



OpenVMS Today

Going beyond
technology



September, 2006

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HP OpenVMS on Integrity Servers

Legendary security, availability, data integrity and easily-managed solutions to real business problems at the right price.



What's New?

- OpenVMS Version 8.3 is now available!
 - Dual-Core Itanium 2 processors
 - Performance improvements
 - Price/performance improvements
 - New features in key areas

Highlights of what's new in OpenVMS v8.3

Business Continuity

- Greater efficiency and control
- Shorter data copy times with greater availability

Virtualization

- Greater cost-effectiveness
- New resource control functionality
- Cost-saving power management

Security

- Enhanced adherence to security standards
- Improved Security Technology

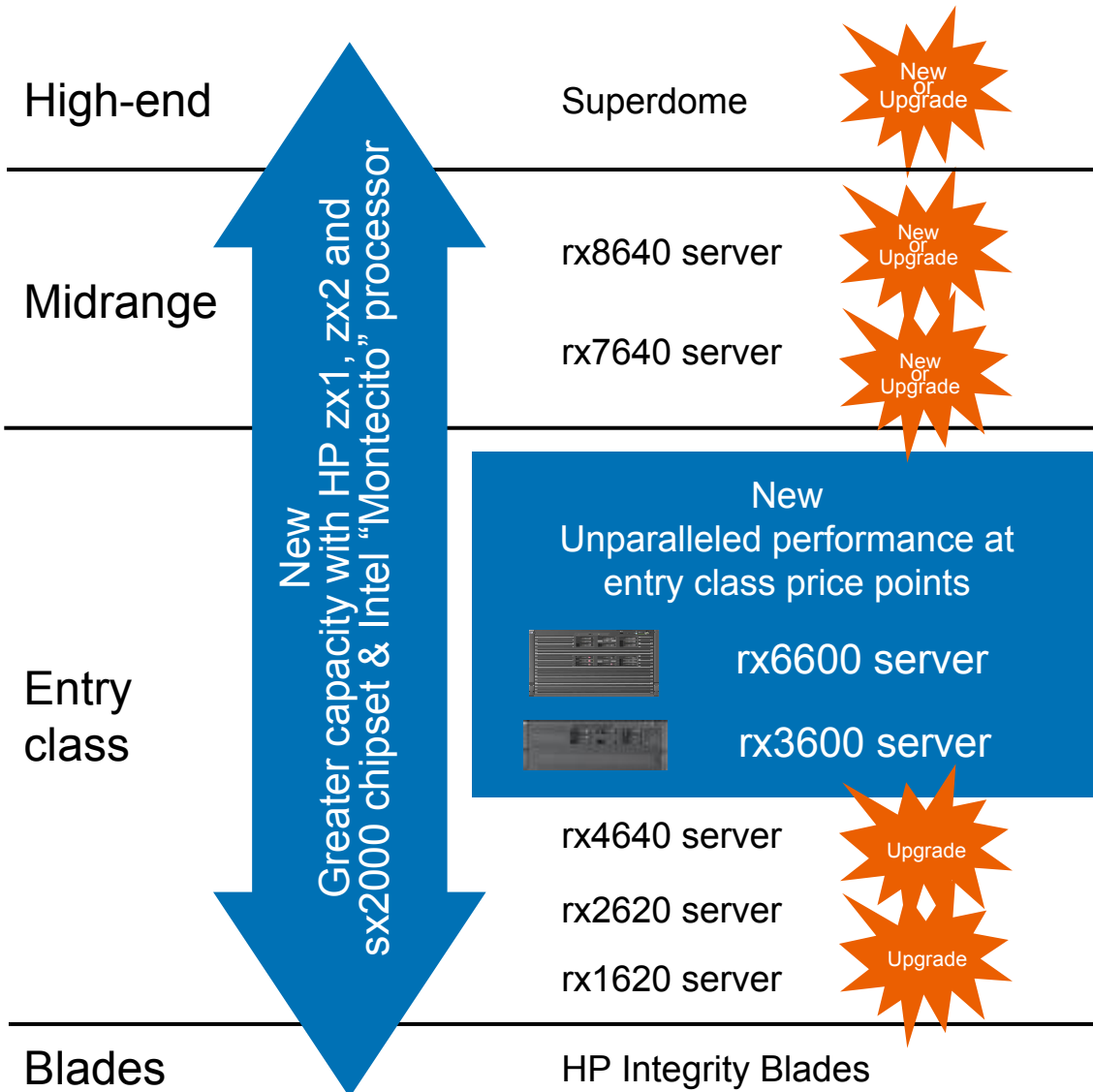
Application Development

- Investment protection via re-use of existing applications, data, and business logic

All on completely new HP Integrity servers
based on the new dual-core Intel® Itanium®2 processor



Twice the capacity with Integrity servers and Intel Dual-core Itanium 2 processors



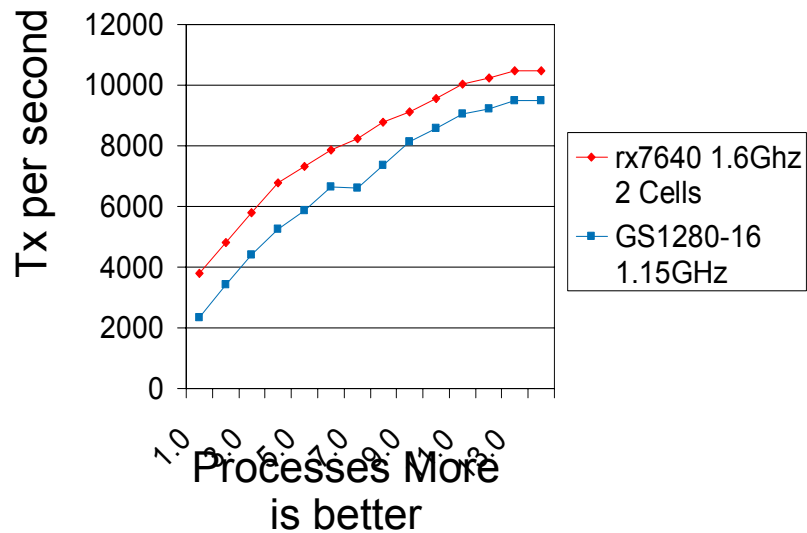
"...HP Integrity rx4640 server with dual-core Intel Itanium 2 processors proved it to be 80 percent faster than our current rx7620 server while consuming only a fraction of the power."

Betandwin

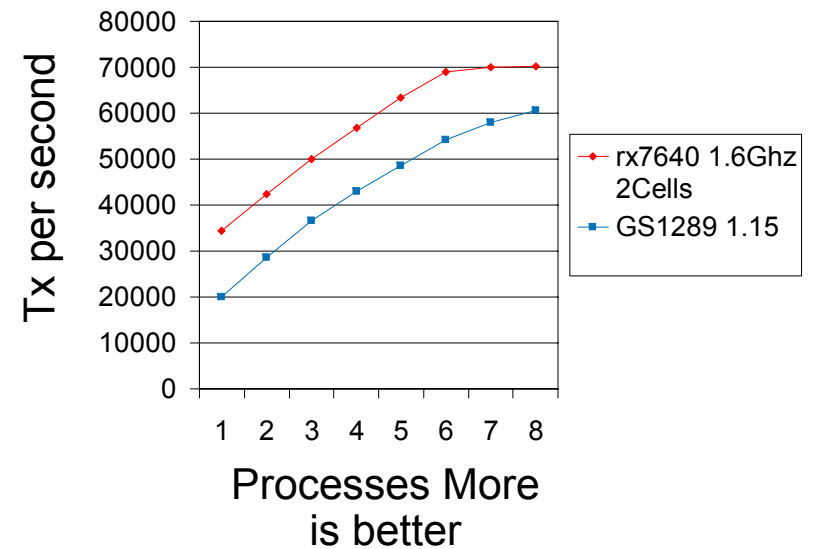


Improved performance

Database (Read/Write Test) V8.3
Data on a RAMdisk



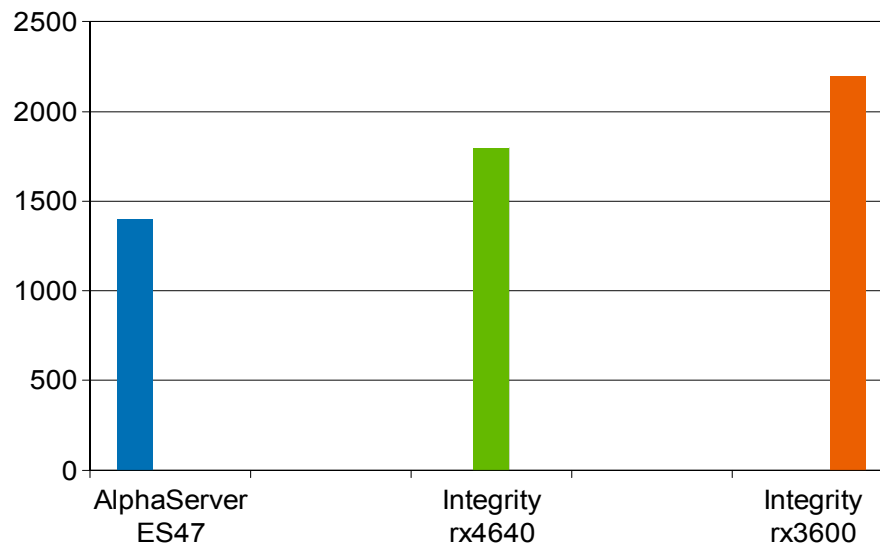
RMS1 (Ramdisk) V8.3
Direct IOs



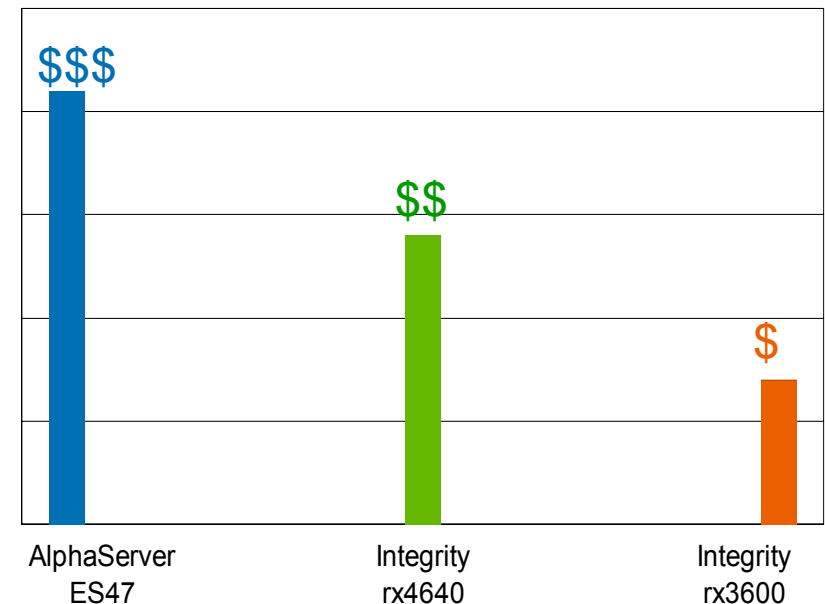
Significantly improved price/performance with OpenVMS v8.3 on new HP Integrity servers



Transactions / sec.



