

**GTUG**

# **NonStop Software Update and Roadmap**

**The platform for continuous business**

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**September 2012**



# Forward-looking statements

This is a rolling (up to three year) Roadmap and is subject to change without notice.

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# Today's Agenda

## The Role of NonStop Software Software Product Updates

NonStop OS

Security

Manageability

Database and Transaction Software

Development Environment

Middleware



# Business demands change, but the value of NonStop is timeless.

## Financial Services

Processing 68 million credit card accounts and over 10 billion transactions annually

Source: HP internal sales data, 2012



## Manufacturing and Distribution

Powering mission-critical applications at 100% of the top 10 global manufacturers

Source: HP internal sales data, 2012



## Communications, Media, and Entertainment

Supporting over 375M subscribers in advanced Telco network applications

Source: Infonetics Service Providers Report, 2011 and TRAI Report, 2012



## Public Sector and Healthcare

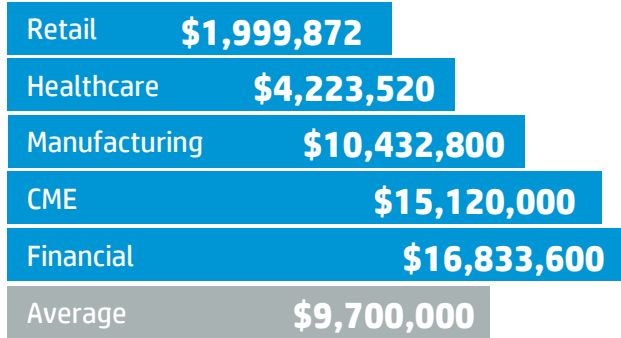
Supporting one of the world's top medical institutions

Source: HP internal sales data, 2012



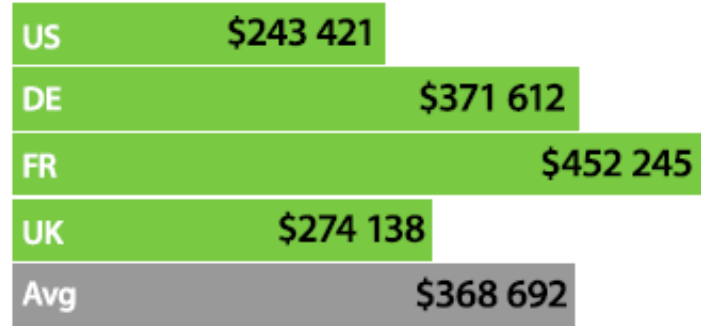
# The costs of downtime are real

Average business revenue lost per hour of downtime (US\$)



Source: © 2009 HP internal testing and development over two-year period and other competitive materials, including IDC "Cost of Downtime Tool" developed for HP

Cost Per Hour of Critical Server Outage  
(In organizations that do not use replication), USD



Source: Virtualization Data Protection  
2011 ANNUAL REPORT Survey of 500 Enterprises

**The NonStop value proposition is more relevant today than ever... and the power of NonStop comes from our software**



# HP NonStop – Mission-Critical out of the box

**HP NonStop is at the top of HP's push to meet Mission-Critical customer needs.**

**Designed specifically for the very highest availability level.**

**Absolutely, positively, 100% available; Mission critical takes on a whole new meaning.**

## Availability

Level	IDC Definition
AL 4	<ul style="list-style-type: none"><li>• Transparent to user</li><li>• No interruption of work</li><li>• No transactions lost</li><li>• No degradation in performance</li></ul>
AL 3	<ul style="list-style-type: none"><li>• Stays online</li><li>• Current transaction may need restarting</li><li>• May experience performance degradation</li></ul>
AL 2	<ul style="list-style-type: none"><li>• User interrupted, but can quickly re-log on</li><li>• May need to rerun some transactions from journal file</li><li>• May experience performance degradation</li></ul>
AL 1	<ul style="list-style-type: none"><li>• Work stops</li><li>• Uncontrolled shutdown</li></ul>

**HP Integrity NonStop Servers**

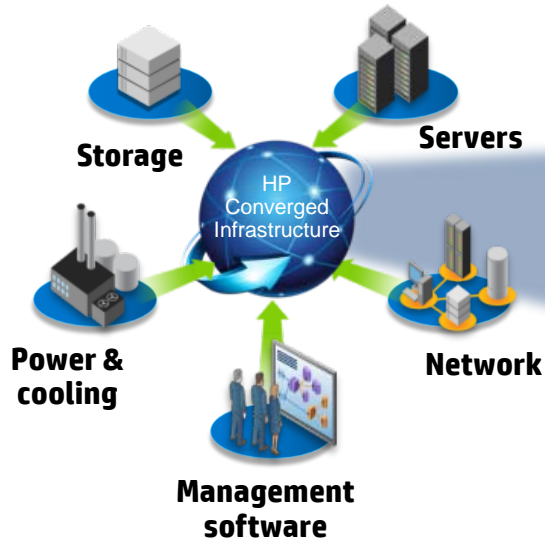
“The market has inflated the term ‘mission critical’. At the highest level, it means more than a major inconvenience. It can mean business failure.”

“AL4 defines fully fault-tolerant servers, in which redundancy of components, combined with special software, ensures that processing will continue, even if there is a failure in a single hardware component in one area of the system.”

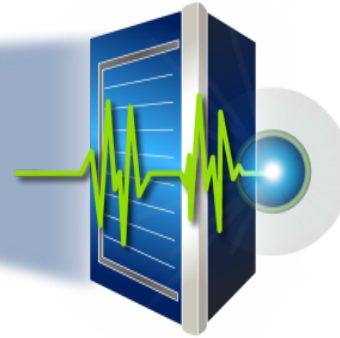
Source: IDC Worldwide and U.S. High-Availability Server, 2011-2015 Forecast and Analysis



# HP Mission Critical Converged Infrastructure



The data center of the future is built on a Converged Infrastructure



Always-on resiliency and flexibility with Mission Critical Converged Infrastructure





# HP Converged Cloud

Hybrid delivery based on common architecture across traditional & all cloud models



## Choice

- **Open**...standards-based across all delivery models
- **Heterogeneous**...hypervisors, development, infrastructure
- **Extensible**...partner ecosystem

## Confidence

- **Security**...across info, apps, infrastructure, delivery models
- **Management** ...end to end
- **Automation**...for cloud based architectures & processes

## Consistency

- **Common architecture**...across all delivery models
- **Portability**...for flexibility & optimization
- **Consumption experience**...one simple model

# NonStop's expanding role in cloud computing



## NonStop Today

**Hosts traditional IT**

**Integrates with hybrid and private clouds  
through service portability  
and management/service interoperability**

## NonStop in the Future

**Directly deployed in HP delivered, hybrid and  
private clouds**

# HP NonStop roadmap

HP NonStop. The platform for continuous business.

