HP Integrity NonStop BladeSystem

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September 2008

Business challenges

- Explosive growth – business applications, transaction volumes and supporting infrastructure
- Greater need for business critical computing
- Continuing per-transaction cost pressure

NonStop customer requirements

Deliver 24 x 7 availability

- Minimize both planned and unplanned outages
- Drive recovery time to near-zero
- End-to-end availability
- Instill a culture of 24 x 7 support

Handle massive scalability

- Handle the largest workloads
- Scale without planned outage
- Scalability of multiple dimensions—processors, database, and software

Drive to standards-based computing

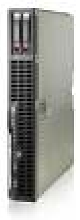
- Lower cost hardware by leveraging “volume economics”
- Modern software interfaces
- Service Oriented Architectures

Provide longevity of support

- Provide product support and upgrade capability over decades
- Maximize continuity and consistency

Taking blades to 24/7 mission-critical computing

Modular Computing	Integrity NonStop	Integrity NonStop BladeSystem
• Cost savvy • Time smart • Energy efficient • Change ready	• Continuous 24/7 availability • Real-time, all the time • Standards based • Simplified management	• Always available • Highly efficient • Flexible • Affordable



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Introducing:
Integrity NonStop BladeSystem

First-ever 24/7 mission critical computing system built with bladed modularity and standards

Double the performance

Half the footprint

100% NonStop

Leverage standards for efficiency, affordability and flexibility

Past | Present | New Generation

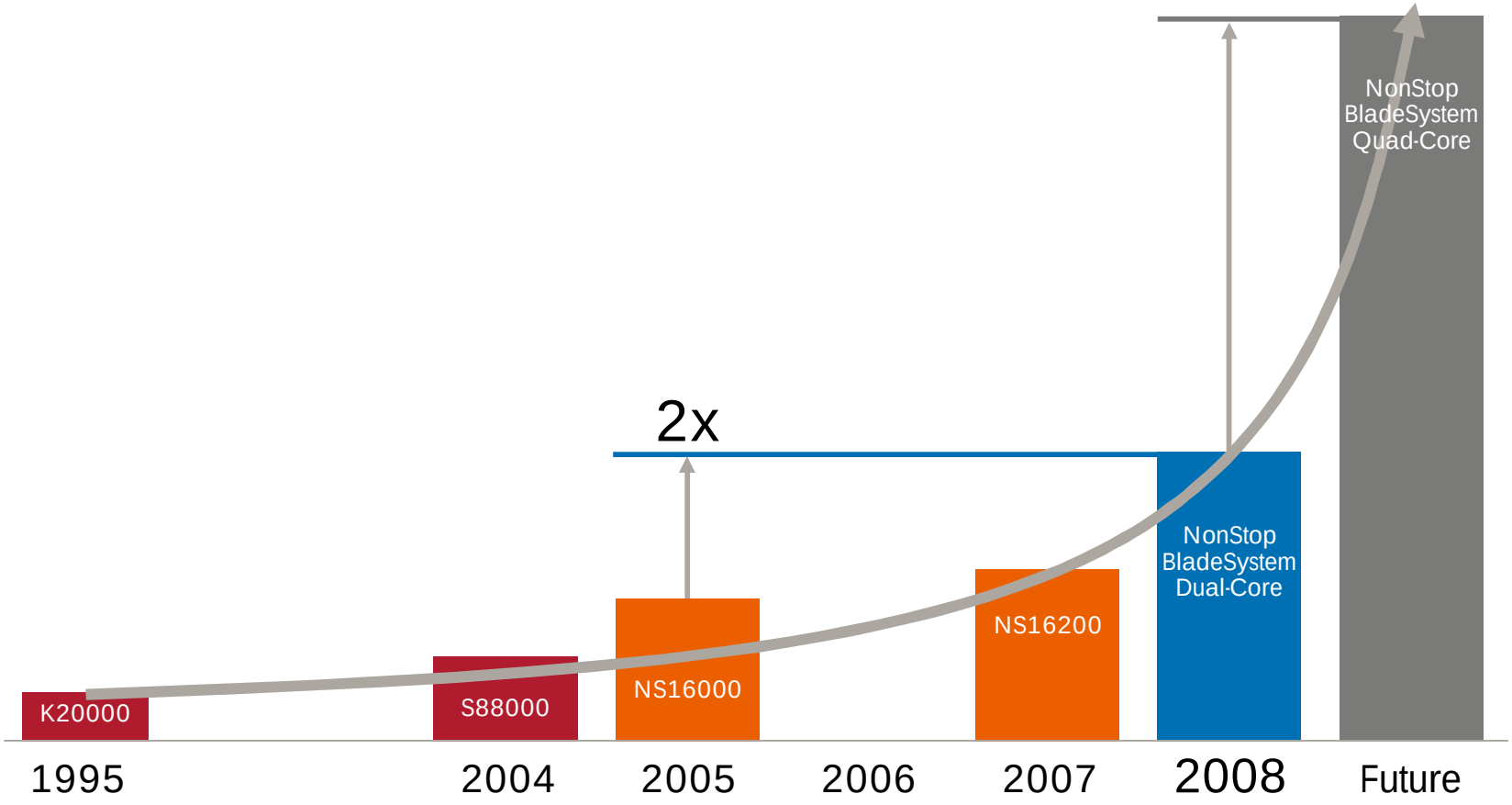
NonStop S-series

Integrity NonStop

Integrity NonStop BladeSystem

- c-Class BladeSystem
- Intel Itanium Multi-core
- Standard SAS Storage
- Standard Network I/O
- NonStop J-Series OS
- HP SIM Blade Plug-in
- HP NonStop Cluster Essentials
- Integrated Lights-Out
- Onboard Administrator

Performance increases across NonStop technology



Half the footprint… and double the performance

Integrity NonStop

8 CPUs / performance = 1x

Integrity NonStop BladeSystem

8 CPUs / performance = 2x

Driving efficiency via:

- Multi-core blades
- SAS storage
- Standard I/O
- Integrated ServerNet
- Integrated management

Delivering:

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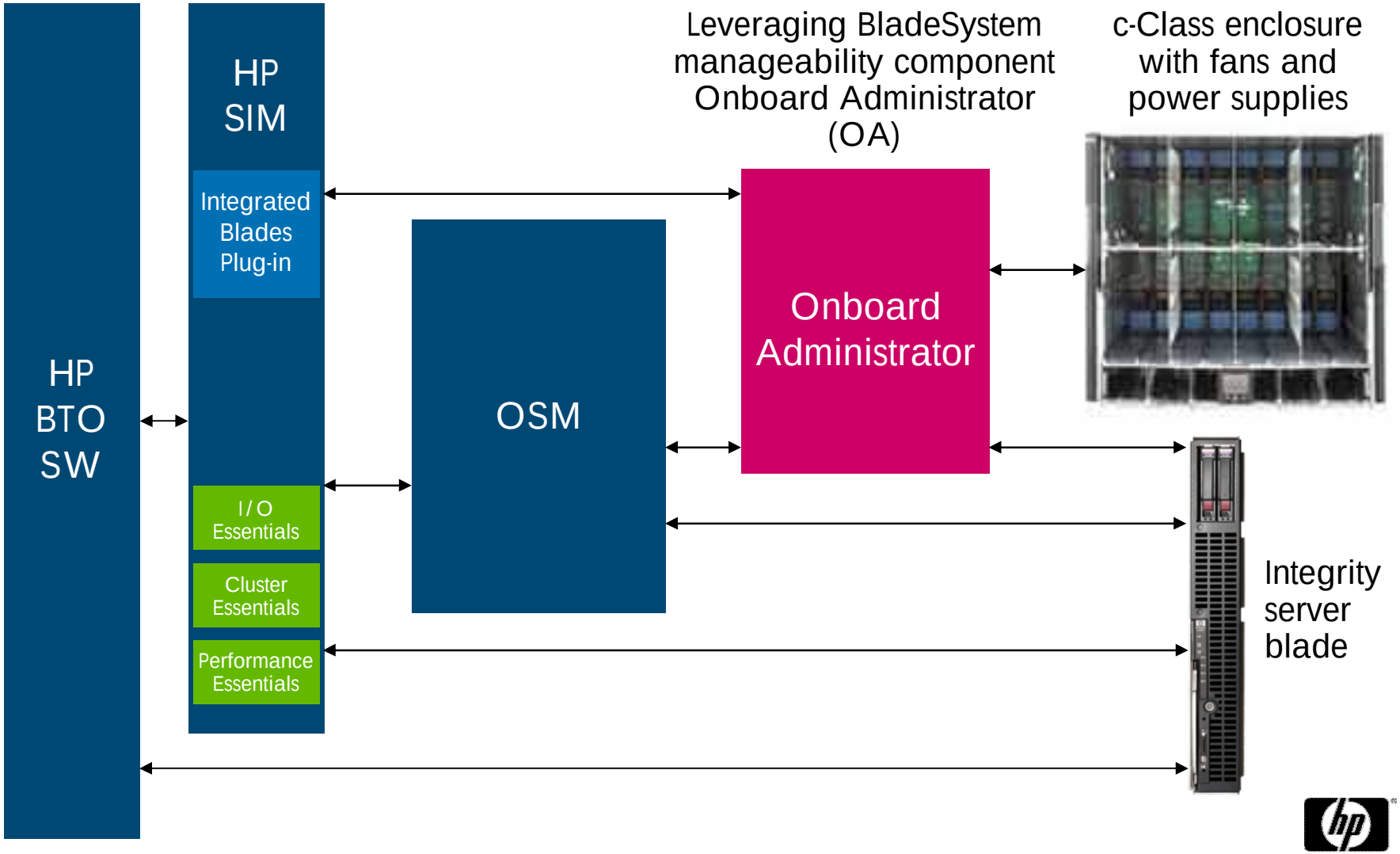
/er cost

Enhanced manageability saves time and resources… and reduced TCO

- HP Systems Insight Manager (SIM) Blade plug-in
  - Monitors and manages entire bladed infrastructure through a dashboard
- HP NonStop Cluster Essentials
  - Integrates seamlessly with HP SIM to improve management of systems within heterogeneous clusters
- Integrated Lights-Out
  - Remotely manages all servers with built-in technology
- Onboard Administrator
  - Simplifies common maintenance in real-time

NonStop BladeSystem — manageability components



100% NonStop

- Always available
  - 24/7 continuous availability
  - Fault-tolerant NonStop OS
  - Fully-integrated fault-tolerant software stack
- Massively scalable
  - Linear scalability
  - Up to 4,080 logical processors per system
  - Up to 8,160 cores per system
  - High-speed ServerNet clustering
- Complete investment protection
  - 100% software compatible
  - Seamless clustering with prior systems
  - Supports existing I/O infrastructure

Why upgrade to Integrity NonStop BladeSystem?