Relative price/performance

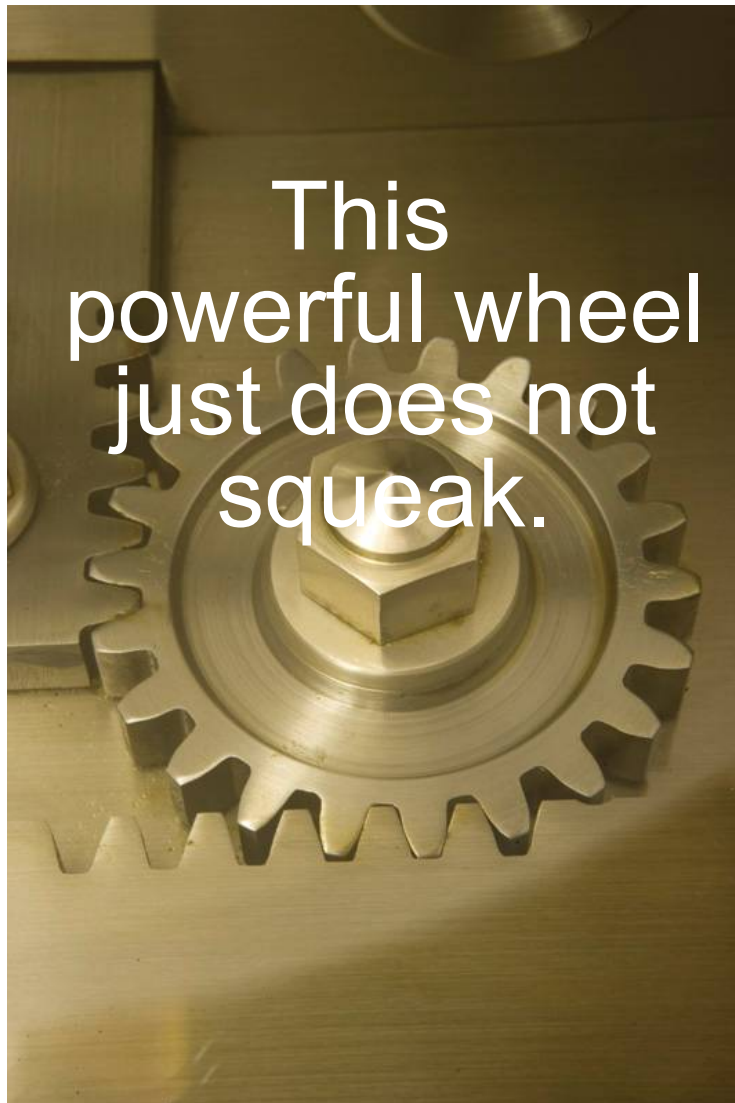


- Financial services application
- Unaudited, based on a customer test scenario
- All systems 4 cpu and similarly configured
 - AlphaServer ES47: 4 x EV7
 - rx4640: 4x single core Itanium® 9M-based microprocessor
 - rx3600 2x dual core Itanium®-based microprocessor

Why does OpenVMS have such a great reputation?



yet... you may not have heard much about it?



- What I tell my customers now is that you can have 7 by 24 availability, and you can have 7 by 24 by 365 availability, but with OpenVMS you get 7 by 24 by 365 by 8 years, and that's pretty unbeatable. Peter Clout, president, Vista Control Systems
- OpenVMS is the most secure and reliable operating system we have ever experienced. Gene Batan, Vice President of the Systems and Information Technology Department of Commerzbank, North America
- OpenVMS really is one of the industry's best kept secrets. Colin Butcher, Director, XDelta Ltd.

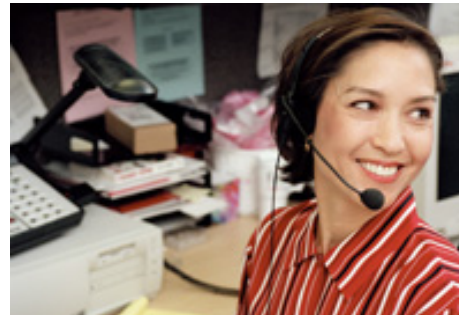
Where you find OpenVMS



- OpenVMS Users: Millions of users around the globe
- OpenVMS Systems in use (VAX, Alpha, Integrity): 300,000 in production
- Wherever the most secure, available, reliable, scalable environment is needed

Market Profile:

- #1 rated in Healthcare
- 30% of mobile phones billed in the world
- 50% of the world's SMS transactions
- Significant world presence in top Exchanges: 6 new in 18 months
- Dominant in automated in Lottery systems
- Leading supplier to the world's largest CPU chip manufacturer
- Many of the world's most demanding Government environments requiring security and availability



OpenVMS Industry Focus

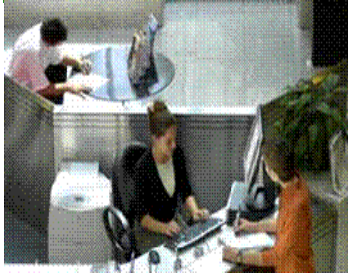


Telecoms



- Network equipment providers
- Mobile Billing
- Media Provision

Financial Services Industries



- Retail Banking
- Wholesale Banking
- Capital Markets
- Exchanges

Manufacturing and Distribution



- Automotive & Suppliers
- Distribution
- Utilities
- Semi-conductor
- Pharmaceutical

Public Sector



- Defense, Intelligence & Public Safety
- Civilian Agencies
- Education
- Gaming

Healthcare

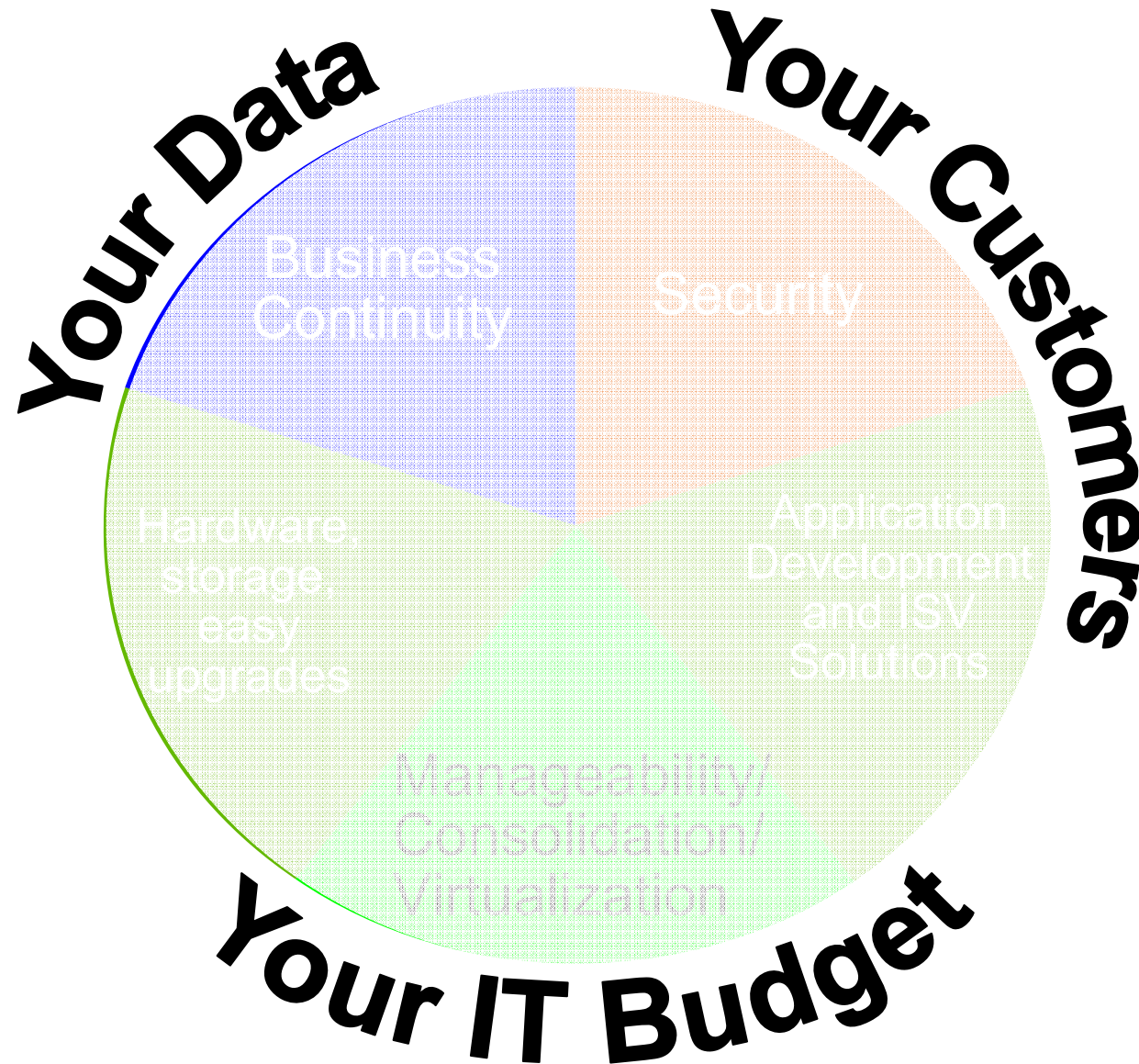


- Clinical IS
- Management IS
- Decision Support
- Scheduling

OpenVMS is a general-purpose operating system with applicability across virtually any vertical or horizontal application area. Key examples: retail, transportation, power distribution, etc.

