NONSTOP SOFTWARE ROADMAP

All Modern, All Standard, All NonStop
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Market Proof: Critical Processes Deserve an HP Integrity NonStop Infrastructure

### Financial Services
- Payment systems: Credit, debit, POS, wholesale
- Exchanges & trading
- 70% of all ATM payments & 66% of all credit card transaction
- Hosts world’s largest payment installation

### Communications Media & Entertainment
- HLR/HSS/LTE
- Intelligent Network-3G Services
- Messaging
- World’s largest ISP Global Messaging
- 300+ million subscribers “live” in HP HLR solutions

### Manufacturing
- Production Control Systems
- Manufacturing Execution
- Premier automotive manufacturers
- Logistic management

### Healthcare and Public Sector
- Electronic Patient Records
- Defense and Intelligence systems
- 200+ hospitals, many of the world’s largest teaching hospitals
- National security & transportation (offered w/HPES)
CUSTOMER PROBLEM
Flip the ratio from operations to innovation
What you need to do

Modernize
Architect solution for change

Transform
Break silos with a converged infrastructure

Secure
Protect assets without constricting flow

Optimize
Control and exploit information

Deliver
Right method, right time, right cost
IMPACT

Create an Instant-On Enterprise today with HP Integrity NonStop systems
Modern, Standard, 24/7 Environment on NonStop Systems

Modern software
Operations consoles
Development environment
Management tools
Database programming

Open, low-cost and more common skills...

Standard hardware
Common chipsets
Blades
Storage
I/O infrastructure
Business Will Be Built on a Converged Infrastructure

- Power & cooling management software
- Network
- Servers
- Storage
Modernize
- Modern programming languages and development environment (Java, C++, Eclipse,…)
- Modern application architecture (SOA, SASH)
- Modern management applications (NonStop Essentials, OVNM,…)

Transform
- Converged Infrastructure (Common hardware, firmware, rack, power, cooling,…)
- Operations management (SIM, Insight Control Power Management,…)
- Business transformation (BTO products)

Secure
- On-platform security (Safeguard, Guardian security, OSS security)
- Secure data-in-motion and data-at-rest (SSH, SSL, Volume Level Encryption)
- Enhanced auditing (XMA, ArcSight ESM)

Optimize
- Infrastructure optimization (Insight Control Power Management)
- Performance optimization (NonStop Performance Essentials, ASAP, OVNPM,…)
- Business technology optimization (BTO products)

Deliver
- System delivery to match your exact specifications (hardware, software and cabling)
- Service delivery by trained professionals
- Remote support automation (Insight Remote Support Advanced)
Modern, Open Software

Integrity NonStop plugs into the open application development model TODAY
NONSTOP OS

Recent Updates
Futures
HP NonStop OS Latest Infrastructure Additions

Adherence to industry standards, Quad Core price/performance

2H 2010
- Standard Library Support for Non-blocking IO
  - Non-blocking IO for threaded applications using standard C libraries
  - More

February 2011
- Quad Core Support
- Samba file server software
- FLOSS open source porting tool
  - More

Next
- Partitioning (virtualization) of SAS disks (146 GB and 300 GB and new disks going forward)
- ~2x Performance of Backup & TMF Dump (tape process enhancements)
- Guardian and OSS can share memory segments
  - More

Future
- C/C++ 64-bit OSS application support expanded beyond internal OS subsystems
- Additional open source tool support
  - More

Time

This is a rolling (up to three year) Statement of Direction and is subject to change without notice.
NonStop BladeSystem and NS2000 software — Increased value for multi-core systems

• Bundled frequently-used additional products in base operating systems
  – Dataloader/MP (Dataloader/MX always no added charge), NetBatch, NetBatch-Plus, SOAP
  – iTP Secure WebServer (available on request)
  – Safeguard and premium Spoolers included (same as H-series)
  – Data Sanitization – part of OSM (same as H-series)
  – SSH, SSL, Merged Audit for most new nodes purchased in September 2010 or later
    (same as H-series)

• Easy to adopt
  – No source code recompilation required when migrating from H-Series
    – Binary code compatible

• Customers migrating to J-Series must re-license software
All Modern, All Standard, All NonStop

Develop
Standard programming models
- Certified Java SE Platform (JDK and JVM)
- Apache Tomcat (Value-added port)
- Open Source Java Frameworks

Deploy
NonStop Fundamentals
- Clustering
- Availability
- Transactions
- Scalability
- NonStop TS/MP
- NonStop TMF
- NonStop OS

Web Services
- Apache Axis2/C SOAP
SOA, Java and Open-source Frameworks
Open application infrastructure with NonStop fundamentals