Meet growth demands

- Double the performance
- Scales up and out for flexible growth
- More processing power in less space with same power envelope

Enhance quality of service

- 24/7 fault-tolerant continuous availability
- Industry's best end-to-end transaction integrity
- Improved response time and throughput

Reduce costs

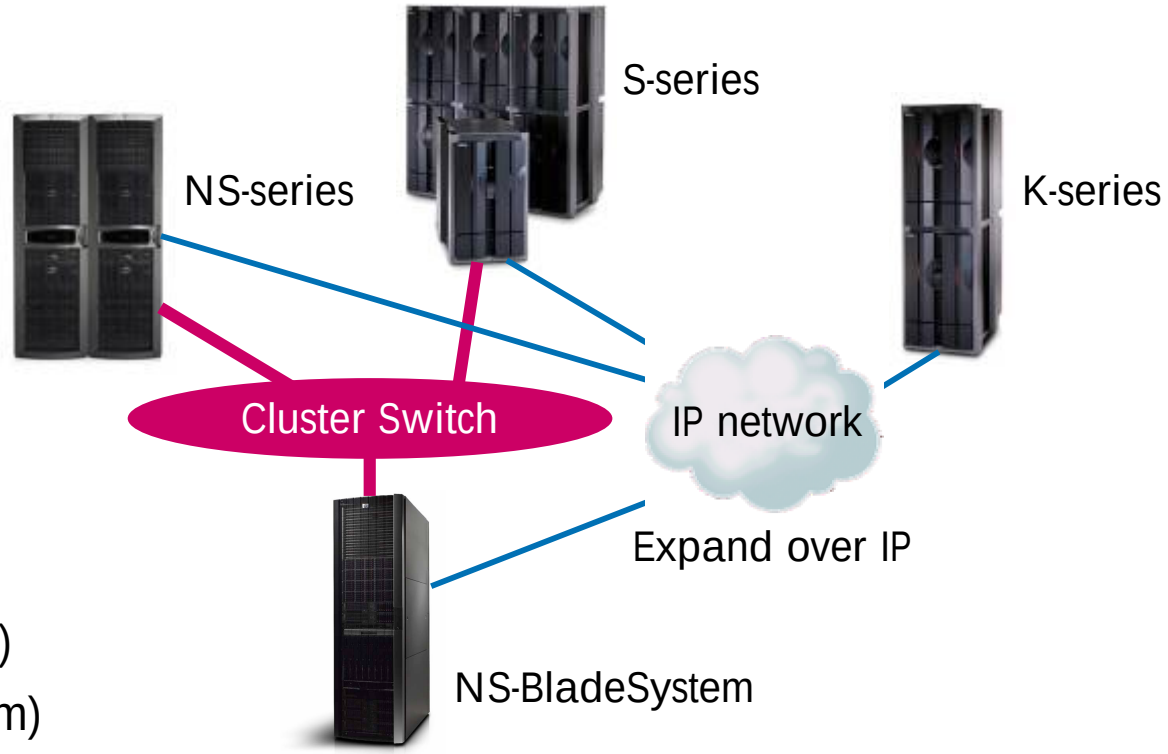
- Half the footprint
- Half per-transaction cost
- Excellent price/performance
- Saves administration time and resources

Investment protection

- Industry-standard, modular components
- Performance-based multi-core architecture (NSMA)
- Pre-configured to meet unique application needs
- Binary compatible

Complete investment protection

- 100% software compatible
- Seamless clustering with prior systems
- Supports existing I/O infrastructure

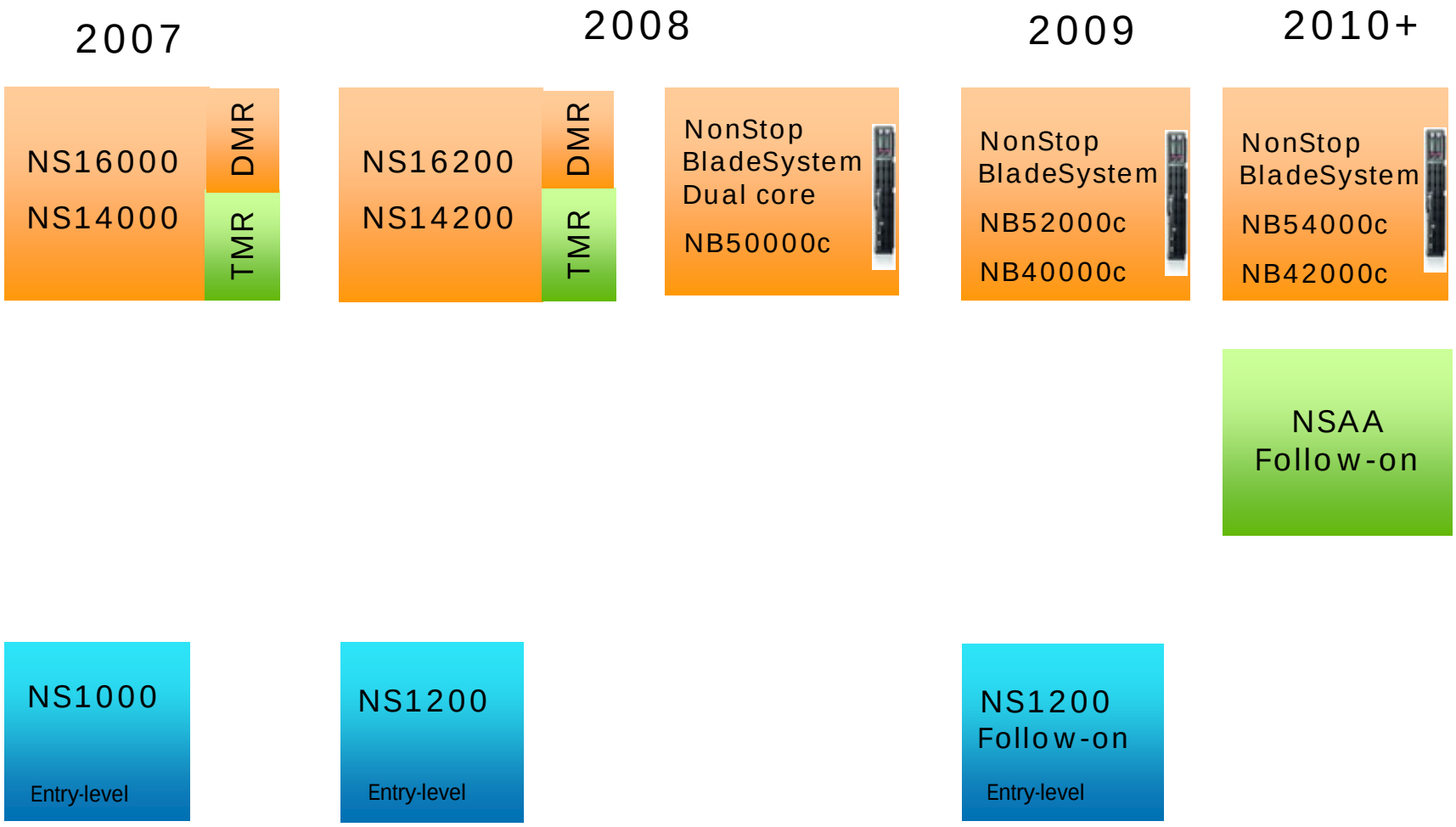


Supports BOTH cluster switches

6770 (up to 5Km)

6780 (up to 15Km)

Integrity NonStop System Roadmap



Future product plans, dates, and functionality are subject to change without notice