Business Benefits of OpenVMS

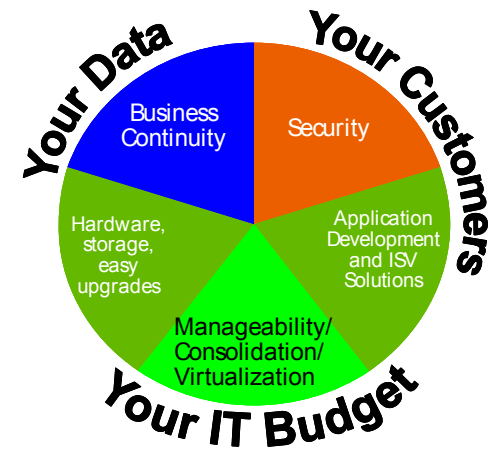
-- *going beyond technology* --

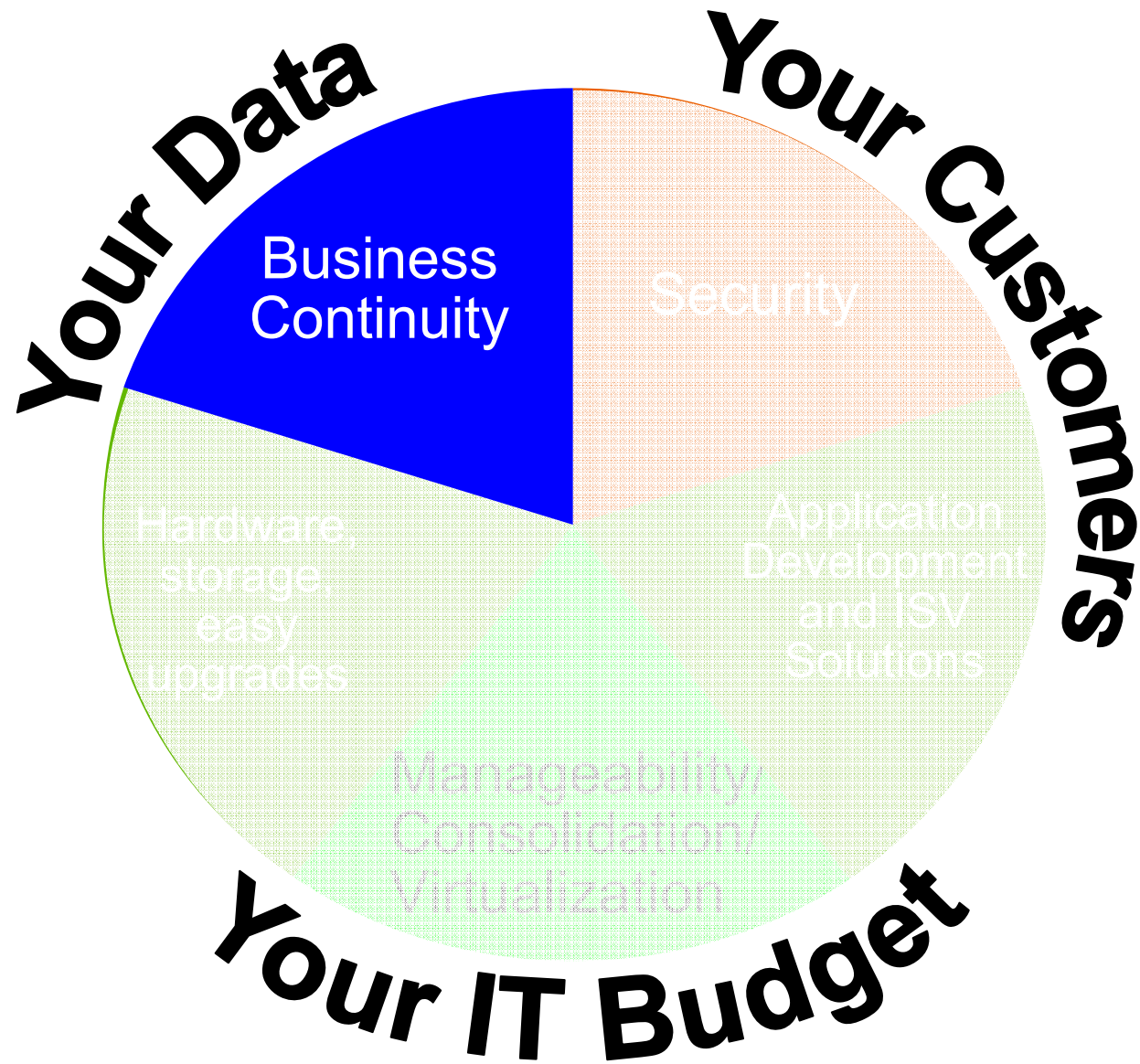


Today, OpenVMS protects your most vital business investments



- Your data
 - Reliability, flexibility, capacity, and disaster tolerance
- Your customers
 - Security, data integrity, availability
- Your IT budget
 - Manageability through virtualization
 - Maximum flexible use of available resources
 - Scalability – scale up/scale out
 - Easy application upgrades and hardware transitions
 - Excellent application development/maintenance tools
 - Broad spectrum of offerings from application partners
 - Latest storage technologies, hot-swaps and on-the-fly upgrades





Why OpenVMS?



Business Continuity

- ◆ To you, “downtime” is an unacceptable word
- ◆ You prefer to measure uptime in years rather than hours or days

Business Continuity



What is “*Business Continuity*”

The ability for a business to continue operations at a pre-determined level regardless of the impact of adverse internal or external events. With respect to the supportive IT infrastructure it is the goal of:

- 100% continuous cluster availability
- 100% application availability
- 100% cluster reliability and accuracy
- 100% data availability and integrity

Not all business continuity offerings are the same.

What makes OpenVMS different?

- Features that protect the system/cluster from intrusion and denial of service attempts
- Features that enable long distance clusters and keep a system going, even during a real disaster.
- Much more

OpenVMS Business Continuity

Excellence in Cluster/DT Features and Services



OpenVMS Features +

HP Service Offerings =

***Excellence in
Disaster Tolerance***

- **OpenVMS Clustering**

- Rolling Upgrades
- All-nodes active model
- Centralized cluster management

- **Fibre Channel Storage**

- Direct access to remotely located storage
- Distances up to 800 Km
- Hardware Mirroring (CA)

- **Inherent Disaster Tolerance Capabilities**

- Distances up to 800 Km
- Mirroring via Host Based Volume Shadowing

- **Service Offerings at increasing levels**

- Customer choice of support levels
- Business Continuity Consulting Services (BCS)
- Disaster Tolerant Cluster Services (DTCS)

- **Rapid Business Recovery**

- Virtually undetectable failover from one site to another
- Application Failover in minutes
- Data Access Recovery in seconds



In a Disaster, Your Business stays Running !

OpenVMS Clusters helped Commerzbank tolerate disaster on September 11, 2001



“Because of the intense heat in our data center, all systems crashed except for our AlphaServer GS160... OpenVMS wide-area clustering and volume-shadowing technology kept our primary system running off the drives at our remote site 30 miles away.”

Werner Boensch, Executive Vice President
Commerzbank, North America



Business Continuity

Up to 100% application availability

- High single system RAS
- OpenVMS clusters
 - High availability
 - Disaster tolerance
- OpenVMS Host Based Volume Shadowing and HP continuous access
- Mixed architecture environments
 - VAX and AlphaServer systems
 - AlphaServer systems and HP Integrity servers

New features of OpenVMS v8.3 enhance business continuity



- New:
Cluster satellite boot for
HP Integrity servers
 - Any HP Integrity server in the cluster can be used as the boot server
 - Enhanced control and manageability
- New:
Automatic/Restartable
MiniCopy
 - Reduces time it takes to complete copy operations
 - Higher availability for shadow sets
 - Increased I/O Performance

Mixed architecture clusters:

HP Integrity servers and
AlphaServer systems

Major Aerospace Company



Aerospace; North America

Dramatically boost performance of scientific application with OpenVMS on HP Integrity servers



Challenge



- Needed performance boost to run NASA code supporting computational fluid dynamics application
- Wanted to save cost through consolidation of older systems.
- Wanted to retain and enhance benefits of OpenVMS environment on the newest server platforms
 - Reliability
 - Scalability
 - Performance
- Maintenance costs of existing servers increasing significantly

Solution



- 10 HP Integrity rx2600 Servers
- HP OpenVMS operating system version 8.2
- OpenVMS clustering
- HP Integrity try and buy program

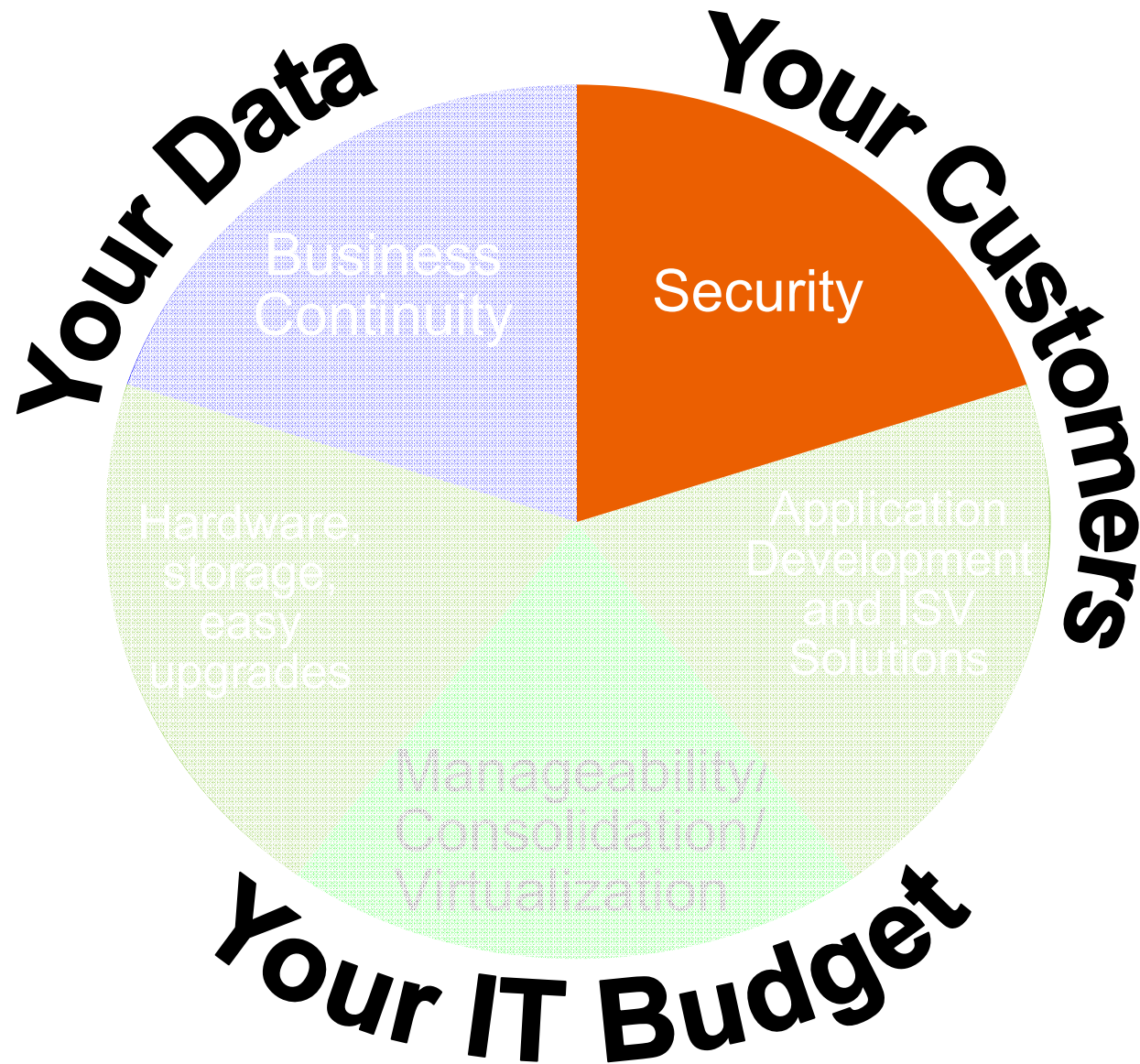
Result

- Increased performance by up to 70 percent
- Achieved payback in just months by off-setting maintenance costs of older systems
- Increased reliability, while doubling workload
- Accelerated time to value due to easy installation
- Planning additional mission-critical projects for OpenVMS on HP Integrity servers
 - Flight Test & Engineering



“For mission-critical applications that require absolute reliability and performance, OpenVMS is our operating system of choice. With OpenVMS on Integrity servers, we now benefit from the trusted, rock-solid functionality and scalability of OpenVMS with the high performance, agility, and simplified management of Integrity servers—all at lower total cost of ownership.”

Major US Aerospace Company



Why OpenVMS?

