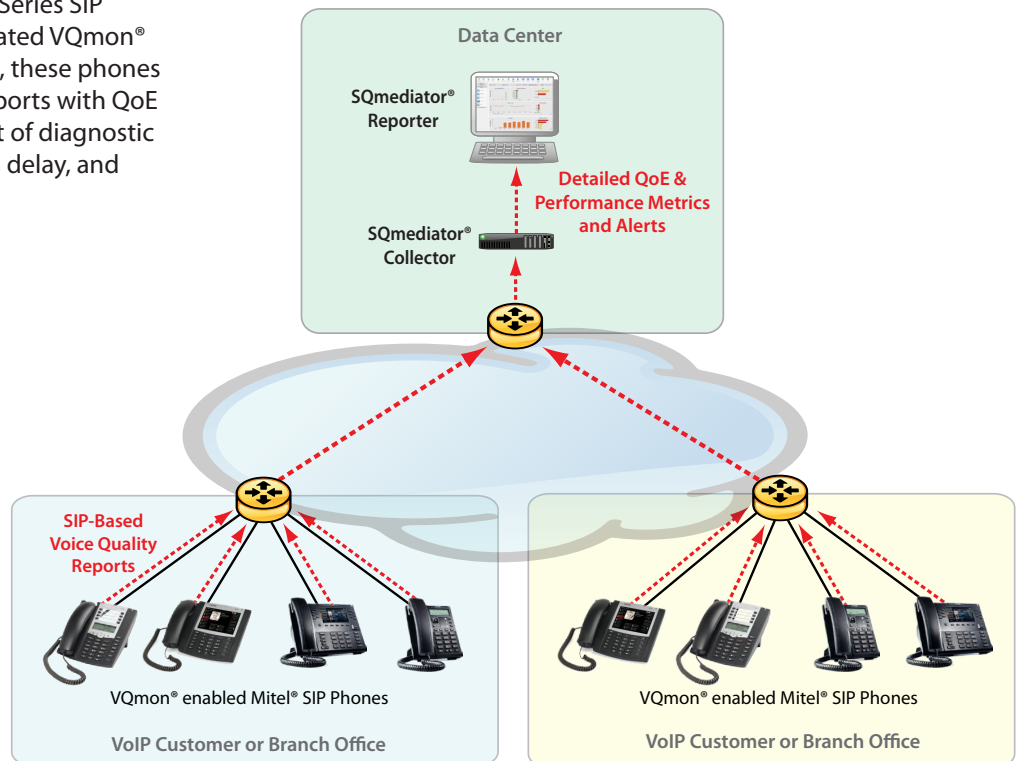# Using SQmediator® with Mitel® SIP Phones

Voice over IP (VoIP) quality is highly sensitive to IP network problems such as packet loss, jitter and delay, which are often transient and difficult to troubleshoot. To manage VoIP performance effectively, it is crucial to understand not just which calls are being impaired, but also the root causes of impairments and how to prevent them.

Telchemy SQmediator® enables system administrators to non-intrusively monitor call quality and proactively diagnose the root cause of performance problems. SQmediator collects Quality of Experience (QoE) and diagnostic metrics directly from Mitel SIP phones, providing a real-time view of the quality of every call as experienced by end users.

Mitel (formerly Aastra) 6700 Series and 6800 Series SIP phones are equipped with Telchemy's integrated VQmon® reporting agent software. At the end of a call, these phones can generate RFC6035 SIP RTCP summary reports with QoE scores (MOS & R-factors) and an extensive set of diagnostic metrics describing levels of packet loss, jitter, delay, and other key impairment factors.

SQmediator collects, correlates, analyzes, and displays QoE metrics sent by Mitel SIP phones and other devices that are capable of generating RFC6035 voice quality reports. By obtaining performance measurements directly from each handset, SQmediator provides a highly accurate view of call quality as perceived by the end user and enables network managers to remotely detect and troubleshoot many types of impairments in real time.