Processor Speedup Chart – Order Entry SQL/MP

As of 2008-06-08

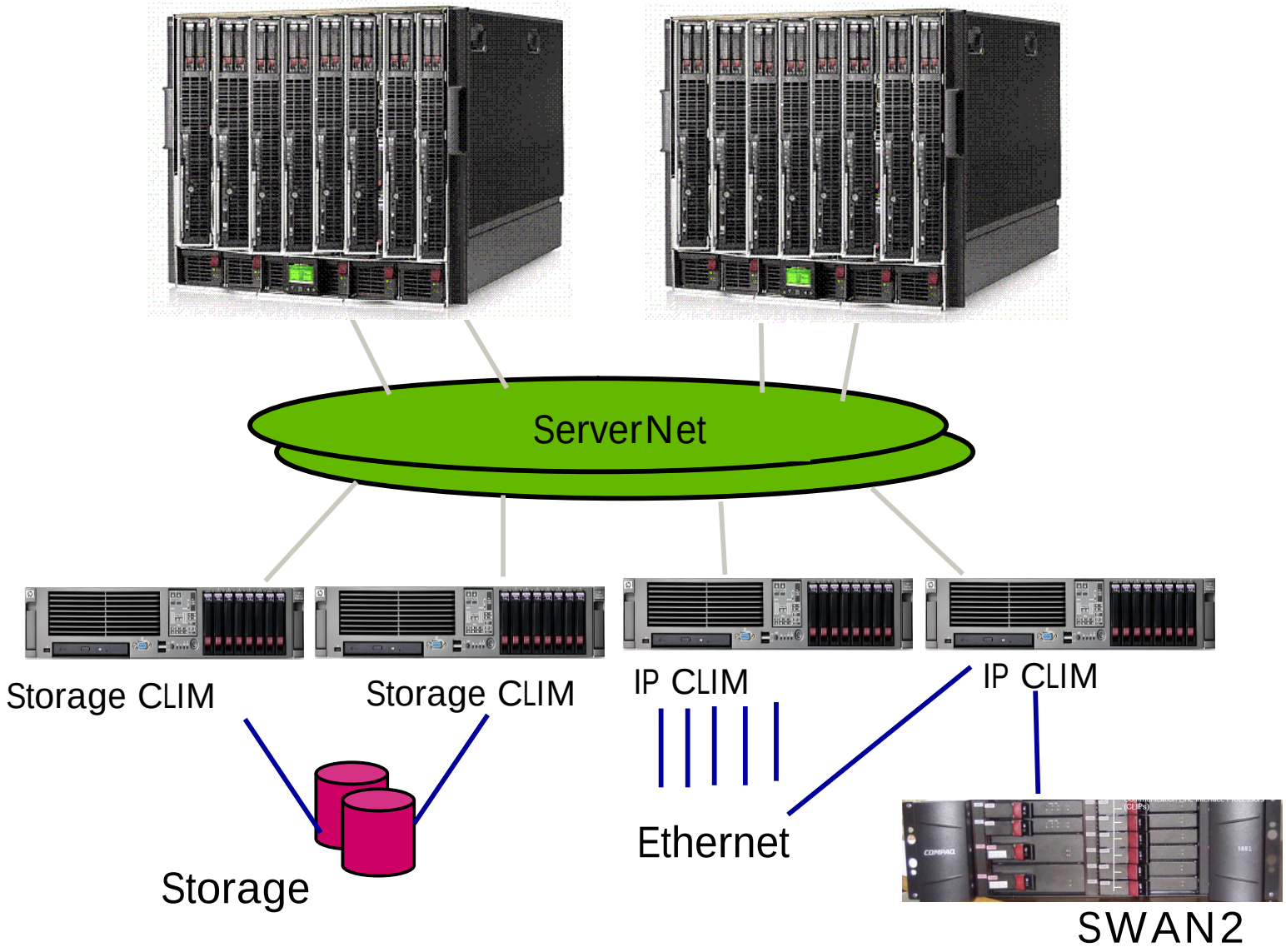
To Future SYSTEM • • •

From current system	Processor Type •	NonStop Kernel SIT •	SIT sub-qualifier •	L2 Cache •	To Future SYSTEM • • •																											
					147.0	78.7	116.0	47.9	49.1	44.1	35.6	30.1	28.9	23.3	19.3	16.9	15.8	12.6	6.0	5.7	5.7	5.8	5.8	4.9	5.0	7.4	6.9	8.2	7.8	7.9	7.1	6.4	2.9
					k02k	k20k	s07k	s74c	s70k	s70k	s72k	s76c	s74k	s78c	s76k	s78k	s86k	s88k	ns16k	ns16k	ns16k	ns16k	ns16k	ns16.2k	ns16.2k	ns14k	ns14k	ns1k	ns1k	ns1k	ns1.2k	ns14.2k	NB50k
					d42.00	d42.00a	g06.00 *	g06.08	g02.01	g06.06	g06.10	g06.16	g06.16	g06.23 .20	g06.16	g06.23 .20	g06.27 .11new	g06.27 .10	h06.04 .12.2	h06.09 .13	h06.10 .14	h06.11 .12	h06.12 .10	h06.11 .12	h06.12 .10	h06.05 .17.4	h06.07 .12	h06.06 .14	h06.07 .12	h06.08 .12	h06.12 .10	h06.13 .11	j06.03 .02
					1 MB	4 MB	1 MB	1 MB	1 MB	4 MB	4 MB	2 MB	4 MB	2 MB	4 MB	4 MB	8 MB	8 MB	6 MB	6MB	6MB	6MB	6MB	6MB	6MB	4 MB	4 MB	3MB	3 MB	3 MB	3MB	4 MB	12MB
147.0	k02k	d42.00	0	1 MB	1.00	1.87	1.27	3.07	2.99	3.33	4.13	4.88	5.08	6.31	7.64	8.69	9.31	11.64	24.35	25.73	25.68	25.51	25.18	30.31	29.70	19.76	21.19	18.04	18.97	18.55	20.78	23.15	51.47
78.7	k20k	d42.00a	0	4 MB	0.54	1.00	0.68	1.64	1.60	1.78	2.21	2.61	2.72	3.38	4.09	4.65	4.98	6.23	13.03	13.78	13.75	13.66	13.48	16.23	15.90	10.58	11.34	9.66	10.15	9.93	11.12	12.39	27.55
116.0	s07k	g06.00	*	1 MB	0.79	1.47	1.00	2.42	2.36	2.63	3.26	3.85	4.01	4.98	6.02	6.86	7.35	9.18	19.21	20.30	20.26	20.13	19.87	23.91	23.43	15.59	16.72	14.23	14.96	14.63	16.39	18.26	40.60
47.9	s74c	g06.08	0	1 MB	0.33	0.61	0.41	1.00	0.97	1.08	1.34	1.59	1.65	2.05	2.49	2.83	3.03	3.79	7.93	8.38	8.36	8.31	8.20	9.87	9.67	6.44	6.90	5.87	6.18	6.04	6.77	7.54	16.76
49.1	s70k	g02.01	0	1 MB	0.33	0.62	0.42	1.03	1.00	1.11	1.38	1.63	1.70	2.11	2.55	2.90	3.11	3.89	8.13	8.60	8.58	8.52	8.41	10.12	9.92	6.60	7.08	6.03	6.34	6.20	6.94	7.73	17.19
44.1	s70k	g06.06	0	4 MB	0.30	0.56	0.38	0.92	0.90	1.00	1.24	1.47	1.53	1.89	2.29	2.61	2.80	3.50	7.31	7.73	7.71	7.66	7.56	9.10	8.92	5.93	6.36	5.42	5.70	5.57	6.24	6.95	15.45
35.6	s72k	g06.10	0	4 MB	0.24	0.45	0.31	0.74	0.72	0.81	1.00	1.18	1.23	1.53	1.85	2.11	2.25	2.82	5.90	6.23	6.22	6.18	6.10	7.34	7.19	4.79	5.13	4.37	4.59	4.49	5.03	5.61	12.46
30.1	s76c	g06.16	0	2 MB	0.20	0.38	0.26	0.63	0.61	0.68	0.85	1.00	1.04	1.29	1.56	1.78	1.91	2.39	4.99	5.27	5.26	5.23	5.16	6.21	6.08	4.05	4.34	3.70	3.89	3.80	4.26	4.74	10.55
28.9	s74k	g06.16	0	4 MB	0.20	0.37	0.25	0.60	0.59	0.66	0.81	0.96	1.00	1.24	1.50	1.71	1.83	2.29	4.79	5.06	5.05	5.02	4.96	5.96	5.84	3.89	4.17	3.55	3.73	3.65	4.09	4.56	10.13
23.3	s78c	g06.23	.20	2 MB	0.16	0.30	0.20	0.49	0.47	0.53	0.65	0.77	0.81	1.00	1.21	1.38	1.48	1.85	3.86	4.08	4.07	4.04	3.99	4.80	4.71	3.13	3.36	2.86	3.01	2.94	3.29	3.67	8.16
19.3	s76k	g06.16	0	4 MB	0.13	0.24	0.17	0.40	0.39	0.44	0.54	0.64	0.67	0.83	1.00	1.14	1.22	1.52	3.19	3.37	3.36	3.34	3.30	3.97	3.89	2.59	2.77	2.36	2.48	2.43	2.72	3.03	6.74
16.9	s78k	g06.23	.20	4 MB	0.12	0.21	0.15	0.35	0.34	0.38	0.47	0.56	0.58	0.73	0.88	1.00	1.07	1.34	2.80	2.96	2.95	2.93	2.90	3.49	3.42	2.27	2.44	2.07	2.18	2.13	2.39	2.66	5.92
15.8	s86k	g06.27	.11new	8 MB	0.11	0.20	0.14	0.33	0.32	0.36	0.44	0.52	0.55	0.68	0.82	0.93	1.00	1.25	2.61	2.76	2.76	2.74	2.70	3.26	3.19	2.12	2.28	1.94	2.04	1.99	2.23	2.49	5.53
12.6	s88k	g06.27	.10	8 MB	0.09	0.16	0.11	0.26	0.26	0.29	0.35	0.42	0.44	0.54	0.66	0.75	0.80	1.00	2.09	2.21	2.21	2.19	2.16	2.60	2.55	1.70	1.82	1.55	1.63	1.59	1.78	1.99	4.42
6.0	ns16k	h06.04	.12.2	6 MB	0.04	0.08	0.05	0.13	0.12	0.14	0.17	0.20	0.21	0.26	0.31	0.36	0.38	0.48	1.00	1.06	1.05	1.05	1.03	1.24	1.22	0.81	0.87	0.74	0.78	0.76	0.85	0.95	2.11
5.7	ns16k	h06.09	.13	6MB	0.04	0.07	0.05	0.12	0.12	0.13	0.16	0.19	0.20	0.25	0.30	0.34	0.36	0.45	0.95	1.00	1.00	0.99	0.98	1.18	1.15	0.77	0.82	0.70	0.74	0.72	0.81	0.90	2.00
5.7	ns16k	h06.10	.14	6MB	0.04	0.07	0.05	0.12	0.12	0.13	0.16	0.19	0.20	0.25	0.30	0.34	0.36	0.45	0.95	1.00	1.00	0.99	0.98	1.18	1.16	0.77	0.83	0.70	0.74	0.72	0.81	0.90	2.00
5.8	ns16k	h06.11	.12	6MB	0.04	0.07	0.05	0.12	0.12	0.13	0.16	0.19	0.20	0.25	0.30	0.34	0.37	0.46	0.95	1.01	1.01	1.00	0.99	1.19	1.16	0.77	0.83	0.71	0.74	0.73	0.81	0.91	2.02
5.8	ns16k	h06.11	.12	6MB	0.04	0.07	0.05	0.12	0.12	0.13	0.16	0.19	0.20	0.25	0.30	0.35	0.37	0.46	0.97	1.02	1.02	1.01	1.00	1.20	1.18	0.78	0.84	0.72	0.75	0.74	0.83	0.92	2.04
4.9	ns16.2k	h06.11	.12	6MB	0.03	0.06	0.04	0.10	0.10	0.11	0.14	0.16	0.17	0.21	0.25	0.29	0.31	0.38	0.80	0.85	0.85	0.84	0.83	1.00	0.98	0.65	0.70	0.60	0.63	0.61	0.69	0.76	1.70
5.0	ns16.2k	h06.12	.10	6MB	0.03	0.06	0.04	0.10	0.10	0.11	0.14	0.16	0.17	0.21	0.26	0.29	0.31	0.39	0.82	0.87	0.86	0.86	0.85	1.02	1.00	0.67	0.71	0.61	0.64	0.62	0.70	0.78	1.73
7.4	ns14k	h06.05	.17.4	4 MB	0.05	0.09	0.06	0.16	0.15	0.17	0.21	0.25	0.26	0.32	0.39	0.44	0.47	0.59	1.23	1.30	1.30	1.29	1.27	1.53	1.50	1.00	1.07	0.91	0.96	0.94	1.05	1.17	2.60
6.9	ns14k	h06.07	.12	4 MB	0.05	0.09	0.06	0.14	0.14	0.16	0.19	0.23	0.24	0.30	0.36	0.41	0.44	0.55	1.15	1.21	1.21	1.20	1.19	1.43	1.40	0.93	1.00	0.85	0.90	0.88	0.98	1.09	2.43
8.2	ns1k	h06.06	.14	3MB	0.06	0.10	0.07	0.17	0.17	0.18	0.23	0.27	0.28	0.35	0.42	0.48	0.52	0.65	1.35	1.43	1.42	1.41	1.40	1.68	1.65	1.10	1.17	1.00	1.05	1.03	1.15	1.28	2.85
7.8	ns1k	h06.07	.12	3 MB	0.05	0.10	0.07	0.16	0.16	0.18	0.22	0.26	0.27	0.33	0.40	0.46	0.49	0.61	1.28	1.36	1.35	1.34	1.33	1.60	1.57	1.04	1.12	0.95	1.00	0.98	1.10	1.22	2.71
7.9	ns1k	h06.08	.12	3 MB	0.05	0.10	0.07	0.17	0.16	0.18	0.22	0.26	0.27	0.34	0.41	0.47	0.50	0.63	1.31	1.39	1.38	1.38	1.36	1.63	1.60	1.07	1.14	0.97	1.02	1.00	1.12	1.25	2.77
7.1	ns1.2k	h06.12	.10	3MB	0.05	0.09	0.06	0.15	0.14	0.16	0.20	0.23	0.24	0.30	0.37	0.42	0.45	0.56	1.17	1.24	1.24	1.23	1.21	1.46	1.43	0.95	1.02	0.87	0.91	0.89	1.00	1.11	2.48
6.4	ns14.2k	h06.13	11	4MB	0.04	0.08	0.05	0.13	0.13	0.14	0.18	0.21	0.22	0.27	0.33	0.38	0.40	0.50	1.05	1.11	1.11	1.10	1.09	1.31	1.28	0.85	0.92	0.78	0.82	0.80	0.90	1.00	2.22
2.9	NB50k	j06.03	.02	12MB	0.02	0.04	0.02	0.06	0.06	0.06	0.08	0.09	0.10	0.12	0.15	0.17	0.18	0.23	0.47	0.50	0.50	0.50	0.49	0.59	0.58	0.38	0.41	0.35	0.37	0.36	0.40	0.45	1.00

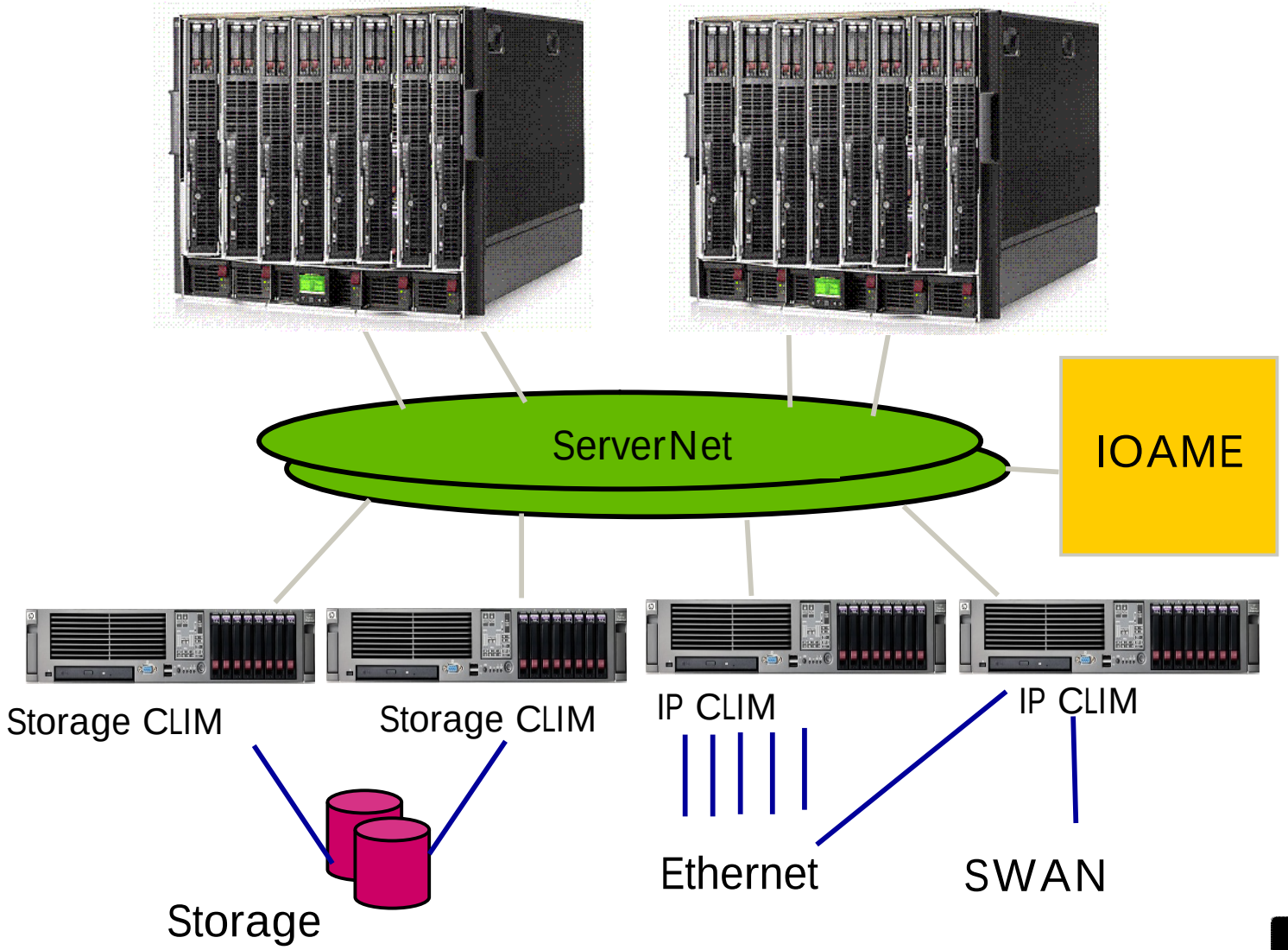
invent

Cluster I / O Module (CLIM)

