



HP Integrity Server

Die Industriestandardplattform für OpenVMS



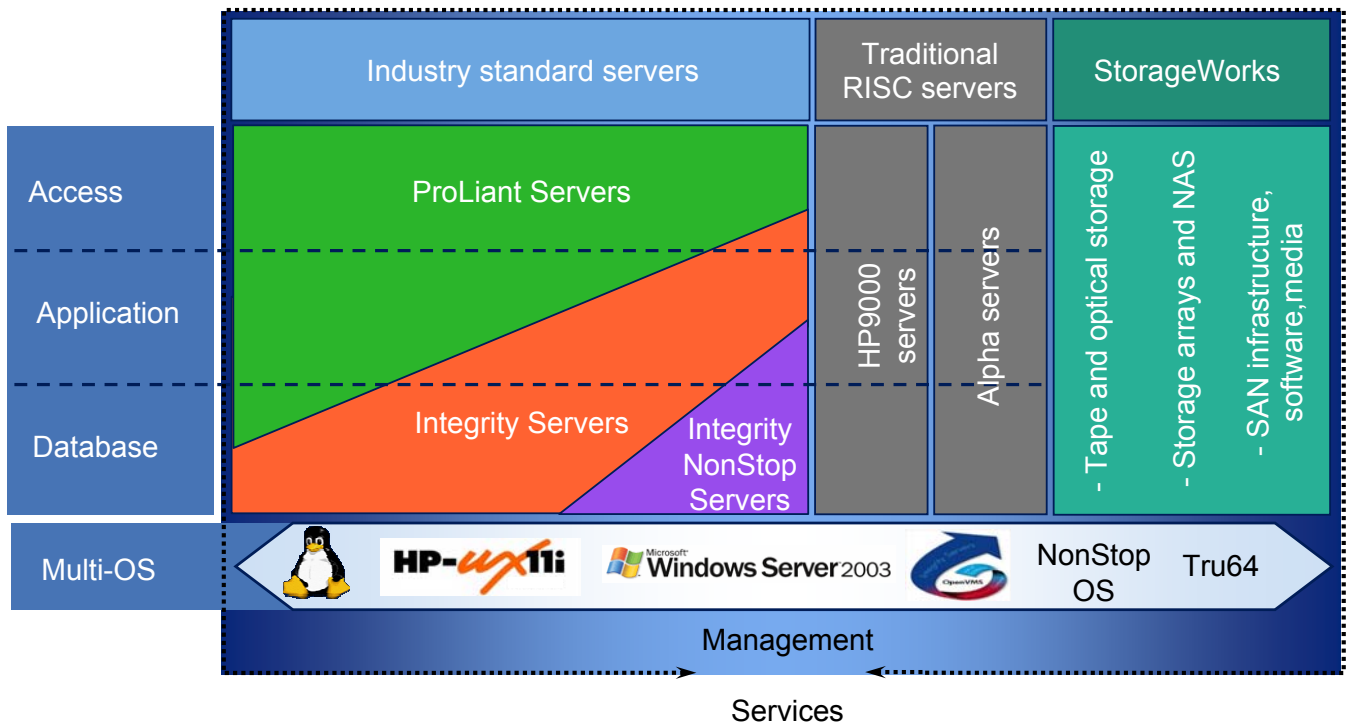
Hewlett Packard Deutschland
Business Critical Systems

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HP server and storage portfolio

