

## Hammer NXT IP

High Density IP Performance Test Platform from the Leader in IMS and NGN VoIP Test Solutions

### FEATURES

- High density path confirmation and voice prompt testing of VoIP applications including IP ➔ IP, IP ➔ TDM, and TDM ➔ IP
- End-to-end and device testing for trunking and access gateways, softswitches, firewalls, bandwidth managers, border controllers, carrier-grade IVR systems, and large-scale IP-PBXs
- Verify VoIP application performance with detailed call measurements including call rates, call capacity, call errors, and end-to-end call routing verification
- Failover testing - ensure backup circuits engage seamlessly when a primary circuit goes down
- High-density tone and voice testing with full loading on system under test
- VQ and QoS testing when confronted with real-world network impairments
- Network level performance testing
- Verify media and call server features with tone and voice prompt detection and recognition under high load conditions
- Support for Clear Channel, H.323, MGCP, and SIP protocols, over UDP, TCP, TLS, IPv4, and IPv6
- Support for G.711, G.723, G.726, G.729, GSM-AMR, GSM-EFR, GSM-FR, EVRC and user defined codes
- Support for silence detection

### BENEFITS

- By testing IP signaling and/or media support in IP telephony network elements and networks
- Generate background load to ensure that feature testing is done under real-world conditions
- Confirm that IP component capacity and performance goals are achieved
- Generate calls at a cost that is an order of magnitude less than traditional TDM or heavily DSP-based solutions
- Filter based metrics allow users to focus on the "bad" calls, saving time spent looking at thousands of call reports
- Easily expandable and modular, and fully integrated with Hammer NXT TDM and other Hammer products



### Overview

The Hammer NXT IP redefines the IP telephony test playing field by delivering the most truly integrated, extensible IP test platform. The Hammer NXT IP platform combines carrier class volumes of IP signaling and bearer traffic with comprehensive test capabilities and detailed analysis. Its unique server-based, modular, and scalable architecture allows systems to be configured with flexible mixes of IP media and signaling to suit the needs of specific applications. Additional call capacity and media servers can easily be added to further leverage the Hammer NXT IP investment. Network edge devices, such as media gateways and border controllers can be isolated and tested for a fraction of the cost of actual network components or point test solutions. With its ability to generate more than 150,000 simultaneous calls with media, the Hammer NXT IP is truly the price/performance leader in convergence testing.

### Solves Your VoIP Applications Test Problems

#### Integrated, Comprehensive Test Capabilities

- Carrier calls IP stimulus and response with media path confirmation on all channels for IPv4 and IPv6
- Intelligent scale, performance, and feature/load interaction test capabilities
- Voice Quality (VQ) and Quality of Service (QoS) metric with tone, DTMF, and voice prompt testing across any VoIP component
- Advanced diagnostic capabilities help debug errors and provide insight into network conditions at time of failure
- Individual call visibility and control

#### Extensible, Economical Test Platform Solution

- Server-based, modular architecture eases expansion for add-on capacity or functionality
- Leverage and build-on purchased assets
- Common software architecture for integrated test development, monitoring, and reporting
- Fully compatible with all test systems equipped with the HammerTestBuilder User Interface
- Fully compliant with the Hammer MegaController, the centralized test management system that provides common visibility and control for multiple Hammer chassis and servers



Hammer NXT-IP System



Hammer NXT-Blade System

## Hammer NXT IP Features

### Flexible Test Platform and Architecture

- Small footprint minimizes lab space requirements and eases installation
- Embedded Dual XEON Dual-Core processor for system control and high performance
- Server-based, modular, and scalable architecture for easy configuration and expansion
- Multiple IP tests can be scheduled and run simultaneously, and with TDM

### Test Capabilities

- IP Media
  - Sixteen 10/100 Ethernet ports per server
  - User selectable media and compressions including: G.711 A/u law, G.723.1, G.726, G.729A, GSM-AMR, GSM-EFR, GSM-FR, EVRC, plus user-defined codecs
  - 24,000 unique IP and MAC addresses, and 4094 VLAN IDs
  - 24,000 calls (bi-directional streams) of real RTP media per server, transported over IPv4 and IPv6
  - Real media using voice prompts, tones, and DTMF (in-band, RFC2833)
  - RFC3389, G.723.1A, and G.729B silence suppression
  - Voice Quality measurement using E-model, producing an R-factor which is converted to MOS using any of 5 scales; Absolute Category Rating (ACR), G.107 as defined in
  - ITU G.107, PESQ as defined in ITU P.862, Japanese TTC, Wideband telephony

### Scalable and Easy-to-Use Graphical Test Environment

- Powerful and intuitive TestBuilder test development environment enables quick and easy testing
- Scalable to 48,000 endpoints with one NXT IP system controlling another
- Utilizing the Hammer Mega-Controller, >150,000 simultaneous calls can be centrally controlled from a single user interface for scheduling, monitoring, and reporting
  - The Hammer Mega-Controller can also control any other Hammer Test System

### Call Profiler Traffic Patterns

- Saw Tooth, Blast, Ramp, Steady Call Rate, Rolling Blast, and Poisson Distribution

### Real-Time Test Monitoring

- Monitor activity on all channels simultaneously or drill down to view detailed activity on a single channel

### Comprehensive, Flexible Report Set

- Pre-defined test reports for simplified test analysis
- High-level summaries and granular channel-by-channel reporting
- Complete error report for easy diagnosis

### Value-Added Options

- Hammer's industry-leading NXT TDM system for origination, termination, and analysis of TDM signaling and traffic

### Physical Specifications

- 19" rack mounted server, 3.5"(87.5mm) H x 16.9" (430mm) W x 26.5" (672mm) D
- 19" rack mounted blade server, 12.1"(30.7mm) H x 17.6" (446mm) W x 28.9" (735mm) D

- Wide range of traffic types and signaling protocols
- Flexible command line interface supports lab automation requirements
- Supports media verification on all IP channels simultaneously
- Supports over 2 million phone book entries, with sequential or random selection

- IP Signaling
  - Three 10/100 Ethernet ports per server
  - H.323, MGCP, and SIP, transported over UDP, TCP, IPv4, and IPv6
  - 24,000 simultaneous endpoints per server, including unique up to 24,000 unique IP and MAC addresses
  - Full flexible, customizable signaling state machine, messages, and parameters
  - Fully customizable media or session description profiles (SDP)
  - Adjustable grouping of endpoints (1 to 24,000), with each group able to run its own protocol and state machine

- Streamlined configuration and connectivity utility minimizes time to test
  - Three 10/100 Ethernet ports per server
  - H.323, MGCP, and SIP, transported over UDP, TCP, IPv4, and IPv6
  - 24,000 simultaneous endpoints per server, including unique up to 24,000 unique IP and MAC addresses

- Dynamic Call Rate

- Real-time monitoring of run time statistics
- Dual screen endpoint monitoring

- Isolate and view results from specific time periods
- Graphical summary reports

- Hammer Mega-Controller for common control of multiple Hammer chassis and servers

- AC powered: 90 to 264VAC, 47 to 63Hz, 9.0 to 4.5A
- AC powered: 200 to 240VAC, 47 to 63Hz, 13.1 to 11.0A



[www.empirix.com](http://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](http://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.

LB-DS:HNI-0708