

SQprobe® is an advanced passive Voice over IP and IP Video probe based on Telchemy's market-leading **VQmon** performance analysis software. SQprobe produces real-time per-call and per-flow quality metrics, including MOS scores and a wealth of diagnostic information, providing network managers with immediate visibility into service quality levels and the ability to rapidly drill down and diagnose problems.

SQprobe® passively monitors a 100Base-T or Gigabit Ethernet link, automatically detects active VoIP and IP Video sessions, monitors each session, produces real-time performance data both during and at the end of the session, and generates events if quality falls below preset service level thresholds. SQprobe is available as a Linux software application.

Key quality metrics produced per call/session include:

- Listening and conversational quality MOS and R-factor scores for VoIP calls
- Video, audio, and audiovisual MOS scores for IPTV and IP videoconferencing sessions
- Session quality during "good" and "poor" periods
- Percentage of degradation due to loss, jitter, delay, codec properties, signal level, etc.
- Detailed IP, RTP, and MPEG Transport packet statistics
- Metrics describing transient IP problems

SQprobe's advanced diagnostic data makes it easier to quickly identify and resolve problems that can impact the quality of VoIP, IPTV, or IP videoconferencing services. Call quality information is available at scheduled intervals—for example, every 15 seconds—or when calls complete. In combination with RTCP XR (RFC3611), SQprobe automatically incorporates endpoint-reported signal, noise, and echo level measurements into call quality metrics.

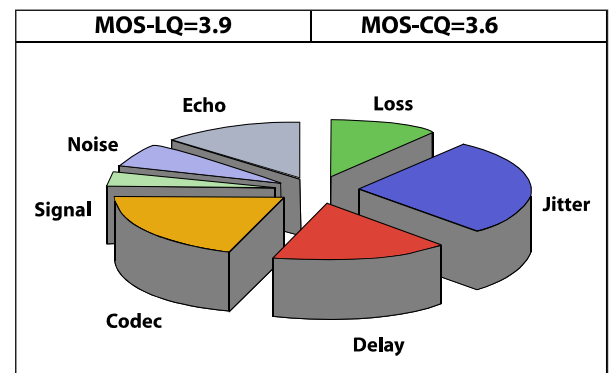
SQprobe's Expert Analysis technology examines collected data in real time, and can identify a number of specific problem factors that affect IP voice and video quality. A typical VoIP or IPTV service has thousands of active sessions, any of which may experience transient problems. SQprobe's real-time problem inference technology can dramatically reduce the time required to detect, identify, and resolve problems.

SQprobe creates a Call Quality Record (CQR) for each call stream, incorporating endpoint-reported quality metrics if they are available. CQRs may be retrieved by a reporting application using SNMP or viewed in SQprobe's integrated Web GUI.

Real-time thresholding can detect if either per-call average or individual call quality falls below preset thresholds, providing early warning of network problems that may affect service level agreements.

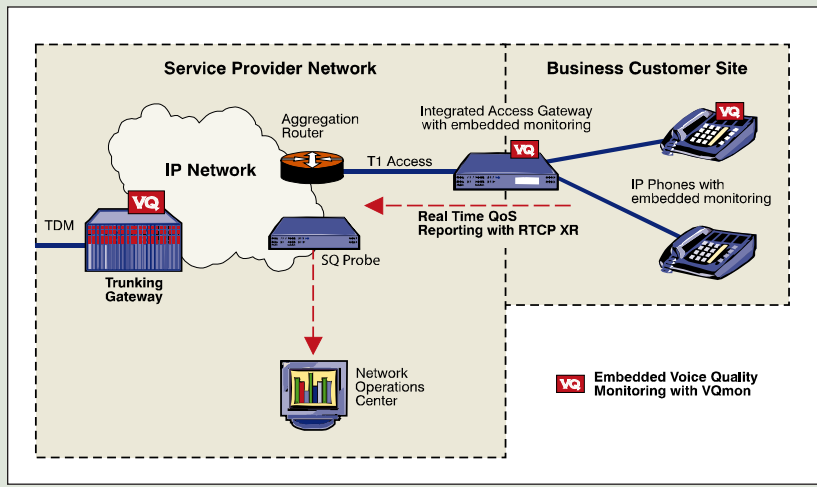
SQprobe is fast, accurate, and informative, providing real-time visibility into service quality and the ability to monitor service and diagnosis problem conditions at key locations in the enterprise or service provider network.