2011

2012

Future\*

Continued innovations in the HP mission-critical converged infrastructure

HP Integrity NonStop



**NonStop BladeSystem**  
NB54000c, NB54000c-cg  
(4-core enabled)

**NonStop entry-class rack mount servers**  
NS2200 (2-core enabled)



Artist rendition, not an actual photograph

**NonStop BladeSystem**  
NB54000c, NB54000c-cg  
2 or 4-core licensing



**New NonStop entry-class rack mount server**  
NS2100 (1-core enabled)

NonStop software enhancements

- NS JSP 7.0
- SQL/MX, 3.0, 3.1, 3.2
- 64-bit OSS



**Poulson-based NonStop platforms**



**Kittson-based NonStop platforms**



\* This is a rolling (up to three year) Statement of Direction and is subject to change without notice.



# Software Strategy

- **Maintain our Mission Critical leadership**
  - Highest levels of availability
  - Scaling and flexibility that match your needs
  - Data integrity and security fundamentals you can count on
- **Continue to increase support for open, standard software**
  - Latest technologies to develop your applications
- **Integrate easily into your enterprise**
  - Support for enterprise solutions
  - Choice of many commonly used management frameworks and tools

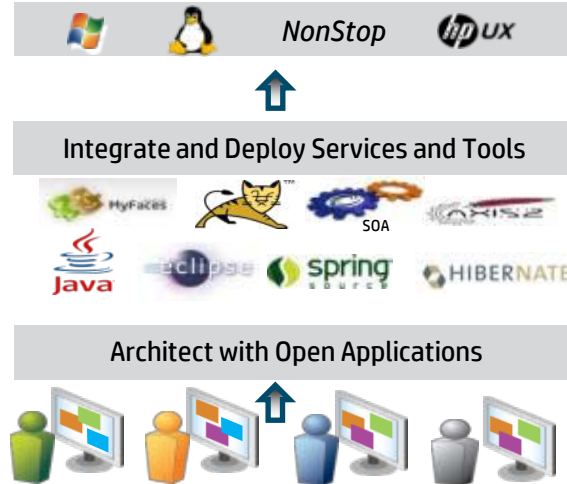


# Execution of NonStop strategy

## Standard hardware



## Modern software



## Simplified integration into the data center

Easier to develop & deploy your apps

Integrate your apps with other apps in the enterprise

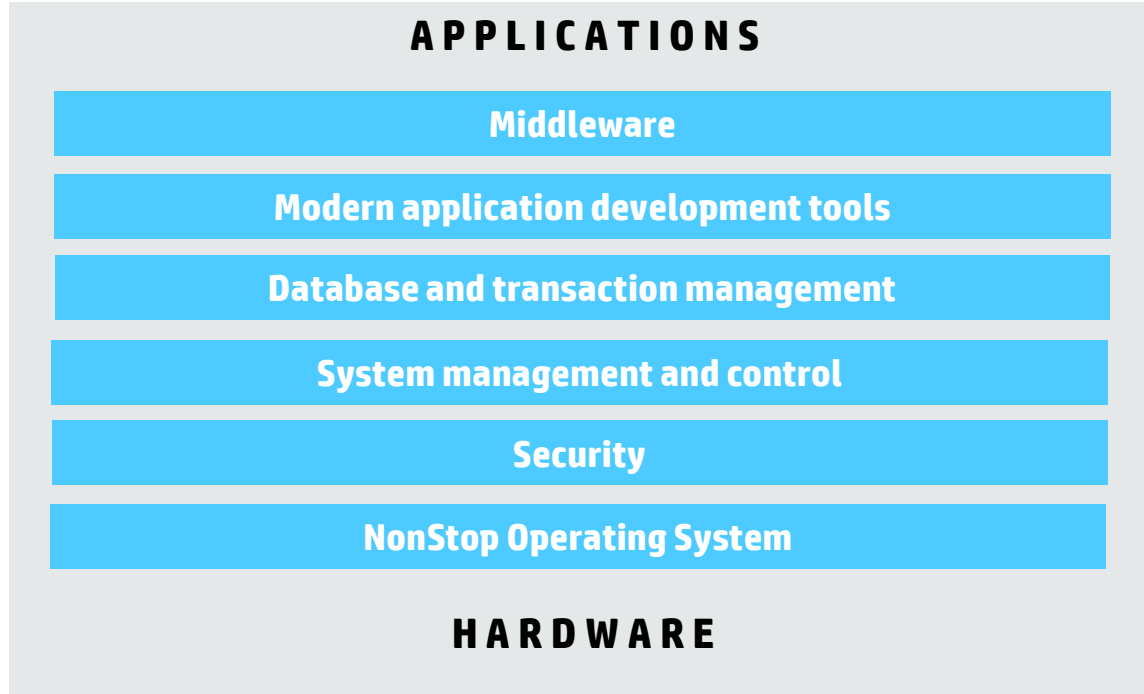
Lower cost of ownership

Ease of use

Part of HP's Mission-Critical Converged Infrastructure

Positioned for converged cloud

# Fully-virtualized integrated stack



## Common standards, uncommon advantages

### Deploy

Fault-tolerant applications and database

### Develop

Modern, state of the art programming methods

### Direct

Integration with HP's Converged Infrastructure Portfolio

### Depend

Unique NonStop fundamentals for availability, integrity and security



# Depend on NonStop fundamentals

**APPLICATIONS**

**NonStop Operating System**

**HARDWARE**

**HP NonStop server's unique fundamentals are enabled by the NonStop Operating System.**

- **High Availability**
- **Fault Tolerance**
- **Scalability**



# RVU software support policy – two RVUs a year

## Active

All customer reported defects are analyzed. Repair action taken as appropriate.

Begins

At FCS

## Mature

Only fixes to new critical problems addressed, usage questions answered, existing fixes and workarounds provided

2 years after FCS

## Limited

Phone support and only existing fixes and workarounds provided

3 years after FCS

## Obsolete

Product has reached end of service life. No support services available for the product. 12 month advance notice provided.