2010
- **NS Java 4.2 Update**
  JDK 4.2_26
- **NS Java 5.1 Update**
  JDK 5.0_24
- **NS Java 6.0 Update**
  JDK 6.0_20
- **NS JSP 6.0 Update**
  Based on Apache Tomcat 6.0.18
- **NS SOAP 4.0 FCS**
  Apache Axis2/C 1.5

Next
- **SASH Frameworks Update**
  Spring 3.0.2
  Axis2/J 1.5.2
  MyFaces 2.0.2
  Hibernate 3.5.1
- **NS Java Update**
  JDK 6.0_24

Future
- **NS JSP Update** (based on Apache Tomcat 7.0)
- **SASH Frameworks Update**
- **NS Java Update** (32-bit JDK 7.0)
- **NS Java Update** (64-bit JDK 7.0)
- **NS SOAP 4 Update** (Apache Axis2/C 1.6)

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NonStop iTP Web Server

**August 2010 (H06.21/J06.10)**

- iTPWS 7.2
  - Online upgrade (exploits Pathway domains feature)
  - Support for Transport Layer Security (TLS) 1.1 including 256 bit encryption, stronger cipher suites
  - Configure Pathway CREATEDELAY parameter
  - Option to disable ETag response header
  - Support for UNICODE security certificates
  - PUT & TRACE defaults to disabled

**February 2011**

- iTPWS 7.3
  - Name based virtual hosting
  - Support for additional MIME types
  - PIC version of CGI library compiled with NEUTRAL float
  - Internal serviceability enhancements
NonStop iTPWS

Next

- **iTPWS Update**
  - Rebase to latest GnuTLS version
  - Support for Diffie-Hellman key exchange algorithm
  - Support for CGI REMOTE_PORT variable
  - Support for open-source FastCGI library

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APPLICATION DEVELOPMENT ENVIRONMENTS

Recent Updates
Futures
NonStop Modernization, Software Development
All Modern, All Standard, All NonStop

• Software Development component
  – Embrace standards and open source
  – Leverage and extend industry standard tools
    • GDB based debuggers
    • Eclipse based Integrated Development Environment (IDE)
  – Support SOA adoption
  – Support application deployment on scalable run-time with NonStop fundamentals
NonStop Development Environment for Eclipse (NSDEE)

- A modern, industry standard, Integrated Development Environment for NonStop
- **Leverages Eclipse**
  - Common IDE for multiple platforms
  - NSDEE 2.1 builds on Eclipse Helios and CDT 7 and provides NonStop value add
  - Rich selection of third-party extensions
- **Targets all NonStop developers**
  - Windows PC hosted
  - NonStop OSS hosted
  - NonStop Guardian hosted

- **New NonStop IDE Capabilities**
  - Integrated GUI debugging
  - Support for NonStop hosted projects
Native Inspect

- Derived from industry standard GDB (GNU debugger) and HP-UX Intel® Itanium® debugger capabilities

- NonStop specific extensions to GDB
  - COBOL debugging support
  - List open files
  - Suspend execution at program termination (catch/stop abend)
  - Catch dlload and unload events
  - Improvements to optimization level O1 and O2 debugging capabilities
  - Advanced scripting using Integrated TCL interpreter

- Recent enhancements
  - Make function calls from Native Inspect

- Memory leak and corruption detection for C and C++

- NSDEE Integrated Debugging GUI uses Native Inspect
C99

- Full C99 support available as of H06.21/J06.10

- Features
  - Variable length arrays and “flexible” array members
  - Initializers: non-constant initializers, field specific initializers
  - Variable argument lists for macros
  - Some C++ capabilities: mix declarations with statements, comment to end of line (//)
  - Complex type
  - New standard library modules: complex arithmetic, IEEE float, Boolean, …
  - Digraphs for: [ ] { } # and ##
  - Implicit function declarations are disallowed

- Enabling C99 features
  - Guardian: Use the C99 compiler option (CCOMP/ in filec;/c99)
  - OSS and Windows: use C99 compiler driver

- Still support C89 by default
Code Coverage

• Measures how well your testing covers application source code statements
• No source code changes required!
• HTML reports; with coloring schemes, annotations and source code listings
• Summary & detailed coverage reports
• Languages: C, C++, epTAL, and eCOBOL
• Many application types supported
  – OSS and Guardian processes
  – Mixed Language processes
  – Much more
MIDDLEWARE, TRANSACTION MANAGEMENT AND DATABASE ENVIRONMENTS

Recent Updates
Futures
Pathway – Plans

Continuous functional enhancement and technology currency

**Available Now**

- **NonStop TS/MP 2.4**
  - Online application upgrade**
  - Increased limits*
  - Large context-free Pathsend messages
  - Improved ACS availability and recovery*
  - Optimized server/cpu placement for greater cpu utilization
  - Increased granularity of CREATEDELAY
  - Enhanced change auditing*
  - More efficient PATHMON link handling*
  - Domain level PDMCOM commands**
  - Support for FC/HISTORY/! command*

**Future**

- **NonStop TS/MP Update**
  - Pathway domains across nodes
  - Improved low-load link selection*
  - Faster server shutdown*
  - Improved server & link rebalancing after CPU reload
    - Note: Requires minor configuration change
  - Large message support (2 MB) for Pathsend dialogs
  - Misc RFEs

* This benefit is usually gained by merely installing the new release.
** Benefit is gained by merely installing the new release when Domains (Release 2.3) was previously used.