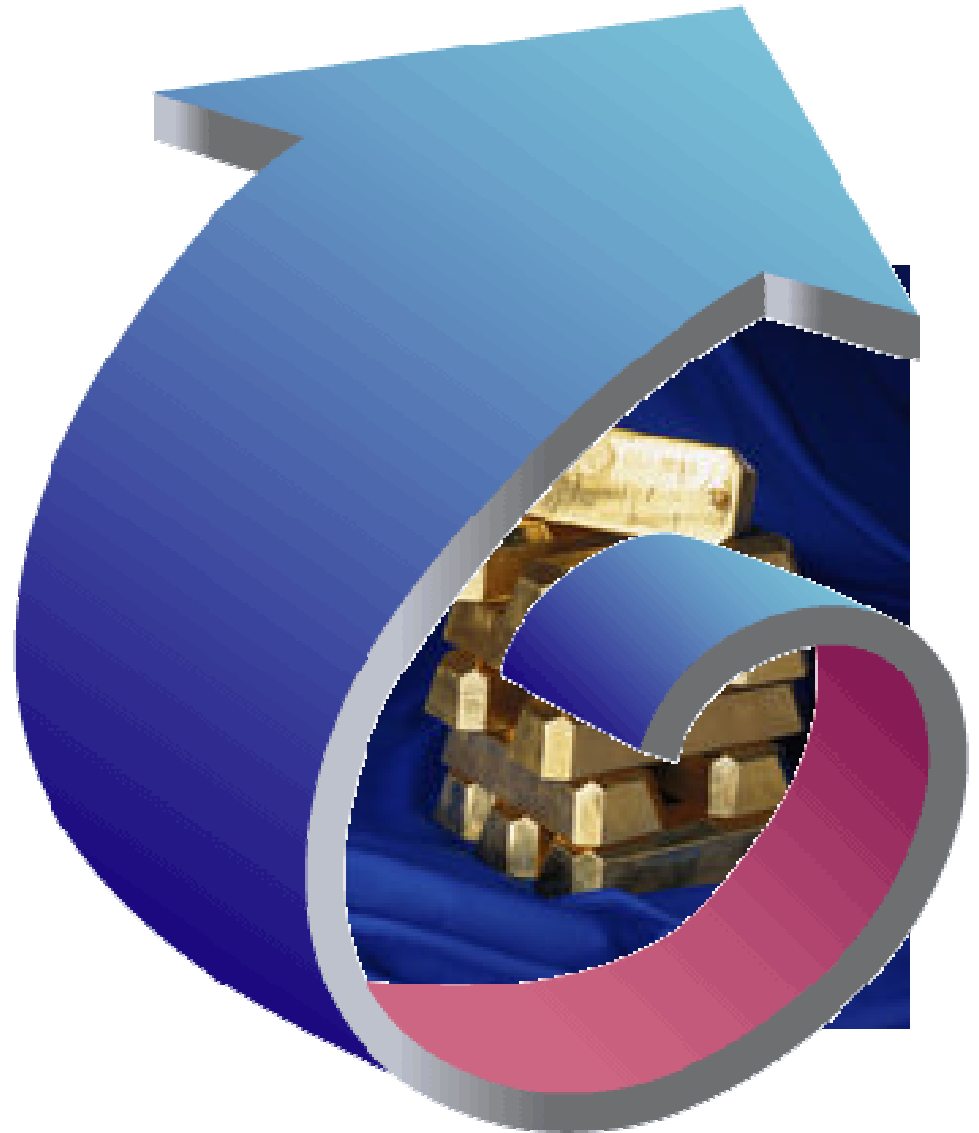


Security and Data Integrity

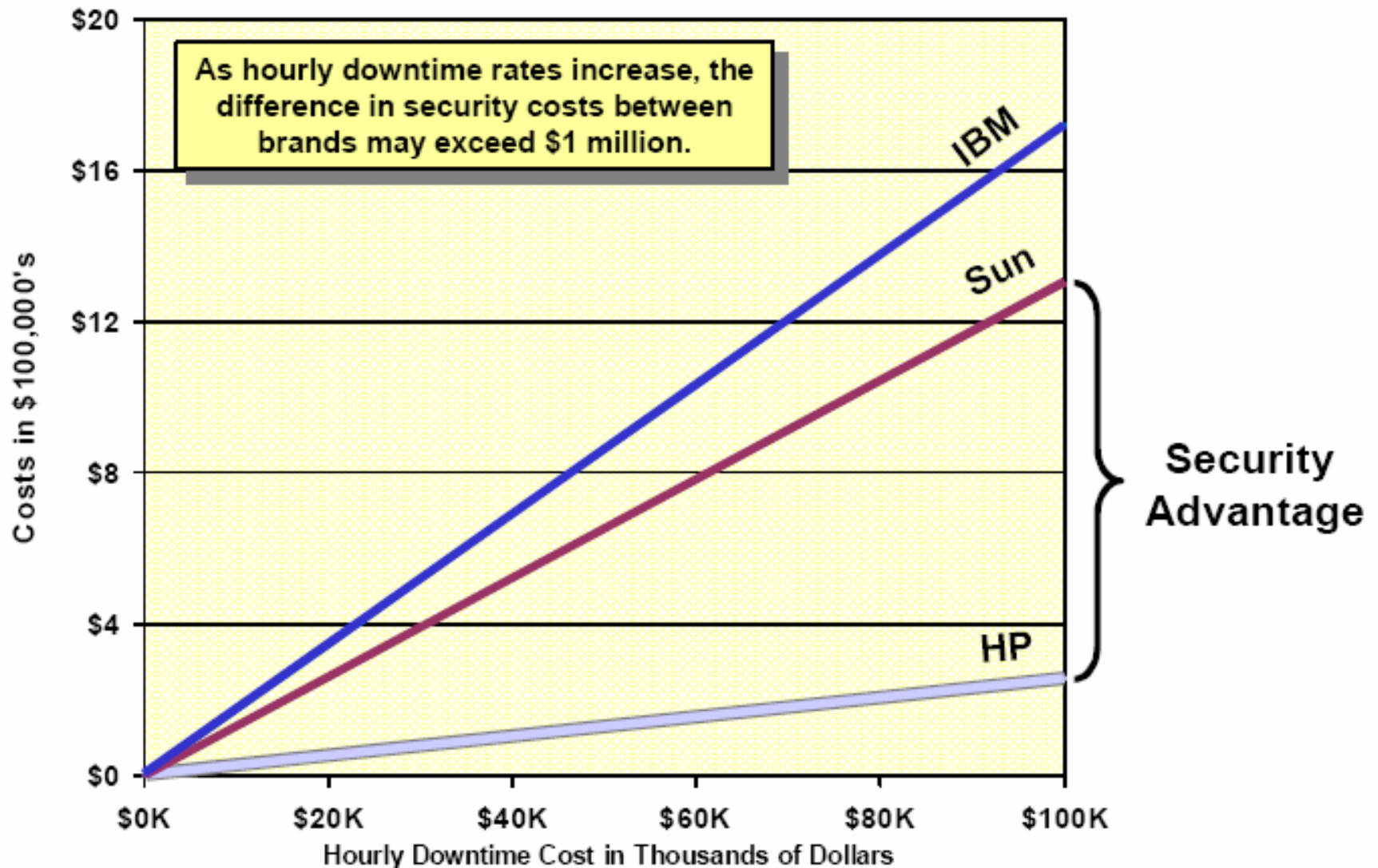
- ➡ You want a system that won't corrupt the disk structure if a power failure or system crash occurs
- ➡ You don't want to be a member of the Virus-of-the-Week Club
- ➡ 9 out of 10 hackers prefer another operating system – they can't get in unless someone gives them a password.

OpenVMS Security: *Rock solid*

- Highest security of any general-purpose commercial OS –
- Industry standard security technologies on a C2 compliant, virus resistant, highly available platform
- Rock solid security is why banking funds transfers, exchanges, government defense programs run on OpenVMS.



Three-Year Security Costs by Cluster Brand At Different Downtime Rates



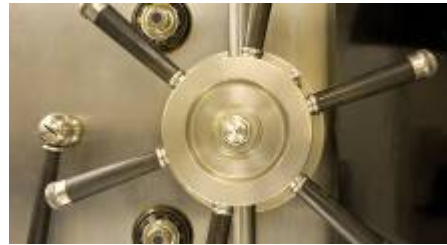
OpenVMS - secure by design

Control access: Solid security to protect your data, your systems, your customers.

Industry-standard, C2 compliant, virus-resistant, highly available platform.



Network
security



Data Integrity
confidentially



Intrusion detection
and analysis



Host Access

- Support of Industry Standard Network Security tools
 - Kerberos
 - OpenSSL
 - Improved: SSH (Larger & Faster secure transfers)

- Support Industry Standard encryption
 - SSL, CDSA, GnuPG
 - Improved: AES encryption is now part of the base O/S including Backups!
- **New:** Secure delivery
 - Digitally signed kits,
 - Automatic checking to indicate if the file was tampered with or corrupted.

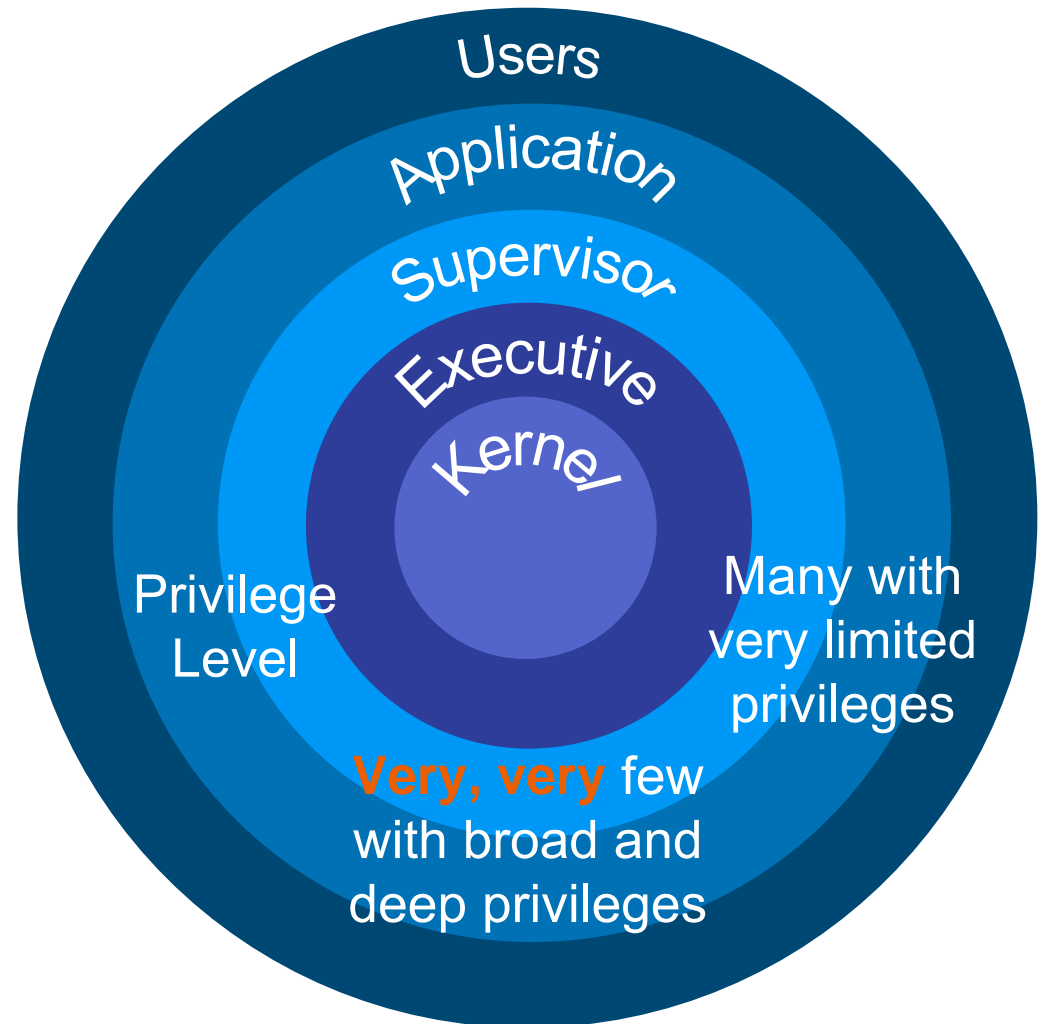
- Host Based Cluster wide intrusion detection
- Comprehensive Audit analysis and reporting.