5 years after FCS  
- may vary by product





**Active**  
FCS


**Mature**  
+ 2 years


**Limited**  
+ 3 years

**Obsolete**  
+5 years

 = Active

 = Mature

 = Limited

 = Earliest date for 12 months  
notification of end of all support

[SPML and  
HPML Link](#)





# Latest RVU Feature Summary

## J06.13 / H06.24 Feb 2012

### New Product Support:

- Solid State Disk (SSD) \*\*
- Core Licensing - NB54000c-cg with 2-cores\*
- NB54000c 64 GB per processor memory support\*

### Product Updates:

- 64-bit support for native C and C++
- TS/MP 2.5
- ODBC/MX and JDBC/MX support for PUT and SPT libraries
- Backup/Restore enhanced partial tape restore performance
- ls utility enhancement
- OSS installation security enhancements
- Safeguard V4R12
- HP ArcSight SIEM Platform support via XYGATE Merged Audit
- HP Insight Control for NonStop
- Serviceability enhancements
- ONC RPC PortMap enhancement
- CLIM IPTables support

## J06.14 / H06.25 Aug 2012

### New Product Support:

- NS2100\*
- LT05 ( Linear Tape Open Generation 5 ) family of products
- Insight Control Power Management (ICpwr)

### Product Updates:

- SQL/MX 3.2
- OSS process pair support
- Open source tools and utilities R2
- OSS limits increases
- Binsem instrumentation
- Message system performance tuning option
- Congestion control enhancement
- FUP nativization
- DSAP Enhancement
- FASTPTCP nativization
- Serviceability Enhancements
- Safeguard V4R13
- NonStop SSH IPv6 support
- NonStop SSL IPv6 support
- TCM updates
- Cluster Essentials 2.3.0
- I/O Essentials 1.4.0
- ASAP 3.2.2
- OVNM 5.2
- OVNPM 1.5.3
- Web ViewPoint 5.12
- Operations Orchestration support for SQL/MX

\* J-series only

\*\* J-series and NS16x00



# NonStop OS Strategy/Focus

- **Support new platforms**

- NB54000c-cg (2011), NS2100 (2012)

- **Invest in OS/OSS capabilities and ecosystem**

- 64-bit support for native C/C++ OSS applications
- 64-bit flat segment support for C/C++ native Guardian applications
- OSS process pair support and limit increases
- Updated/expanded utilities support
- Script languages support – Perl, PHP

- **Increase system configuration flexibility**

- Core Licensing for NB54000c



# NonStop OS and Open System Services (OSS)

## J06.13/H06.24 02/2012

- 64-bit application address space support
  - Native C/C++
  - Full support for OSS processes
  - Guardian processes can use some features
- Is utility enhancement
- OSS installation security enhancements

## J06.14/H06.25 08/2012

- OSS process pair support
- Open source tools and utilities R2:
  - OSS Core Utilities (T1202):
    - GNU coreutils - 8.14
    - GNU Bash - 4.2
    - GNU Gzip - 1.4
    - GNU Tar - 1.26
    - bzip2 - 1.0.6
    - Vim editor - 7.3
  - OSS Script Languages (T1203):
    - PERL - 5.14.2
    - PHP - 5.3.8
- OSS limits increases
  - OSS file system limits significantly increased
  - Increased usage of 64-bit memory for internal OSS resources
  - Improved resource monitoring with SCF, EMS events, and Measure OSSCPU
- Binsem instrumentation
- Message system performance tuning option \*
  - IPU placement of interrupt processes

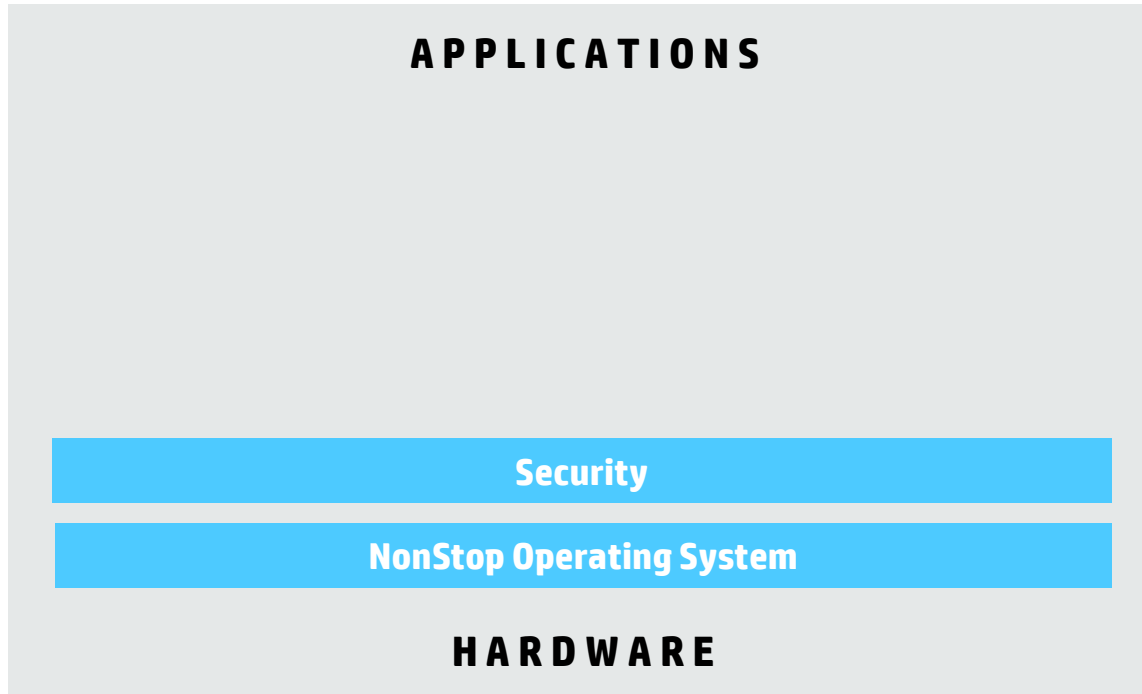
### Future

#### NonStop TimeSync 1.4

- Network Time Protocol (NTP) V4 Support
- NonStop System Time management improvements
- Status display enhancements



# Depend on a secure system



**The NonStop server includes built-in, out-of-the-box security.**

**HP also offers several additional security products to further help you protect your business and satisfy compliance audits.**



# Security Strategy/Focus

A man in a dark suit and red shirt is holding a black smartphone up to his eye, looking at the screen. The background is a bright blue sky with white clouds. The entire image is overlaid with a semi-transparent white box containing text.

- **Provide products that help you protect your sensitive data**
  - Safeguard, XYGATE Merged Audit, XYGATE User Authentication, XYGATE Access Control
- **Help you monitor and demonstrate compliance**
  - XYGATE Compliance Pro
- **Respond to reported security vulnerabilities**
- **Expand security capabilities in OSS**
- **Integrate with HP enterprise security products**
  - HP ESKM (Enterprise Security Key Manager)
  - HP ArcSight SIEM (Security Information and Event Manager)
  - HP Fortify

# Security Focus Areas with product offerings

## On Platform



Only authorized users can access the system. Access to data and other resources are controlled.

Standard system security

**OSS security**

**Safeguard**

iTP Secure WebServer

XYGATE Access Control

XYGATE User Authentication

## Compliance



Security policies can be verified to be working. Compliance can be proven to be in place.

