Audio Video Sync & Quality Monitor

Monitoring of QoE (Quality of Experience) and QoS (Quality of Service) for audio/video transmissions

Good synchronization between audio and video (also called "lip sync") is fundamental for television and video since no end-user can cope with misaligned sound and pictures.

Good audio and video quality is also important for end-users who want to reach a good quality of experience.

Audio Video Sync & Quality Monitor (AVSQM) is a powerful and scalable solution to monitor the Quality of Experience (QoE) and the Quality of Service (QoS) in audio/video transmissions.

Product information

Product

☑ Software (Windows)
☐ Hardware [1]

Applications

☑ QoE and QoS monitoring of TV broadcast
☑ Comparison of the different versions of the same TV channel
☑ Network malfunction tracking
☑ Network equipment benchmarking
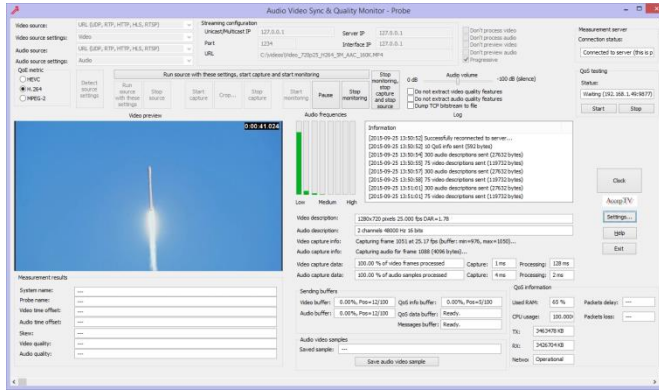☑ Remote monitoring and reporting of QoS

Measured QoE parameters

☑ Perceived video quality (DMOS, MOS)
☑ Perceived audioquality (DMOS, MOS)
☑ Video delay
☑ Audio delay
☑ Skew (lipsync)
☑ Blockiness, blur, flatness
☑ Audio bandwidth, high audio frequencies presence

Input types

☑ File
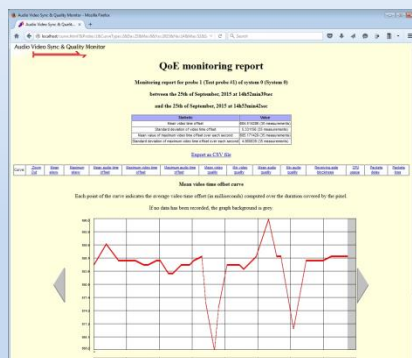☑ IP streaming
☑ Capture cards/devices
☑ Desktop capture

[1] Hardware (PC) may be supplied as an option

Audio Video Sync & Quality Monitor (AVSQM) is a very innovative solution to monitor both audio/video synchronization and audio/video quality, in a non-intrusive manner (without modifying the monitored service).

AVSM computes audio fingerprints and video fingerprints and compares them to measure:
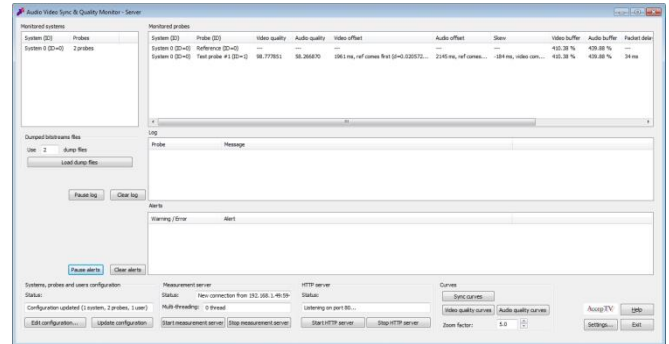
- synchronization between audio and video
- audio quality
- video quality

AVSQM is constituted by 2 types of agents: several probes and one server. At least two probes must be used (so the signal has to be captured at two different places). One probe acts as a "reference probe" while the other probe(s) is(are) "test probe(s)".

Each probe receives audio and video and computes audio fingerprints and video fingerprints, and then sends these fingerprints to a server. The server continuously receives and compares the audio and video fingerprints from each test probe with the ones from the reference probe.

This comparison produces:

- The video time offset between the test probe and its reference probe
- The audio time offset between the test probe and its reference probe
- The **skew** which is the misalignment between audio and video on the test probe
- The video quality score
- The audio quality score

AVSM can send alerts by email (warning and/or error reports) if the skew gets beyond a user-defined threshold for a user-defined duration.

All measured data are saved to disk and can be retrieved between two user-chosen dates and times, thanks to the integrated HTTP server.

Skew curves and statistics can be remotely monitored in real time in any web browser.

At last, AVQM can save audio video samples when a synchronization problem happens (from a few seconds before the problem, to several seconds after the problem).