The world's broadest, most robust enterprise offering

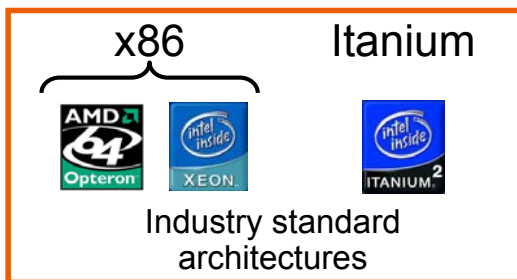
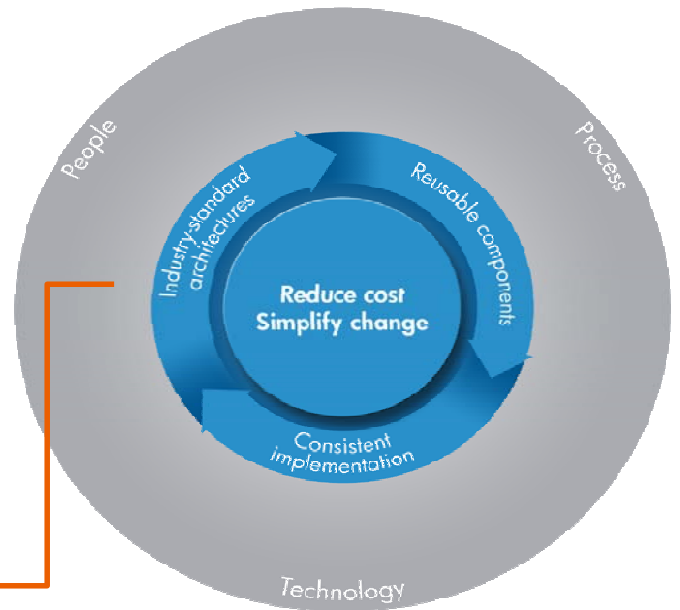


An adaptive enterprise starts with standards



HP is:

- Committed to providing the best in industry standard components
- Providing more customer choice without compromise
- Investing in industry standards and focused innovation



Complementary, modular approach based on two standard architectures

Auf dem Weg zu 3 führenden Produktlinien – basierend auf 2 “Industriestandard”-Architekturen



Heute

- HP NonStop
- HP Integrity
- HP 9000 / e3000
- HP AlphaServer
- HP ProLiant

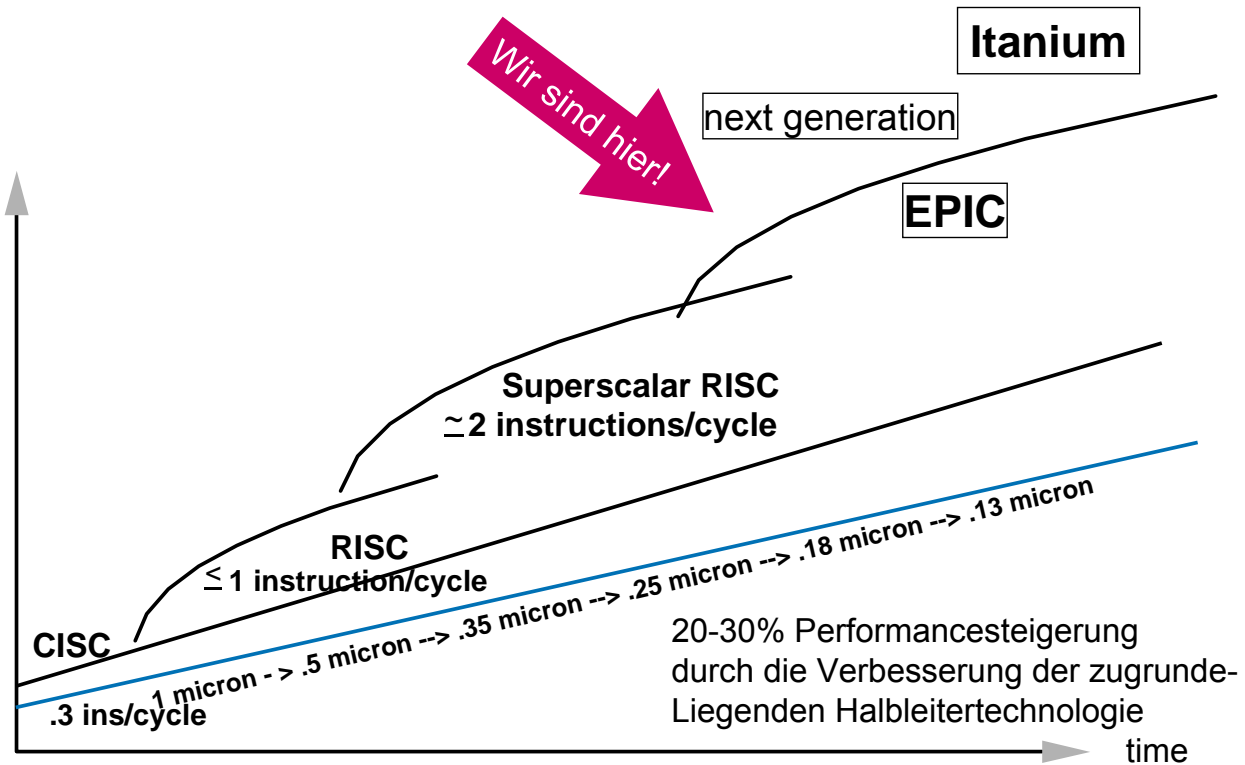
Ermöglicht größere Investitionen in “Added Value” Lösungen

