

HP-UX 11 THE UNIX FOR HP'S CONVERGED INFRASTRUCTURE



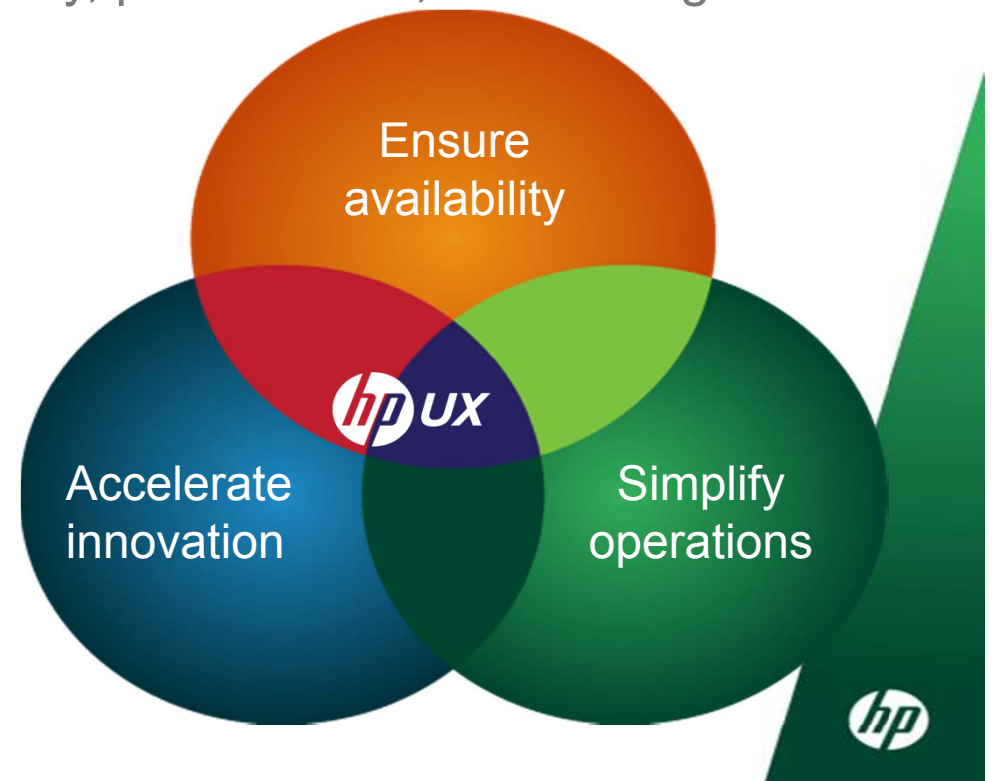
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Optimize Mission-Critical Utilization and Maximize Efficiency with HP-UX 11i

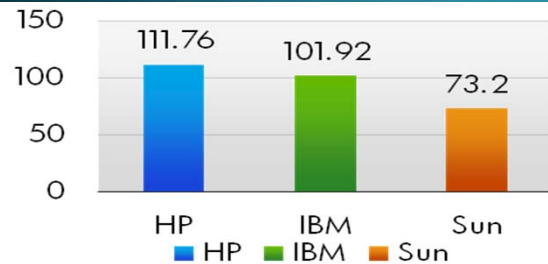
#1 rated by UNIX® users for availability, performance, and management

- Serviceguard high availability and disaster tolerant solutions plus comprehensive security
- Insight Dynamics – VSE partitioning, capacity planning, goal-based workload management, automated infrastructure provisioning, physical & virtual system management
- Integrated by design

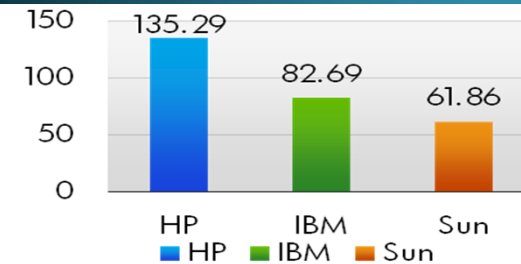


UNIX users vote HP-UX 11i #1 in Mission-critical functionality

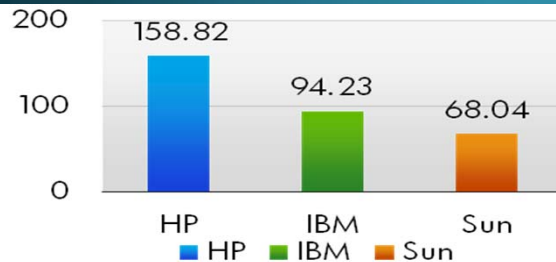
Observed Performance (real world)