Data Sanitization (OSM)

XYGATE Compliance PRO

XYGATE Merged Audit

- Plug-in for ACI BASE24

- Plug-in for HP HLR

- **ArcSight Integration**

## Data In Motion



Network and sensitive data moving between systems or workstations cannot be deciphered if intercepted.

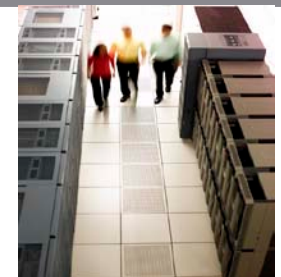
iPsec (with IP CLIM)

NonStop SSL

NonStop SSH

NonStop SSH - SFTP API

## Data At Rest



Stored data and sensitive information is protected on disk or tape.

Volume Level Encryption (VLE)

Enterprise Secure Key Manager

(ESKM)

Secure Virtual Tape System (VTS)



# Safeguard recent enhancements

## Safeguard V4 Release 12 (J06.13/H06.24)

- Ability to deny SUPER.SUPER the ability to alter user attributes such as password and default security
- Inclusion of the CPU and PIN in Authorization SEEP interface STOP requests for unnamed processes
- Addition of an administrative group allowing auditors to view/collect Safeguard information without also giving them the ability to alter its configuration
- Automatically set PASSWORD-MIN-QUALITY-REQUIRED to 1 if it is not explicitly set when any Password Quality Attributes are set to ON

## Safeguard V4 Release 13 (J06.14/H06.25)

- Support for adding secondary owners (other than Super. Super, Record Owner and Group Manager of the Record Owner) for management of group records
- Support for a new option to display the global configuration attributes that have been changed from their default values
- Ability to configure Safeguard to provide a more descriptive password change error message
- Ability to set the password expiration date further back in time than can be done today



# Additional Security Highlights

## NonStop integration with HP ArcSight SIEM

- HP ArcSight is the leading SIEM (Security Information Event Manager) solution provider
  - Integrated product suite to collect, analyze and assess security and risk information across your Enterprise
- XYGATE Merged Audit can forward NonStop events from many NonStop sources to ArcSight
- XYGATE Merged Audit can also allow you to integrate with LogLogic, RSA enVision and other SIEM devices on the market.

## NonStop and Fortify

- Fortify, the leading source code security analyzer can be integrated through NSDEE (NonStop Development Eclipse Environment) to analyze NonStop application code.

## Future - OSS authorization SEEP support

- Allows partner/customer-supplied SEEP (Security Event Exit Process) code to participate in OSS authorization decisions
  - Similar to Safeguard's Guardian authorization SEEP, but implemented through the OSS Name Server for best performance
- **Targeted for delivery in a future RVU for J-series and H-series systems.**





# How HP NonStop handles security vulnerabilities

## **HP communicates with you about security vulnerabilities to help you protect your systems**

-These communications must minimize information that could be used by an attacker to take advantage of the vulnerability.

## **HP NonStop issues product fixes or documentation as needed to correct security vulnerabilities.**

- Information is released through both a NonStop Hotstuff notice and an HP Security Bulletin (HPSB).

## **If you contact us about a specific externally-published vulnerability before we've issued an HPSB or Hotstuff, we may acknowledge that an investigation for resolution is in process**

- However, we will not provide details or a timeline for resolution at that point in time.



# Direct system operations

## APPLICATIONS

System management and control

Security

NonStop operating system

## HARDWARE

**HP offers you a wide variety of options to manage and service the NonStop server.**

**The NonStop server can be managed with the same tools as other HP servers or frameworks like Tivoli.**

**HP also continues to offer traditional NonStop management products.**



# System Manageability Strategy/Focus

- **Support new platforms and new capabilities of the system**
  - NS2100, Core Licensing
- **Make it easy for you to manage your NonStop server**
  - Products for expert NonStop IT Support Staff
  - Products that require no NonStop syntax knowledge
- **Integrate and sustain the NonStop server to be operated as part of the HP Converged Infrastructure**
  - IT Operations and HP SIM
  - Tivoli
- **Maintain and enhance the traditional NonStop management products that you depend on.**



# NonStop management in Converged Infrastructure

## HP IT Performance Suite

### IT Strategy, Planning, and Governance

- IT Asset Management
- IT Financial Management
- Project and Portfolio Management

### Application Lifecycle Management

- Application Lifecycle Management
- Application Governance
- Application Security
- Cloud Application Delivery
- Performance Validation
- Testing Center of Excellence
- Test Execution
- Test Management
- Application Transformation Software Services

### IT Operations

- Application Performance Management
- Business Service Management
- Client Automation
- Cloud Service Automation
- Configuration Management System
- Content and Collaboration
- Data Center Automation
- IT Service Management
- Network Management Center
- System Management
- Hybrid Delivery Services

### Security Intelligence

- ArcSight
- Fortify
- TippingPoint

### Information Management

- Autonomy Information Management Solutions
- Archiving Solutions
- Data Protection Solutions
- Records Management Solutions

### Business Analytics

- Business Intelligence
- Customer Management
- Partners for Information Management and Business Intelligence
- Services for Information Management and Business Intelligence

## HP Systems Insight Manager

### Insight Control for NonStop

Insight Control Power Management

NonStop Software Essentials

### NonStop Cluster Essentials

NonStop Performance Essentials

NonStop I/O Essentials

Insight Remote Support Advanced

# NonStop manageability portfolio

Adapts to your environment

## Serviceability products

OSM  
Onboard Administrator (OA)  
Integrated Lights Out (iLO)

## Performance Management Bundle

Measure  
Guardian Performance Analyzer (GPA)  
ViewSys  
NonStop Performance Data Collector (TPDC)  
Open Database  
Data Browser  
NonStop Performance Reporter (NPR)  
Disk Prospector (DiskPro)  
System Performance Analyzer (SPA)  
Pathway View

## HP SIM-based products

HP Insight Control for NonStop  
HP SIM  
HP Insight Control Power Management  
NonStop Software Essentials  
NonStop Cluster Essentials  
NonStop Performance Essentials  
NonStop I/O Essentials  
HP Insight Remote Support Advanced

## HP IT Performance Suite

IT Strategy, Planning, and Governance  
Application Lifecycle Management  
IT Operations  
Security Intelligence  
Information Management  
Business Analytics  
Operations Agent for NonStop (OVNM)  
Performance Agent for NonStop (OVNPM)  
NonStop Tivoli Adapter

## Web ViewPoint based products

Web ViewPoint  
Pocket ViewPoint  
Pathway plug-in  
ASAP plug-in  
Storage Analyzer plug-in  
Event Analyzer plug-in

## Other manageability products

ASAP  
RPM  
TimeSync  
Reload Analyzer (TRA)  
Enform Optimizer  
TCM  
Nagios



# Converged Infrastructure integration

**As of 08/2012, the NSC DVD also includes HP Insight Control for NonStop, which provides the following products and functionality:**

## HP Systems InSight Manager (SIM)

- Hardware fault monitoring, alert monitoring, inventory hardware reports, remote command and script invocation.
- NonStop BladeSystem graphical representation of racks, enclosures, blades and switches, links to OSM Service Connection and Event Viewer.