Zukunft

Industriestandard

- HP Integrity NonStop (Itanium based)
 - HP Integrity (Itanium based)
 - HP ProLiant (X-86 based)
- Gemeinsame Technologien
- Management
 - Virtualisierung
 - HA
 - Storage
 - Clustering

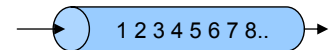
Prozessor Evolution



Traditionelle CPU Architekturen

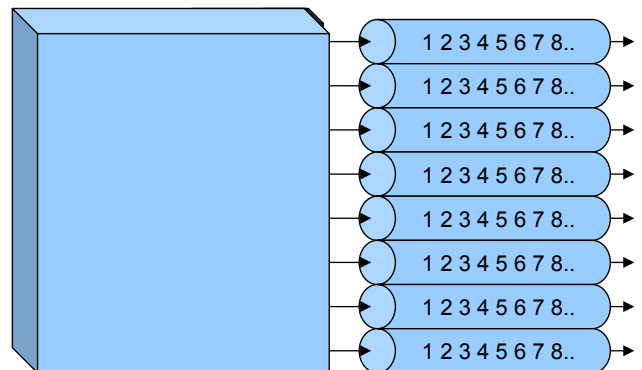
RISC (reduced instruction set computing)

- Pipeline Stufen laufen parallel



Superscalar RISC

- Mehrere parallele Pipelines
- Hardware steuert Instruktionen und löst potentielle Konflikte
- Code wird im laufenden Betrieb parallelisiert



Platzbedarf der Parallelisierungseinheit wächst quadratisch mit der Anzahl der Pipelines

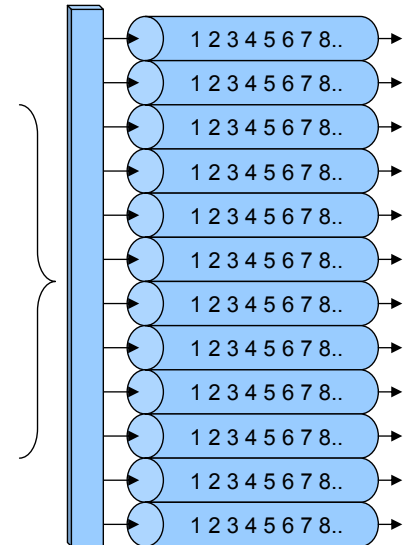
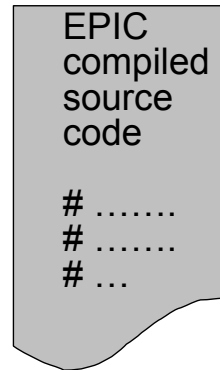
Fortschrittliche CPU Architekturen



EPIC

(explicit parallel instruction comp.)

- Compiler steuert die Instruktionen und garantiert Unabhängigkeit
- Dadurch sehr viele parallele Pipelines möglich
- Code wird bereits beim Kompilieren parallelisiert