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NonStop SQL/MX Database Roadmap

- **2009**
  - SQL/MX 2.1.1 – G06.27 and later

- **2010**
  - SQL/MX 2.3.3 – September 2009
  - SQL/MX 2.3.4 – February 2010

- **2011**
  - SQL/MX 3.0 – February 2011

- **2012**
  - Integrity NonStop
  - SQL/MX – Next

- **2013**
  - SQL/MX – Future

- **2014**

- **2015**

...
SQL/MX Release 3.0
February 2011

<table>
<thead>
<tr>
<th>Feature</th>
<th>Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Large keys (2k) and large rows (32k)</td>
<td>• Allows creation large keys and rows</td>
<td>• Improved portability and usability</td>
</tr>
<tr>
<td>• Extended numeric precision from dynamic SQL</td>
<td>• Allows numeric precision up to 128 digits</td>
<td>• Improved usability and portability</td>
</tr>
<tr>
<td>• 64 bit Connectivity Drivers (ODBC &amp; JDBC)</td>
<td>• Enables 64 bit client apps</td>
<td>• Improved application portability</td>
</tr>
<tr>
<td>• Performance</td>
<td>• Optimizer &amp; Executor enhancements</td>
<td>• Improved Price/Performance</td>
</tr>
</tbody>
</table>
HP NonStop SQL/MX – Next

Modern

• Separation of Duties
• Table Rename
• Change ownership of schemas

Standard

• Firewall support in NSM/Web
• SSL support for Connectivity Clients
• NVL, Decode, LTRIM functions

Differentiated

• Improved Performance for large number of Connections
• Improved Compiler performance
• Similarity Check (for Prototype – “define-like”) enhancements

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HP NonStop SQL/MX – Future

Modern
- Sequence function (auto-increment via external generator)
- GROUP BY enhancements
- Update of Primary Key
- Support Stored Procedures (SPJ) in after triggers

Standard
- 64-bit ODBC/MX connectivity driver for Linux

Differentiated
- Search Path for module files can be specified
- Enhanced numeric precision for pre-compiled SQL (in addition to dynamic)
- Random I/O performance improvements

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NonStop TMF

Aug 2010 (H06.21/J06.10)

- **TMF 3.6**
  - New Transaction Typing API
    - Override auto audit abort, txn timeout, supply user value
  - ANSI names for SQL/MX objects
  - Faster audit trail release
  - Enable network transaction JOINs
  - Abort without backout

Next

**TMF Update**

- TMF processes run high-pin
- Begin transaction notification
- Investigation of support for more than 16 audit trails
NonStop RDF (Remote Database Facility)

Available now

- **RDF 1.10**
  - Improvements to VALIDATE CONFIG command
  - Improved accuracy of EMS message priorities
  - Support for RDFCHECK high-pin requesters
  - Supports new release of ASAP 3.2
  - Customer RFEs

Future

**RDF Update**

- Support for SUSPEND UPDATE
- RDFCOM report of files opened by RDF Updater
- MD5CHEK support for UNSTRUCTURED opens for ICOMPRESS filesets

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February 2011

- **64 Partitions support**
  - 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)
NonStop Security Strategy
Modernize security offerings

- Modernize NonStop security capabilities offered by HP
- Leverage expertise inside HP
- Leverage Partner products

*This is a rolling (up to three year) Statement of Direction and is subject to change without notice*
Available Now or in the Near Future from HP

1. On Platform
   - Standard System Security
   - Safeguard
   - iTP Secure WebServer
   - XYGATE Access Control
   - XYGATE User Authentication

2. Data In Motion
   - IPSec (with IP CLIM)
   - NonStop SSL
   - NonStop SSH
   - NonStop SSH - SFTP API

3. Data At Rest
   - Volume Level Encryption (VLE)
   - Enterprise Secure Key Manager (ESKM)
   - Secure Virtual Tape System (VTS)

4. Compliance
   - SafeArt
     - Data Sanitization (OSM)
   - XYGATE Merged Audit
   - XMA Plug-in for ACI BASE24
   - XYGATE Compliance PRO
   - XMA Plug-in for HP HLR
   - ArcSight Integration

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NonStop OS Security Update Bundle