## HP Insight Control Power Management (ICpwr)

- Monitoring of power use, inlet air temperature, 24-hour peak temperature and CPU use for NonStop BladeSystems – per blade, per enclosure or per system.
- Support for NonStop BladeSystems and NonStop Integrity servers in Data Center Power Control for controlled shutdown.
- Power regulation support for NonStop Bladesystem, including support for Dynamic Power savings

## HP NonStop Software Essentials 2.0

- Replacement product for all DSM/SCM Planner Interface and most DSM/SCM Maintenance interface functions, inventory and history of installed software.
- Product features a web interface, enhanced security, one-click software audit report, user management, product and user group support, cloning support.



# NonStop Serviceability/Manageability Highlights

## OSM (J06.13 Feb 2012)

- Support for Down-System Parallel CLIM Firmware Update,
- DNS/DHCP configuration wizard,
- Support of IPv6 connectivity.

## OSM (J06.14 Aug 2012)

- Support for CLIM replacement guided procedure,
- Suppression of dialouts for Node Disconnected alarm when a node in a BladeCluster is in service,

### **Future Release**

- Support for double chip sparing,
- DHCP/DNS Configuration Wizard enhancement to ease NSC addition or replacement,
- Support of 2048-bit certificate in CLIM-ESKM Registration Tool,
- SSL enabled by default for J-series and H-series OSM

## Operations Agent v5.2 (Jun 2012)

- Support of HP Operations Version 9 for Windows, Linux and HP-UX
- Support of SNMP Adapter for Red Hat Enterprise Linux ES

### **Future Release**

- Support of IPv6 addresses
- SNMP Adapter support of SNMPv3

## Performance Agent v1.5.3 (Jun 2012)

- Support of HP Integrity NonStop NB54000c,
- Limits increased for DISK, TCPIP and USERDEF objects.

### **Future Release**

- Support of IP and Storage CLIM performance monitoring,
- Ability to update user Configuration without restarting.

## Web ViewPoint v5.12 (Aug 2012)

- Support of IPv6 network in Web ViewPoint and ASAP plug-in, Pathway plug-in, Storage Analyzer plug-in and Event Analyzer plug-in
- Support of Internet Explorer 8.

## ASAP v3.2.2 (Mar 2012)

- Support for SSL-based communications and digital signing



# Deploy an available and scalable database

## APPLICATIONS

Database and transaction management

System management and control

Security

NonStop operating system

## HARDWARE

Architected as a clustered database solution, NonStop SQL leverages the underlying HP NonStop platform architecture and offers:

- Mission critical availability
- Database scalability
- Management of extreme amounts of data at a high velocity
- Transaction protection with TMF
- Disaster recovery and business continuity using RDF





# NonStop Database Strategy/Focus



- **Make it easier for you to move from Oracle to NonStop**
  - Many migration enablers now available
  - ATC specialists available to help you with this type of project.
- **Lead with a scalable SQL architecture**
- **Lead in mission critical availability**
- **Continue handling extreme high volumes of data**
- **Exceed SLAs for handling data velocity**

# NonStop Database

## J06.11/H06.22 02/2011

### SQL/MX 3.0

- Support for large keys (2K) and large rows (32K)
- Extended numeric precision from dynamic SQL
- Support for 64 bit Connectivity Drivers (ODBC & JDBC)
- Improved price/performance with performance enhancements to the Optimizer and Executor.

### Enscribe DB

- Key Sequenced (indexed) files support maximum 64 partitions
  - No change to Entry-sequenced and Relative files maximum (16 partitions)
  - No change to FastSort scratch files maximum (16 partitions)

## J06.12/H06.23 09/2011

### SQL/MX 3.1

- Separation of duties
- Table rename
- Change ownership of schemas & all MX objects (tables, views, etc)
- Encrypt data sent between client and server using SSL
- 32K row size support for LOB/CLOB (JDBC)
- Firewall support in NSM/Web
- NVL, Decode, LTRIM, RTRIM, TRIM functions
- IDENTITY column
- Coalesce, TO-CHAR functions
- XA support for Pathsend
- SAP Certification of JDBC T4 Driver
- Preprocessor enhancements to be more like SQL/MP
- Improved Module File Caching
- Caching of query parameters for MFC

## J06.14/H06.25 08/2012

### SQL/MX 3.2

- Migration enablers such as:
  - Support for extended numeric precision up to 128 digits from embedded SQL programs,
  - Multi Commit Delete allows users to delete large number of records in smaller transactions.
  - External Sequence Generator
  - Allow sub-queries with AFTER TRIGGERS
- Modern Database Management Tools and Utilities:
  - SQL/MX Database manager (MXDM)
  - CLEANUP
  - Remote MXCI for MS-Windows
- Enhanced Security with JDBC connection encryption using SSL
- ODBC/MX Driver for Linux
- Backup/Restore DDL with greater than 3000 characters
- 64-bit support for embedded applications
- Performance improvements for connect/disconnect and MDAM.



# NonStop Database – Future

## SQL/MX

- User defined functions
- Table Maintain
- Date conversions
- Online MXCI help
- Remote MXCI for Linux
- ODBC/MX Driver for AIX
- SPJ profiling and debugging
- MXDM integration with VQA and NSKBUSY
- Native SSL Support in MXCS
- Support for database audits with SQL statement logging and schema privileges;
- Improved standards compliance with JDBC 4.0 and ODBC 3.83;
- Continued Performance enhancements



# NonStop TMF and RDF

## TMF Future

### TMF 3.7

- Enhances several TMF processes to run high-pin
- “Begin Transaction notification” facilitates partner support for TMF Asynchronous Gateway replication

## RDF (Independent Product)

### **RDF IMPX and ZLT v 1.11 (Update 12)** – available now!

- Improvements to VALIDATE CONFIG commands.
- Improved accuracy of EMS message priorities.
- Support for RDFCHECK high-pin requesters.
- Supports ASAP 3.2