Itanium® Prozessor Familie – Industrie Momentum



Betriebssystem-angebot



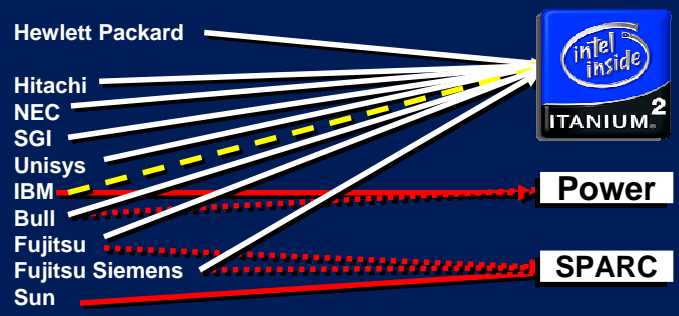
NonStop OS

Applikationsportfolio

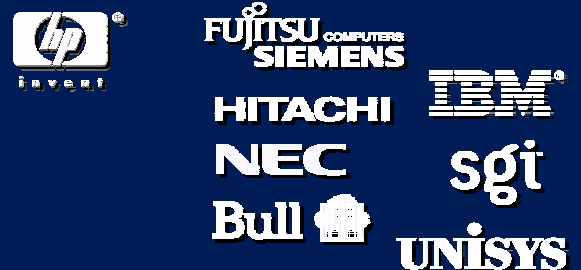
5300+ Applikationen



System Hersteller



8 von 9 RISC Anbietern liefern Itanium Lösungen...und viele Andere, insgesamt über 75 Anbieter



Q3 FY05 Business Critical Servers (BCS) financial highlights



- Overall business had solid year-over-year growth
- HP Integrity servers up 113% YoY
- HP-UX up 8% YoY

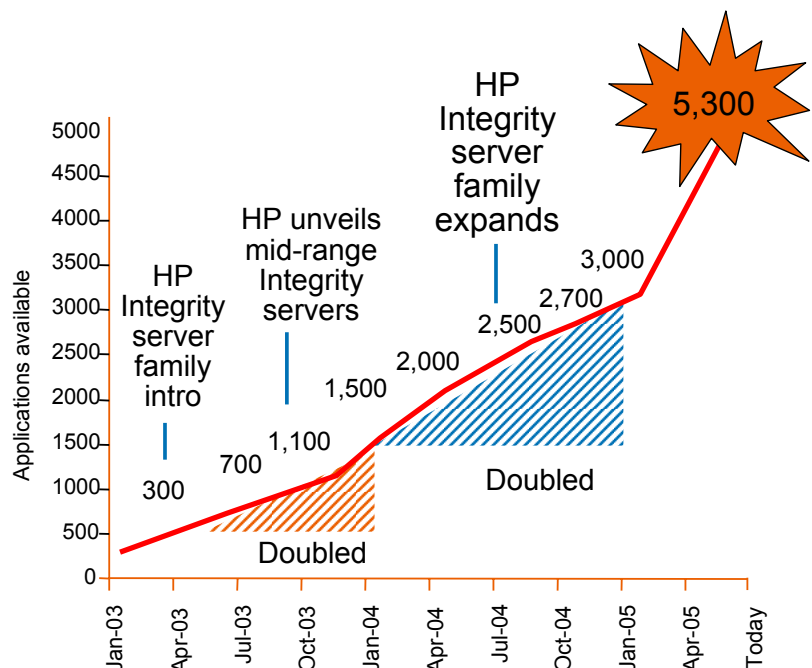


HP Integrity server momentum continues: More customers, more ISVs



HP Integrity servers at:







- One of the largest manufacturing installations of SAP in the world
- One of the largest instances of PeopleSoft in the world
- Largest telco provider in North America
- One of the largest database installations of Microsoft SQL Server in North America
- One of the largest Windows-based Siebel Public Sector deployments in Asia Pacific
- Largest power/utility company in Hong Kong