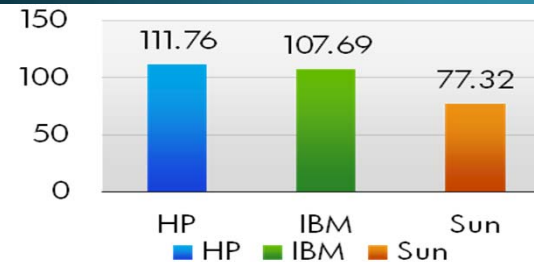
Best Initial Quality, No DOA's



Real World Manageability



Availability & Reliability Features



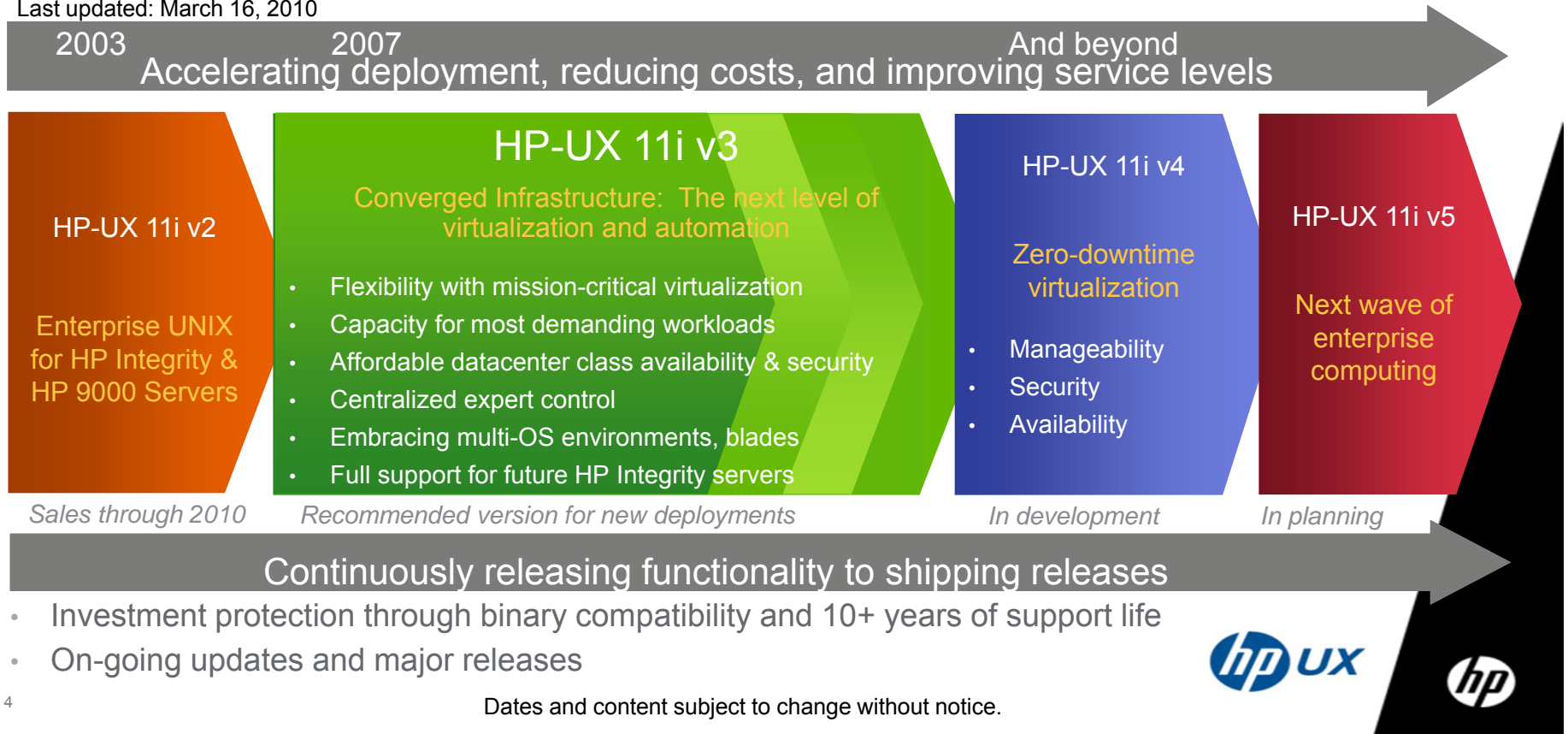
* Results from Gabriel Consulting Group 2008/09 Unix Vendor Preference Survey. Survey period covered 12/08-03/09 with 266 survey respondents representing small, medium and large enterprise data centers. For more information, contact GCG at info@gabrielconsultinggroup.com or see www.gabrielconsultinggroup.com



HP-UX 11i Software Roadmap

Optimizing business outcomes with mission-critical virtualization

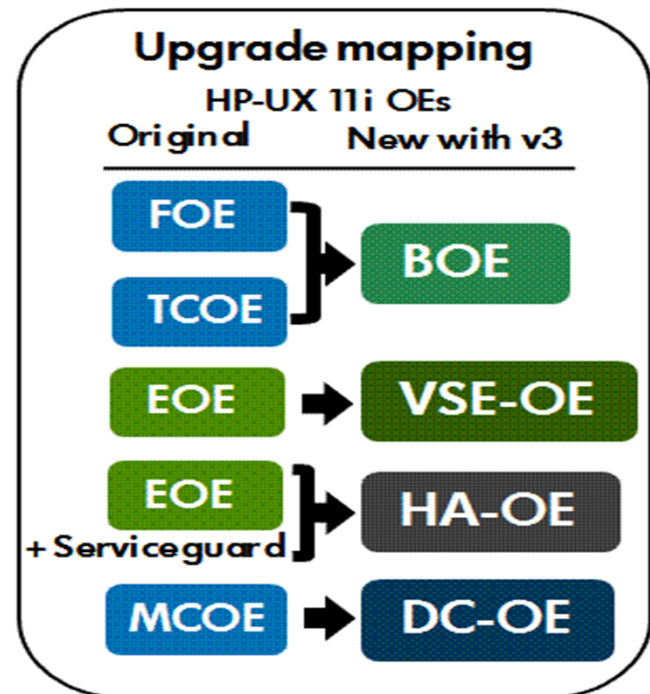
Last updated: March 16, 2010



Upgrade Your HP-UX to v3 for More Software, Faster Systems and Less Costs

Upgrade from original OEs

- 1 Upgrade **free** - support customers
- 2 **Erase line-item software support cost** for newly included software
- 3 Benefit from up to **87% more** software value
- 4 **Accelerate performance** 30% or more – like hardware compared



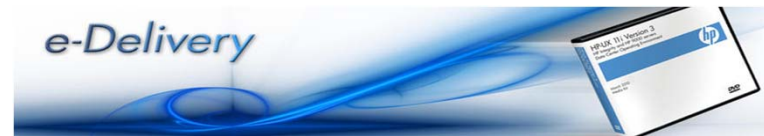
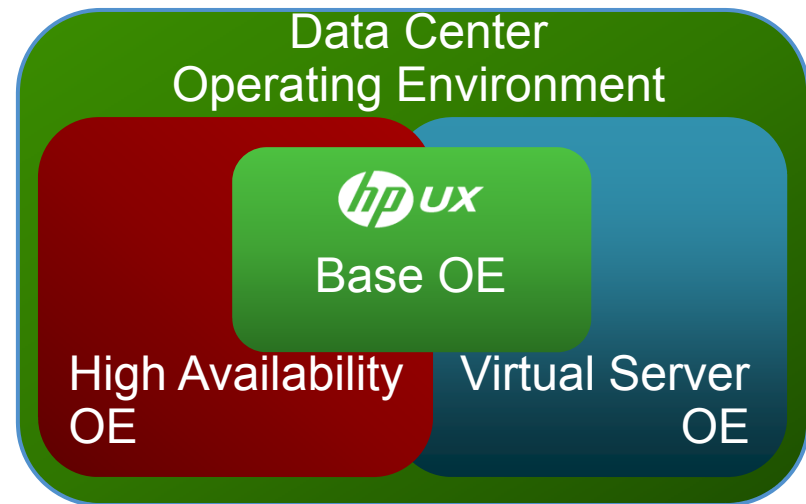
www.hp.com/go/whyv3
www.hp.com/go/hpuxlicensing



