

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**
- **Compliance** 24/7 recording
- **Secure Ad Insertion revenues** by 24/7 control of all SCTE-35 triggers

QoS - Service Availability & Integrity

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

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 through the delivery chain
- **Live service streaming** over low bandwidth links (service compression)

Confidence monitoring - visual video check

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

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

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

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

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

Recording

- **24/7 compliance 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**

Control Access monitoring

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

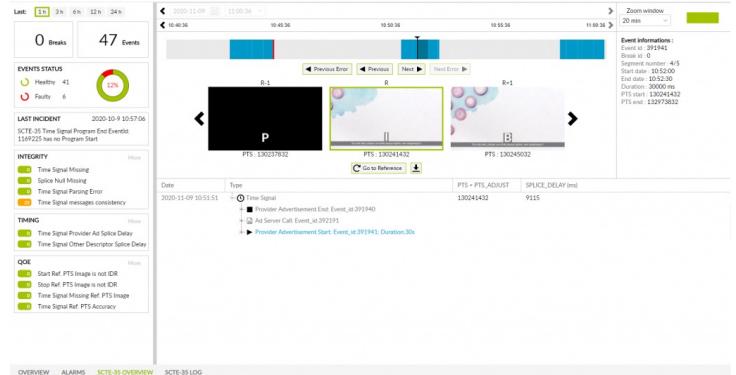
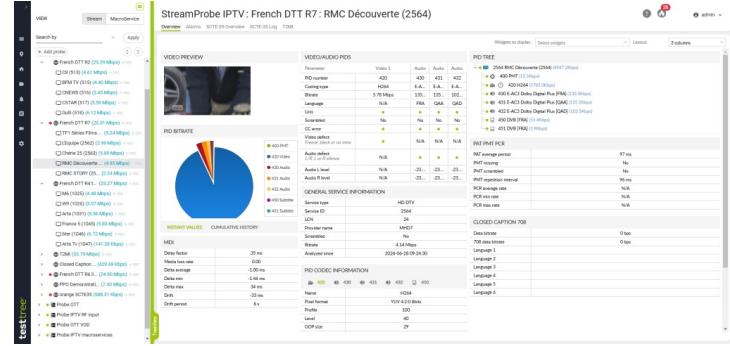
System Integration & NBI

- **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



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MONITORING FEATURES

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

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

ORDERING_CODES

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 SCSTE-35, CAS Scrambling <> FTA transitions

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