HP Integrity Server: das breiteste Itanium®2-basierende Serverportfolio



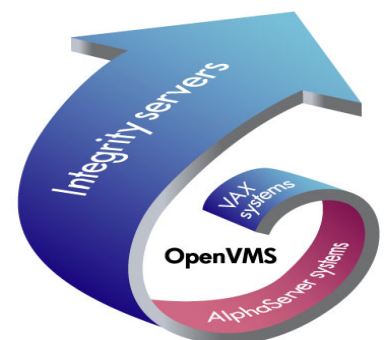
CPU's

128	HP Integrity Superdome Server		Up to 128-way scalability and hard-partitioning capability for leading consolidation	<ul style="list-style-type: none"> Up to 128 Intel® Itanium® 2 processors Up to 512 GB memory 192 PCI-X slots (with I/O expansion) Up to 16 hard partitions
32	HP Integrity rx8620 Server mit Server Expansion Unit (SEU)		32-way scalability and hard-partitioning capability for consolidation	<ul style="list-style-type: none"> 2- to 32-way Intel Itanium 2 processors Up to 128 GB memory 32 PCI-X slots (with SEU) Up to 4 hard partitions 2 servers per 2m rack
16	HP Integrity rx7620 Server		16-way flexibility with high-performance, density, and partitioning capabilities	<ul style="list-style-type: none"> 2- to 16-way Intel Itanium 2 processors Up to 64 GB memory 15 PCI-X slots Up to 2 hard partitions 4 servers per 2m rack
8	HP Integrity rx4640 Server		8-way high-performance servers in ultra-dense and highly scalable models	<ul style="list-style-type: none"> 1- to 8-way Intel Itanium 2 processors Up to 64 and 96 GB memory, resp. 6 and 9 PCI-X slots, respectively 10 and 5 servers per 2m rack, resp.
2	HP Integrity rx2620 and rx1620 server		2-way ultra-dense, power-packed server redefines entry-level computing	<ul style="list-style-type: none"> 1- to 2-way Intel Itanium 2 or Low Voltage Itanium 2 1U (rx1620) and 2U (rx2620) form factors Up to 24 GB memory 4 PCI-X slots 20 servers per 2m rack
	HP Integrity Blade BL60p		2-way BladeSystem	<ul style="list-style-type: none"> 1- to 2-way Low Voltage Itanium 2 Up to 8 GB memory

OpenVMS value now available on full range of HP Integrity servers

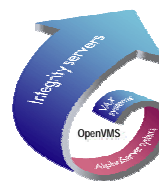


- Evolve OpenVMS environments with the latest in HP Integrity server hardware technology
 - Improved ROI/TCO
 - Investment protection: HP Integrity servers can be added to existing HP AlphaServer System environments
- Support for mid-range and high-end HP Integrity servers provide a robust, dynamic, flexible multi-OS consolidation platform for customer running older AlphaServers Systems, VAX systems and HP 9000 servers
 - Lower TCO
 - Easier system management
 - Greater virtualization capabilities



OpenVMS now on all HP Integrity servers

Speeds customers' consolidation plans



- Support of OpenVMS in virtualized Integrity environments

Sep 05

- OpenVMS v8.2-1: Accelerated availability across all Integrity platforms including cell-based servers

- Foundation and Enterprise Operating Environments (FOE and EOE)

Dec 05

- OpenVMS support for HP Global Workload Manager delivers HP Virtual Server Environment benefits

- All mission critical OpenVMS capabilities now on Integrity servers

Sep 05

- Maximum number of nodes supported in clusters with Integrity Servers and AlphaServer systems increased from 16 to 96 (>3,000 CPUs)

Sep 05

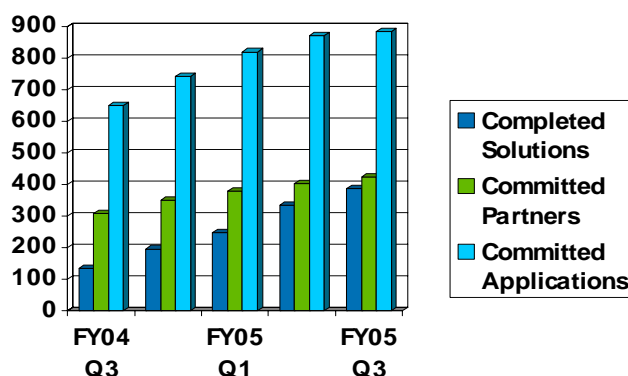
- Global transaction fault tolerance with Reliable Transaction Router v5.0

Dec 05

- Mission Critical Operating Environment (MCOE) available including clusters and RTR

- Application porting continues to increase

- Oracle Rdb and 10g planned for end 2005 will result in dramatic increase in available applications

