empirix
When Quality Matters™

Hammer XMS™

Datasheet

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

Our award-winning, carrier-class Hammer XMS™ provides the truest assessment of network behavior and the detailed insight service providers require to deliver the Quality of Service their end users demand. Hammer XMS integrates diagnostic, analytic and reporting capabilities for signaling and media quality—making Network Engineering, Operations, and Customer Care organizations more efficient. With Hammer XMS, service providers have the confidence to deploy new services faster, with higher quality, and at a lower cost.

Carrier-Class Design

Hammer XMS economically scales from small configurations up to multi-regional tier 1 carriers. In addition, Hammer XMS captures and correlates signaling and media quality on every call—24x7. Carrier class scalability is achieved through the unique architectural design that provides significant processing power at each Hammer XMS Probe. By concentrating processing where the traffic is captured, Hammer XMS only needs to forward compressed, real-time call and media data records for application processing and storage.

Hammer XMS provides on-demand access to call details required for complex correlation, diagnostics, analysis, and reporting. However, it avoids the need to bring all data back to a central location, thereby eliminating heavy LAN loads and potential bottlenecks. Hammer XMS offers the architectural flexibility to meet the monitoring requirements of service providers ranging from those with a single site to monitor, to those with a multi-regional or global network.

HammerXMS/S7 offers the same flexibility to monitor core SS7/C7 networks including both TDM links and IP (SIGTRAN) associations. Please refer to the Hammer XMS/S7 datasheet for additional product details.

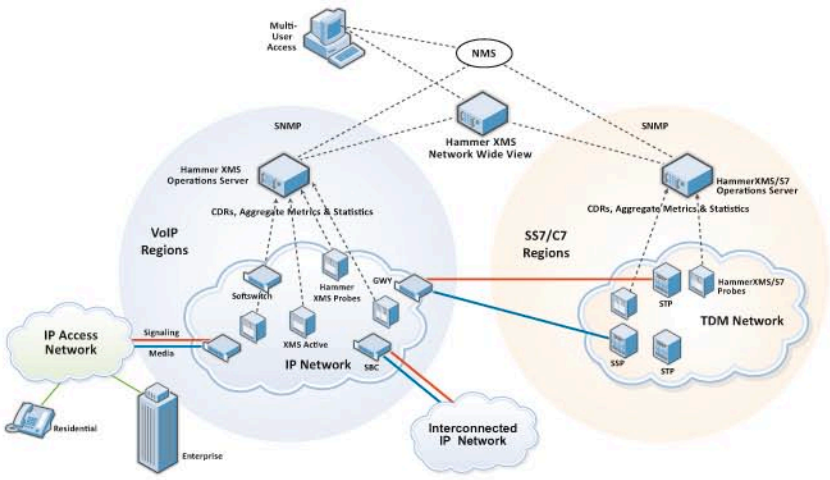

Figure 1: Hammer XMS carrier-class architecture.

FEATURES

Carrier Class

Monitoring all calls, 24 x 7, for VoIP and TDM signaling and VoIP (RTP) media

Scalability using distributed high performance probes and centralized data management system

Patent-pending Gigabit wirerate processing for IP packet filtering

Open architecture with SNMP MIBs defined to interface with existing network management systems

Innovative Diagnostics and Analysis

Correlation of multiple call legs for both VoIP and TDM protocols

Drill down from high level call analysis to individual call protocol message decodes

Signaling metrics for call timers, endpoint identification, call duration and failure reasons

Media metrics by endpoint for R-factor and MOS quality scores, jitter, and packet measurements such as loss, out-of-sequence, loss rate

Integrated support for real-time, on-demand, session-based, packet capture and analysis

Enhanced Usability

Web-based GUI for intuitive searching and analytics

Customizable call detail display to maximize user efficiency

Integrated display of signaling and media details Optional, simplified user interface specifically designed for first-level Customer Support Representatives

Reporting

Off-the-shelf reports for Key. Performance Indicators and metrics in .pdf or .csv format

Enhanced reporting capability giving customers web-based access to their own service metrics

Data export to support long-term data storage and analysis

Monitoring both signaling and media quality

A Hammer XMS Probe is configurable with patent-pending Ethernet or TDM interfaces to capture VoIP or SS7/ISDN signaling and media (RTP) packets. Hammer XMS is the first solution capable of handling all media streams "on the wire." For each identified RTP stream, Hammer XMS directly measures the packet behavior of the stream and calculates voice metrics, including R-factor and MOS, using industry standard algorithms. Hammer XMS excels at complex call correlation across multiple protocols in real-time. This attribute is even more significant in an IMS-enabled network where it is possible to see a large number of signaling messages for each and every call.