- Single Security Domain across host or cluster
- Improved: Support for LDAP and Kerberos External Authentication
- Fine grain privileges
- OpenView integration

OpenVMS security: many layers – single domain



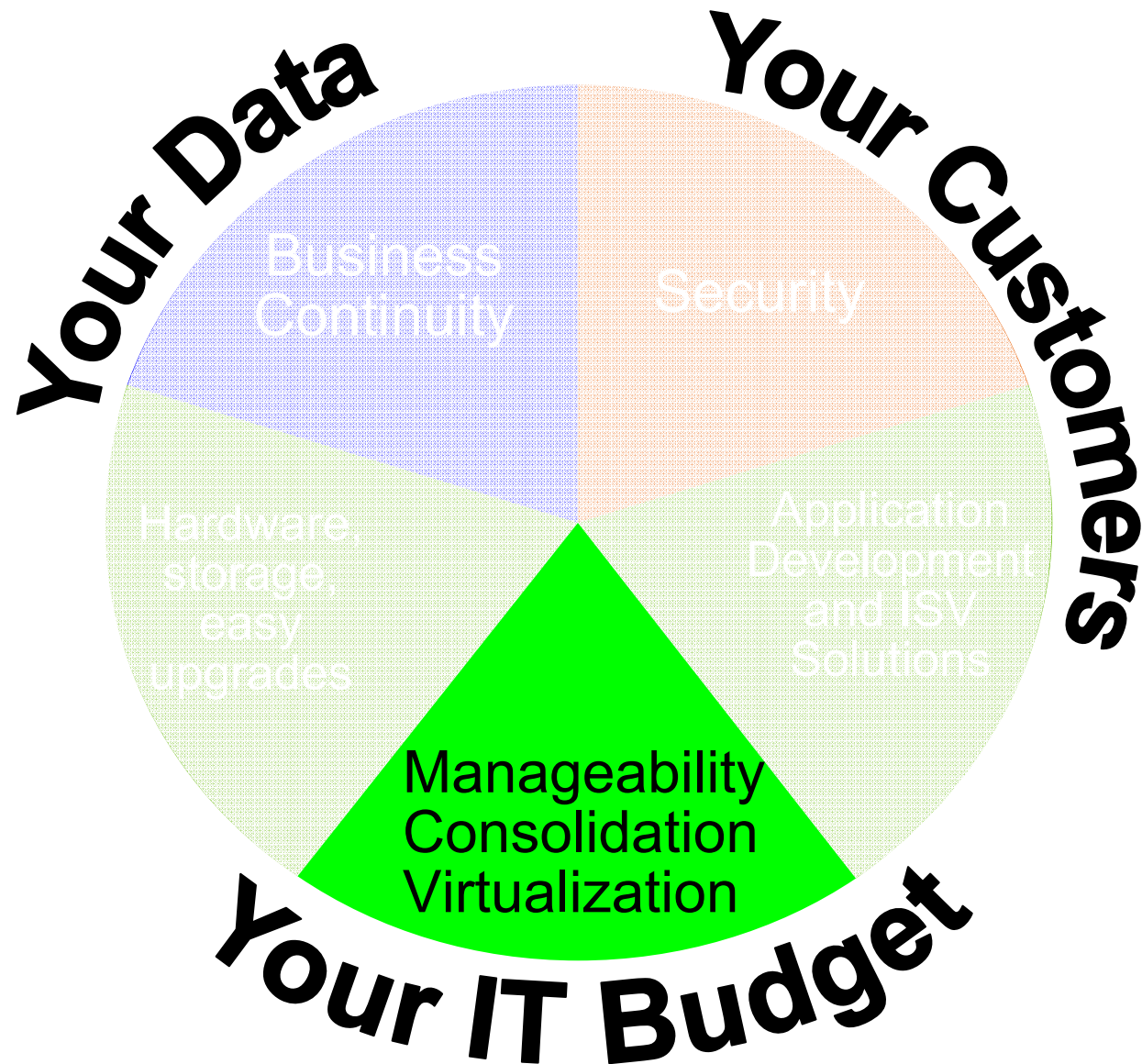
- Each layer requires its own privileges & authorizations
- A breach in any one layer does not compromise any other layer
- Result:
 - Maximum protection
 - Minimum worry



“We have successfully ported security applications to HP OpenVMS on Integrity servers and realized a 30% performance gain of cryptographic algorithms. In the next years, the Polytech will increase greatly its size and scope. The computing infrastructure must be extremely flexible, scalable, cost-effective and preserve today’s investments. We are confident that HP can give us, in the future as in the past, all these values.”

Marco Mezzalama
Vice-Chancellor
Turin Polytech





Why OpenVMS?



*Efficient,
cost-effective
management and
virtualization*

- ❖ You dislike waste of computing capacity
- ❖ “Reboot; and if that doesn’t work, Reinstall” is **NOT** the answer to every problem
- ❖ The OS that lets your IT staff sleep at night

Management Context

System Management

- Control/monitoring of system/cluster
- Managing of system resources
- Execution of administrative and operational tasks

Server Management

- Management from a single point of control
- Hardware and software inventory
- Detect, isolate, and report hardware failures

Data Center Management

- Control/monitoring of medium to large OpenVMS environments
- Monitoring of system health, consoles, performance, scheduling/workloads, network and storage across the environment from a desktop

Enterprise Management

- Management of (large) heterogeneous environments from a single point of control
- Managing every critical resource
 - Optimize system/network availability
 - Improve overall performance and predict system outages.

Management Strategy

System Management

- Tools bundled with OpenVMS
 - Management Station
 - Availability Manager
 - Performance Data Collector (TDC)
 - ECP Performance Analyzer
 - WBEM Services
 - OpenVMS utilities, commands, and APIs

Data Center Management

- Point products from 3rd parties with supporting 'hooks' from OpenVMS
 - TECsys, CA, BMC, Sightline, Orsyp, COMTEK, Appmind, ISE, Heroix

Server Management

- HP Systems Insight Manager
 - SNMP-based (Web) Management Agents today
 - Migrating to WBEM infrastructure in future
 - The base for virtualization tools

Enterprise Management

- HP OpenView (preferred)
- Partner with CA and BMC

Systems Management for OpenVMS

Delivering Manageable Platforms



Enterprise Management



- Heterogeneous coverage
- Increases IT service availability & performance
- Attaches business context to IT service

Server Management

Discovery, inventory, fault and remote management, role-based security, distributed tasks



Central Point of Administration

HP Systems Insight Manager

Performance

Management

- Performance Data Collector (TDC)
- ECP Analyzer
- OpenView Performance Agent

Configuration Management

- OpenVMS Clusters
- Partition Manager (Galaxy and vPars)
- Management Station

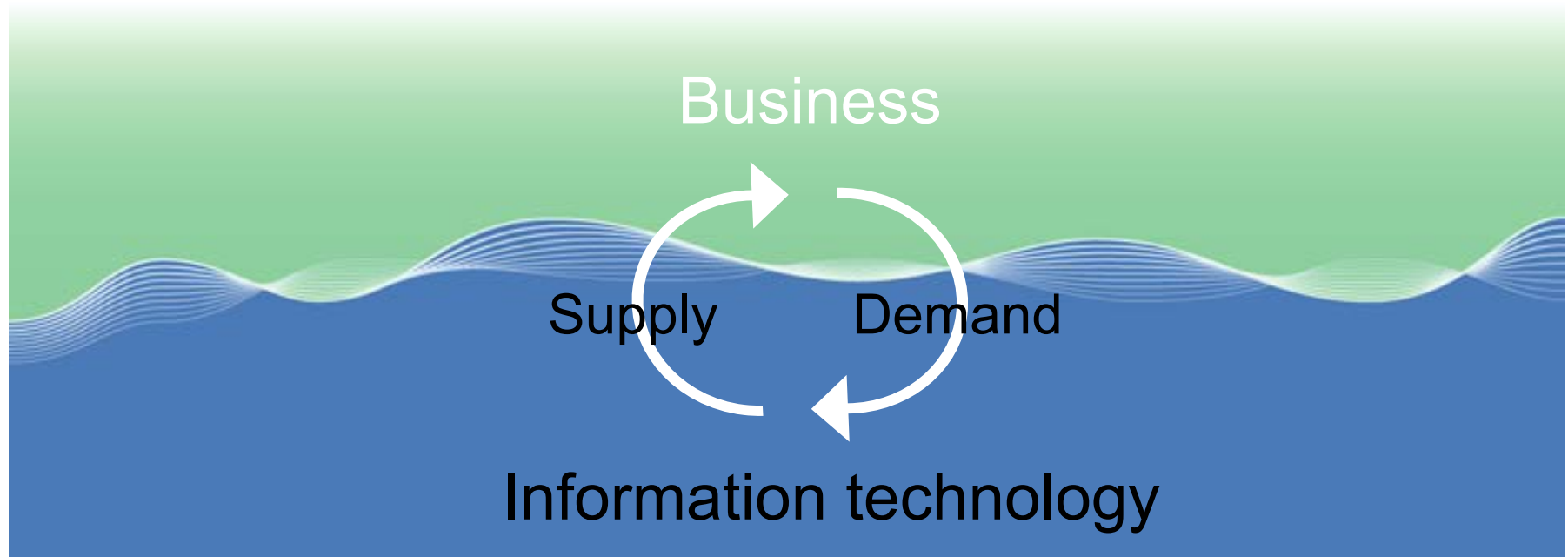
Workload Management

- Class Scheduler
- Global Workload Manager
- Availability Manager

Virtualization

HP's definition of Virtualization:

An approach to IT that pools and shares resources
so utilization is optimized and
supply *automatically* meets demand



OpenVMS virtualization on Integrity

– scalability on demand



Control cost: Use what you need and pay for only what you use, consolidate many to few servers for more savings

New:

- Industry-leading capacity enhancements:
 - Instant Capacity (iCAP)
 - Temporary Instant Capacity (TiCAP)
 - Pay Per Use (PPU)
- Power conservation during low cpu demand

Along with global Work Load Manager
(gWLM), already operational

Scalability and server consolidation - growth with flexibility



OpenVMS

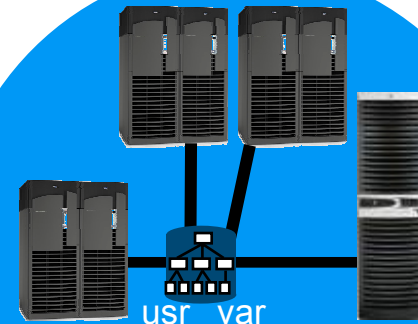
On larger
HP Integrity
servers and
AlphaServer
systems



