Mividi HLS Analyzer-LSA100

Professional Real-time HTTP Live Streaming (HLS) Analyzer for validating HLS formats and verifying MPEG transport stream and audio/video quality, suitable for analyzing HLS streams and monitoring service content real-time.

Features

- Simulates up to 200 HTTP Live Streaming sessions on the same or multiple HLS servers and simultaneously tests the video service in all sessions.
- Supports real-time unbounded broadcast service as well as file based VOD services.
- Analyzes playlist files, monitor and record media downloading activities.
- Analyzes HLS bitrate, PCR interval and compares downloading time vs. media time.
- Supports H.264 video and multiple audio encoding standards, including MP3, AAC and AAC+.
- Decodes and display video thumbnails and audio PCM values. Continuously decodes and plays a selected program on a remote PC.
- Real-time comprehensive MPEG TS analysis on all HLS services initiated by the analyzer
  - Standard compliance based on MPEG and DVB TR 101 290
  - Bandwidth utilization and PID monitoring
  - PCR bitrate and interval analysis
  - Elementary stream buffer and PTS analysis
  - Real-time PSI/SI table decoding
  - EPG decoding and display, if applicable
- Transport stream error summary with a single quality score
- User defined profile matching
- Configurable thresholds and alarm setting
- Audio/Video loss, frozen frame, and black frame detection
- Automatically error reporting and alarm for sending email or SMS to technicians with easy and flexible triggers
- SNMP support
- MPEG transport stream recording and playback
- Remote user-friendly and intuitive user interface
- Database for error logging and after-facts analysis
- Multiple reports on error status, TS snapshots and HLS session activities and media file statistics

Applications

- Monitors live and on-demand HLS service
- Stress test on HLS video servers and network infrastructure

Overview

As smartphones and tablets are getting more popular, more and more TV programs are consumed by these devices. Content providers estimate as much as 75% of video contents will be watched on devices other than TV sets in the next few years. The most commonly used methods for delivering video services to mobile devices and computers are various media streaming protocols, including RTMP, RTCP, HTTP Live Streaming, and Smoothing Streaming via the Internet.

HTTP Live Streaming (HLS) is an HTTP-based media streaming protocol implemented by Apple Inc. It breaks the overall stream into a sequence of small files, each containing one short chunk of an overall finite or unbounded transport stream. The client app downloads the files using HTTP protocol and resembles the files into a continuous transport stream. Since the downloading uses only standard HTTP transactions, HLS is capable of traversing any firewall or proxy server that lets through standard HTTP traffic.

However, using IP network to transport media data can introduce transmission errors such as delay, jitter and packet loss. Video delivered over the Internet which the video provider does not have full control can exacerbate the problem. On the other hand, video transport has strict requirements on timely delivery of the video and audio packets to the receivers. Therefore, it is important for service providers to actively test their media service infrastructure and monitor services real-time to discover and resolve any potential problems quickly.

The Mividi HLS Analyzer is designed for verifying the quality of digital audio and video services delivered using the HLS protocol. The system can simultaneously start up to 200 HTTP sessions to download audio and video data from one or more video servers, and perform extensive analysis on HTTP transfer status, HLS file formats, MPEG TS standard compliance, and audio and video qualities in all video services.

The system is designed for 24 x 7 remote operations. All errors detected by the system are saved in the database, along with transport stream snapshots and HTTP downloading statistics. Multiple reports can be generated to summarize the HTTP session and transport stream status over time.

Mividi, Inc
1330 Route 206, Suite 103-175
Skillman, NJ 08558, USA
Tel: 614-270-9617
www.mividi.com

HLS Session Analysis

The system can be configured to simulate up to 200 video service sessions automatically. It will perform simultaneous HTTP downloading of the playlist and media files in all sessions. Monitoring sessions are automatically generated for all alternative bitrate streams listed in the master playlist file. All HTTP sessions are monitored and a number of media file and session parameters are recorded in the database, including file name, sequence number, file size, and file downloading time. Various analyses are performed on timing, sequences and media file format and stream bitrates are calculated based on encoded PCR values.

