

Softwell Performance and IBM BladeCenter – IMS performance testing for Service Providers



Highlights

- ***Softwell Performance delivers IMS performance testing to help telecommunication service providers and network equipment providers deliver high-availability applications and services on next-generation networks***
- ***IBM BladeCenter family provides a scalable, open standards based platform for next generation network applications***

With the ever increasing adoption of converged IP-based, next generation network (NGN), telecommunications service providers and network equipment providers are seeking new tools to perform integration validation and performance testing of these new IP-based applications.

Many of these new services are being developed and deployed on an IP Multimedia Subsystem (IMS) architecture. This emerging network architecture extends Internet services to 3G cellular terminals based on open, Internet protocol standards such as SIP, SDP, HTTP/XCAP, DIAMETER, RTP, RTCP, and other. The architecture was initiated by ETSI (European Telecommunications Standards Institute) and implemented by 3GPP (3rd Generation Partnership Project). IMS is designed to meet service provider requirements and provides Call Services, Instant Messaging

services, as well as a variety of Application Services. Some key characteristics of the IMS architecture are:

- *Multimedia Sessions*
- *Rapid and simple deployment of Application Services*
- *Quality of Service negotiation*
- *Strong control of Security and Media*
- *Interworking with circuit-switched networks (PSTN)*

The challenge of IMS

The move to IMS will be directly related to service provider and end-user experienced performance.

Expected increases in traffic rates in combination with complexity and bandwidth requirements of new multimedia services are some reasons for the focus on the performance issues. Services should also be provided reliably, with maintained or improved responsiveness. Typical IMS availability requirements are “five nines” or 99.999% availability, which corresponds to less than ten rejected service requests per million or less than 315 seconds of unplanned system downtime per year. Three classes of performance are particularly critical – Powerfulness, Reliability, and Efficiency.

“IBM’s powerful BladeCenter platform together with the MBC performance test tool, sets a new standard for testing reliability, efficiency, and powerfulness of IMS / NGN telecom products. The IBM BladeCenter platform protects the investment in MBC for the whole IMS/NGN product life cycle and beyond. The BladeCenter platform also enables integration of MBC in production environment for monitoring.”

— Michael Mild
CEO
SoftWell Performance AB

The following performance aspects are examples of Powerfulness, Reliability, and Efficiency:

- *Capacity: Does the IMS system handle anticipated traffic volumes?*
- *Speed: Does the IMS system respond fast enough to service requests?*
- *Scalability: Can the IMS system be expanded to meet future increases in traffic volumes?*
- *Stability: Are performance figures constant over time?*
- *Availability: Are services delivered continuously?*
- *Robustness: Can the IMS system handle overload situations and partial outages?*
- *Recovery: Does the IMS system resume full service levels fast enough after an outage?*
- *Correctness: Are requests correctly processed even under heavy load and tough situations?*
- *Resource usage: What is the required amount of resources to produce a service?*
- *Resource linearity: Is the amount of resources to produce a service independent of load level?*
- *Resource balance: Is the hardware and software correctly configured to meet processing requirements?*
- *Resource utilization: What is the resource usage level?*

A service’s performance characteristics require careful product development consideration and performance measurements must be done - during all stages from design and early development stages through to production.

How to measure IMS performance?

Softwell Performance developed Mobile Benchmark Center (MBC) as a high-end performance measurement tool specifically designed for IMS environments. MBC has been developed in close cooperation with leading IMS vendors. With MBC, performance measurements can be applied on all signaling protocols of IMS concurrently.

Unlike traditional performance test tools MBC provides performance figures captured both outside the tested system in the load generators and inside the tested system in downloaded probes (efficiency figures). All captured performance figures, efficiency and other, can be monitored on-line in automatically updated graphs during test execution. Efficiency performance measurements reduce development time and accelerated time-to-market for high quality products.

MBC provides maximum flexibility and applicability to any performance measurement requirements through a set of configuration scripts such as load scenario, user scenario, transaction formats, protocol application rules etc.