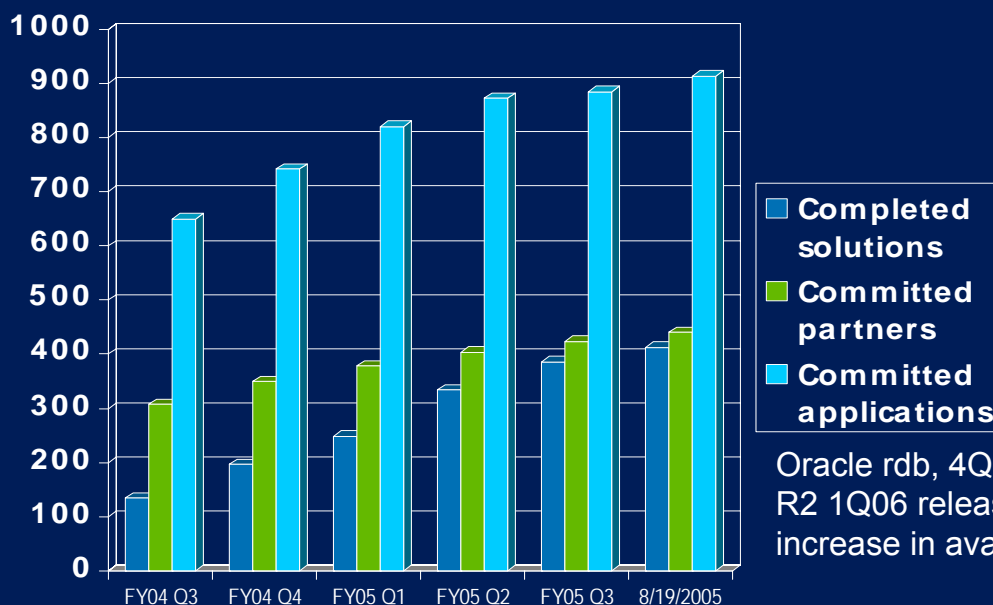


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Great applications availability with continued growth

August 2005

914 applications committed from 440 partners
412 applications/solutions now available



Oracle rdb, 4Q05 release and 10g R2 1Q06 release will result in an increase in available applications



Great opportunity



Consolidation

- Reduce costs and complexity in OpenVMS-only environments
- Consolidate multi-OS environments that include OpenVMS
- Efficiently expand IT capacity

Operating System support for elements of the HP Virtual Server Environment for HP Integrity and HP 9000 servers



HP Virtual Server Environment

Intelligent Control

HP Systems Insight Manager (U,W,L,O)

HP Integrity Essentials
Capacity Advisor
(U,L)

HP Integrity Essentials
Virtualization Manager
(U,L,W*,O*)

HP Integrity Essentials Global
Workload Manager (U,L,O)
HP-UX Workload Manager (U)

Assess



Advise

Automate

Virtual Servers

Partitioning

nPars (U,W,L,O)
vPars (U)
HP Integrity Virtual Machines
(U, W&L 2006,
O planned)
HP Secure Resource
Partitions (U)

Availability

HP Serviceguard (U,L)
HP Serviceguard Storage
Management Suite (U)
HP Metrocluster (U)
HP Continentalclusters (U)
HP OpenVMS clusters (O)

Utility Pricing

HP Instant Capacity
(U,W**,L**,O***)
HP Temporary Instant
Capacity (U,O***)
HP Pay Per Use (U,W,O***)

Legend

U – HP-UX 11i
L – Linux
W – Windows
O – OpenVMS

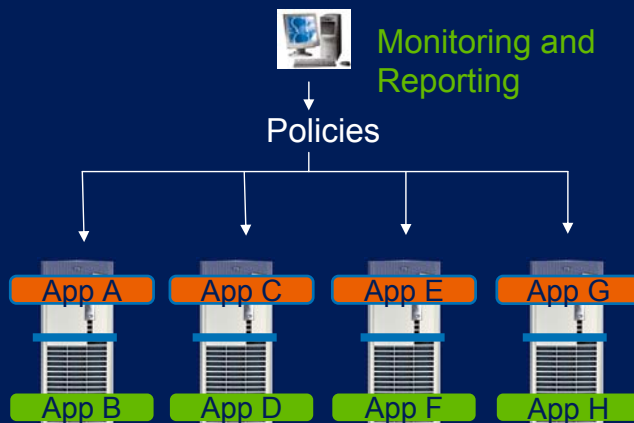
*nPar only
** with Integrity
Virtual
Machines 2006
*** planned with
OpenVMS 8.3



