

# IPTV Monitoring & Service Assurance...



**serviceEye Statistics  
& Key Metrics**

**Shenick Network Systems**



**[www.shenick.com](http://www.shenick.com)**

## servicEye Statistics Overview

The following table is a summary of the statistics available from each servicEye probe.

Statistic Name	Description
Time	Time of Measurement. Sample options include 1second, 10 second, 30 second or 60 seconds. The greater the sample period, the more data can be stored on the system. By default, data is stored for 24 hours, this can be increased.
Client In Service	Indicates if the probe point is actively monitoring the performance of a multicast group. Users can enable or disable probe points at will.
Client In Bits/s	Bit Rate Received by Probe Point.
Client In Packets/s	IP Packet Rate recorded at Probe Point.
Client Joins Initiated Client Joins Completed	Number of IGMP/MLD Join Events Initiated and Completed by the Probe Point in a single sample period.
Client Mean Join Time Client Min Join Time Client Max Join Time	Time taken from an IGMP/MLD Join message to receipt of packets from the requested multicast stream at the probe point. If more than one Join event is issued per sample period, an average, minimum and maximum time is reported.
Client Leaves Initiated Client Leaves Completed	Number of IGMP/MLD Leave Events Initiated and Completed by the Probe Point in a single sample period.
Client Mean Leave Time Client Max Leave Time Client Min Leave Time	Time taken from an IGMP Leave message until requested multicast stream stops flowing. If more than one Leave event is issued per sample period, an average, minimum and maximum time is reported.
Client In Packets After Leave Client In Bits After Leave	After a Leave Event is issue, the Bit rate and number of Packets received by the probe point. This is an indication of the unwanted traffic received from the network.
Client QM Streaming VQS	The Passive Mos score for the streaming quality calculated for the video stream.
Client QM Stream ID	MPEG2 TS PID/RTP SSRC of the MPEG2 TS elementary stream/RTP stream currently being analysed.
Client QM In Packets	The total number of MPEG2 TS/RTP packets received by the jitter buffer emulator.
Client QM Packets Dropped	The total number of MPEG2 TS/RTP packets detected as lost in the network by the jitter buffer emulator.
Client QM Packets Out Of Sequence	The number of MPEG2 TS packets/RTP that arrive out of sequence as detected by the jitter buffer emulator.
Client QM Packets Discarded	The number of MPEG2 TS stream/RTP packets received but discarded due to jitter buffer emulator overrun/underrun.

Client QM Packets Underrun	The number of MPEG2 TS/RTP stream packets discarded due to jitter buffer emulator underrun.
Client QM Packets Overrun	The number of MPEG2 TS/RTP stream packets discarded due to jitter buffer emulator overrun.
Client QM Mean Packet Delay Variation	The average instantaneous packet delay variation for the MPEG2 TS/RTP packets received on the stream.
Client QM Maximum Packet Delay Variation	The maximum instantaneous packet delay variation for the MPEG2 TS/RTP packets received on the stream.

### Active Analysis Metric

### Description

Mean Opinion Score	Active Analysis MoS Score
Frames per second [1/s]	Frame rate of Reference and Degraded Streams.
Frame duration [ms]	Duration of each frame.
Pixelisation of Reference Stream	Information about Pixels per line and Lines per frame
Frame and Skipped Freeze [%]	Indicates number of replayed Video Frames due to lost or damaged frames.
Frame Delay	Reports delay between reference and degraded signal for each frame. Minimum, Maximum and Average are reported.
Brightness	Brightness of stream
Contrast	Contrast of stream
Activity	Activity of stream
Temporal Distortions	Summary of Time-related distortions (Jerkiness, Frame Freezes, Frame Skips and Frame Rate)
Luminance Distortions	Summary of Brightness-related distortions.
Chrominance Distortions	Summary of Colour-related distortions.
Jerkiness, Blur, Blockiness	Indication of visible artefacts in degraded stream, as compared to active stream.
PSNR	Analysis of the distortions in different domains
MOS Audio	Audio- Quality estimated MOS. Note this is available during gaps and bursts (Good and bad periods of performance).
MOS AV	Audio-Video/Multimedia Quality estimated MOS. Note this is available during gaps and bursts (Good and bad periods of performance)
FEC effectiveness	Improvement in packet loss rate due to FEC (0-100)
TS Sync Loss	TR 101 290 Metric indicating Synchronization Loss
Sync Byte Error	TR 101 290 Metric indicating Sync Byte Errors
Continuity Count Error	TR 101 290 Metric indicating dropped or out-of-sequence packets
Transport Error	MPEG TS transport error indicator
PCR Error	Discontinuity in PCR value
PCR Repetition Error	Excessive gap between PCRs
Discontinuity Indicator Error	PCR jump without indicator bit
PTS Error	Excessive gap between presentation time stamp