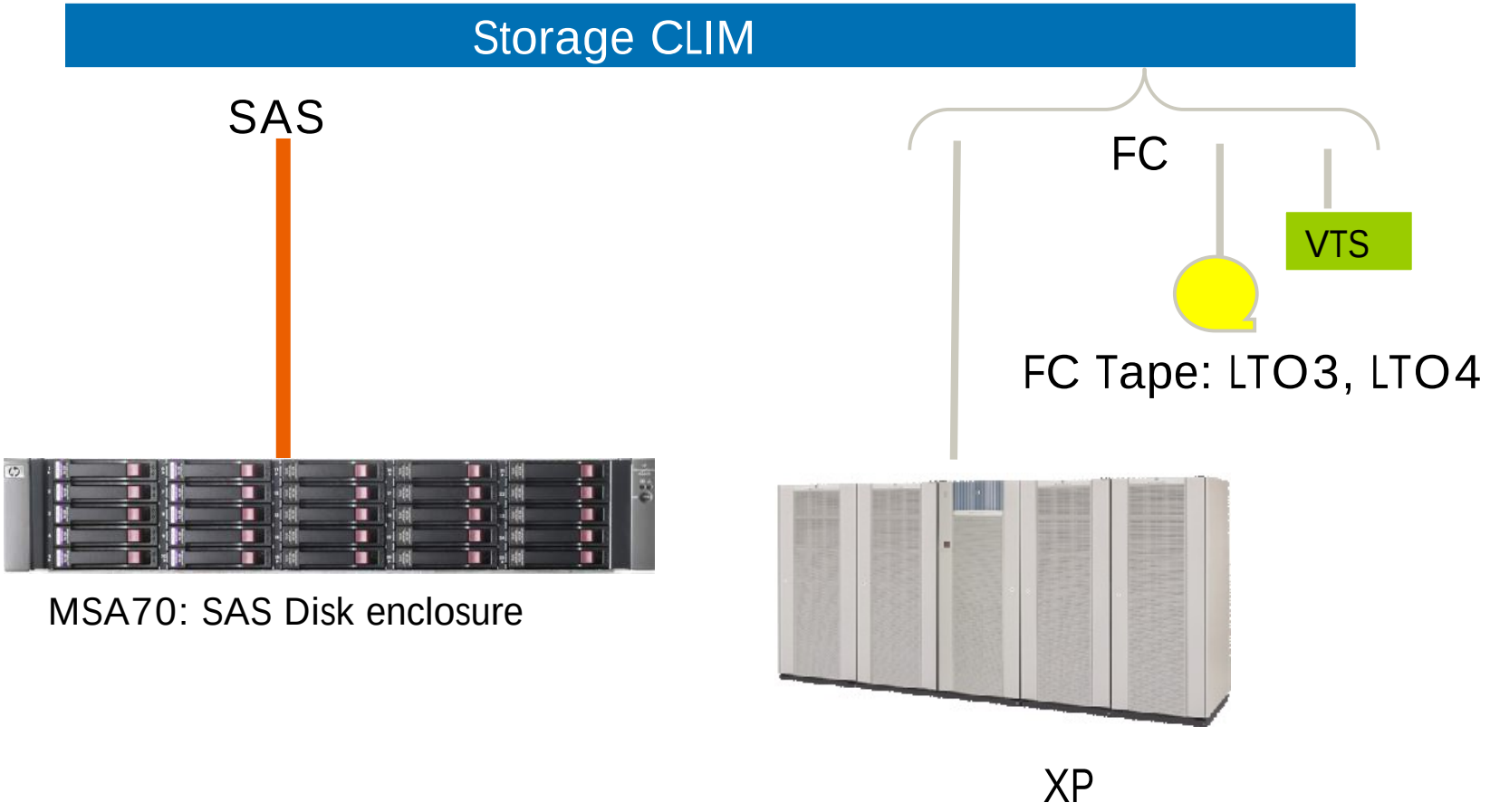
NonStop Blades I/O Infrastructure
Cluster I/O Module (CLIM)



NonStop Blades I/O Infrastructure Cluster I/O Module (CLIM)



Storage CLIM Supported Devices



SAS disks Enclosure

SAS Enclosure

- Holds up to 25 disks
- Disk form factor: 2 ½ inch
- Occupies 2U of rack space
- Dual-domains for higher levels of redundancy and reliability

Base FT config 4U/50 disks

SAS Disk Capacity at FCS

146 GB/10K RPM

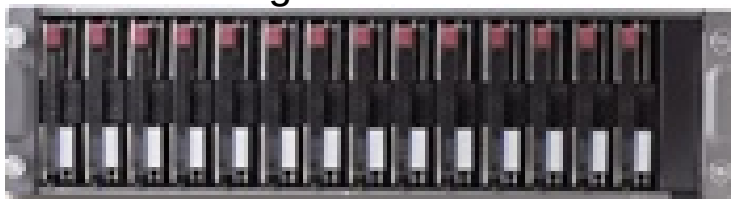
72 GB/15K RPM

COMPARISON

FCDM

- Holds 14 disks
- Disk form factor: 3 ½ inch
- Occupies 3U of rack space

Base FT config 6U/28 disks



FC Disk Capacity

72 GB/15K RPM

144 GB/15K RPM

300 GB/15K RPM

Future direction

The NonStop BladeSystem future

Past	Present	New Generation	Future
			
MIPS Processors	Intel Itanium Processors	Intel Itanium Dual-core Processors	Intel Itanium Multi-core Processors
Proprietary Cabinets	HP Rack	HP BladeSystem	HP BladeSystem
Proprietary Disks	StorageWorks Disk	StorageWorks Disk	StorageWorks Disk
NonStop Kernel	NonStop OS	NonStop OS	NonStop OS + Multi-OS
			
NonStop S-series	Integrity NonStop	Integrity NonStop BladeSystem	Shared-infrastructure BladeSystem

LEVERAGING STANDARDS

Linux / Windows
HP-UX
NonStop

Industry's first blades for 24/7 computing

- Delivers on the HP "Blade Everything" strategy
- Next generation infrastructure today on NonStop

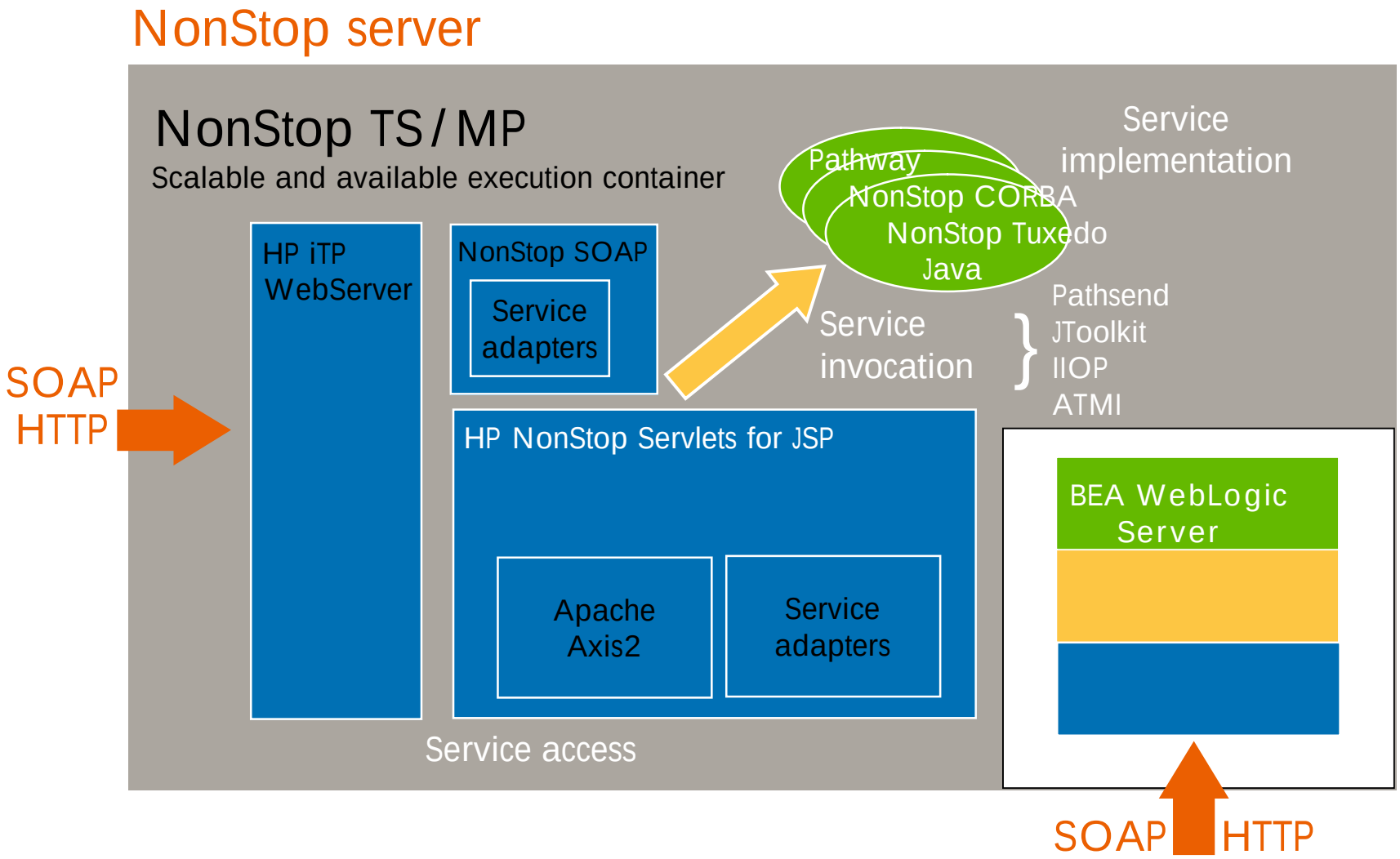
Double the performance

Half the footprint

100% NonStop

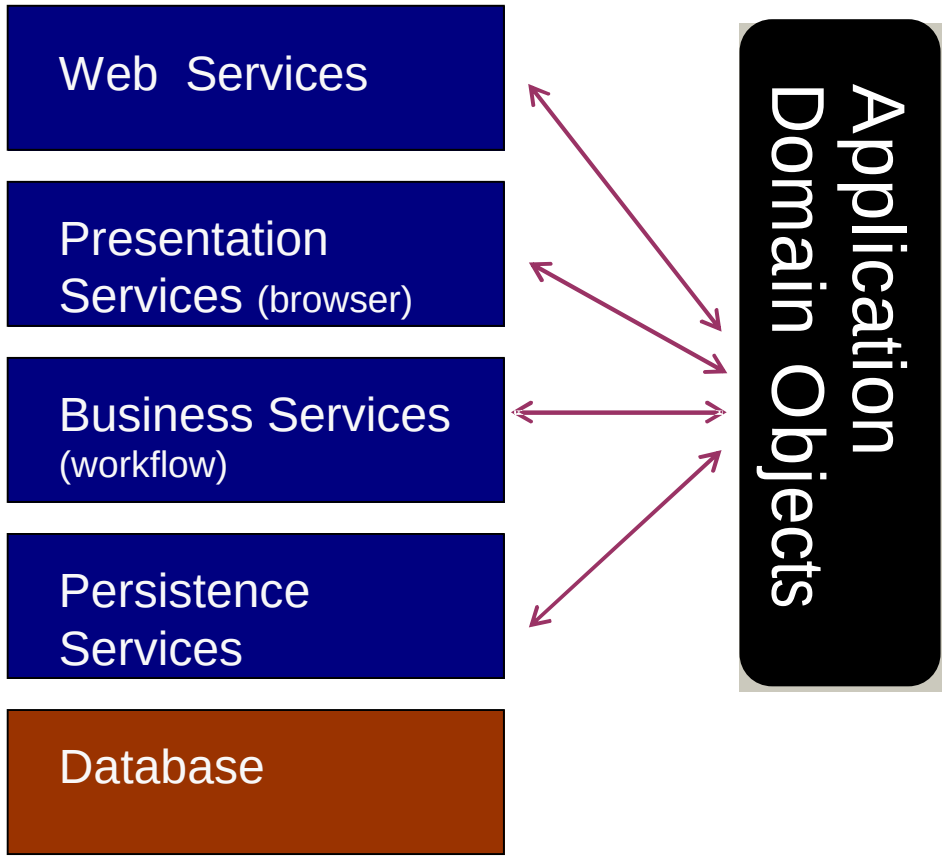
Java Development with Open Source Frameworks

SOA and the NonStop server — product technologies summary



So, you want to develop enterprise Java applications?