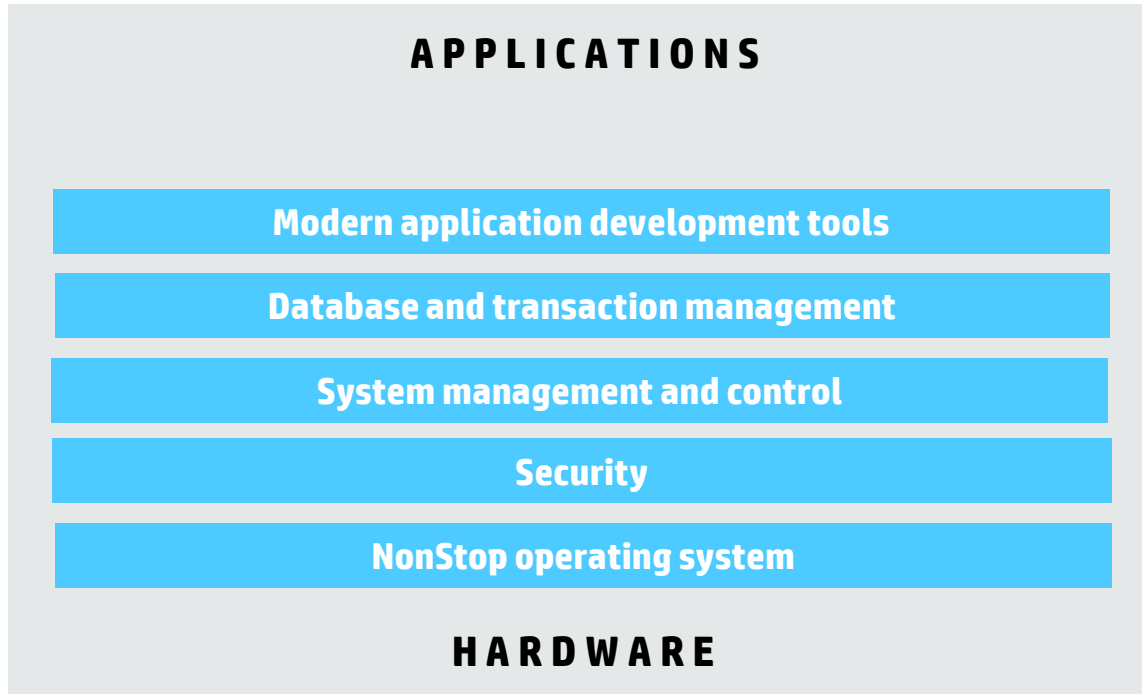
### **RDF IMPX and ZLT Future:**

NonStop Remote Database Facility (RDF)/ZLT (under controlled availability), customers are guaranteed no lost transactions due to outages.

- Implement Suspend Update enhancement: improved performance and availability for NSA operations.
- Online (RDFCOM) report of files opened by Updater: improved manageability and availability
- Online update of INCLUDE/EXCLUDE files: improved manageability and availability
- Lockstep support for AUX Audit trails



# Deploy using modern development tools and languages



**HP continues to bring modern, integrated development environments to the NonStop application community.**

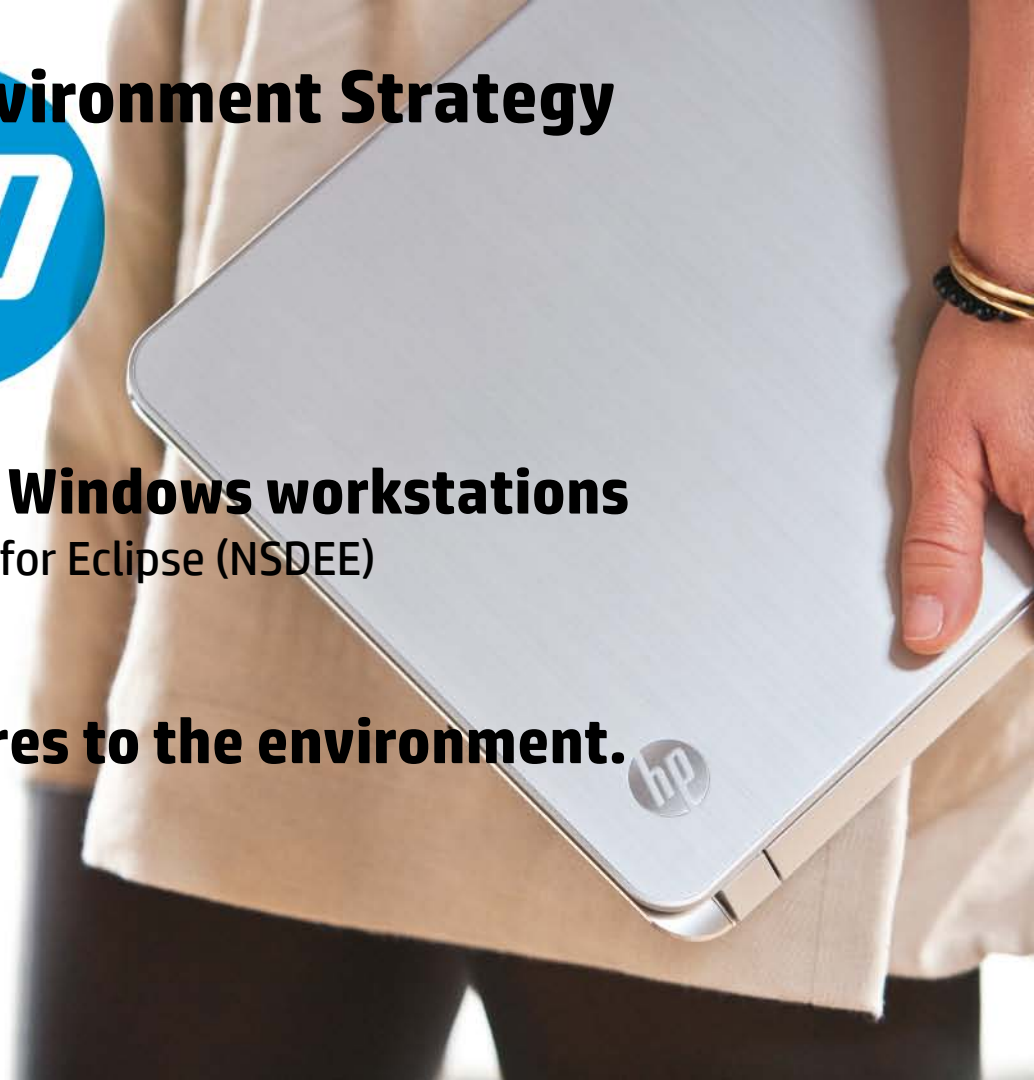
**NonStop build tools and compilers have been integrated into the NonStop Development Environment for Eclipse (NSDEE).**