Mission-Critical UNIX® Simplified — HP-UX 11i Operating Environments (OEs)

The package for your purposes

- HP lab-integrated & pre-tested UNIX software stacks
- Savings -- Up to 50% vs. the sum of the pieces
- Simplified UNIX experience
- Distribution available via
 - Factory installation
 - Physical media
 - Instant download – e-Delivery



Licensing & Complexity: HP-UX vs AIX

Comparable functionality



Integrated by design

Necessary components for AIX

From IBM (or similar):



Enterprise Workload Manager

Tivoli software



IBM Performance Management (Service) + System Planning Tool (SPT) + Workload Estimator (WLE) for **capacity planning**



Plus security software:

Volume encryption, disk sanitizing, Keystroke logging, 2-factor authentication

Integrated By Many



HP-UX 11i Licensing is Per-Socket for the New HP Integrity Server Family

New Licensing Per Socket

- HP-UX is licensed per-socket on new HP Integrity servers
- No licensing change for earlier servers

Up to 50% savings per core

- HP-UX is up to 50% lower price per core than on earlier Integrity servers

100% Investment protection

- All support customers are eligible for 100% trade-in
- “A socket for a socket” trade-in

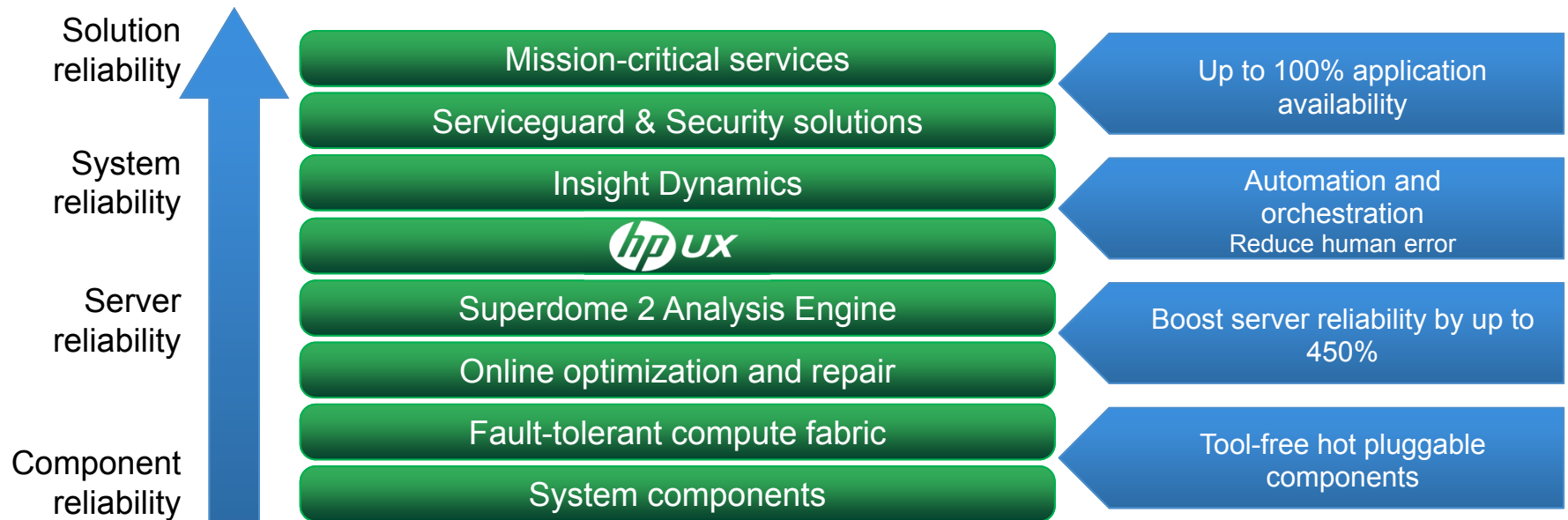


E
NSURE
Availability

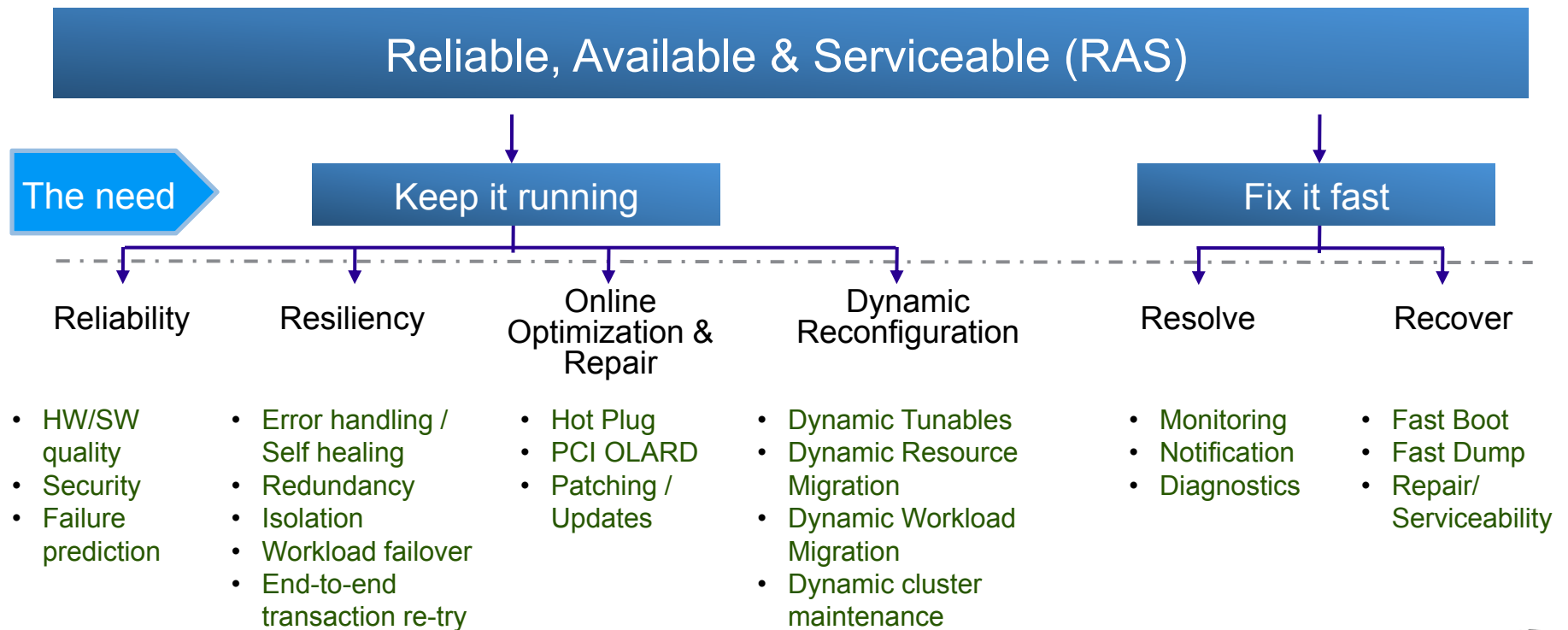


Power On Once