Codec Type	I, IP, IBBP, P, IBP
GoP Length	Length of GoP in frames
Image Size	Size of Image in Pixels
I Frames impaired	Number of frames impaired due to loss
P Frames impaired	Number of frames impaired due to loss
B Frames impaired	Number of frames impaired due to loss
I Frames received	Number of frames received.
P Frames received	Number of frames received.
B Frames received	Number of frames received.
I Frames discarded	Number of frames discarded.
P Frames discarded	Number of frames discarded.
B Frames discarded	Number of frames discarded.
PSNR - Peak Signal to Noise Ratio	Estimated PSNR. Note this is available during gaps and bursts (Good and bad periods of performance).
VSTQ	Transmission quality (codec independent)
VSPQ	Picture quality
VSAQ	Audio quality
VSMQ	Multimedia quality

VQmon Video Attribute	Description
Content Sensitivity Factor	The video content sensitivity factor against loss/discard, a value between -50 and 50. A higher value indicates the video stream is more sensitive to packet loss/discard. The default value for this field is 0.
Original Video Quality	The original video quality. This is a MOS value (from 1.0 to 5.0) scaled by a factor of 256. The default value for this field is 1216, corresponding to MOS value as 4.75.
Video Class	The video coder class for the video stream.
Coding Bit Rate	The coding bit rate for the video stream represented in kilobits per second (kbps). The default value for this field is 1,024 kbps.
Jitter Size	Nonnominal delay for incoming packets to the jitter buffer. This corresponds to a playout delay for packets from a jitter buffer. Default value is 300ms.
Max Jitter Size	Maximum jitter delay for incoming packets. The defines the maximum size of the jitter buffer. Default value is 600ms.

Codec Support	Description
Video	MPEG-2, MPEG-4, H.262, H.263/H.263+, H.264, VC-1
Audio	AC-3, MPEG-1 Layer 1, MPEG-1 Layer 2, MPEG-1 Layer 3, MPEG-2 AAC, MPEG-4 AAC, MPEG-4 Low Delay AAC, MPEG-4 High Efficiency AAC

## Stream Performance Indicators - Summary

### Passive Video Analysis

- Streaming MOS Score (1-5)
- Stream ID :
- MPEG2 TS PID
- MPEG-TS Packets :
  - Received / Dropped / Out Of Sequence
- MPEG-TS Packets :
  - Received but discarded from jitter buffer
- Jitter Buffer :
  - Under run / Over flow
- PCR , PCR Jitter
- TR-101-290 metrics
- VideoPackets :
  - Received / Dropped / Out Of Sequence
- Video Packet Discards
- Average Packet Delay Variation
- Maximum Packet Delay Variation
- StreamID :
  - SSRC for RTP / PID for MPEG2-TS
- TS Synchronisation Loss
- Synchronisation byte error
- Continuity count error
- Transport error
- PCR repetition error
- PCR discontinuity error
- PTS error
- VSTQ :
  - VideoServiceTransmissionQuality
- VSPQ :
  - VideoServicePictureQuality
- MOS-V :
  - VideoMOS
- MOS-AV :
  - Audio-Video MOS
- MOS-A :
  - AudioMOS
- I-B-P Frames :
  - Received / Impaired

### MS-TV

- A-Server Multicast Performance
- Video Quality Transcoding (A-Server)
- Video Quality (Customer)

### Active Video Analysis

- PEVQ MOS Score
  - Frame Information,
    - number of frames from the Reference and Degraded Streams
  - Pixelisation of Reference and Degraded Streams
  - Frame Freeze [%]: 0.000
  - Frame Skips [%]: 0.000
  - Brightness
    - difference between bright and darkness on adjacent pixels
  - Contrast,
    - difference between bright and darkness on adjacent pixels
  - Activity
  - Jerkiness, Blur (Spatial) and Blockiness
  - Luminance and chrominance,
    - distortions are rates between 0 and 10
- ### Other Application Streams Supported
- VoD (RTSP)
  - HTTP
  - FTP
  - VoIP