HP Integrity Essentials Global Workload Manager

Manage and automate large, multi-system VSEs

- Goal-based policy engine
 - for managing workloads across multiple systems simultaneously
- Easy to use management
 - integrated with HP Systems Insight Manager and other VSE management tools
- Enables central IT to deliver an IT utility
 - supporting multiple LOBs Resources can be assigned to LOB based on:
 - Own/borrow/lend model
 - Fixed entitlement model
 - CPU utilization model
 - Service Level Objectives



New functionality with gWLM 2.0

- Support for HP Integrity Virtual Machines and Temporary Instant Capacity
- Support for OpenVMS

Available Dec 2005

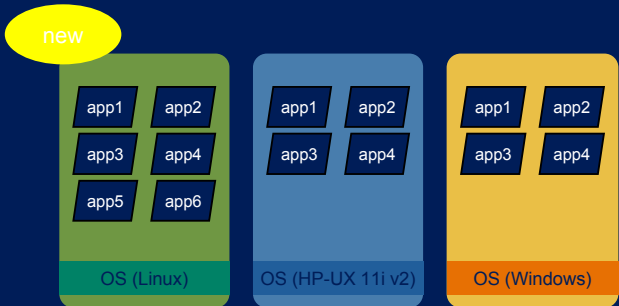
Support for HP-UX 11i, Linux, and OpenVMS on HP Integrity, and HP-UX 11i on HP 9000

Optimizing server utilization

HP Integrity Virtual Machines



Available Q4 2005



HP Integrity VM:











- Sub CPU virtual machines with shared I/O
- Supports all HP Integrity servers
- Integrated with VSE

- Shipping now to early customers
- General availability for HP-UX 11i in Q4 2005
- Extending multi-OS guest support
 - 2006: Microsoft Windows Server 2003 **News**
 - 2006: Linux
 - Future: OpenVMS **News**



HP Integrity and HP 9000 Server Roadmap

Revision: OB.05.7.0 Jul-05

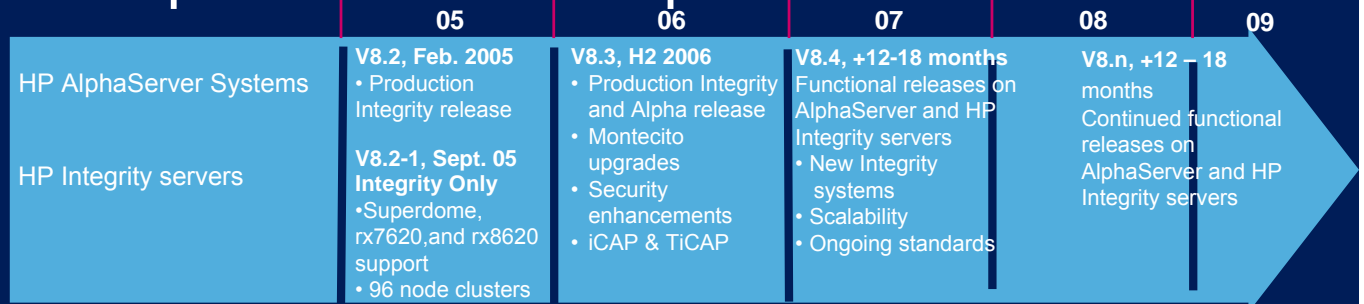
Current offering	2005	2006	2007/2008
 HP 9000 Superdome HP-UX 11iv1, v2		New Chipset CPU: PA-8900 OS: HP-UX 11iv1, v2, v3	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP Integrity Superdome HP-UX, Windows, Linux	OpenVMS support	CPU: Itanium2 "Montecito" New Chipset OS: HP-UX 11iv2, v3* Windows, Linux, OpenVMS	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP 9000 rp7420-16, rp8420-32 HP-UX 11iv1, v2		New Chipset CPU: PA-8900 OS: HP-UX 11iv1, v2, v3	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP Integrity rx7620-16, rx8620-32 HP-UX, Windows, Linux	OpenVMS support	CPU: Itanium2 "Montecito" New Chipset OS: HP-UX 11iv2, v3* Windows, Linux, OpenVMS	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP 9000 rp4440-8 HP-UX 11iv1, v2		New 8p Server & Chipset CPU: Itanium2 "Montecito" OS: HP-UX, Windows, Linux, OpenVMS	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP Integrity rx4640-4 HP-UX, Windows, Linux, OpenVMS		CPU: Itanium2 "Montecito" OS: HP-UX 11iv2, v3*, Windows, Linux, OpenVMS	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP 9000 rp3440-4 HP-UX 11iv1, v2		New 4p Capacity Optimized Server & Chipset CPU: Itanium2 "Montecito" OS: HP-UX, Windows, Linux, OpenVMS	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS PCI-E
 HP Integrity rx2600-2 rx2620-2 HP-UX, Windows, Linux, OpenVMS		CPU: Itanium2 "Montecito" OS: HP-UX 11iv2, v3*, Windows, Linux, OpenVMS	CPU: Itanium2 "Montecito" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS DDR-II PCI-E
 HP Integrity rx1600-2 HP-UX, Windows, Linux, OpenVMS		CPU: DP Itanium2 Millington OS: HP-UX 11iv2, v3*, Windows, Linux, OpenVMS	CPU: DP Itanium2 Millington+ OS: HP-UX 11iv2, v3*, Windows, Linux, OpenVMS
 HP Integrity Blades Due Early 2006		New Blade (P-class) CPU: Itanium2 Fanwood OS: HP-UX 11iv2, v3*	Next Gen. Blade CPU: Millington OS: HP-UX, Windows, Linux.