From component to complete solution resiliency

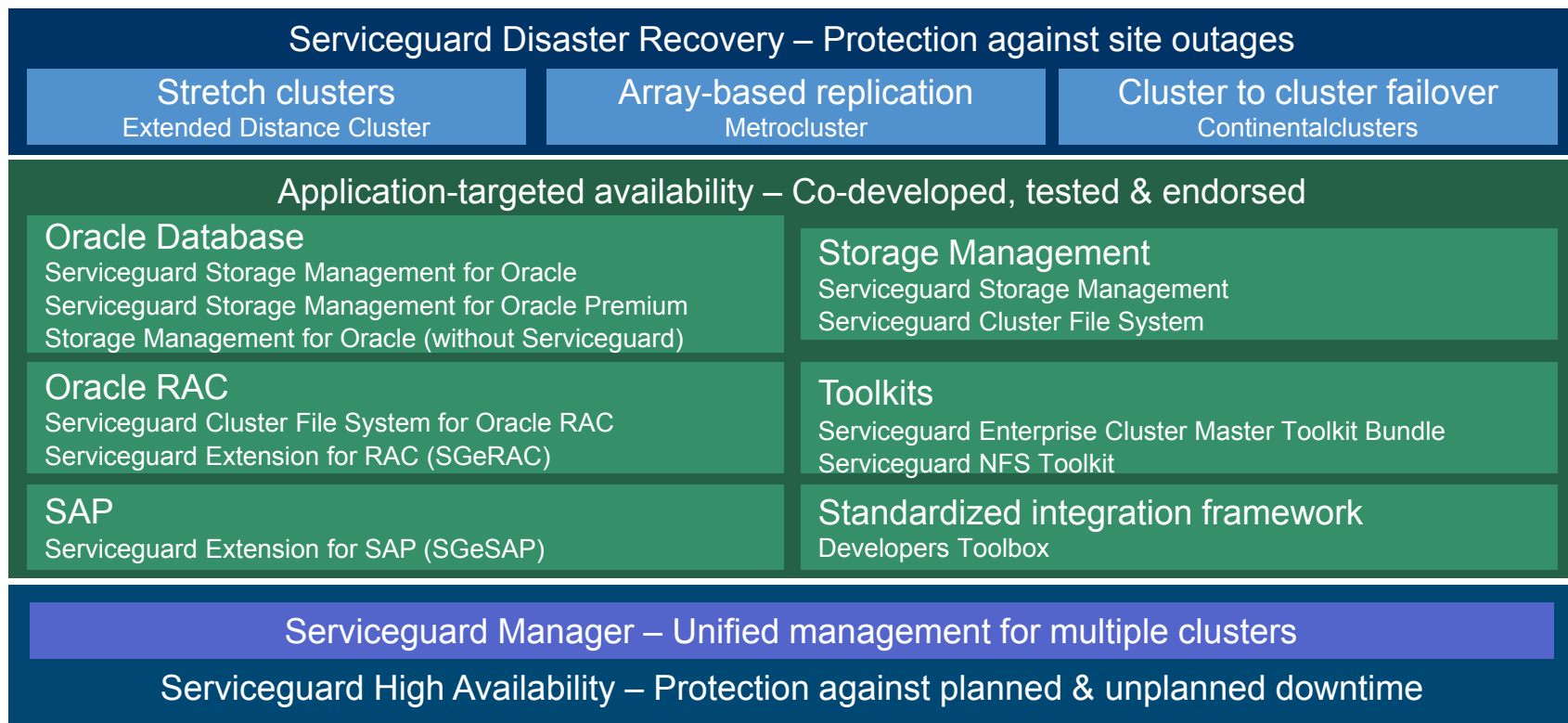


HP-UX 11i RAS Features



The HP Serviceguard Solutions Portfolio:

Business Resiliency with Seamless Integration



HP-UX 11i Integrated Security Protection

Addressing critical security business drivers and providing layered security and in-depth protection

Protecting Data: Data in Transit, Data in Use, Data at Rest

Optimal protection against external and internal threats to HP-UX

Protecting Systems: Protect-Detect-React

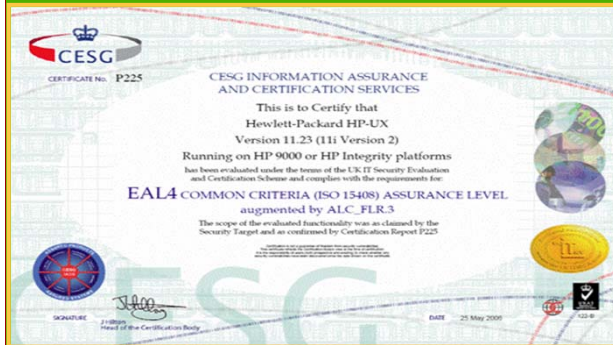
Known & unknown vulnerabilities through system minimization & hardening

Protecting Identities

Digital Identity life cycle management

Common Criteria Certification

HP-UX 11i is certified at EAL4+ CAPP, RBACPP



Common
Criteria
Certification:

Internationally
Recognized
standard consists
of two elements:

Protection Profile

Assurance Level
(EAL)

Authentication
Authorization &
Access Control

- IdMI
- Select Access for IdMI
- Role-Based Access Control
- AAA Server
- RedHat Directory Server

Protecting against
known security
defects

- Software Assistant (previously Security Patch check)

Protecting against
unknown
vulnerabilities

- Bastille
- IP Filter
- Install Time Security
- Host IDS

System
minimization

- Ignite/UX:
- Always Installed
- Default Installed

Data in Transit:

- Open SSL
- Secure Shell
- IPsec

Data in Use

- Containment
- Secure Resource Partitions
- IdMI

Data at Rest

- EVFS
- TCS

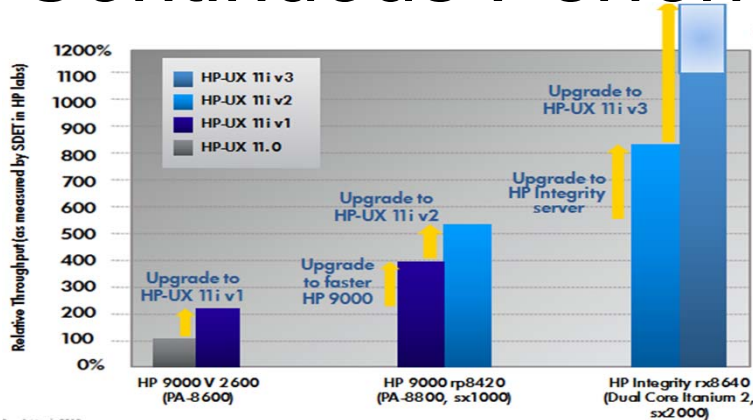




ACCELERATE
Innovation



HP-UX 11i – HP Delivers Continuous Performance Enhancements



Tools for the tuning pros:

- GlancePlus Pak - applications
- ktracer – instrumentation & reporting
- Caliper – code optimization
- HPjmeter – Java applications
- MemFS – in-memory file system

Single system & cluster performance

- Benchmarks wins across the range of workloads
- Fastest failover regardless of cluster size
- The only 2-minute recovery for SAP liveCache

Continual, automated optimization

- Global Workload Manager
- LORA – Locality-Optimized Resource Alignment
- Tune-n-Tools for critical workloads

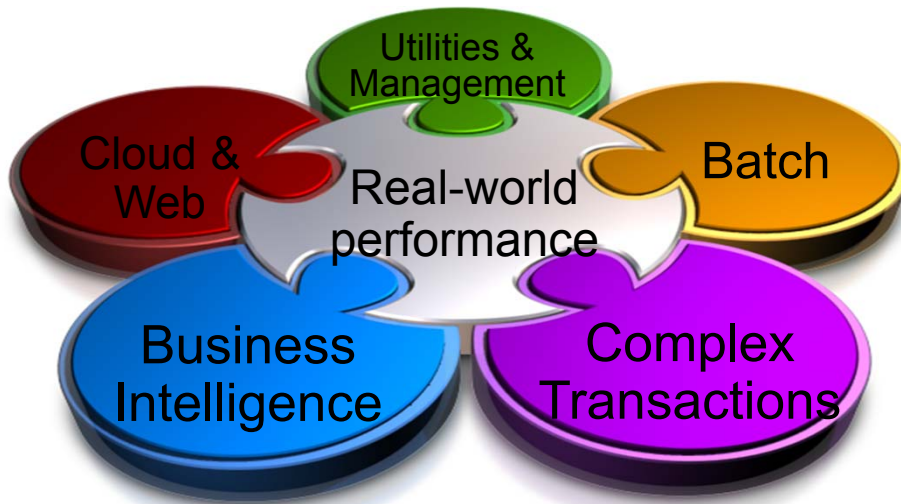
I/O and memory

- Networking – 100% faster this release
- Near-10GbE Virtual Machine I/O speed
- Mass storage - Only cluster-aware SAN port congestion relief, multi-pathing
- *File system* performance near raw speeds
- Next-gen memory allocator



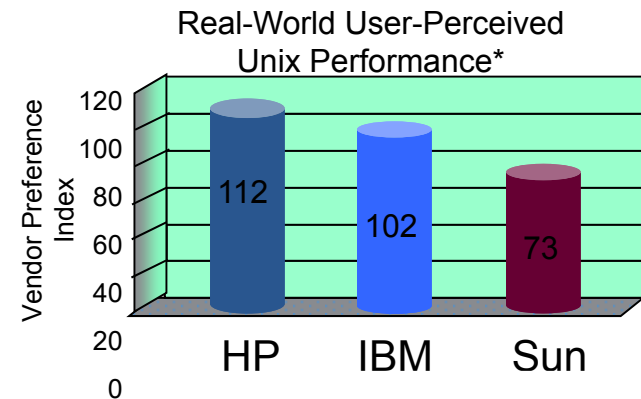
The HP-UX 11i Advantage

Performance for the Real World



... To reduce IT cost, you must virtualize ...
... To virtualize, you must assure balanced
real-world performance ...

“... Benchmarks are often not anywhere close to what a sane customer would purchase... *The real benchmark... is how well it performs on a variety of workloads all running at the same time, on a highly virtualized enterprise server...*”*



*2009, Gabriel Consulting Group



Instantly adjust to dynamic business demands

HP Insight Dynamics – VSE* for HP Integrity Server Blades



Instantly adjust to dynamics
business demands

www.hp.com/go/insightdynamics/integrity

- Provision infrastructure in minutes
 - with automated activation of servers, storage and networking
- Optimize infrastructure confidently
 - with built-in capacity planning and rebalancing tools
- Protect continuity of services
 - with automated failover