### Video Codec Support

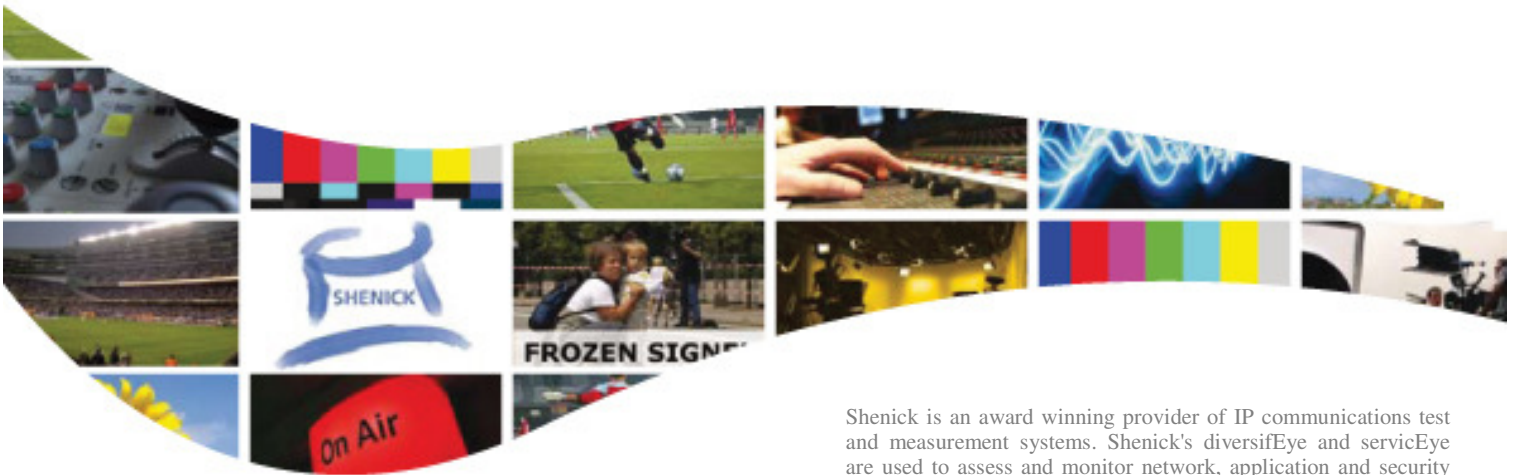
- MPEG-2
- MPEG-4
- H.262
- H.263/H.263+
- H.264
- VC-1

### Audio Codec Support

- AC-3
- MPEG-1 Layer 1
- MPEG-1 Layer 2
- MPEG-1 Layer 3
- MPEG-2 AAC
- MPEG-4 AAC
- MPEG-4 Low Delay AAC
- MPEG-4 High Efficiency AAC

### Active L2-7 Stress Tests

- IGMP v1,2,3
- MLDv1,2
- DHCPv4/6
- PPPoEv4/6



Shenick is an award winning provider of IP communications test and measurement systems. Shenick's diversifEye and servicEye are used to assess and monitor network, application and security infrastructure performance limitations.

diversifEye™ and servicEye™ are integrated network, application and security attack emulation and performance assurance test systems which are used by major IP-oriented network service providers, communications equipment manufacturers, large enterprises and governments.

Shenick's diversifEye addresses key next-generation converged network and application performance issues covering IPTV, Voice, Data, IMS, Security Attack Mitigation, Traffic Shaping/Peer to Peer (P2P), Application Server, Metro Ethernet and IPv4/IPv6 hybrid network deployments.

Shenick's servicEye is an active IPTV monitoring solution, born out of award winning and industry proven IPTV quality assessment technology that provides a completely integrated IPTV monitoring solution.

Shenick is the proud recipient of the Frost and Sullivan, 2007 Product Innovation Award, 2006 Emerging Company of the Year Award in the Communications Test and Measurement industry sector along with the 2005 European Product Line Strategy Award.

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