Comprehensive TS Layer Analysis

Because HLS uses a series of short chunks of MPEG TS to deliver the video data, the underline stream must be compliant to the MPEG standards. The system will perform comprehensive real-time analysis on the MPEG TS in all HLS sessions, including:

- Standard compliance based on DVB test guideline TR 101 290
- Real-time decoding of H.264 video thumbnails and MP3, AAC, AAC+, AC3 audio PCM
- Bandwidth utilization and PID monitoring
- PCR bitrate and interval analysis
- Elementary stream buffer and PTS analysis
- Real-time PSI/SI table decoding and analysis
- EPG-decoding and display, if applicable

Remote User Interface

Two client applications are provided for viewing test results and control the monitoring system remotely. An easy-to-use Windows® desktop application can dynamically display all test results and stream video data from the system to the client PC over an IP network connection, allowing continuous decoding of a video program for visual verification of Quality of Service (QoS). A web based client application can be used to access test data using Internet.

Error Logging and Reports

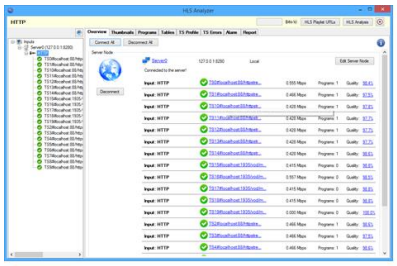
All errors detected are logged in a database. The logging feature allows the operator to search specific errors based on various searching criteria, including error code and time period the error has occurred. Selected errors can be exported to a text file. The HLS Analyzer allows users to create HTTP flow and transport stream profile, and the system will test the actual input data against user entered profile, report and record any deviations. The system can also be configured to send alarm messages to technician once the overall stream quality is below certain threshold and/or some specific errors occur. In addition, a number of reports, including TS and HLS error summary, transport stream snapshots over time, and HLS media file statistics and downloading parameters.

Ordering Information

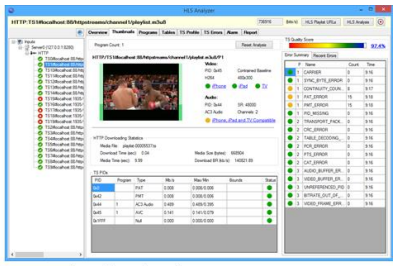
Mividi HLS Analyzer-LSA100:

Model LSA100-S	Software only
Model LSA100-P	Preinstalled in a portable computer
Model LSA100-R	Preinstalled in a rack mountable computer

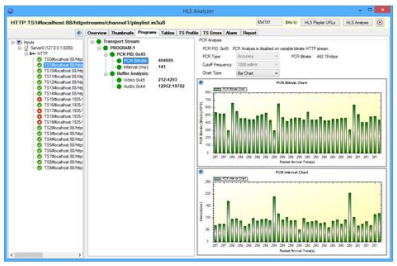
Sample of GUIs



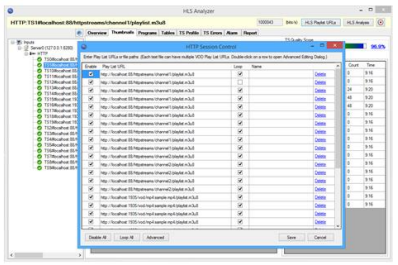
HLS streams overview



Thumbnail and TS errors summary

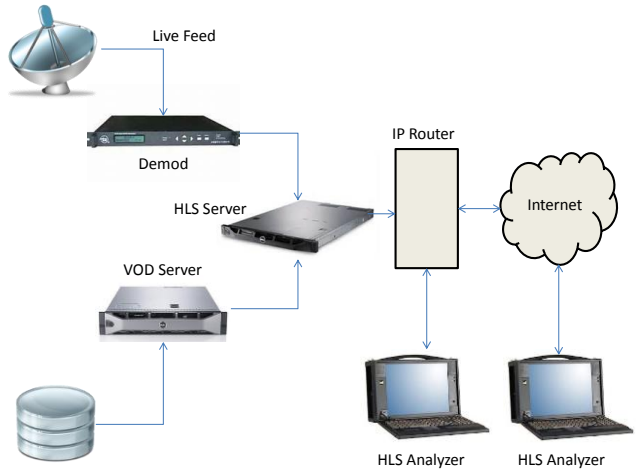


PCR analysis and Bitrate calculation



HLS session simulation

Application Example



Specifications

IP Input/Output

Interface:	Ethernet (RJ45 or Optical), 10/100/1000 Mbps and 10 Gbps

Administration

Access:	Remote management

System Requirements:

Memory:	4GB DDR2 SDRAM
Hard Disk Drive:	Minimum 100 GB Hard Disk, DVD-RW
Operating System:	Windows® 7,8

Mividi, Inc
1330 Route 206, Suite 103-175
Skillman, NJ 08558, USA
Tel: 614-270-9617
www.mividi.com