Degradation Factors



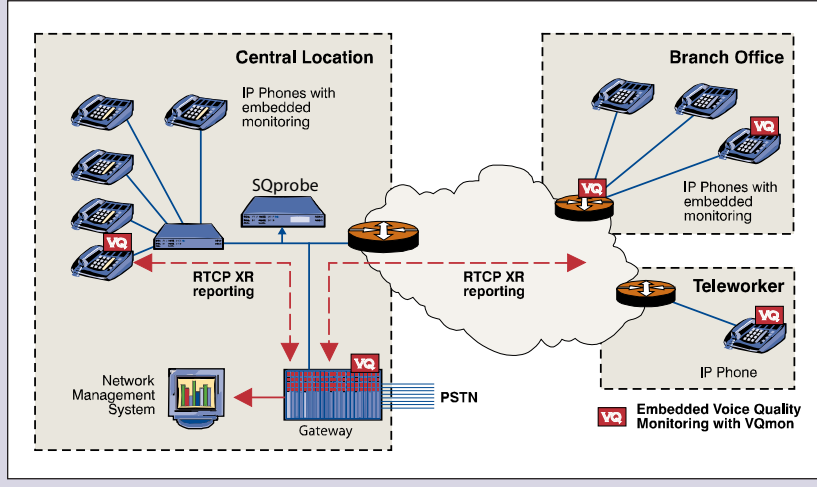
Call Quality Record

Call Identifier	Signal Level
Source/Destination	Noise Level
SSRC	Echo Level
CODEC Type	R-LQ
Packet Loss	R-CQ
Packet Discard	MOS-LQ
Burst Length	MOS-CQ
Burst Density	Burst R
Gap Length	Gap R
Gap Density	Jitter Buffer Config
Delay	Problem Diagnosis



IP Centrex/Hosted PBX Service Provider Application

Located within the service provider network, SQprobe collects RTCP XR statistics and monitors incoming VoIP traffic.



Enterprise IP Telephony Application

Located at key traffic aggregation points, SQprobe collects RTCP XR statistics and monitors VoIP WAN traffic.

Technical Specifications

- Call quality analysis using VQmon - Optimized ITU-T G.107 with ETSI TS 101 329-5 Annex E
- Supports Japanese TTC JJ201.01 VoIP monitoring requirements
- Interprets RTCP XR (RFC3611) VoIP metrics payloads

Call Quality Metrics

- Listening and conversational quality MOS Scores with ACR, ITU and TTC scalings – MOS-LQ, MOS-CQ
- Listening and conversational quality R-factors – R-LQ, R-CQ
- Separate R-factors for burst and gap conditions – R-Burst, R-Gap

IPTV/IP Videoconferencing Metrics

- Video, Audio, and Audiovisual MOS scores (MOS-V, MOS-A, MOS-AV)
- I/B/P Frame Statistics and impairment levels
- TR 101 290 MPEG Transport Metrics

IP/RTP Metrics

- Packet loss rate, packet discard rate, burst length/density, gap length/density

Degradation Factors

- Percentage degradation due to loss, jitter, codec, delay, signal level, noise level, echo, recency

Interface Protocol Compatibility

- Network monitoring interface – IPV4/IPV6, UDP, RTP (RFC3550), RTCP XR (RFC3611)
- Reporting interface – IPV4/IPV6, TCP/UDP, SNMP, FTP

Supported Platforms

- Approved versions/ releases/ builds of Linux (Windows due in early 2008)

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