You need to implement these architectural layers



Traditional toolset: Java EE

Enterprise Java application tiers

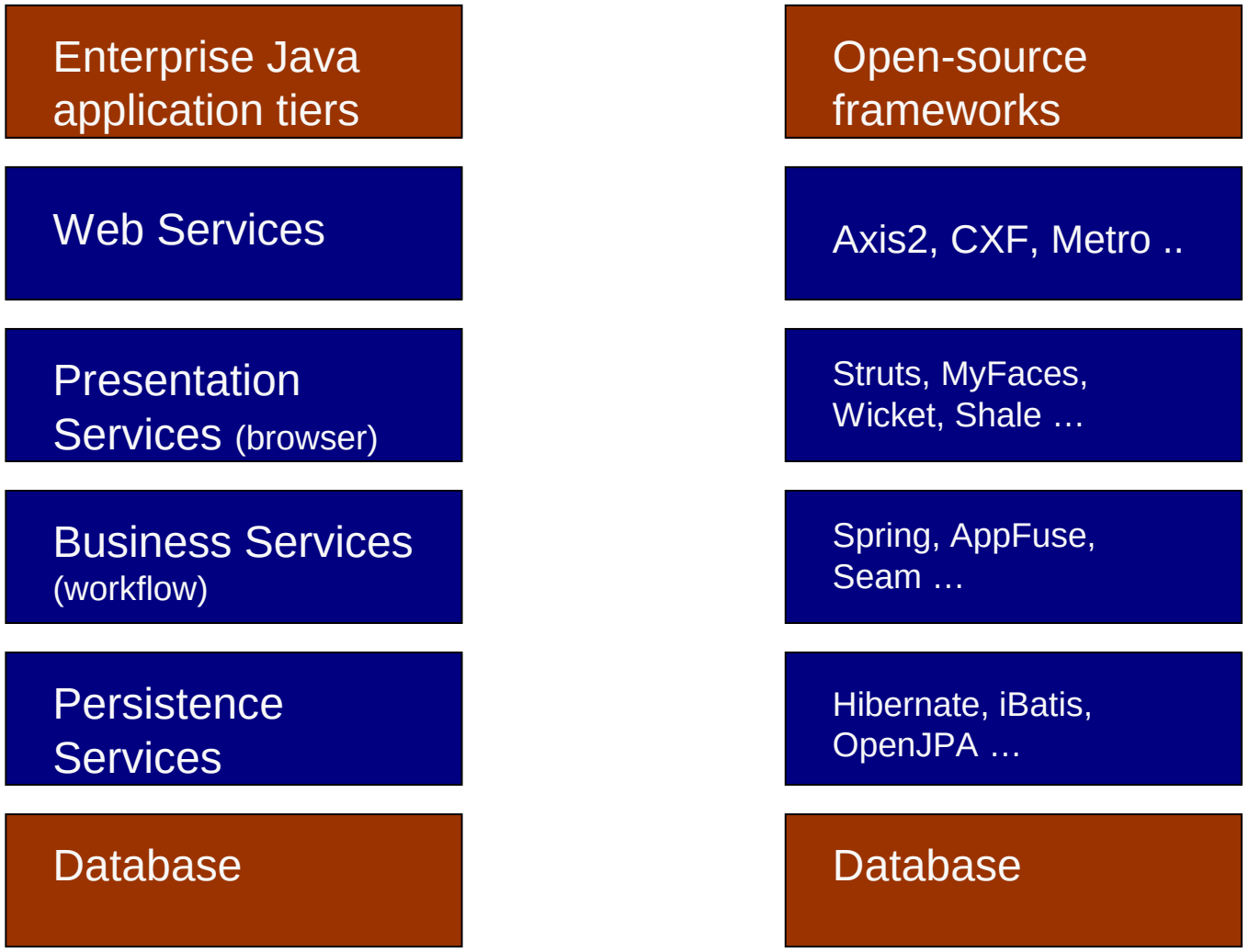
Corresponding J2EE components

Complexity !