- Capacity on Demand
- Partitioning
- Configure/Reconfigure storage
- Add nodes/move apps
- Remote management and control

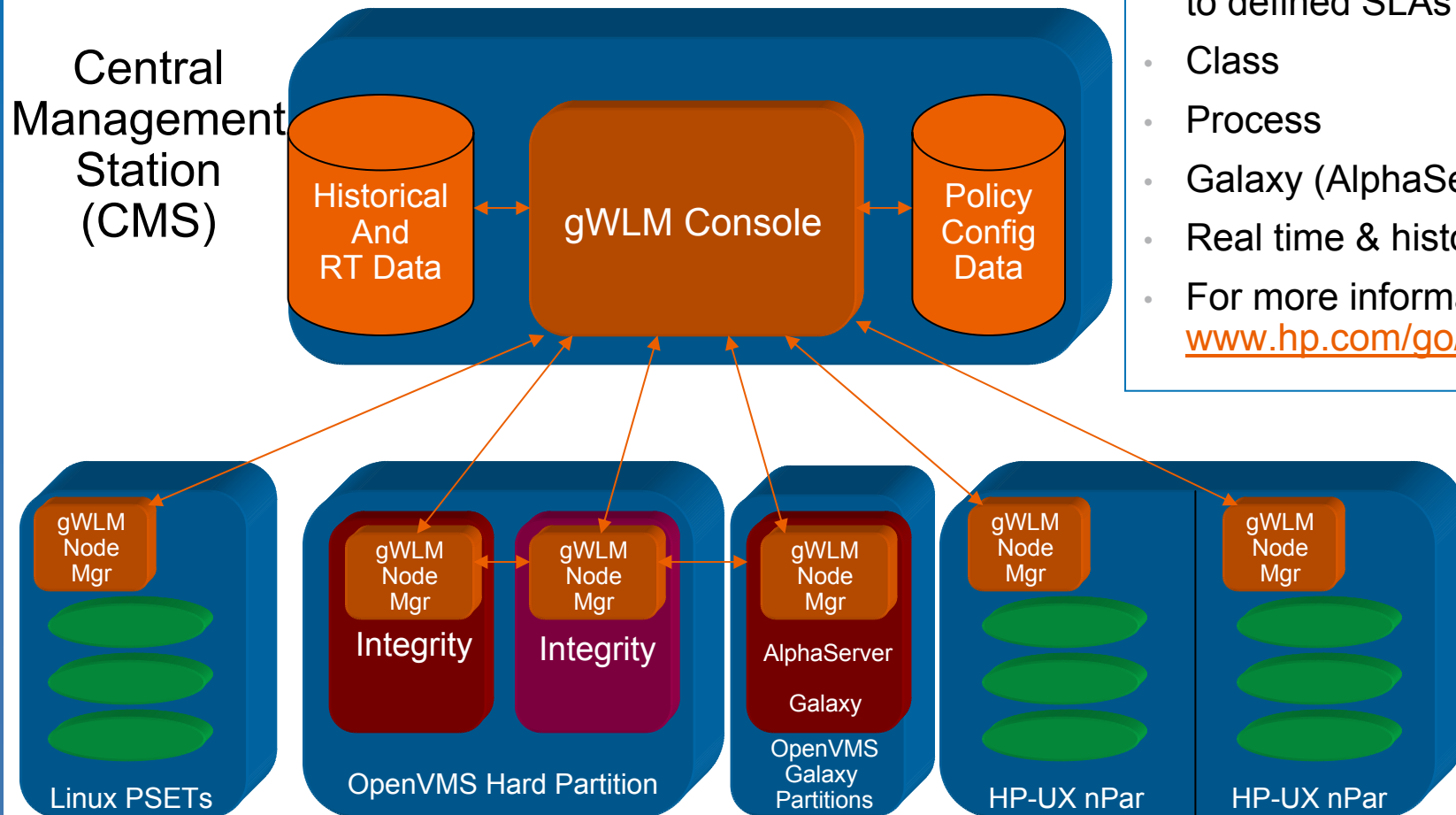
Scale up

Scale out



Single system image on
an OpenVMS cluster

Global Workload Manager for OpenVMS



- Automated management to defined SLAs
- Class
- Process
- Galaxy (AlphaServer only)
- Real time & historical data
- For more information www.hp.com/go/gWLM

Manageability through Virtualization



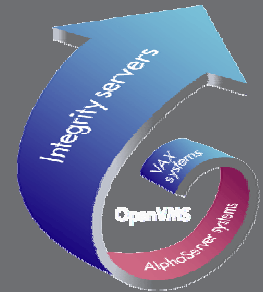
- Work load management → maximize efficiency
- Scalability → meet demands uninterrupted
grow capacity without growing organization
- Server consolidation → lower overall cost and complexity
- Superior TCO → better than IBM AIX and Sun Solaris*
- Technological stability → Maximum efficiency and RoIT

OpenVMS & HP-UX11i on HP Integrity Servers



Banco Bilbao Vizcaya, Argentina

Using HP Integrity multi-OS capability for efficiency, flexibility, and ease



Challenge



- Needed to consolidate disparate server environments
- Desire to gain maximum control and efficiency
- Use the right tool for the right job

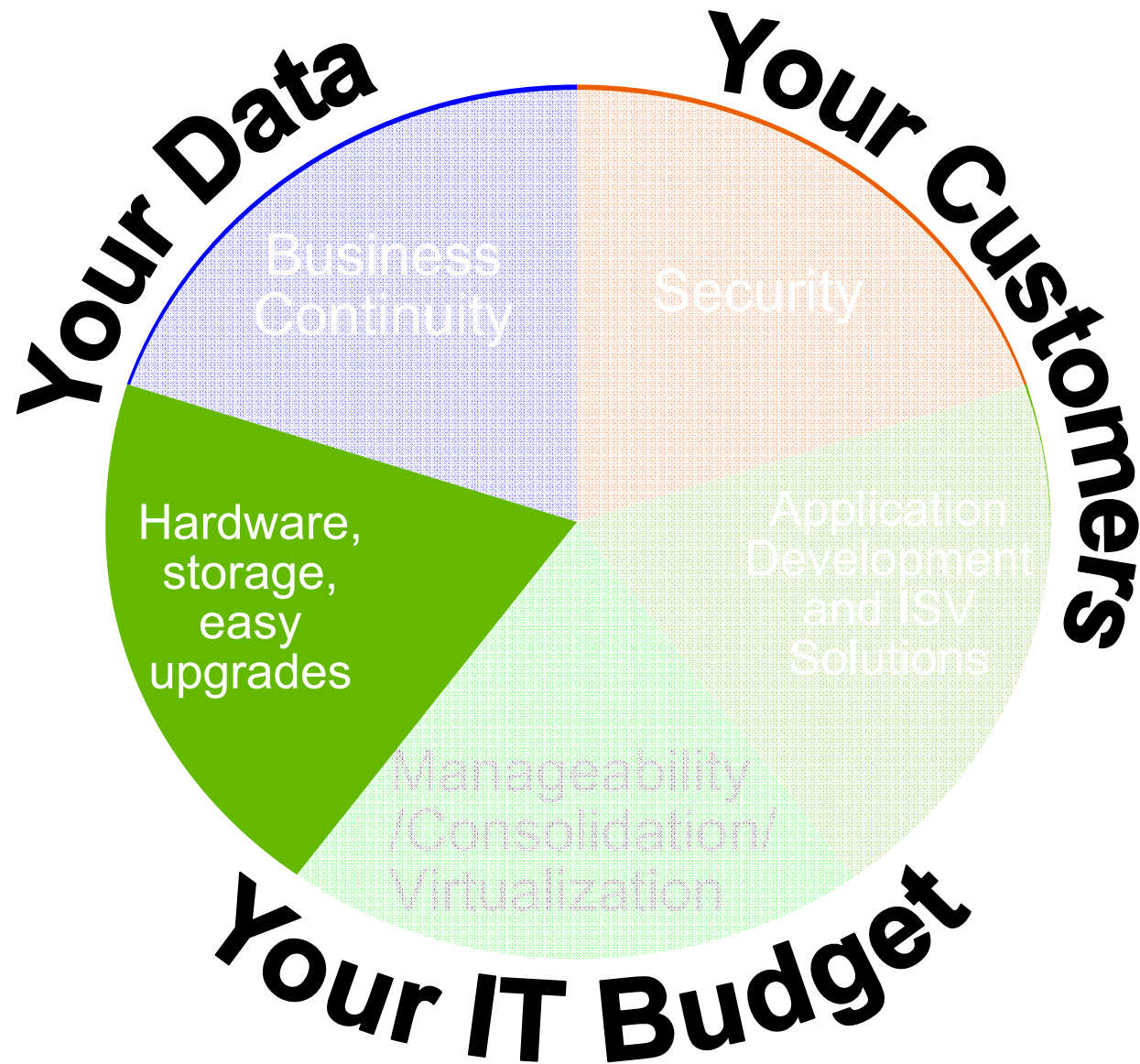
Solution



- 2 HP Integrity Superdome-32 servers
- HP OpenVMS operating system version 8.2
- HP-UX 11i operating system
- HP Essentials Instant Capacity on Demand
- Partner: Cognos

Result

- Significant cost reduction
- Flexible cost management
- Targeted technology applications
- Reduced management complexity



Why OpenVMS?