The figure at right depicts a sample application of SQmediator and Mitel SIP phones used to monitor the performance of IP telephony services.

Example Application of SQmediator and Mitel SIP Phones in a Service Provider or Enterprise VoIP Network

Solution Components

SQmediator - requires access to a database (Oracle 11g/12c or PostgreSQL 9.6-10.x) for use by the following system components:

- **SQmediator Collector,** which collects and correlates the quality reports sent by Yealink phones and stores them in the system database as call records.

- **SQmediator Reporter**, a browser-based multi-user GUI for retrieving and viewing call records and performance data. In single-server versions of SQmediator, the Reporter and Collector are installed on the same host. In multi-server versions, each system component is installed on a separate host, and the system can be scaled by adding additional Collectors and/or Reporters.

Mitel SIP Phones - the following Mitel products are currently supported for use with SQmediator:

- Mitel/Aastra 6700 Series SIP phones
- Mitel/Aastra 6800 Series SIP phones

Configuring Mitel SIP Phones

To operate with SQmediator, Mitel SIP phones must be configured to enable voice quality reports and to send their reports to the SQmediator Collector at the end of a call using SIP PUBLISH. This requires editing several parameters in the phone configuration files, which are then typically downloaded to the phones from a provisioning server. Configuration files used for Mitel IP phones include the following:

- **startup.cfg** - general phone configuration information
- **<*model*>.cfg** (for example, 6867i.cfg) - model-specific phone configuration information
- **<*MAC*>.cfg** (for example, 00085D1610DE.cfg) - device-specifc phone configuration information

Parameters can be configured in any of these configuration files. If present in more than one file, the configuration settings in **<*model*>.cfg** will overwrite settings in **startup.cfg**, and settings in **<*MAC*>.cfg** will overwrite settings in both **<*model*>.cfg** and **startup.cfg**. The basic configuration steps are as follows:

1. Enable RFC6035 reports using the configuration parameter **sip rtcp summary reports: 1**

   A value of **0** disables SIP RTCP summary reports, which are disabled by default. To enable reporting on a specific phone line, use **sip line*N* rtcp summary reports**, where **N** is the line number. For example: **sip line1 rtcp summary reports: 1**

2. Specify the address of the SQmediator collector using **sip rtcp summary report collector: <*user*>@<*server*>**. To configure a specific phone line, include **line*N***. For example: **sip rtcp summary report collector: someuser@example.com** / **sip line2 rtcp summary report collector: someuser@192.168.1.120**

3. Specify the Collector port number using **sip rtcp summary report collector port: <*port_number*>**. To configure a specific phone line, include **line*N***. For example: **sip rtcp summary report collector port: 5060** / **sip line1 rctp summary report collector port: 5060**

The phones must be restarted after the configuration changes are applied. For more information on configuring and provisioning your Mitel SIP phones, please refer to the Administrator Guide for your Mitel product.

Configuring SQmediator

Detailed instructions for installing and configuring SQmediator are provided in the Installation Guide provided with the SQmediator software installation package. The basic steps are as follows:

1. Install a database (Oracle 11g/12c or PostgreSQL 9.6-10.x) to be used by SQmediator.

2. Install the SQmediator Collector and configure it using the menu-driven Collector configuration tool.

3. Install the SQmediator Reporter and configure it using the menu-driven Reporter configuration tool.

4. Start the Collector and Reporter, log into the Reporter using a web browser, and enter the Telchemy-issued license key to activate the platform.

References

- *Mitel 6800i Series SIP Phones Release 4.1.0 Administrator Guide*
- *SQmediator Installation Guide*
- RFC 6035: Session Initiation Protocol Event Package for Voice Quality Reporting
- RFC 3611: RTP Control Protocol Extended Reports (RTCP XR)
- RFC 3903: Session Initiation Protocol (SIP) Extension for Event State Publication

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