MBC's web browser based GUI provides an interface, independent of a user's local environment. MBC can also be remotely controlled through a traditional CLI.

MBC is extremely scalable to match IMS performance measurements:

- *With traffic rates from a few transactions per second up to many thousands per second*
- *With traffic from of a few hundred up to millions of concurrently simulated users*
- *From tests of a single protocol to tests of complex mixes of concurrent protocols*
- *From test of a single IMS component to tests of entire IMS systems*

SIP performance throughput

Recent tests on an IBM BladeCenter using HS21 blades with two Intel Xeon Quad Core CPUs, MBC delivered a constant load of 8000 SIP Calls (set-up and tear-down) per second during 12 hours, from 800,000 concurrently simulated users, per HS21 blade.

The IBM BladeCenter solution also provides a high availability platform well suited for Carrier-Grade performance measurements, or continuous monitoring of service production with MBC. The IBM BladeCenter solution provides scalability and flexibility to meet and fast changing test site requirements combined with easy test site management.

With MBC's powerful software and IBM's BladeCenter systems, advanced performance test beds can be deployed at lower initial costs and expanded as new needs arise.

IBM BladeCenter family — the IT and network convergence platform

The IBM BladeCenter T chassis provides hardware redundancy (power supply, I/O modules, management modules, L2 switching, mid-plane, etc.) thereby reducing potential points of failure in the solution.

The IBM BladeCenter is an advanced blade system which integrates servers, storage and networking into a single chassis — yielding significant simplification, improved density and potential TCO savings . A single family of common server blades, storage, I/O, switches and networking modules are fully supported and interchangeable across the family of BladeCenter chassis. The IBM BladeCenter chassis is designed as the ideal solution for data center deployments. The IBM BladeCenter H is for high performance computing platform, while the IBM BladeCenter T chassis is specifically designed for telecom central office deployments.

The new, IBM BladeCenter HT — a new, telecom optimized version of the BladeCenter H — opens new market opportunities with a new and powerful NGN platform ideally suited for telecom equipment and service providers.



The IBM BladeCenter T and BladeCenter HT deliver rich telecommunications features and functionality, including fault-tolerant capabilities, hot-swappable redundant DC or AC power supplies and cooling, and built-in systems management resources in a 20" deep chassis. The rigorous Network Equipment Building System (NEBS) Level 3 and European Telecommunications Standard Institute (ETSI) outline requirements typical of telecom central office environments in the areas of electromagnetic compatibility, thermal robustness, fire resistance, earthquake and office vibration resistance, transportation and handling durability, acoustics and illumination, and airborne contaminant resistance. The IBM BladeCenter T and BladeCenter HT chassis meet the NEBS Level 3 / ETSI requirements¹.

**Softwell Performance and IBM:
a powerful combination**

The combination of Softwell Performance and the IBM BladeCenter family delivers the performance, reliability and affordability demanded by mission critical telecommunications applications. The IBM BladeCenter is the ideal platform for the deployment of these services providing a single platform to help reduce operating costs and complexity.

For more information

Learn how IBM Systems can help your company achieve more revenue and reduce your costs, while helping you keep your profitable customers.

Have questions? Contact the IBM Telecommunications team today on how we can help you take advantage of our extensive industry expertise. Please visit us on the web at:

ibm.com/telecom/systems

For more information about Softwell Performance, visit:

softwell.se

© Copyright IBM Corporation 2008

IBM Systems and Technology Group
Department XVXA
3039 Cornwallis Road
Research Triangle Park, NC
U.S.A., 27709

July 2008
All Rights Reserved.

BladeCenter, IBM, and the IBM logo are trademarks of International Business Machines Corporation in the United States, other countries or both.

Intel and Xeon are trademarks of Intel Corporation in the United States, other countries or both.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Other company product and service names may be trademarks or service marks of others.

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203.

The information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

[1] For additional details, please refer to Underwriter's Laboratory (UL) certified NEBS Level 3 / ETSI test report.

♻️ Printed in the United States of America on recycled paper containing 10% recovered post-consumer fiber.