scenery Splice point video recording (before & after the splice point) Configurable alarm thresholds *temporary limitation for IPTV HighBitrate mode deployment: SCTE-35 splice thumbnails extraction limited to ~15 Services
System Integration & NBI	Configurable alarming thresholds: general, daily and weekly alarm profiles configurable per service Alarm log history CSV export SNMPv2 support for alarm traps Monitoring information available via an open API (HTTP/JSON API) Service thumbnails can be retrieved via API call – for 3rd party dashboard display Video streaming capability for 3rd party dashboard display

TECHNICAL CHARACTERISTICS

SW Appliance solution: custom Linux based custom OS
Bare-metal, VM (ESXi >v6.0, KVM), AWS cloud
Maximum Appliance monitoring capacity: 10Gbps for StreamProbe IPTV
Performance CPU, RAM, HDD depending on the bitrate capacity to monitor

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RoHS

StreamProbe IPTV	Video QoS & QoE Monitoring for IPTV – Linear Multicast
options	**Bitrate (Mbps, Gbps)** : Define the bitrate capacity to monitor **SW Pack ACCESS** : Full QoS & QoE: ETR 101 290 monitor, Audio & Video Quality check, Mosaic overall Service Quality **SW Pack PERFORMANCE** : Operational Add-ons: ETR 101 290 monitor, Audio & Video Quality check, Mosaic overall Service Quality, Recording, Video Streaming **SW Pack ULTIMATE** : Additional Services: ETR 101 290 monitor, Audio & Video Quality check, Mosaic overall Service Quality, Recording, Video Streaming, 4K HEVC monitor, Ad Insertion monitor SCTE-35, CAS Scrambling <> FTA transitions

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