# NonStop Development Environment Strategy



- **Develop your application on Windows workstations**
  - Using NS Development Environment for Eclipse (NSDEE)
  - NonStop cross compilers
  - Secure connection to the NonStop
- **Enhance to bring new features to the environment.**
  - Integrates with HP Fortify



# NonStop Software Languages and Compilers

## Compilers

### OSS C and C++

- Now provides 64 bit and 32 bit OSS program support
- OSS C and C++ programs have almost 500GB virtual memory
- Enhanced compilers, cross-compilers and debuggers



## NS Java 6

- Based on Oracle JDK 1.6.0\_24 version
- Supports all headless JDK APIs
- 1.2 GB Java heap size
- Current version = NSJ 6 Update 3
- Java APIs for Pathway Pathsend & Enscribe
- Hot spot compiler



## Future - NS Java 7

- Based on Oracle JDK 1.7.0\_01 version
- First NSJ release with 64-bit support
- Supports a very large Java heap
  - Size is only limited by the physical memory of the system
- Improved garbage collection
  - Parallel and concurrent mark sweep GC



# NonStop Development Environment



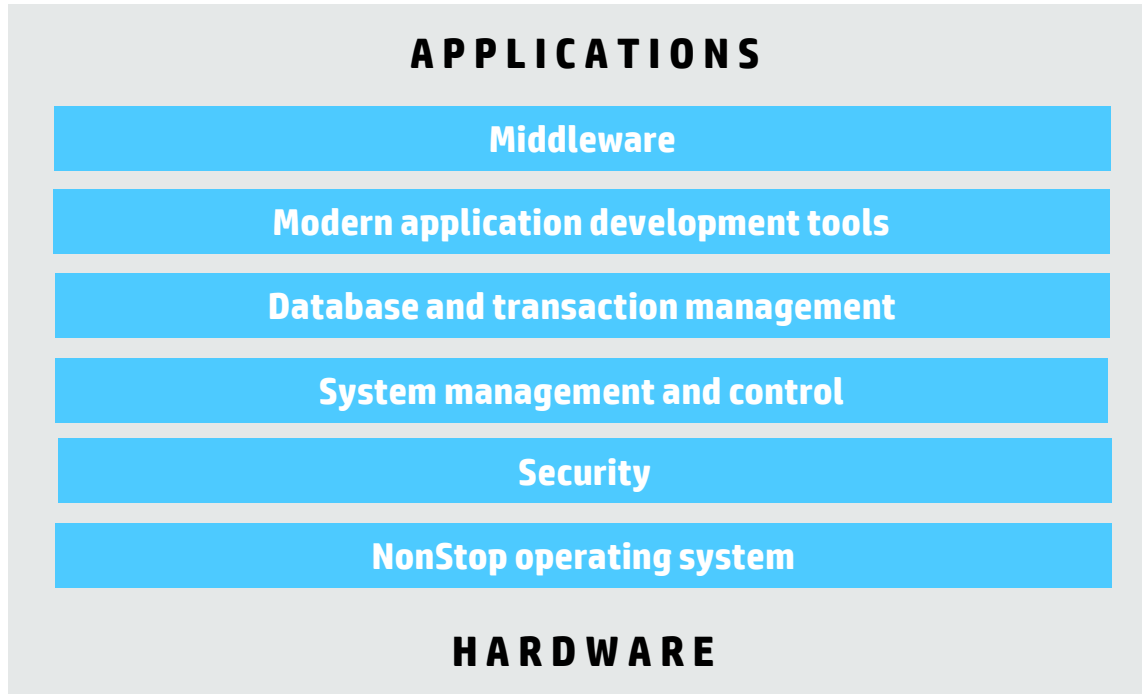
## NonStop Development Environment for Eclipse (NSDEE)

### Future Release:

- New PC-hosted projects that fully leverage CDT 8 and Eclipse Indigo to provide:
  - Indexing of C/C++ sources for use in code navigation and analysis.
  - Customizable managed Builds
  - Per-project settings for coding style and build logging
- New Development Perspective that provides:
  - Improved build configuration management supporting configuring multi-platforms and multi-Operating Systems.
  - Improved configuring of cross compiler locations
  - Improved preferences including Guardian vs. OSS
- Enhanced User Guides with new tutorials and examples.



# Deploy using modern, state of the art Middleware



**A service-oriented architecture (SOA) model helps IT rapidly respond to changing business needs.**

**The NonStop server brings scalability, availability, data integrity, and ease of manageability to powerfully underpin SOA services.**



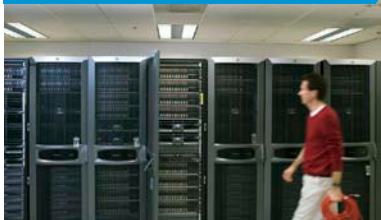
# NonStop Middleware Strategy

- **Provide middleware to connect your applications to the core fundamentals offered on NonStop**
  - TS/MP and Pathway
  - iTP Secure WebServer
- **Make it easy for you to develop applications for the NonStop server using Java methods and frameworks**



# NonStop Java & Middleware Landscape

## TS/MP and Pathway



Pathway with NonStop TS/MP software provides application management services, such as load balancing, communications I/O, memory management, fault tolerance, and scheduling.

## iTP Secure WebServer



iTP Secure WebServer provides the HTTP and HTTPS protocol interface for all the other SOA components on the NonStop Server.

A fault-tolerant and scalable container for Web service execution, iTP Secure WebServer is the front end for both NS SOAP and NSJSP components.

## NonStop SOAP



HP NonStop SOAP software supports the standard SOAP 1.2 protocol.

iTP Secure WebServer and NonStop SOAP provide the standard SOAP over HTTP protocol for invoking SOA services on the NonStop server. NonStop SOAP is built on TS/MP infrastructure and is fault tolerant and scalable.

## NSJSP (JavaServer Pages)



NS JSP is a fortified version of the Apache Tomcat Web container that offers NonStop availability and scalability while supporting standard Java Platform Enterprise Edition (JEE) Servlets and JSP programming models.

# NonStop TS/MP

J06.13/H06.24 02/2012

## TS/MP 2.5

- Pathway domains across nodes.
- Faster release of dynamic servers.
- Faster server shutdown.
- Improved server rebalancing after CPU reload
- Large context-sensitive messages
- Some customer specific RFEs:
  - Change event 1006 from FATAL to WARNING
  - Single SPI request for serverclass name
  - Filtering/wildcard support for SCF STATS DETAIL command
  - Serverclass umask parameter
  - PATHMON at high-pin by default.

## Future enhancements

### TS/MP Future Release

- Improved multi-core performance
- Improved multi-threaded server performance
- Customer requested enhancements.