*Most flexible, reliable
& adaptable hardware*

◆ HP Integrity servers
For your most demanding
workloads

◆ HP AlphaServer
systems
In seamless, mixed-
architecture clusters

◆ HP StorageWorks
Most robust, reliable, and
flexible

HP standards-based server strategy

Past

Today

HP NonStop
MIPS

HP Integrity
Itanium

HP 9000 /
e3000
PA-RISC

HP
AlphaServer
Alpha

HP ProLiant
x86

Moving to 3 product lines
based on 2 industry-standard
architectures

standards-based

HP NonStop

HP Integrity

Itanium-based

HP ProLiant
x86-based

Focused
innovation

- Management
- Virtualization
- HA
- Storage
- Clustering

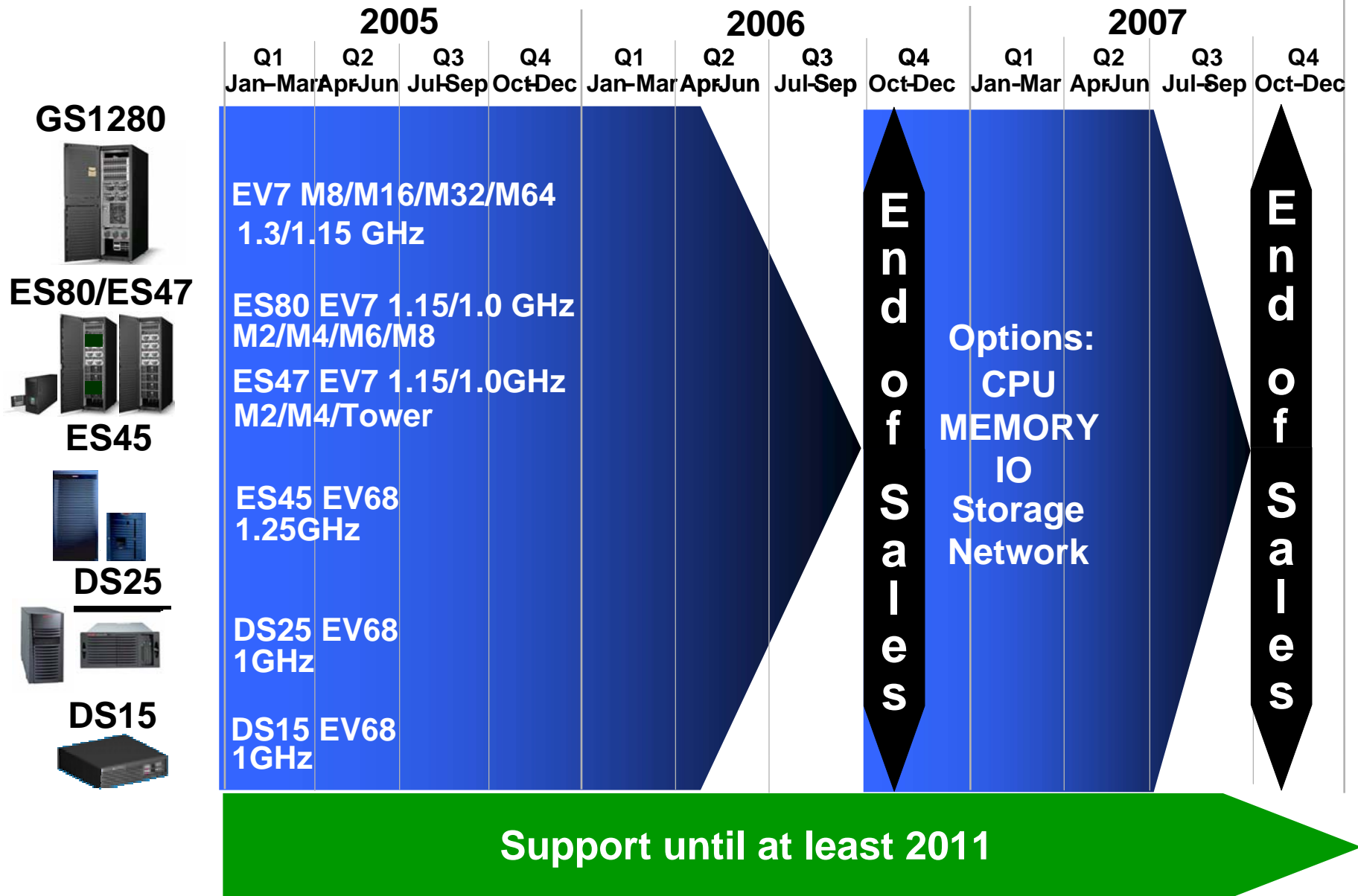
Customers benefit from increased
HP investment in value-add innovation

Value-add innovation based on standards



High Availability	Clustering	Virtualization	Management	HP StorageWorks
Robust high availability solutions and award-winning mission-critical support	Comprehensive portfolio of solutions for high availability, performance, and improved asset utilization	Leading virtualization solutions provide increased asset utilization and cost reduction to improve the quality of IT services	Single management architecture, resulting in easy management of multiple operating environments	Leadership in network storage with extensive portfolio of modular, open storage solutions

HP AlphaServer Roadmap





HP Integrity Server Roadmap

Revision: OB.07.06.0 July-06







Current offering

2H/2006

2007

2008

Future

 HP Integrity Superdome 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	New Server & Chipset CPU: Tukwila OS: HP-UX, Windows, Linux, OpenVMS	New CPU: Pouison
 HP Integrity rx7640, rx8640 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	New 16P Servers & Chipset CPU: Tukwila OS: HP-UX, Windows, Linux, OpenVMS New 8P Servers & Chipset CPU: Tukwila OS: HP-UX, Windows, Linux, OpenVMS	
 HP Integrity rx4640 HP-UX, Windows, Linux, OpenVMS	New 4p/8c Server & Chipset DDR-II CPU: Itanium2 "Montecito" OS: HP-UX, Windows, Linux, OpenVMS CPU: Itanium2 "Montecito" OS: HP-UX 11iv2, v3*, Windows, Linux, OpenVMS PCI-E	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2,v3, Windows, Linux, OpenVMS	New 4P Server & Chipset CPU: Tukwila OS: HP-UX, Windows, Linux, OpenVMS	
 HP Integrity rx2620 HP-UX, Windows, Linux, OpenVMS	New 2p/4c Capacity Optimized Server & Chipset DDR-II CPU: Itanium2 "Montecito" OS: HP-UX, Windows, Linux, OpenVMS CPU: Itanium2 "Montecito" OS: HP-UX 11iv2, v3*, Windows, Linux, OpenVMS DDR-II New 2p/4c Density Optimized Server PCI-E CPU: Itanium2 "Montecito" OS: HP-UX 11iv2, v3, Windows, Linux, OpenVMS	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2,v3, Windows, Linux, OpenVMS	New Servers & Chipset CPU: Tukwila OS: HP-UX, Windows, Linux, OpenVMS	
 HP Integrity rx1620 HP-UX, Windows, Linux, OpenVMS		CPU: Itanium2 "Montvale" OS: HP-UX 11iv2,v3, Windows, Linux, OpenVMS		
 Blades HP Integrity BL60p	New Blade Server CPU: LV Montecito OS: HP-UX, Windows*, Linux, OpenVMS*	CPU: Itanium2 "Montvale" OS: HP-UX 11iv2,v3, Windows, Linux, OpenVMS	New Blade Server CPU: Tukwila OS: HP-UX, Windows, Linux, OpenVMS	

Timeframes not to scale

All upgrades "in-box" except as noted

*Not available at initial processor release

9/7/2006 ~~2006~~ Plans subject to change

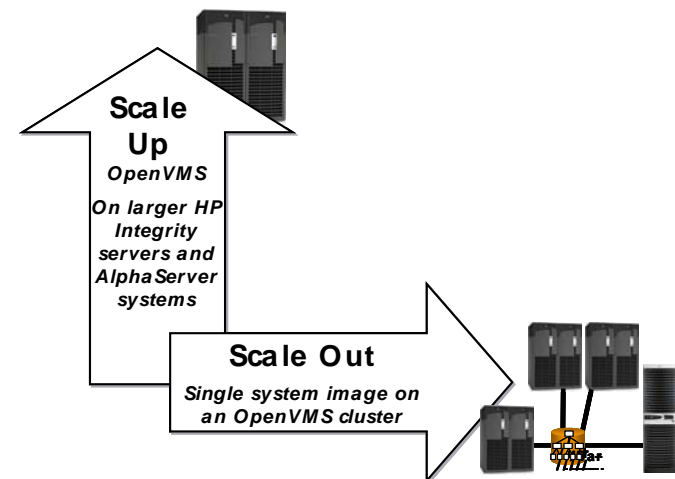
New Chassis

PCI-Express

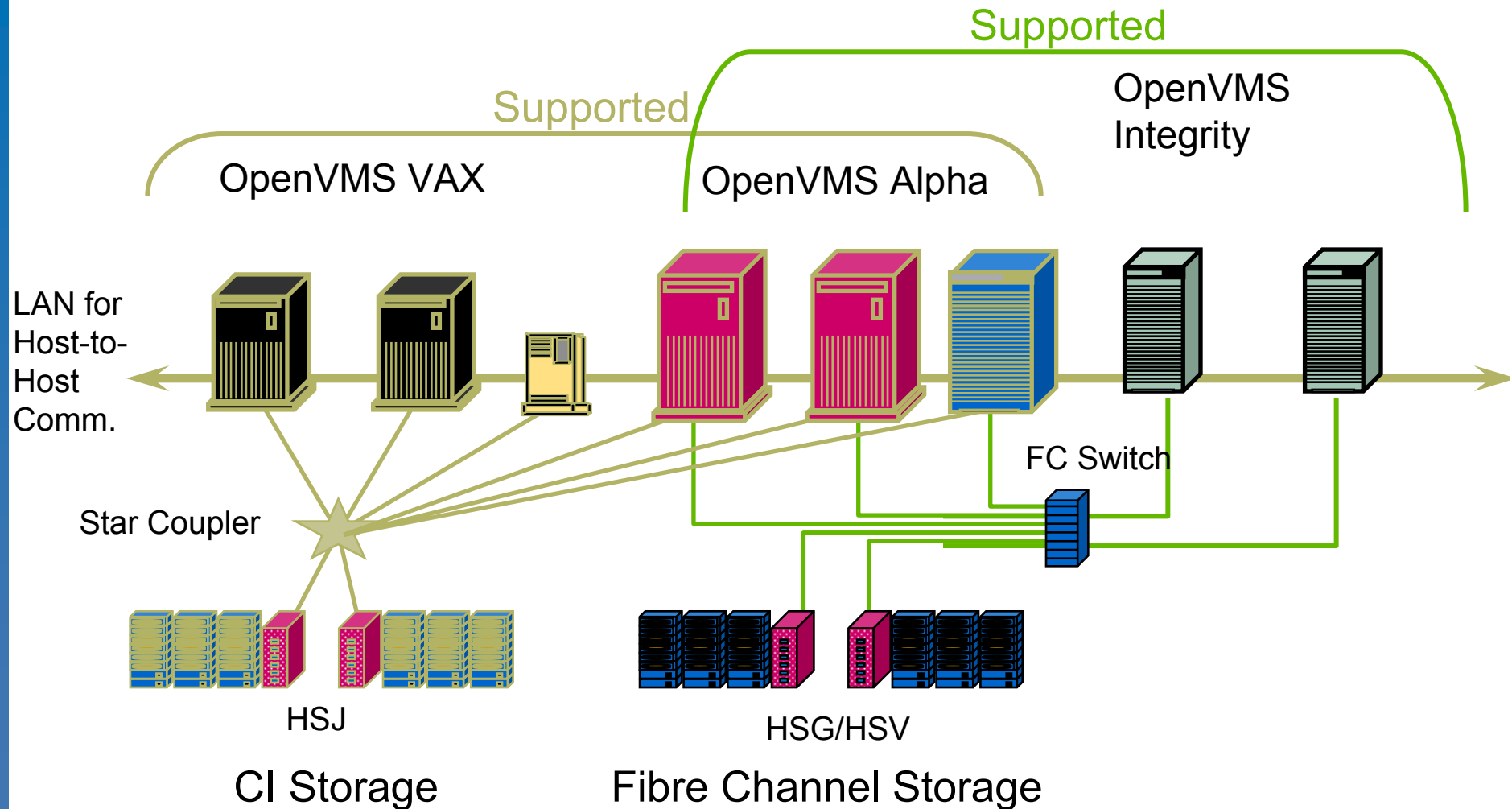
DDR-II Memory

Easy Hardware Upgrade/Expansion

- Online addition of hardware:
 - Disks, tapes
 - Complete server addition / removal from cluster
 - No need to restart the system
- Unique cluster capabilities make it easy
 - Active / Active utilization
 - Load balancing / Load sharing
- Online repairs in many cases
 - Disks, tapes, interconnects