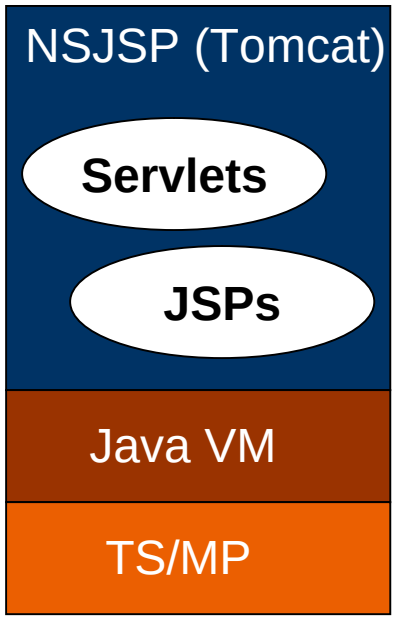
Database

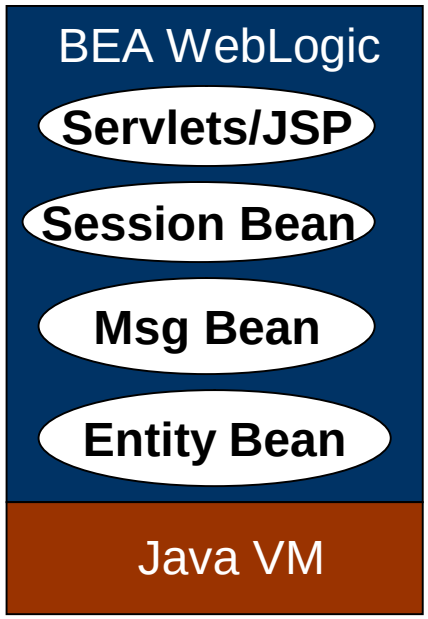
Database

Today's popular toolset: open-source frameworks



Java programming model on NonStop today

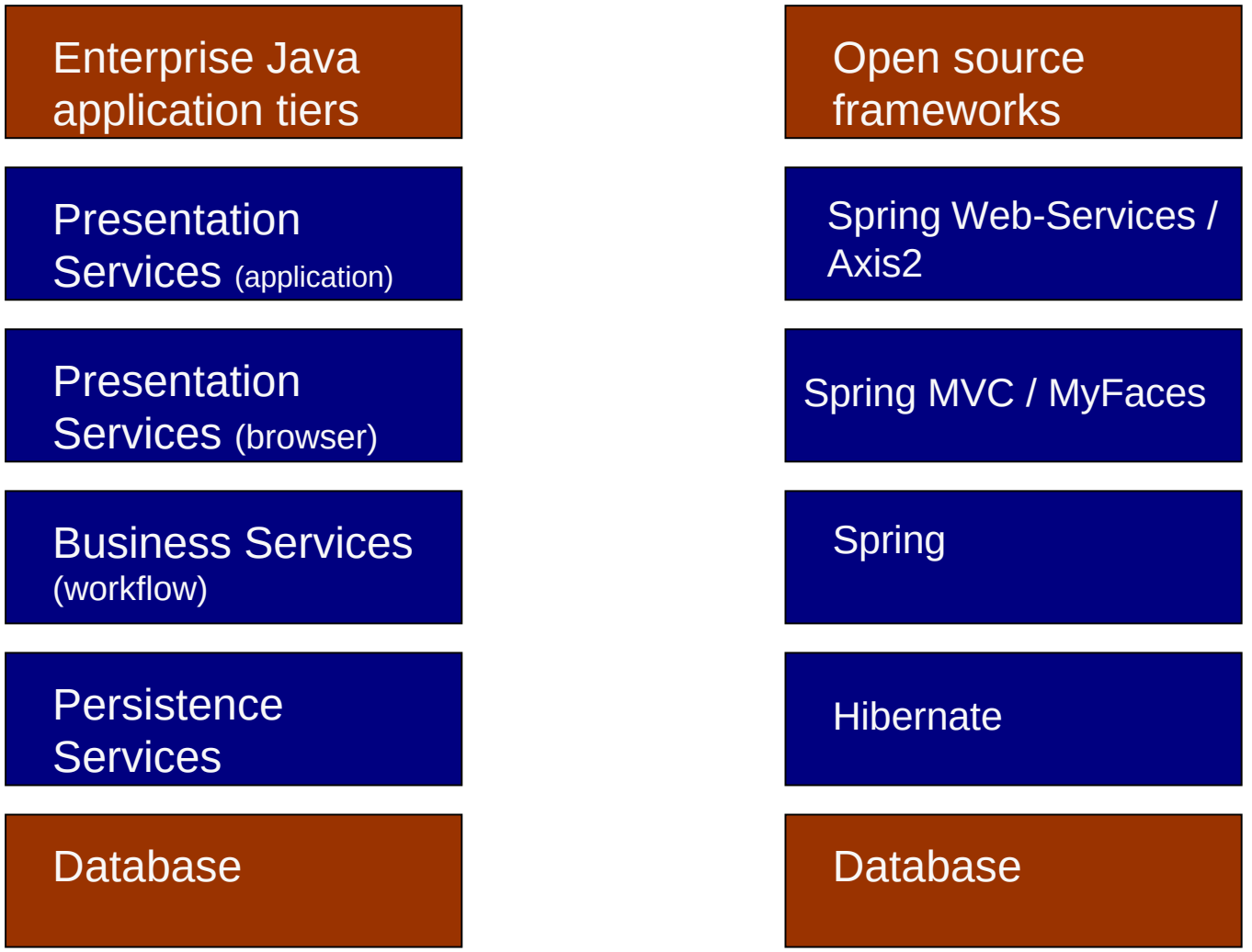




API support limited to components in Presentation layer

Comprehensive API support for all layers, but complex programming model

Java programming model on NonStop soon



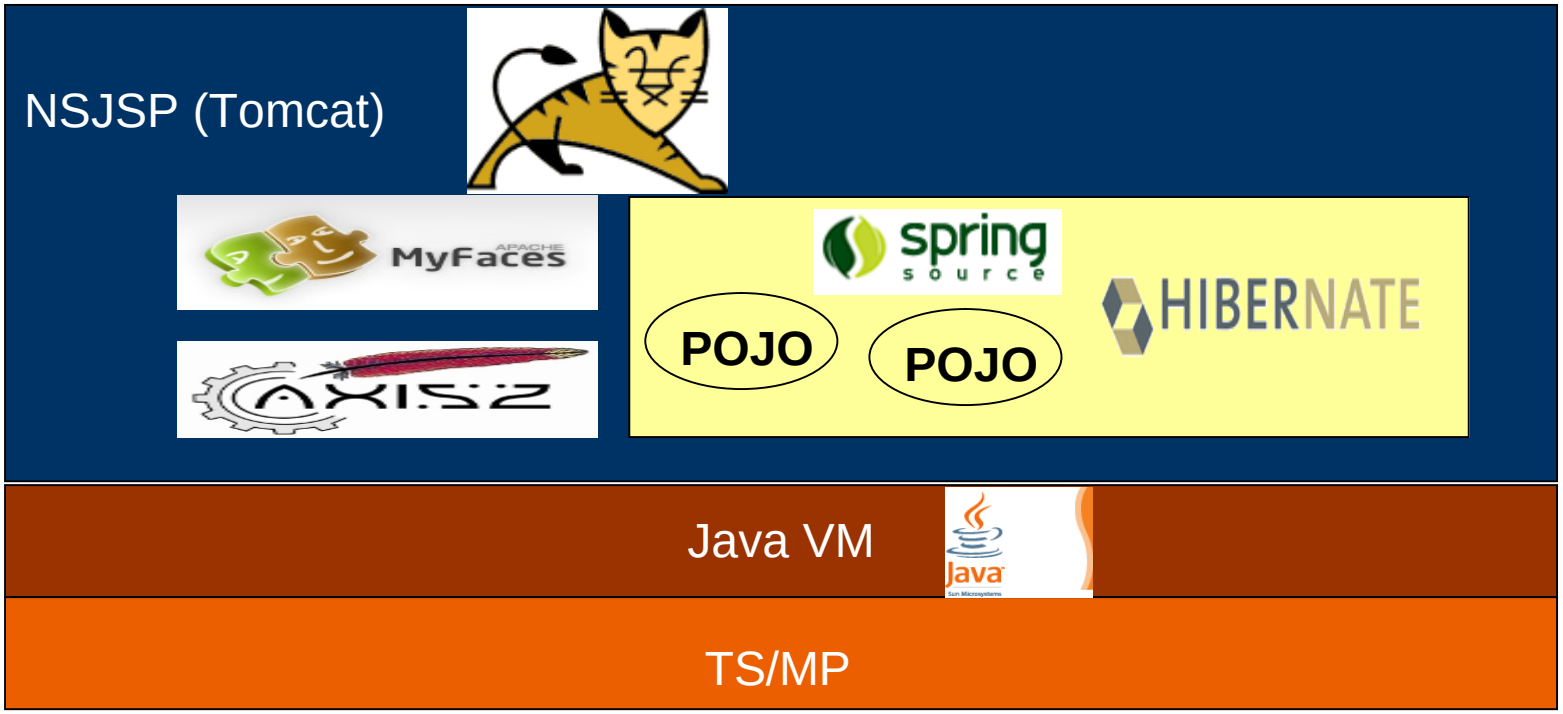
Future product plans, dates, and functionality are subject to change without notice

The SASH stack

- Category leaders with active community support
  - Spring (Business logic framework)
  - Axis2 (Web services framework)
  - Server Faces (Web framework)
  - Hibernate (Persistence framework)
- Vendor support
  - BEA WebLogic, IBM Websphere, Oracle AppServer have expressed support for Spring
- Analyst endorsement
  - “Spring threatens Java EE” (Gartner)
  - “… organizations should consider alternative frameworks such as LAMP, Spring, Hibernate, RoR, and Microsoft .NET, which offer simpler and more productive programming models.” (Burton Group)

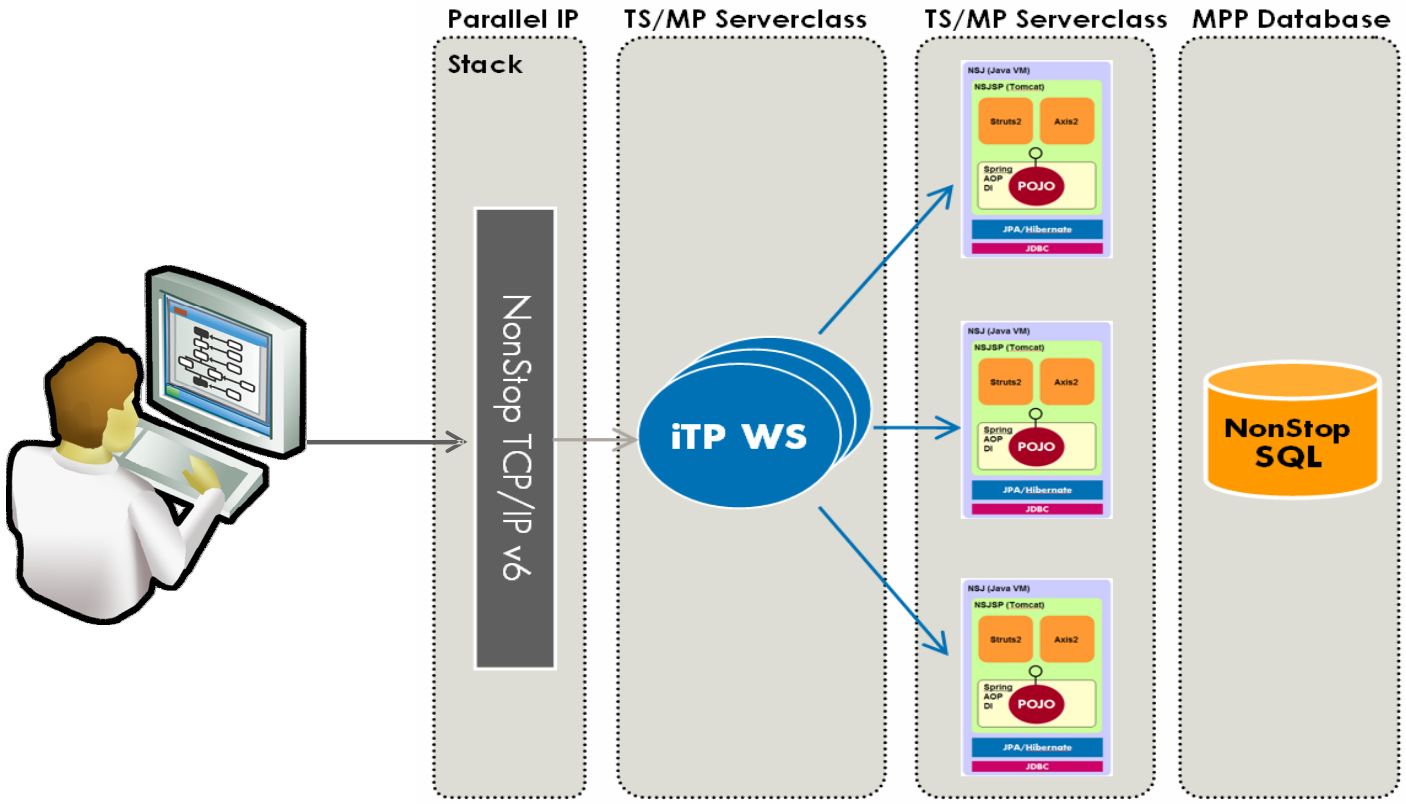
Gartner: Trends in Platform Middleware, Sept. 2007
Burton: JEE 5: The Beginning of the End of Java EE, July 2006

Extending Java environment to support leading open-source frameworks to enable simpler development with differentiated deployment



- Spring, Axis2, MyFaces, Hibernate are frameworks – not low-level, plumbing APIs
- Simpler programming model, yielding higher productivity
- Lightweight and runs on lightweight, scalable infrastructure

Standard programming model, Differentiated deployment on NonStop



Transparent Scalability	ü	ü	ü	ü
Fault Tolerance	ü	ü	ü	ü

hp invent

Benefits of using frameworks

- Agile Development: Simplifies and speeds development
- Better Quality: Greatly improves application testability
- Greater Maintainability: Provides common structure to applications
- Better Performance: lightweight framework with co-located (single JVM) application objects

In a nutshell, extending Java environment to provide:

Programming model simplicity covering *all* architectural tiers

Simplicity is the ultimate sophistication

- Leonardo da Vinci

+

Scalable, high performance hosting infrastructure

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Technology for better business outcomes

Back-Up Slides

SW1

Pipeline Solutions

SW1 Mike,
This end section is customer viewable.
Sharon S Wagener; 2008-08-29

Solution Pipeline

- FSI
  - ATOS WorldLine Pay: FSI Retail Payments Infrastructure, ATM/POS. Target Market: EMEA; potentially WW.
  - Bharti Telesoft: mobiquity platform embraces the mobile phone as a convenient, cash-free, and card-free payment and transaction medium, delivering a range of financial and commercial applications: mBanking, mMoney, and mPayment. Target Market: EMEA as lead region.
  - Fidelity/Connex: FSI Retail Payments Infrastructure, ATM/POS. Target Market: WW.
  - Logica Next Gen BESS (BOSS – internal name): open wholesale payments; real-time clearing and settlement system. Target Market: Logica BESS installed base, selected new targets who require mature, functionally rich product. Target Market: WW.

Solution Pipeline

- FSI
  - OPSOL OmniATM: payment infrastructure which drives browser-based Web ATMs and standard ATM/POS devices that can easily provide new services such as alternate product offerings, tailored to specific individuals. Provides a comprehensive solution for banks to acquire, authenticate, route, switch, and authorize financial transactions across multiple input channels. Target Market: Tier2 FSI; AMS Lead Region.
  - OPSOL OmniPTMS: Intelligent payment management. Target Market: Tier 1 FSI; AMS lead region.
  - OPUS: FSI Retail Payments Infrastructure, ATM/POS. Target Market: Asia Pacific; potentially WW.
  - Quadrant: Banking credit risk analytics engine and data warehouse. Target Market: EMEA Finance Industry.
  - XCOM: Internet banking system for next generation home banking. Target Market: EMEA Finance Industry, refresh of existing internet banking systems.

Solution Pipeline

- CME
  - SDM/Profile Mgr: As a comprehensive mobile core network solution, this multi-value play includes 'HLR consolidation', future-proof migration to IMS with HSS, and network data federation with Profile Manager --- all based on superior IT infrastructure that is open, continuously available and low TCO. Target Market: WW
- HLS
  - Crossflo: Provides solutions that enable the exchange of data between multiple systems and multiple organizations while avoiding disruption and expending far less time, effort, and cost than has been previously possible. Target Market – Hospitals, Hospital Groups and HIEs for HLS and Homeland Security, Defense, Public Safety, Justice, etc. for Public Sector. WW; AMS lead region.
- Cross Industry
  - RTSC: Enables customers to implement cross-system business processes and allows for the integration of different versions of SAP applications and other applications on different platforms. It offers services that are essential in a heterogeneous and complex system landscape: a runtime infrastructure for message exchange, configuration options for managing business processes and message flow, and options for transforming message contents between the send and receiver systems. The solution allows collaboration and enhances visibility to all partners across the supply chain. Target Market: WW; AMS lead region.

Software Roadmap Overview

NonStop software objectives by product segment

Application programming models - “develop”	Enable the development of applications conforming to current standard tools and programming models “Common standards…”
Application infrastructure - “deploy”	Provide a highly scalable and available deployment environment for mission critical applications “…uncommon advantages”
Platform infrastructure - “enable”	Provide the underpinnings for an accessible, open, secure, and easy to manage platform

Application programming models – develop

Objective	Enable the development of applications conforming to current standard tools and programming models "Common standards…"		
Technologies	App development Tools, languages	SOA support	Java and open-source frameworks
Strategic Products	Eclipse, compilers	iTP Webserver NSSOAP	Spring, Axis2, Server Faces, Hibernate

