

DATASHEET

Hammer XMS Active

Innovation Leadership in Active Monitoring for Next-Generation Carrier Class Networks

FEATURES

- PESQ (ITU-T P.862) algorithm to measure voice quality for both TDM and IP calls
- Simulate calls between endpoints using multiple IP or TDM protocols and codecs
- Simple setup for point-to-point, hub and spoke, and mesh tests
- Loopback testing using either NCS or SIP
- Single-ended, outbound or inbound tests between probe and customer premise (voice, fax, or ping)
- Integrates with Hammer XMS passive monitoring for multi-dimensional view of VoIP service quality and customer Quality of Experience
- Emulate ISDN PRI and analog end-points from single TDM probe
- Testing for complex features (e.g. call forwarding, three-way calling)
- Fax quality testing for TDM and IP (T.38)

BENEFITS

- Gain insight into network and end-user service quality
- Pre-service qualification testing to minimize potential service issues
- One standard set of quality metrics regardless of endpoint type being simulated
- Simplified operational processes using common GUI to see results of both "active" and "passive" monitoring
- Accurately represent how customers make and receive calls, across multiple protocol and codec types
- Benchmarks for network and application performance against known stimulus
- Web-based applications for ease of configuration, scheduling and management
- Ability to test infrequently used infrastructure or service features

You need to know how well your VoIP network handles traffic and be assured you can deliver service quality for both basic and advanced services.

One method to gain this knowledge is to "actively" monitor voice service quality of simulated calls from IP and/or TDM endpoints.

Active monitoring involves sending a known test signal through a live network and comparing the output signal with the original signal. Analysis of the results of the comparison provides signaling and media metrics that can be used for pre-deployment testing, establishing baseline QoS measurements, measuring the relative health of the network, post-deployment troubleshooting, and Service Level Agreement (SLA) verification.

In today's competitive environment, a VoIP/IMS monitoring solution needs to go beyond measuring signaling and media connectivity, it must also measure the quality of advanced voice services.

VoIP service providers offer advanced features such as three-way calling in their basic service bundles. They began this as a competitive differentiator; however over time advanced features became part of every service bundle. The implication for a VoIP/IMS monitoring solution is that emulating advanced services is critical to successful VoIP service acceptance.

Hammer XMS Active provides active monitoring for basic voice, advanced voice, and fax services. Hammer XMS Active is an integrated complement to Empirix's Hammer XMS, its award-winning passive monitoring solution. With both active and passive monitoring, Empirix offers VoIP service providers multi-dimensional insight into customer Quality of Experience.

Hammer XMS Active has two components: Active probes to emulate IP and TDM voice and fax endpoints; and an Operations Server for applications, such as probe management, scheduling tests, diagnostics, reporting and system administration.

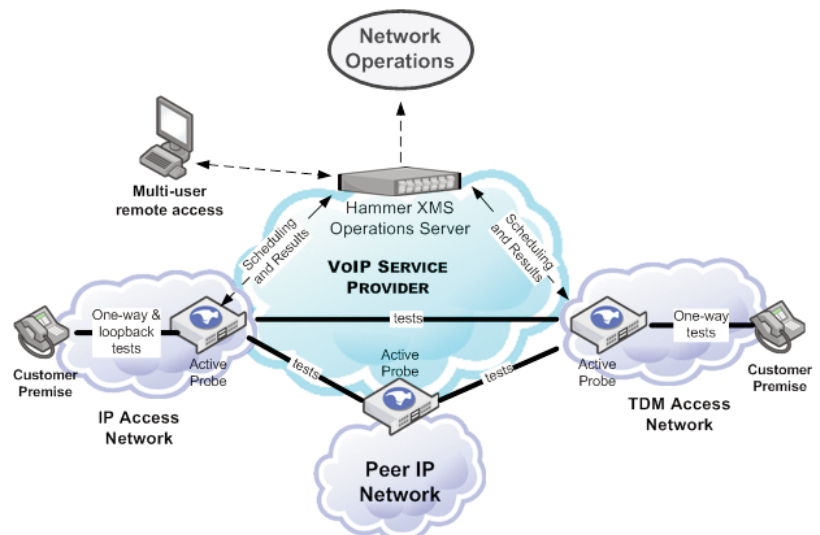


Figure 1. Hammer XMS Active Monitoring Architecture



HAMMER XMS ACTIVE

Both active and passive monitoring can be integrated into a single Hammer XMS Operations Server, simplifying all operational processes using a common GUI to access the service quality measurements of both simulated and actual customer traffic.

Hammer XMS Active probes may be deployed centrally or at the edge of a service provider's network, as shown in Figure 1. This may be in a Point-of-Presence (POP) for connectivity to peer IP/TDM networks or in a traditional Central Office or MSO's Hub for access networks. Calls are simulated between probes, from a probe to an endpoint in loopback mode, or single-ended outbound/inbound tests made to/from customer premise equipment for voice, fax, or ping tests. Voice quality for tests between probes or in loopback mode is analyzed using PESQ (perceptual evaluation of speech quality), which as stated in the ITU-T P.862 specification, is a generally accepted technology for "end-to-end speech quality assessment of narrow-band telephone networks and speech codecs."