Timeframes not to scale
 August 2005 subject to change
 All upgrades "in-box" except as noted
 "Not available at initial processor release"

New Chassis
PCI-Express
DDR-II Memory



HP OpenVMS roadmap



Continued enhancements, sales of AlphaServer systems at least until 2006, with support at least until 2011
 Integrity Server support:

- OpenVMS V8.2 production release supports the rx1620, rx2620, and rx4640 Integrity servers
- OpenVMS V8.2-1 will add support for Superdome, rx7620, and rx8620 (Madison 9)
- Montecito upgrades for rx1620, rx2620 and rx4640 will be supported by OpenVMS V8.2-1 in Q2 2006

Focus areas:

- Virtualization: Global Workload Manager, Pay Per Use, iCAP, TICAP
- OpenView support for OpenVMS: Network Node Manager, Data Protector, Storage Area Manager, OVO Agent available today; adding Performance Agent, database SPI's, upgrade to OVO v8
- Continued enhancements in performance and scaling, disaster tolerance, security and standards
- Support for current and next generation storage architectures
- Continued J2EE and .Net support
- Mixed Alpha and Integrity cluster support with shared fibre channel storage today

Services

- Full set of tools/services to support ISVs and customer transition to HP Integrity servers
- Investment protection through Alpha RetainTrust Program

ISV support

- Nearly 900 applications committed for porting to OpenVMS for Integrity servers
- FastTrack program to assist with ISV support

HP OpenVMS Operating System Rolling Roadmap



2005

OpenVMS V8.2
FRS: February 2005
Major New Platform Release: Alpha & Integrity

- First production release for Integrity servers
- Mixed Alpha & Integrity clusters with shared fibre channel storage, up to 16 nodes
- Integrity server support, up to 8 CPU's
- Standards
- Infrastructure changes
- Host Based MiniMerge

V8.2-1, Sept. 2005 Integrity Only

- Superdome, rx7620, and rx8620 support
- 96-node cluster support
- Maintenance

2006

OpenVMS V8.3
FRS: H2 2006
Platforms: Alpha and Integrity

- Montecito support for Superdome, rx7620 and rx8620
- Performance & Scalability
- Standards: Web Services, Java, Security, UNIX/Linux interoperability
- Expanded mixed Alpha & Integrity cluster support
- Virtualization: PPU, gWLM

V8.2-1 based, Q2 2006

- rx1620, rx2620 & rx4640 Montecito upgrades

2007

OpenVMS V8.4
FRS: +12-18 months
Platforms: Alpha and Integrity

- New Integrity systems
- Performance & Scalability
- Standards: Security, Integration software
- Adaptive Enterprise futures

2008

OpenVMS V8.n
FRS: +12-18 months
Platforms: Alpha and Integrity

- New Integrity systems
- Ongoing standards
- Adaptive Enterprise futures

2009

Continued OpenVMS releases