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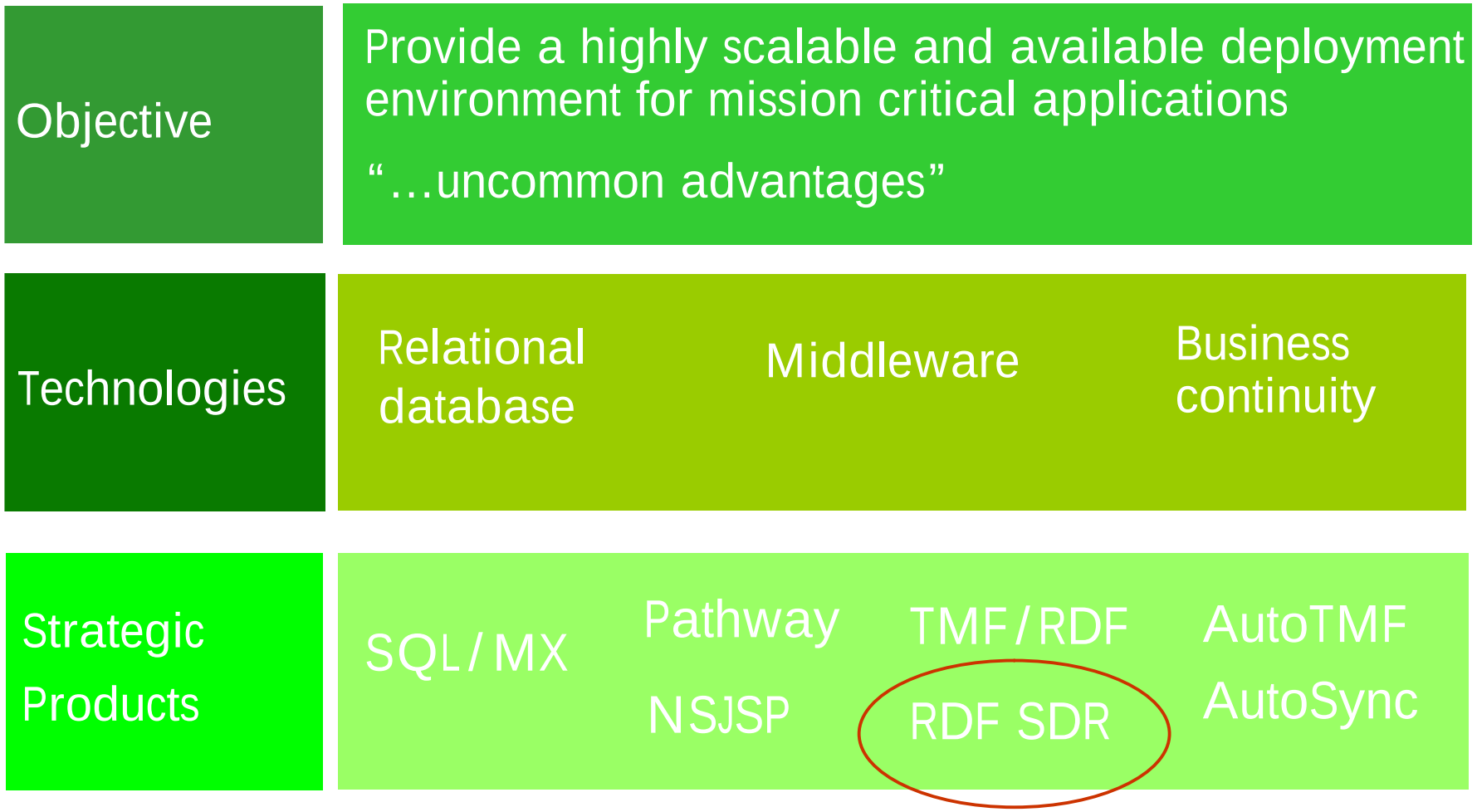
Application infrastructure – deploy



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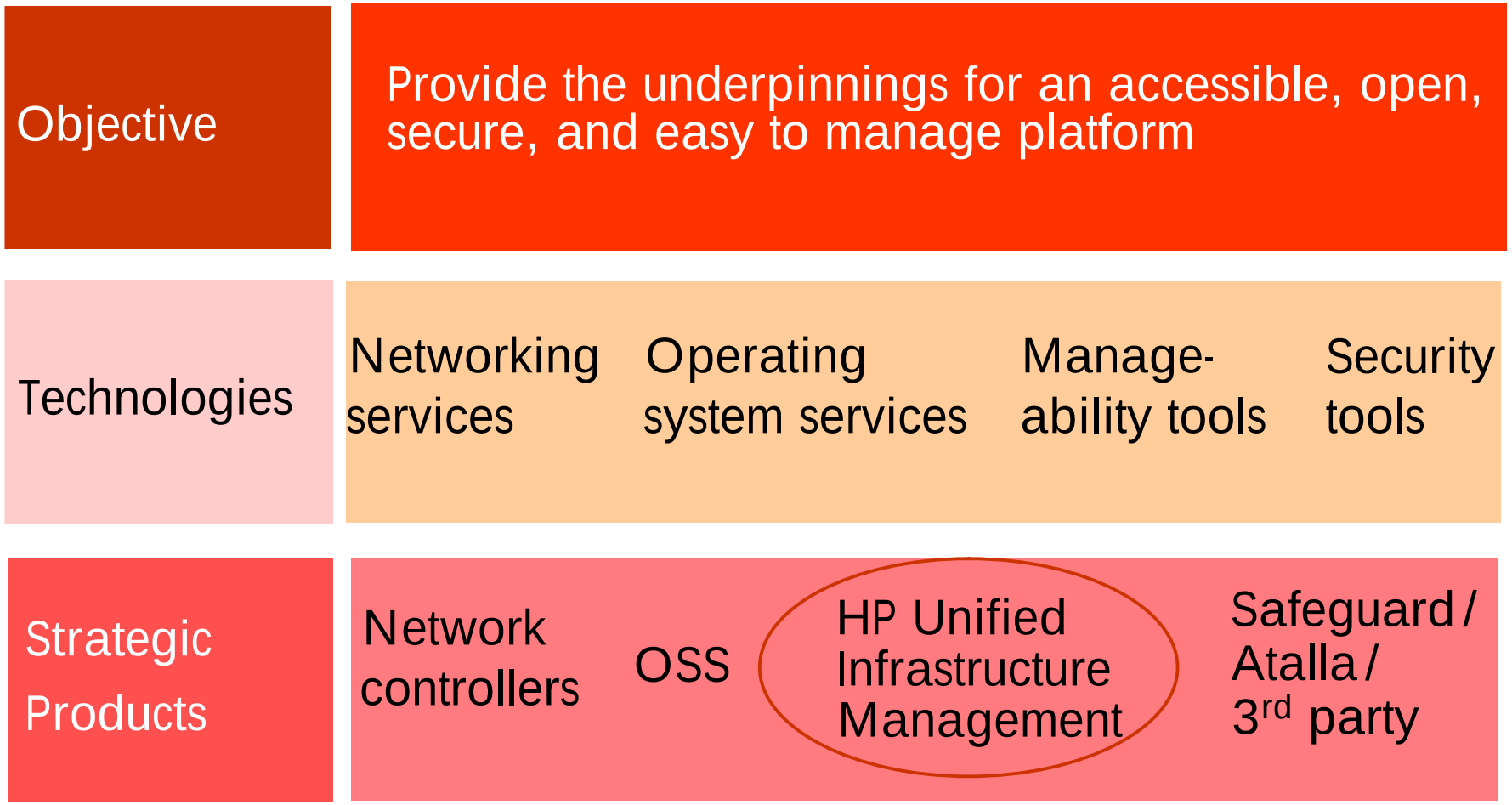
Platform infrastructure – enable



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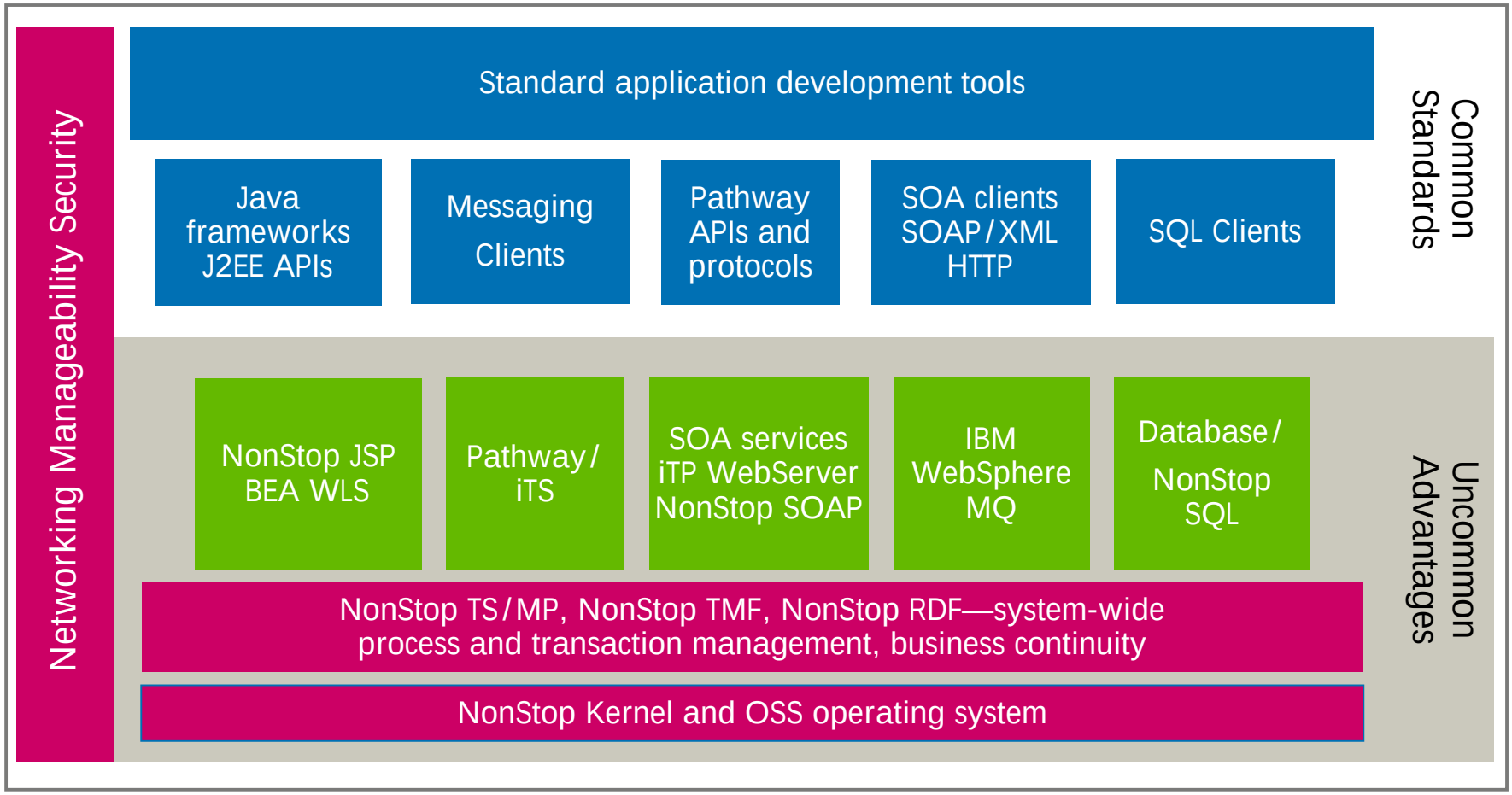
NonStop software product segments