A powerful and scalable solution for both QoE and QoS monitoring

AccepTV
Perceived Video Quality Metrics

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Audio Video Sync & Quality Monitor

Monitoring of QoE (Quality of Experience) and QoS (Quality of Service) for audio/video transmissions

A flexible and scalable solution for QoS monitoring

Features

IP communications

- Test packets sent with UDP
- Measures sent with TCP

Features

- Remote viewing of animated maps showing the network probes in real time
- Curves and statistics between 2 user-chosen dates and times
- Export of measures in CSV format
- GUI and command line usage
- Integrated HTTP server in centralization server
- Can work silently (minimized to tray)

Alerts

- Alerts are triggered when audio quality or video quality gets below a user-defined threshold for a user-defined duration

- Two types of alerts: warning and errors (using different thresholds and duration)

- Up to 1000 users can define their own alerts parameters

Measured QoS parameters

- ☑ loss
- ☑ corruption
- ☑ delay
- ☑ jitter
- ☑ re-ordering
- ☑ CPU usage
- ☑ RAM usage
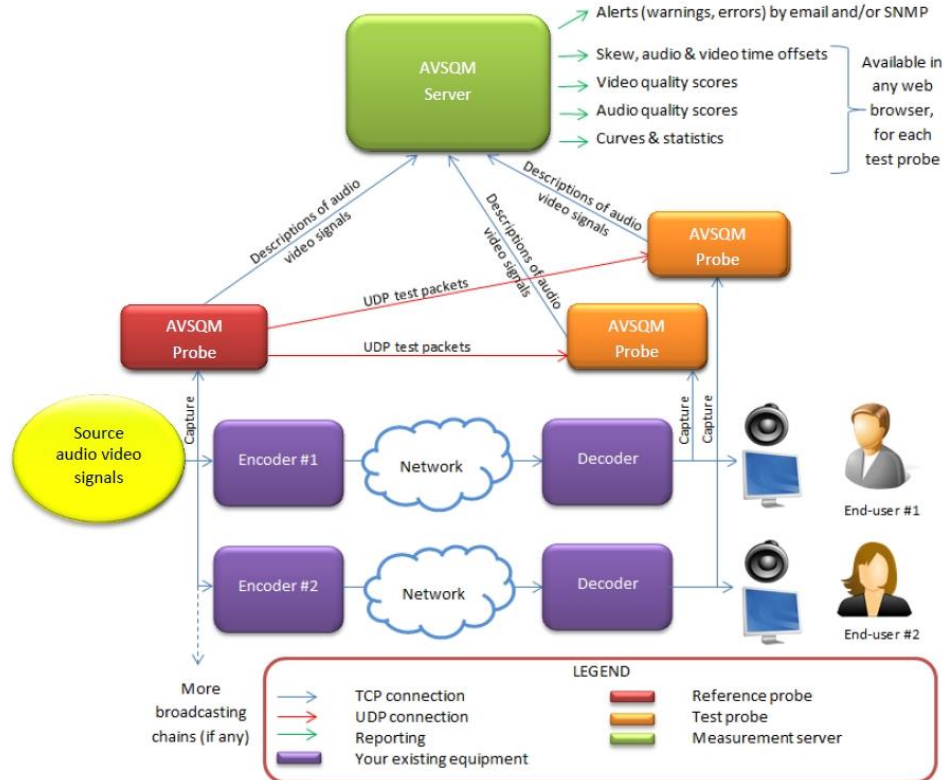
Audio Video Sync & Quality Monitor (AVSQM) deployment diagram

Features

Input
Video: Any resolution (mobile, SD, HD or more), any frame rate
Audio: Any audio sampling rate (if not 48 kHz, audio should be resampled), mono, stereo or multichannel

Input source
Files (*.avi, *.mp4, *.mov, *.ts, …virtually any file type)
Capture card or device (ex: Blackmagic Design, Aja, etc.)
IP streaming (UDP, RTP, HTTP, HLS, RTSP, RTMP)
Desktop capture

Network
Bandwidth required for traffic from probe to server: < 50 kB/s
Bandwidth required for traffic from server to probe: < 1 kB/s
Buffering at both sending and receiving sides to cope with unstable networks
Automatic reconnection

Measurement
Skew (misalignment between audio and video between 2 probes), in milliseconds
Video time offset between 2 probes, in milliseconds
Audio time offset between 2 probes, in milliseconds
Video quality score (MOS or DMOS)
Audio quality score (MOS or DMOS)
QoS parameters: packet loss, packet delay, packet jitter, packet re-ordering
Machine health: CPU usage, memory usage

Results
Curves, values (in milliseconds) and statistics of skew, video time offset and audio time offset between two user-defined dates and times (average and max value over each second)
Real time monitoring: curves and statistics in real time
Reports generation (CSV)
Audio video samples when sync problems happen (saving from several seconds before the problem, until several seconds after the problem).

Extra
Integrated HTTP server for distant results consultation and built-in database to store results
Audio volume control
Possible command line usage
Measurement warning and errors by email
Real time operating mode
Remote saving of audio video samples (the server can force a probe to save a sample)
Remote download of audio video samples (the server can download samples from probes)

So if you want to:

- Compare the different versions (supplied by different Internet Service Providers or Telecom Operators) of a TV channel

- Monitor audio and video broadcast over different networks

- Benchmark audio and video equipment

- Check non-regression after audio/video equipment firmware update

- Receive alerts when problems happen

…ask for an evaluation version of Audio Video Sync & Quality Monitor now!

AccepTV

Perceived Video Quality Metrics