- New Security package introduced in 2010
- Delivers three security products as part of the basic OS software suite
  - Provided with the OS on new system orders
  - Available to installed J Series or H Series servers for a small upgrade fee
  - Same products must be purchased separately for G Series platforms
- Includes the following products
  - NonStop SSH
  - NonStop SSL
  - XYGATE Merged Audit
- Brought to the market through a business relationship with two of our Security partners
HP NonStop Compliance & Auditing

XYGATE Compliance PRO and XYGATE Merged Audit

**XYGATE Compliance PRO**
- Establish a security baseline for compliance
- Examine all aspects of security
- Collect detailed data about the security settings
- Review security change recommendations
- Implement security policies for your business
- Verify policies remain enforced
- Stay up to date with the latest compliance regulations

**XYGATE Merged Audit**
- Aggregate all security and event logs
- Filter to see the relevant data for your business
- Run canned reports by compliance area
- Share reports with auditors
- Build custom reports specific for your business
- Feed data to enterprise SIEM solutions

Both products allow you to collect data from multiple systems
NonStop Manageability Strategy

**Customer satisfaction**
Create new manageability products and solutions, and enhance and improve existing ones to satisfy customer needs.

**Customer choice**
Provide customers a comprehensive selection of manageability products and solutions to adapt to their specific environments.

**Enterprise integration**
Add support of HP SIM, Essentials, BTO and other enterprise management solutions (e.g., Tivoli, Unicenter, Patrol, Netcool) to manage NonStop in heterogeneous enterprise environments.

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NonStop Manageability Portfolio
Adapts to your environment

<table>
<thead>
<tr>
<th>Serviceability products</th>
<th>Operations Management Bundle</th>
<th>HP BTO-based products</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSM</td>
<td>Web ViewPoint</td>
<td>Business Availability Center</td>
</tr>
<tr>
<td>Onboard Administrator</td>
<td>Pocket ViewPoint</td>
<td>Operations Center</td>
</tr>
<tr>
<td>iLO</td>
<td>ASAP</td>
<td>Network Management Center</td>
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<td></td>
<td>ASAP plug-in for Web ViewPoint</td>
<td>Data Center Automation Center</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HP SIM-based products</th>
<th>Performance Management Bundle</th>
<th>Service Management Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP SIM</td>
<td>Measure</td>
<td>Universal CMDB</td>
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<tr>
<td>NonStop Cluster Essentials</td>
<td>GPA</td>
<td>OVNM</td>
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<tr>
<td>NonStop Performance Essentials</td>
<td>ViewSys</td>
<td>OVNPM</td>
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<tr>
<td>NonStop I/O Essentials</td>
<td>TPDC</td>
<td>NonStop Tivoli Adapter</td>
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<tr>
<td>NonStop Software Essentials</td>
<td>PMC</td>
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<tr>
<td>HP Insight Control Power Management</td>
<td>Data Browser</td>
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<td>HP Insight Remote Support Advanced</td>
<td>NPR</td>
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<td>DiskPro</td>
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<td>SPA</td>
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<td></td>
<td>Pathway View</td>
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</tbody>
</table>

Other manageability products
- RPM
- TimeSync
- Nagios
NonStop Management in an Instant-On Enterprise

Business Technology Optimization (BTO) Software

**STRATEGY**
- CIO Office
  - Project & Portfolio Management Center
- CTO Office
  - SOA Center

**APPLICATIONS**
- Application Lifecycle Management Center
- Performance Center
- Application Security Center

**OPERATIONS**
- Business Service Management
  - Business Availability Center
  - Operations Center
  - Network Management Center
- IT Service Management
  - Client Automation Center
  - Data Center Automation Center
- Universal CMDB

**SUPPORTS**
- HP NonStop
  - HP Systems Insight Manager
  - HP NonStop Essentials

**CORE MANAGEMENT SERVICES**
- Discovery, Inventory Management, Event Notification, Reporting, Security

**APPLICATIONS**
- Project & Portfolio Management Center
- Performance Center
- Application Security Center

**OPERATIONS**
- Business Service Management
  - Business Availability Center
  - Operations Center
  - Network Management Center
- IT Service Management
  - Client Automation Center
  - Data Center Automation Center
- Universal CMDB
SUMMARY

All Modern, All Standard, All NonStop
All Modern, All Standard, All NonStop
and integrated into HP Converged Infrastructure

Modern software
Development environments
Management tools
Database programming
Web/GUI interfaces

NonStop value
24/7 application availability
Massive and linear scale
Fully virtualized

Standard hardware
Common chipsets
Blades
Storage
Networking

Virtualized • Resilient • Orchestrated • Optimized • Modular

Infrastructure Operating Environment
Virtual Resource Pools
FlexFabric
Data Center Smart Grid
OUTCOMES THAT MATTER.