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S-series Software

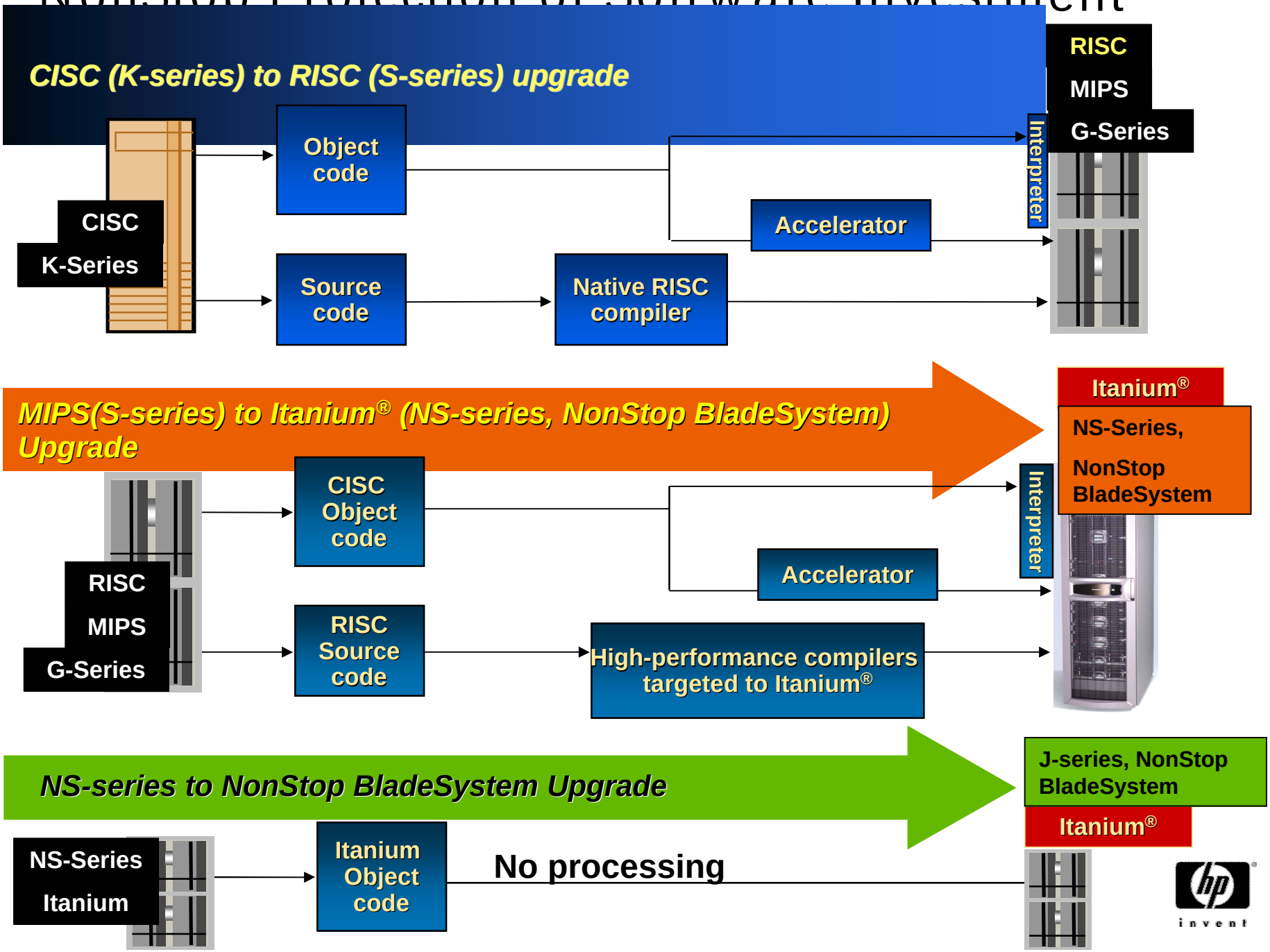
- Maturing virtually all S-series software
  - Exceptions
    - Security
    - Several partner products in NonStop pricebook
- Critical and Major Bug fixes continue
- RFEs entertained for release on H-series and J-series but will not be provided on S-series

New NonStop BladeSystem Software stack

- Harness power of multi core processors
  - New NonStop Operating System J-Series 

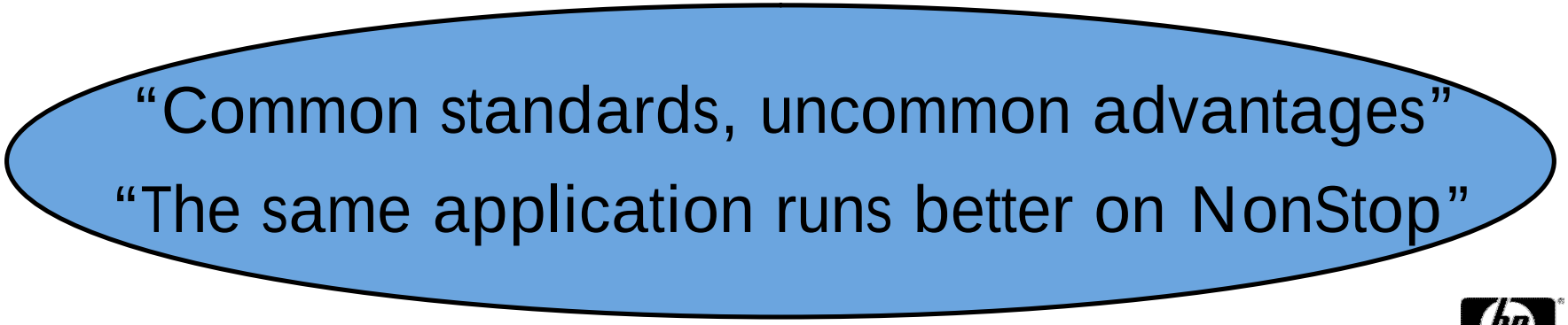
- Whole stack supported
  - Database (Enscribe, SQL/MP, SQL/MX, ODBC, JDBC)
  - Middleware (Pathway, Java, CORBA, Tuxedo,)
  - Manageability (MEASURE, NetBatch, ASAP, OSM, …)
  - SOA (SOAP, Webserver, …)
- Bundled frequently used additional products in base operating system
  - Dataloader/MP (Dataloader/MX has always been no added charge), NetBatch & NetBatch-Plus, SOAP, iTP Secure Webserver
- Easy to adopt
  - No source code recompilation required when migrating from H-Series
    - Binary code compatible

NonStop Protection of Software Investment

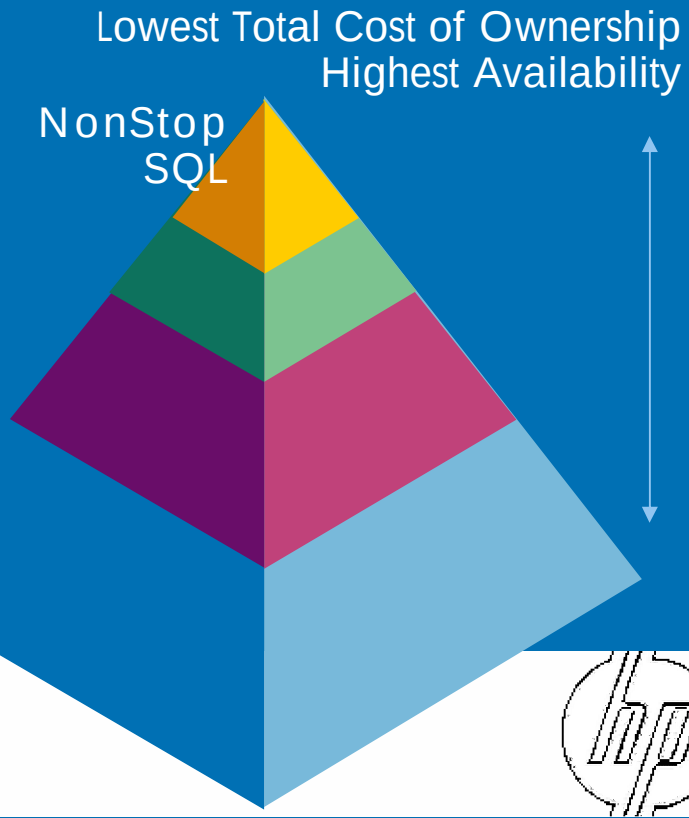


Goals of our software investments – in a nutshell

- Support industry standard technologies for application development
- Differentiate these standard applications by deploying them into the most scalable and available platform infrastructure (without change)
- Make this infrastructure easily accessible, open, highly secure, and simple to manage



NonStop SQL Enhancements

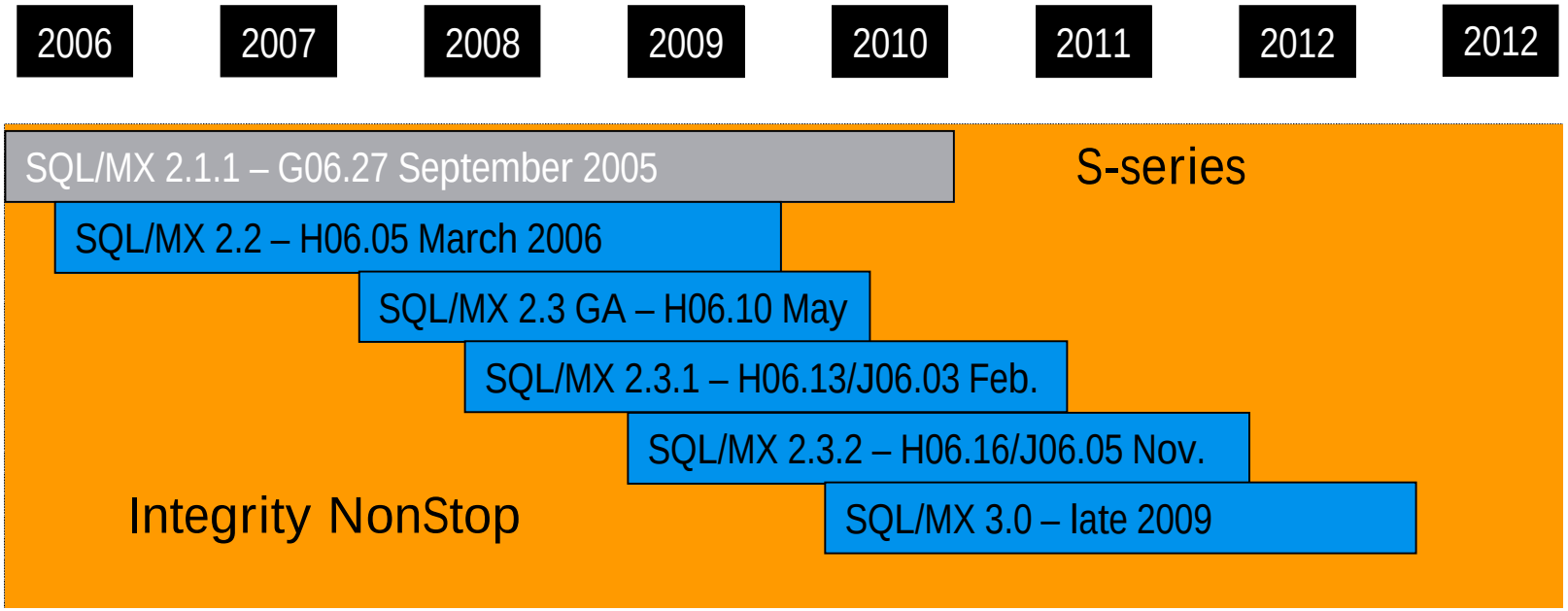


HP NonStop OS

JDBC / MX Type 4 (January 2008 H-series)

- XA support
  - Transactions can span heterogeneous systems
  - XACI command line tool
- Support for BLOBs as parameters in Stored Procedures for Java
- Additionally, for early 2009, a JDBC performance release has begun the planning phase
  - Statement cache

NonStop SQL/MX Roadmap



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SQL/MX 2.3.1
February 2008, H06.13

Feature	Function	Benefit
• Improved compiler memory usage	• Faster compiles, less memory usage, handles queries with larger number of joins	• Improved performance
• Enhanced DISPLAY USE OF	• Display source and object file names plus potentially invalid modules where table modified timestamp > module creation time	• Minimized recompile time, improved manageability
• Improved error handling of IMPORT tool	• Carry on the import task even when data errors are encountered	• Ease production, improved usability
• Plan Versioning	• Allows a mixed release network without recompiling applications	• Ease of migration
• SET TRANSACTION AUTOBEGIN OFF	• Allows implicit transaction to be turned off	• Improved usability

SQL/MX Release 2.3.2 (target November 2008)

Feature	Function	Benefit
• Improved Update Statistics	• Additionally shorten the time taken to Update Stats	• Improved performance
• Support partition name for MODIFY command	• Ability to specify partition name while modifying table	• Improved usability
• Support for No-Wait ESPs (Executor Server Process)	• Start all ESPs in no-wait mode, minimize start-up time	• Improved performance
• Resultset for Stored Java Procedures (return Resultset to MXCI, ODBC/MX, JDBC/MX T2 & T4)	• Generates a table of data upon query execution	• Improved performance and usability
• New optimization rules	• Enables SQL/MX optimizer to explore additional plan for queries with OR-predicates	• Improved plan quality
• QA enhancements	• Proactively improve code quality, diagnostics, etc…	• Improved stability

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SQL/MX Release 3.0 (target late 2009)

Feature	Function	Benefit
• Large keys/rows/blocks	• Allows creation large keys, rows, and blocks. Also speeds up execution of queries	• Improved performance and usability
• Resultset for Stored Java Procedures (return Resultset to COBOL, C/C++)	• Generates a table of data upon query execution	• Improved performance and usability
• N-way union operator	• Efficient method to union a large number of tables	• Reduced compile time, Improved performance
• Constraint based pruning	• Define constraints on tables to improve resource utilization	• Reduced compile time, improved performance
• BR2 (Backup Restore) enhancements	• Enable parallel BR operations in separate sessions & CPUs	• Improved performance
• QA enhancements	• Proactively improve code quality, diagnostics	• Improved stability

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