Signaling and media for every call is correlated into a single call record. Aggregate metrics, statistics, and correlated call data are securely accessed through an intuitive web-based GUI for diagnostics, analysis and reporting. Extensive search and diagnostic tools enable a full range of signaling and media analysis, such as message decodes per call or session quality, network-wide call trace, and service performance quality metrics. Hammer XMS incorporates an integrated Packet Analysis (XPA) to provide real-time, on-demand, capture and analysis of both call and non-call related signaling and media packets. Standard reports can be generated for aggregate real-time metrics or use customizable "views" of data, based upon the ability to segregate report data by customer-specific attributes.

Alarm thresholds for signaling and media metrics can be forwarded to Network Management systems through standard SNMP MIBs, while correlated call data can be exported for post processing, such as network optimization analysis.

Hammer XMS Product Specifications

Protocols and Protocol Layers

SIP, H.323, MGCP, NCS, ASPEN, H.248/Megaco (trunking gateway application), SIP-T, SIGTRAN (SCTP, M2PA, M2UA, M3UA, SUA, IUA), COPS, MCS and Diameter Plus (Sonus), Diameter, IPSec, BT-IUP, DNS/ENUM

IP, UDP/TCP, SCTP, RTP (IPv4 and IPv6)

ISUP, TCAP (ITU Q.773; ANSI T1.114, JNTT), ISDN (Q.931), INAP, AIN parameters

Hammer XMS Probe Interfaces

Ethernet Modules for wire rate packet processing
– 4 port 10/100 Base-T Fast Ethernet RJ45 copper
– 2 port Gigabit Ethernet SC multimode or, LX singlemode optical; 1000BASE-T copper
– 10 port Gigabit Ethernet SC multimode or, LX singlemode optical; 1000BASE-T copper
– 1 and 2 port 10 Gigabit Ethernet SC multimode or LX single mode optical

TDM Interface Modules for SS7 or ISDN
– 16 port T1/E1/J1
– 4 port OC-3/STM-1

(2) Fixed port 10/100 Base-T Fast Ethernet RJ45 for communication between Probes and Operation Server for remote management

Probe Configuration Options

Signaling only; Signaling and media; Media only

All-in-one integrating probe and centralized server

Network Management Systems Interface

SNMP defined MIBS or CSV (files or streams)

User Access

Web-based GUI; HTTP; HTTPS

Internet Browsers: Microsoft Internet Explorer 6.x; Mozilla Suite 1.6, 1.7; Mozilla Firefox 1.x; Netscape 7.1

Java Runtime Environment v1.5 update 12

Security

Optional browser access using SSL (HTTPS) with self-signed digital certificate; support for LDAP integration

Supported Codecs

G.711, G.729a/b, G.723, G.726, ILBC, AMR, EVRC

Physical Dimensions

All Servers, regardless of application 2U: Dimensions 17"(W) x 20"(D) x 6.8"(H)

Hammer XMS Probe 5U: Dimensions 8.75"(H) x 17.25"(W) x 20"(D); Weight: 45 lbs (20.41 kg)

Average Power Draw and Heat Output

AC: 100 to 240 VAC; 8A, 50 – 60 Hz, 500W

DC: -48 VDC; 10A, 500W

Heat Output (BTU/Hour): 1707 (Max)

Environmental Requirements

Relative Humidity:
– Operating (system): 5% to 80%,non-condensing
– Non-Operating/Storage (system): 5% to 90%, non-condensing

Storage Temperature: –40°C to +60°C

Ambient Operating Temperature: +5°C to +40°C

Cooling: Self-contained fan cooling

Product Safety / EMI/ EMC

FCC Part 15 Class A and ICES-003 Verification: Included concurrently with EN55022.

UL60950 & cUL CSA 22.2 #60950 Pretest, test, and listing with CSA International

For 89/336/EEC EMC Directive Testing applicable standards include:
– EN55022: Radiated and conducted emissions and EN300 386-2: Telecommunication Network Equipment EMC Requirements
– CB scheme test and test certificate for all applicable CB scheme country deviations
– GR-1089 (NEBS Level 3) and GR-63 (NEBS Level 3) certification

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