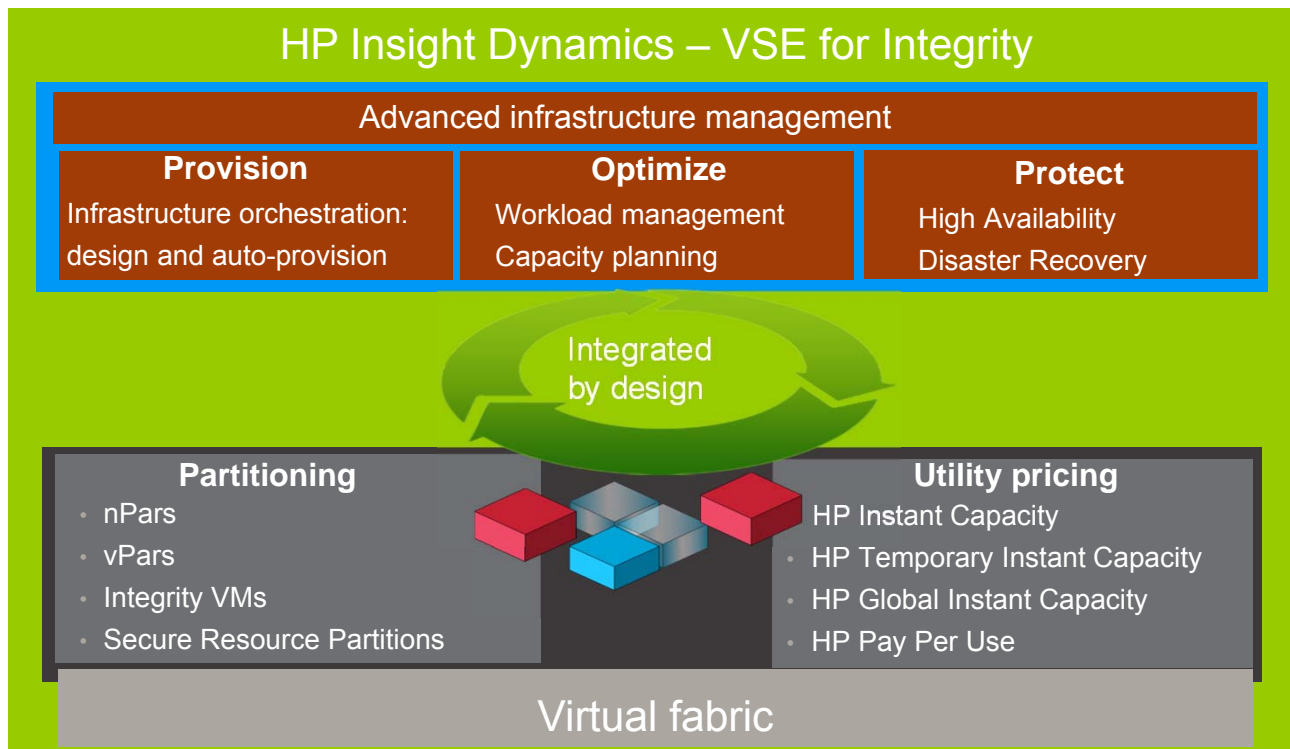
* Formerly HP Virtual Server Environment (VSE)

Seamless integration with Serviceguard solutions, Integrity partitioning & utility pricing



HP Insight Dynamics – VSE for Integrity

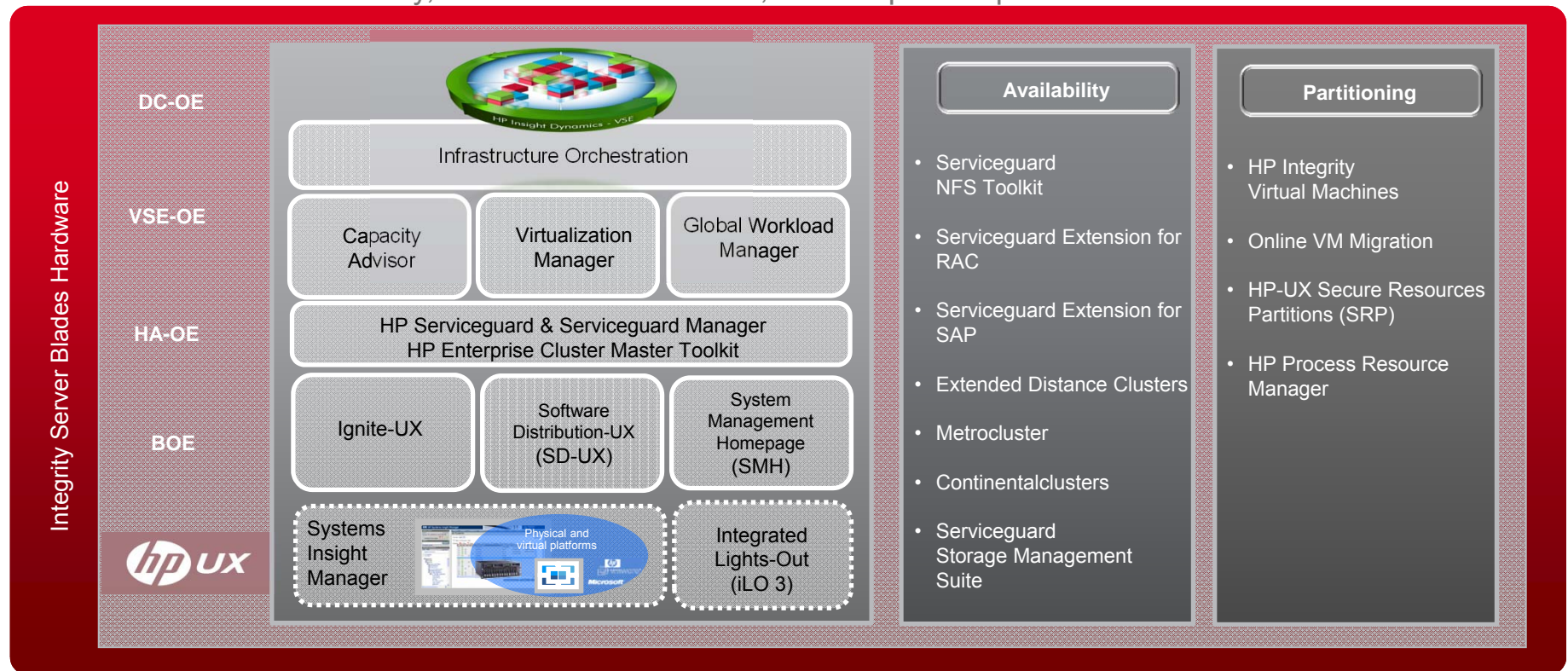
Instantly adjust to dynamic business demands