Up to 100 endpoints per probe and up to 50 probes per Hammer XMS can be configured. Hammer XMS Active also scales in its reach as part of Hammer XMS Network Wide View application. Therefore, test calls can be made between probes on separate Hammer XMS systems and yet have tests and the results managed by a single Operations Server. Yet as Hammer XMS Active scales it remains easy to provision and configure with a flexible scheduling tool for setting up test parameters, test types, and test result thresholds. Probe availability is simple to monitor and see the real-time status of all probes and tests.

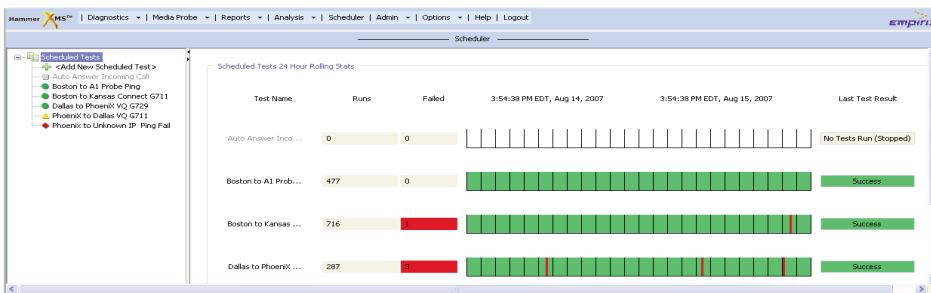


Figure 2. Hammer XMS Active Test Result Status

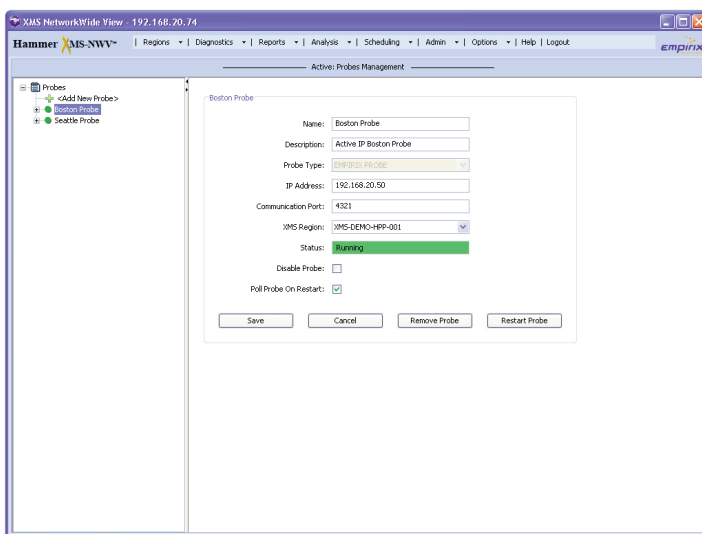


Figure 3. Hammer XMS Active Probe Configuration

Specifications

Protocols and Protocol Layers

- SIP (RFC 3261), H.323 (ITU H.323, H.450, H.225), NCS (PKT-SP-NCS 1.5-101-050128), Cisco SCCP (Skinny) using Call Manager 4.1.3 SR 1, NCS loopback; SIP loopback
- IP v4 and IPv6 (RFC 0791, 2460), UDP (RFC 0768), TCP (RFC 0793), RTP (RFC 3550)
- ISDN Primary Rate Interface (ITU Q.921, Q.931)
- 2-wire Analog loop start

Codecs

- G.711 a-law, mu-law
- G.723.1
- G.726
- G.729 a/b

Probe Interfaces

- 10/100/1000 Base-T Ethernet RJ45 ports
- Four-port T1/E1
- Eight-port 2-wire analog (loop start)
- 24-port 2-wire analog (loop start)

Probe Configuration and Density

- IP only
 - (2) Fast Ethernet ports
- TDM only
 - One Fast Ethernet port (for management)
 - One four-span T1/E1 line cards (software configurable)
 - Up to (96) ninety-six analog ports

Network Management Systems Interface

- SNMP defined MIBS or CSV (files or streams)

User Access to Operations Server

- Web-based GUI; HTTP; HTTPS
- Java Runtime Environment v1.5 update 12
- Internet Browsers: Microsoft Internet Explorer 6.0 or later; Mozilla Suite 1.6, 1.7; Mozilla Firefox 1.0 or later; Netscape 7.1

Physical Dimensions

- Hammer XMS Active Probe – IP
 - 1U: Dimensions 1.7"(H) x 19"(W) x 20"(D); Has mounting ears to fit in 19" (W) rack.
- Hammer XMS Active Probe – TDM
 - 4U: Dimensions 6.8"(H) x 17"(W) x 20"(D); Has mounting ears to fit in 19" (W) rack.
- Operations Server
 - 2U: Dimensions 3.5"(H) x 19"(W) x 25.5"(D); Has mounting ears to fit in 19" (W) rack.



www.empirix.com

Empirix is the leading provider of voice application testing and monitoring solutions. For a complete list of offices worldwide, or to find an authorized distributor in your area, please visit www.empirix.com/contactus.

© 2008 Empirix. All rights reserved. All descriptions, specifications and prices are intended for general information only and are subject to change without notice. Some mentioned features are optional. All names, products, services, trademarks are used for identification purposes only and are the property of their respective organizations.