# NonStop Middleware – iTP Secure WebServer

## iTP Secure WebServer

- Scalable, continuously available -- runs as Pathway serverclass
  - Support for parallel TCP/IP
  - Multi-threaded – each iTP WebServer instance can concurrently process up to 255 HTTP requests
- HTTP 1.1 Features
  - Persistent connections
  - Caches file contents and metadata
  - Chunk transfer encoding
  - Content format negotiation
- Virtual hosting
- Security Capabilities
  - TLS1.0, 1.1, SSL 3.0, Digest access authentication of clients, Certificate authentication, up to 4096 bit long RSA keys, up to 256 bit encryption with stronger cipher suites AES & Camellia
- Ticketing
- CGI support

**Current Release is 7.3 Update 1 (Jun 2012)**

## Future enhancements

- Diffie-Hellman Key Exchange Algorithm
  - Better security for sensitive apps
- Configurable *httpd* server alternate name
  - Each deployment of iTP WebServer container can be configured with a different name for the HTTP daemon (*httpd*)
- Configurable maximum request header size for HTTP messages
- Turn ON cookie information logging
  - iTP WebServer will log the cookies that are sent to web clients in W3C Extended Log Format
- Support for CGI variable `REMOTE_PORT`
  - iTP WebServer will log the remote port number of the web client
- Support for Windows compliant log file name format
  - Will enable iTP WebServer's log files to be directly opened on Windows machines



# NonStop Middleware – SOAP

## NS SOAP 4.0

- Compliant to SOAP 1.2 Specs
- WS-Policy – Complies to security policy assertions
- WS-Security
  - X.509 certificates, private keys, digital signatures, symmetric/asymmetric encryptions
- Supports both Service First & Contract First modes of development
  - Out of the box WSDL creation
  - Requires no SOAP specific coding, only user's business logic needs to be coded
- TS/MP scalability & availability
- Transaction integrity through TMF
- User written plug-ins
  - Supports modules/handlers & Message Receiver User functions (MRUF) to modify default message flow
  - Can be applied on per-service basis or globally
- Hot deployment of new services
  - No need to stop SOAP & other services

## Future enhancements

- Improved compliance to WS-Security
  - Compliance to XML Signature
  - SOAP header signing by client & service
  - Message Authentication
- Run time enhancements
  - Allow loose coupling between WSDL & DDL element names
  - Support for Multiple DDL Dictionary files
- RESTful Services
  - Support Axis2/C's REST implementation
  - Support exposure of a single service via SOAP & REST simultaneously



# NonStop Middleware – Java

## NSJSP 7.0

- Based on Tomcat 7.0.10
  - Ported on NonStop to avail of TS/MP scalability & availability
- Complies to Servlet 3.0 Specifications.
  - Asynchronous request processing, Web Fragments, Annotations
- Complies to JSP 2.2
- Unified Management Interface
- Role based Security



## Future enhancements

- 64 bit capability
- Improve scalability using shared in-memory cache/persistent data store
- Rebase to most recent Tomcat version
  - Comply to the latest Servlet, JSP & EL specifications supported by the Tomcat version
- Management improvements such as
  - Configure alert conditions, View logs via NSJSP Manager
  - Display additional statistics & health of the container via the Manager
- Installation script enhancements

# NonStop Java Family Additions – Future

NSASJ



**NSASJ is a port of JBOSS Application Server (AS 7.1) to NonStop. Provides an EJB container from JBOSS with persistence and transaction management.**

- Compliant to EJB Specifications 3.1
  - Types of beans supported: Stateless Session Bean, Stateful Session Bean, & Message Driven Bean
- Java Persistence API provided via Hibernate Entity Manager
- Interoperability with both on & off platform clients
  - Off platform clients will use JBoss Remoting
- SSL 3.0 Security for RMI/IIOP
- Integration with NonStop TS/MP for out-of-the-box scalability & availability
- Integrated with TMF providing JTA API for Apps
- Integrated with NSMQ JMS Broker

NSMQ



**NS Message Queue 1.0 is based on Apache Active MQ 5.6. Supports persistent and non-persistent messaging.**

- Supports persistent and non-persistent messaging
  - In both point-to-point and publish/subscribe messaging models
- Scalability and load distribution using cluster of ActiveMQ Brokers
- Fault-tolerance through ActiveMQ Master-Slave configuration
- Supports P-to-P and Publish/Subscribe mechanisms
- JMS persistence is provided through SQL/MX & KahaDB
  - KahaDB is a database built into ActiveMQ
- Support for both on- and off-platform clients
- TCP & UDP transport layer protected by SSL 3.0
- Will be integrated/interfaced with NonStop Application Server for Java (NSASJ) 1.0
- Authentication & Authorization of clients by the broker before allowing access to the queue
- Integration with TMF





# SASH - Open Source Java Frameworks

**SASH is a collection of the most widely-used open source middleware and free Java frameworks for use in Java application development. HP has tested and certified these frameworks for deployment on HP NonStop.**



Offers a JavaServer™ Faces implementation (APIs and modules). Used to develop UI screens for web applications

<http://myfaces.apache.org>



Provides the core Web Services / SOAP / WSDL engine that process incoming HTTP messages, does marshaling /un-marshaling of SOAP envelopes

<http://axis.apache.org>



Is a powerful and flexible collection of technologies to enrich enterprise Java application development by providing components & APIs for developing modern web applications

<http://www.springsource.org>



Provides Object-Relational-Mapping (ORM) and implements standard Java Persistence API, Query Language and Object Lifecycle Rules

<http://www.hibernate.org>

**SASH:** MyFace**S**, Axis**2**, Spring, Hibernate

## Artifacts from HP (Present)

- T0874 – This package contains sample apps
- T0873 – This contains the Hibernate Dialect file for SQL/MX
- T0873 & T0874 can be downloaded from Scout
- Fully integrated and tested by NED
- Eclipse IDE has optional plug-ins to help in Java development

## Future enhancements

- Java Socket Abstraction for TS/MP
  - Creation of your favourite, highly available, scalable Pathway apps in Java is simplified
- Hibernate
  - Dialect enhancements for the new Hibernate version
  - Hibernate + JDBC T2 driver tuning guidelines & configuration recommendations for connection pools
- Certification, samples, configurations for more frameworks



# Conclusions



# Key takeaways

## NonStop has momentum

- On-going investment for real Mission Critical at AL 4 Level
- Strong participation in the Converged Infrastructure to make easy to manage the system as part of your enterprise.
- New and enhanced software products offered regularly
- Enriched Middleware stack, improved security, CI manageability
- 64-bit C & C++, SQL/MX, and more
- New and modernized apps
- New app partners plus CI Ready enhancements from existing partners

## NonStop is positioned for a bright future

- Strong roadmap – with new systems
- Java 7 with 64-bit support, more middleware products & manageability
- Investing for the future
- Positioned for cloud



# Thank you