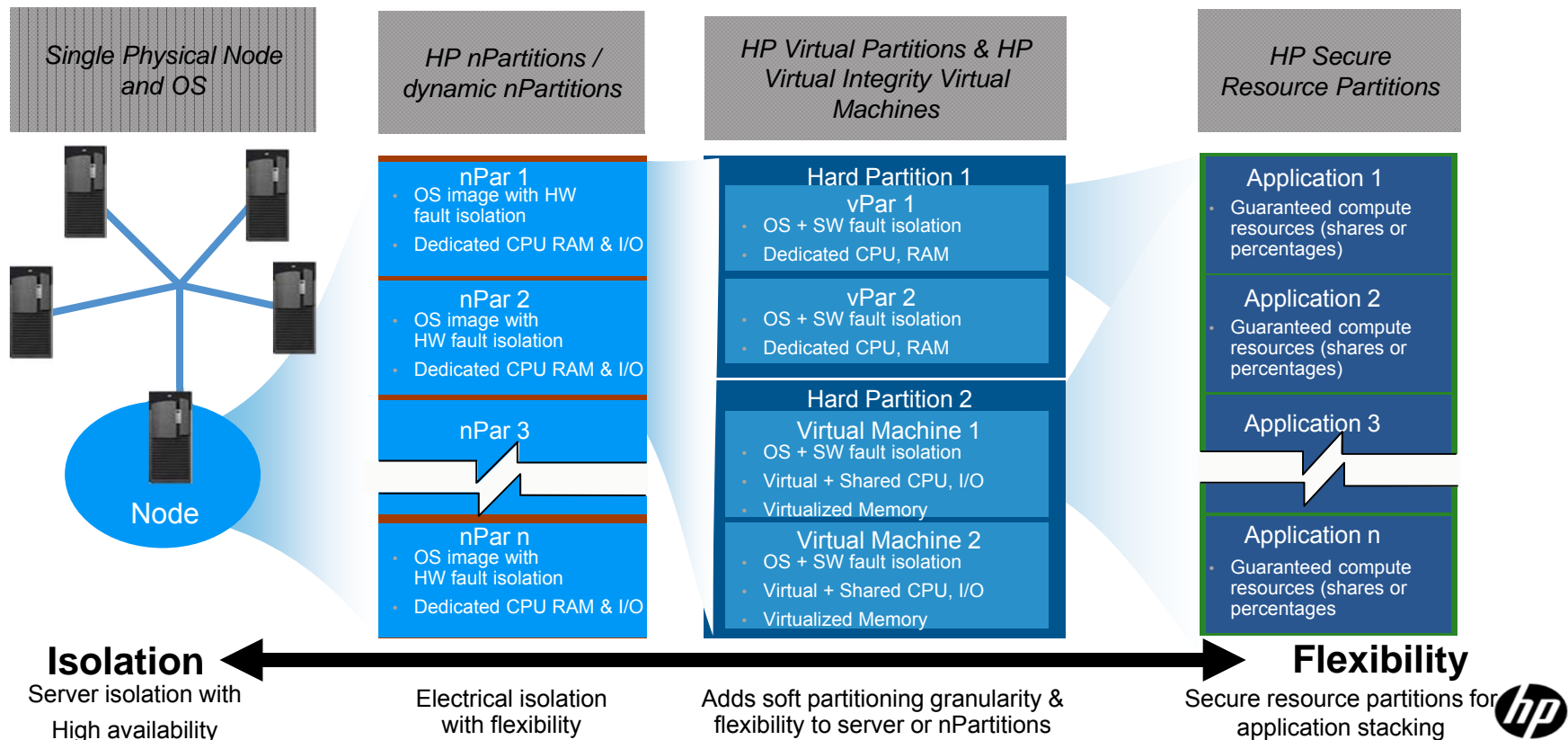
Industry-Leading Workload & Resource Management Features for Integrity Server Blades

HP-UX ensures availability, accelerates innovation, and simplifies operations



HP Partitioning Continuum for HP-UX 11i

Find your perfect mix of isolation and flexibility



HP Integrity nPartitions (nPars)

Electrical isolation with native performance



- Section large server into smaller servers
- Electrical isolation
 - Physically maintain part of server (while others running)
 - Mix & match processor architectures
- No overhead
- Integration with Insight Dynamics - VSE
 - For Instant capacity and visualization management

Reduce costs



with high performance consolidation

Protect

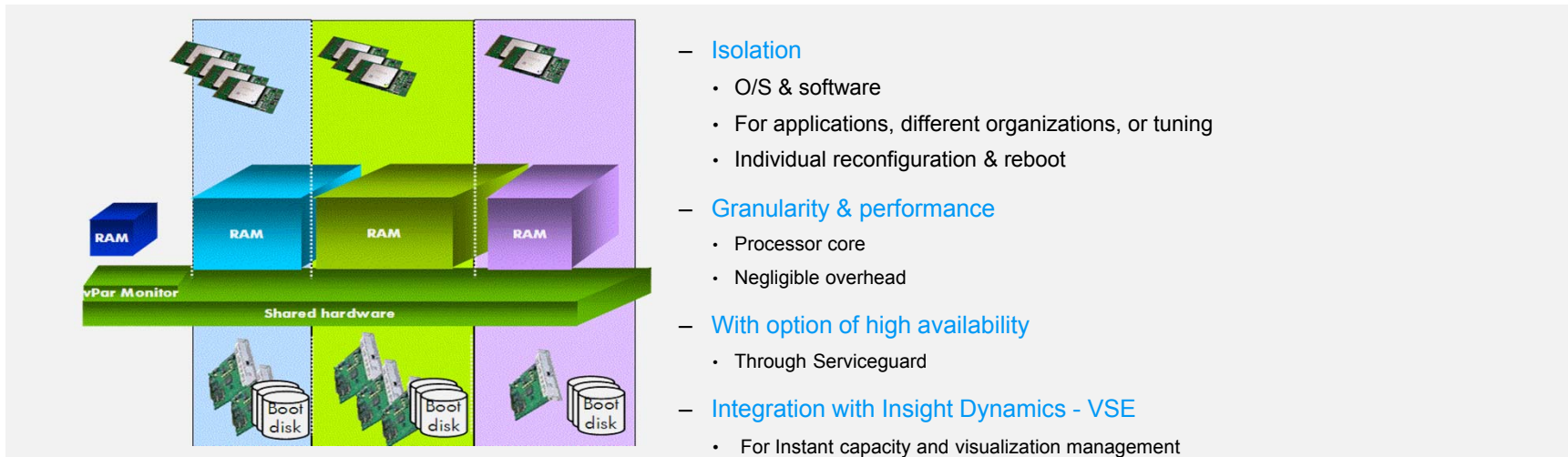


through electrical & security isolation



HP-UX 11i Virtual Partitions (vPars)

Core granularity with high performance



Reduce costs



with high performance consolidation & greater utilization of existing resources

Increase agility

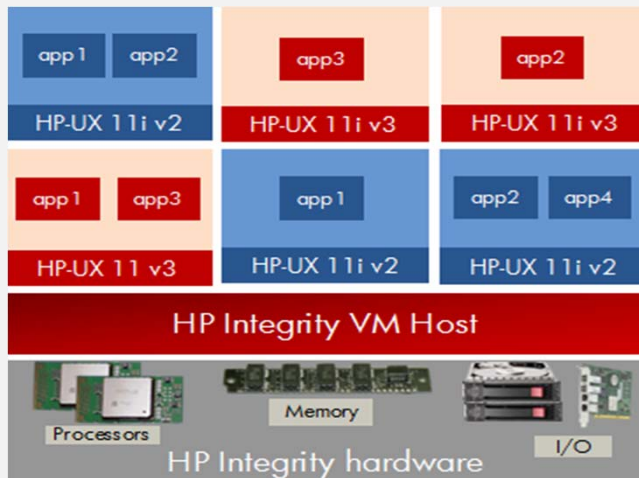


with rapid deployment of new environments



HP Integrity Virtual Machines (Integrity VM): Virtualization for Converged Infrastructure

