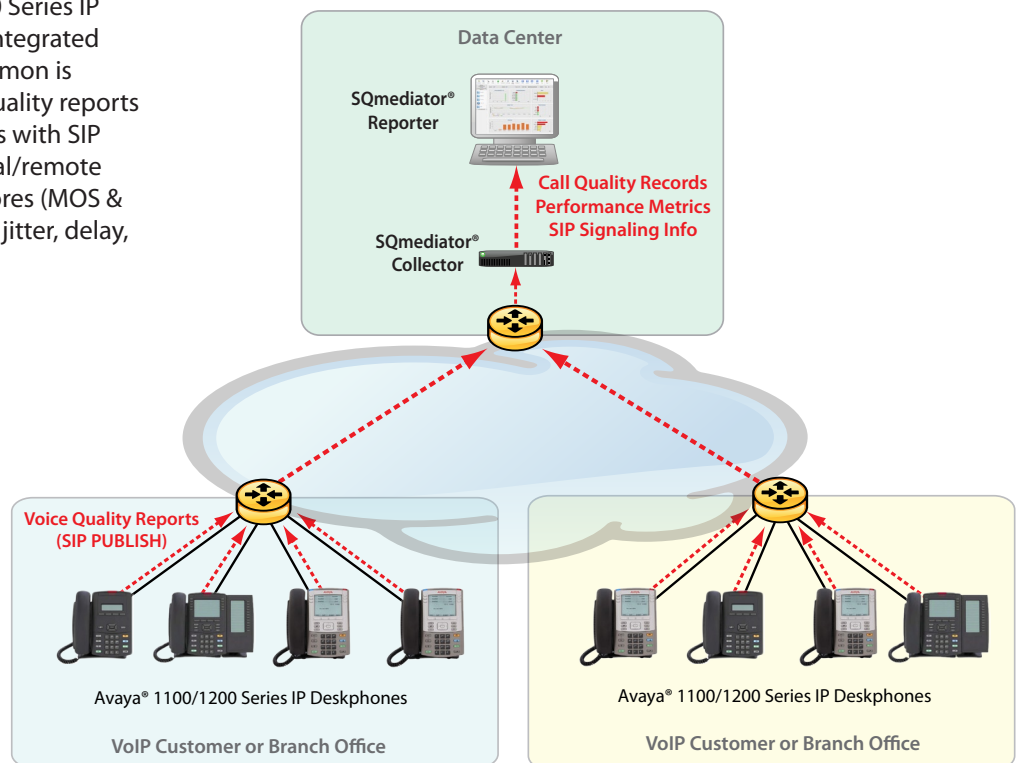# Using SQmediator® with Avaya® IP Deskphones

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 select models of Avaya IP Deskphones, providing a real-time view of the quality of every call as experienced by end users.

Avaya (formerly Nortel) 1100 Series and 1200 Series IP Deskphones are equipped with Telchemy's integrated VQmon® reporting agent software. When VQmon is enabled, these phones publish end-of-call quality reports that combine a set of RTCP XR quality metrics with SIP session information including call ID and local/remote IP address. Reported metrics include QoE scores (MOS & R-factors) and measurements of packet loss, jitter, delay, and other key impairment factors.

SQmediator collects, correlates, analyzes, and displays QoE metrics sent by Avaya IP 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 Avaya IP Deskphones used to monitor the performance of IP telephony services.

Example Application of SQmediator and Avaya IP Deskphones 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.

Avaya IP Deskphones - the following Avaya products are currently supported for use with SQmediator:

- Avaya 1100 Series and 1200 Series IP Deskphones with SIP Software Release 4.4

Configuring Avaya IP Deskphones

To operate with SQmediator, Avaya 1100/1200 Series IP Deskphones must be configured to enable VQmon voice quality reporting and to specify the address of the SQmediator Collector server where the reports will be sent. This requires adding or editing a number of parameters in a device configuration file that is typically downloaded to the phones from a provisioning server.

The basic steps are as follows:

1. Enable VQmon voice quality reports with the configuration parameter **VQMON_PUBLISH YES**
2. Specify the address of the SQmediator Collector with the parameter **VQMON_PUBLISH_IP [*xxx.xxx.xxx.xxx*]**

This provides the minimum configuration required to enable the phones to send a quality report at the end of each call. Optionally, a number of additional parameters may be configured, in order to:

- Enable alert reporting for one or more metrics (Listening Quality R-factor, packet loss, jitter and delay) and to define "Warning" and "Exception" thresholds for each metric
- Enable periodic reports (aka "session reports") to be sent during calls and define the reporting interval (default 60 seconds, up to a maximum of 10 minutes)

Alerts and session reports are disabled by default. For detailed information on these and other configuration parameters, please refer to the Administration Guide for your Avaya product model.

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-provided license key to activate the platform.

References

- *SIP Software for Avaya 1100 Series IP Deskphones-Administration,* Release 4.4, July 2015
- *SIP Software for Avaya 1200 Series IP Deskphones-Administration,* Release 4.4, July 2015
- *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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