Workload consolidation with OS and security isolation



- **Shared resources**
 - CPU, I/O, tape and changer access
- **Dynamic**
 - Automatic CPU & memory resource reallocation
 - Online VM Migration (optional)
- **Virtualized resources**
 - CPU, I/O, memory, network, storage, switch, VLAN
- **Well integrated with converged infrastructure**
 - High availability (for workloads & VMs), instant capacity, blades/rack-mount /logical servers, management

Reduce costs



with greater utilization of existing
resources and through consolidation

Increase flexibility



to use resources as needed

Rapid deployment

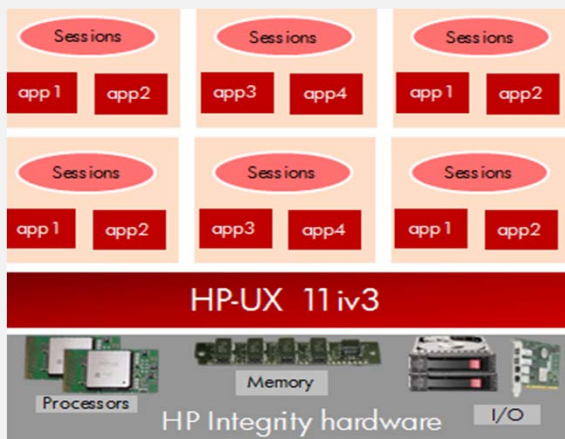


of new environments



HP-UX Secure Resource Partitions (SRP): Flexibility with performance and low cost

Workload consolidation within a single instance of HP-UX 11i v3



- **Isolated execution environments**
 - User sessions, networking, signaling, IPC, memory and CPU usage
- **Single, shared operating environment**
 - One OS image to manage & pay for (including ISV licensing)

Available at no charge – included with HP-UX 11i v3

Reduce costs



Efficient, high performance and consolidation within a single OS instance

Simplify



Decrease number of OS images to manage

Protect



Improve security and compliance



HP-UX – a Greener UNIX®

Reduce energy consumption per system up to 50% annually, reduced packaging

HP-UX 11i v3 power management

- Green Idle Cell and Green Idle I/O
- Green Idle Processors - up to 45% power savings
- Green Active Processors: up to 40% power savings

Reduce annual system power costs up to 50%



HP is on track to remove, by the end of 2010:

- 13 tons of printed material – with on line documentation
- 142 tons of corrugated boxes and other packaging material from all of HP's software products

For traditional shipments, packaging reduced

Incremental savings due to new Integrity server processors, power supplies, fans and cooling airflow!

SIMPLIFY Operations



HP Insight Control for HP-UX 11i

Essential infrastructure management for Integrity

Deploy servers
quickly

iux Ignite-UX

DRD Dynamic Root Disk

Maintain health
proactively

swa Software Assistant

- SMH Webapps
- HP SIM Systems Insight Manager
- SMH System Management Homepage

Control from
anywhere

- ICPM Insight Control
power manager

Optimize power
confidently



HP-UX 11i Compatibility Assurance:

Investment protection: Your applications just work

HP 9000 to Integrity Server
Transition Options

HP protects your HP-UX software development investment

- Version to version
- Processor to processor within a server family
- Across server families – HP 9000 to Integrity servers

Simplest moves – OverEasy options:

HP ARIES

Copy it over & run -
Binary translation

**HP Mixed
Mode Translator**

Copy it over & run - Binary
translation with native Java

**HP 9000 Cross
Development
Environment**

Preserve scripts and more
with HP 9000 libraries etc on
Integrity

**Fastest application performance:
Recompile on Integrity –
help from HP's Software Transition Kit**



The Value of HP-UX 11i Advantages

Satisfied Customers



Specialty wood flooring provider migrates from IBM P-series 630 (AIX) → HP Integrity (HP-UX)

- Improved operational control, performance, and efficiency
- Increasing speed of processing of users' queries
- Receiving a higher return from IT investment



Investment group replaces IBM/AIX platform with HP Integrity Superdome

- 35% lower licensing costs
- 100% SLA achievement and 24x7 business continuity
- Dramatically improved utilization, scalability and footprint



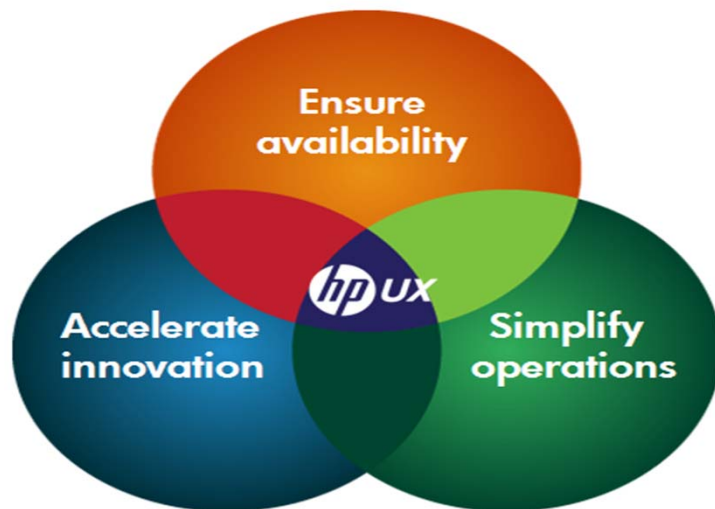
Moved from Sun servers and a mixed environment to Integrity server blades running v3

- More than doubled the transactions per minute
- Reduced footprint, freeing room for growth
- Doubled system utilization



The HP UNIX® Advantage

HP-UX 11i Powers the Converged Infrastructure



Voted #1

by Enterprise UNIX Users in
analyst survey, 2009*

Best

- ... Reliability features
- ... Observed availability
- ... OS quality
- ... OS features
- ... Initial quality (no DOAs)
- ... Real-world performance
- ... System management suite
- ... Real-world manageability
- ... Channel partner program