OpenVMS Clusters – the evolution continues with third architecture

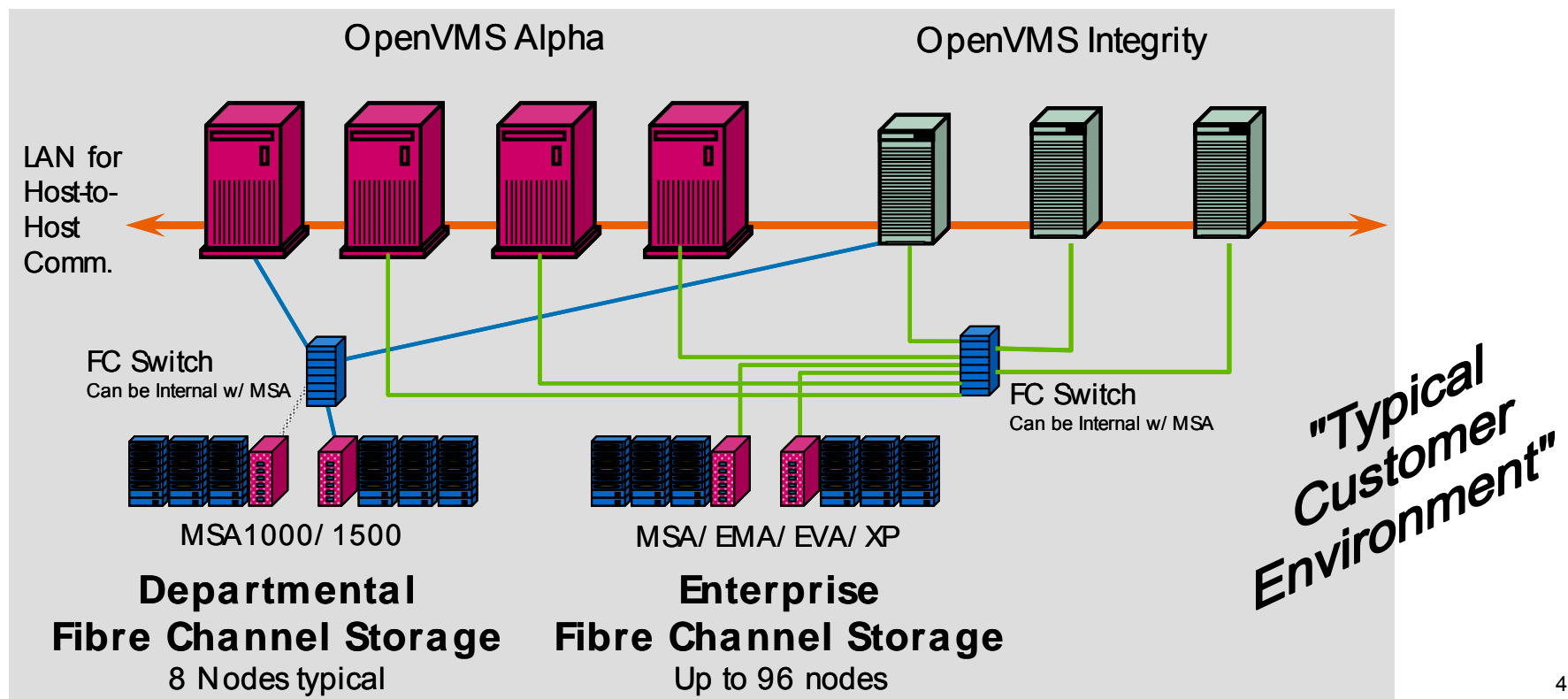


NOTE: Support for VAX and Integrity mixed environment is not supported in a production environment.

OpenVMS Storage Environment: Open, standard, heterogeneous

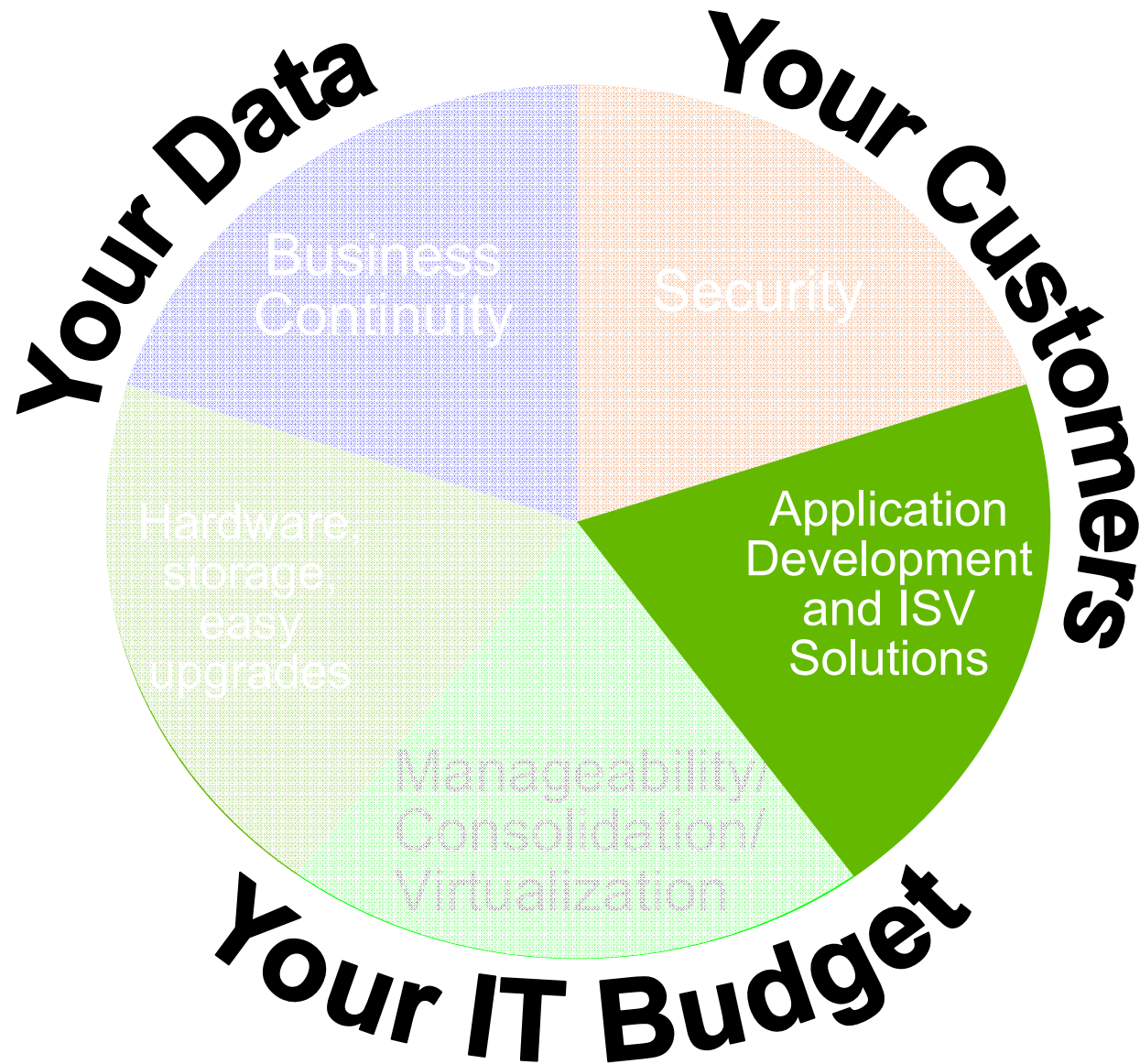


- Supports all HP StorageWorks products
- Supports mixed architecture servers w/in a cluster
- Supports mixed storage solutions w/in a cluster
- Allows customers to mix Enterprise Storage with Departmental Storage without restriction to support multiple business needs w/in single environment



“Our mixed cluster of OpenVMS on HP Integrity servers and AlphaServer systems provides us with the high availability and security required by our faculty, students and staff. By integrating proven technology with the latest advancements in performance and price/performance, we take advantage of a 25-year investment in this operating system, while preparing a smooth transition to the next generation of computing platforms.”

Jean-Pierre Petit
Chairman, Computer Engineering
Department
ESME-Sudria



Why OpenVMS?



*Fast, flexible,
standards-based
development*

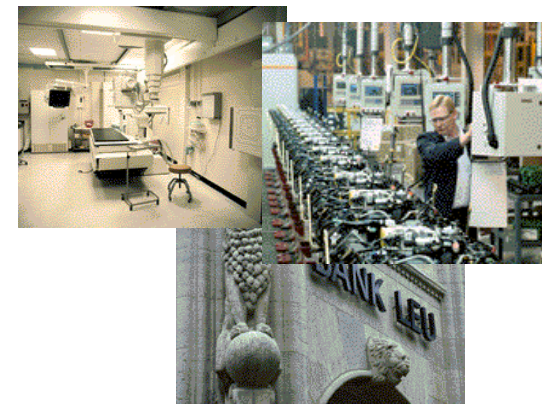
- ◆ You prefer not to redo good work
- ◆ Even if it's a UNIX[®] application you can move it to OpenVMS
- ◆ The right tool for the right job

Application Development and ISV Solutions

Solutions that run your business

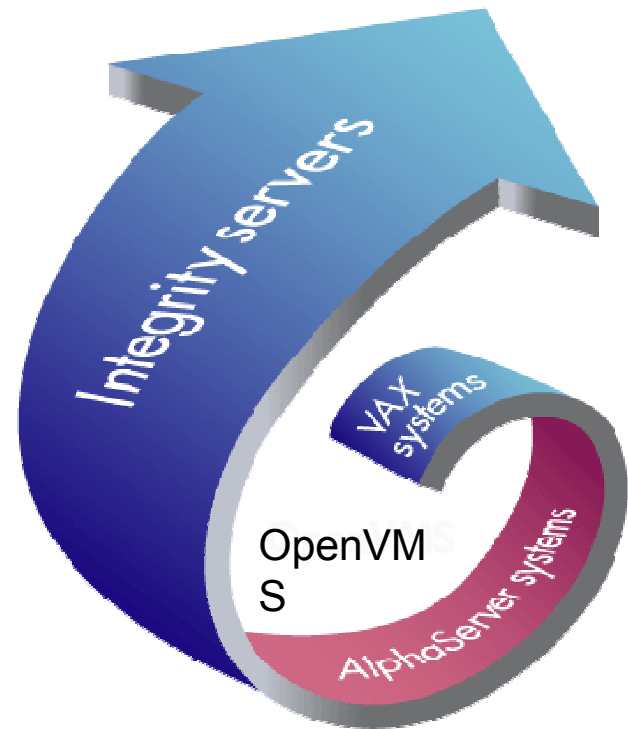


- OpenVMS is a multi-purpose operating system that easily scales and simultaneously runs multiple active multi-user processes.
- OpenVMS handles the most demanding database and transaction workloads
 - Very large databases
 - Applications requiring realtime capability, e.g. manufacturing production
 - Highly scaleable and secure transactions, e.g. funds transfers
 - Transaction guarantee via software fault tolerance with Reliable Transaction Router
- Heterogeneous interoperability across multiple architectures and multiple operating systems.
- In conjunction with its partners, OpenVMS has the tools and technology:
 - To create the solution to your enterprise application integration and evolution problem while leveraging all the strengths of OpenVMS and protecting your investment.



New in OpenVMS application development

- Investment protection
 - Re-use existing applications, data, and business logic
- Customize and upgrade
 - Full set of features to enable customization and facilitate easy porting from VAX and AlphaServer systems to new Integrity servers



Web integration tool kit

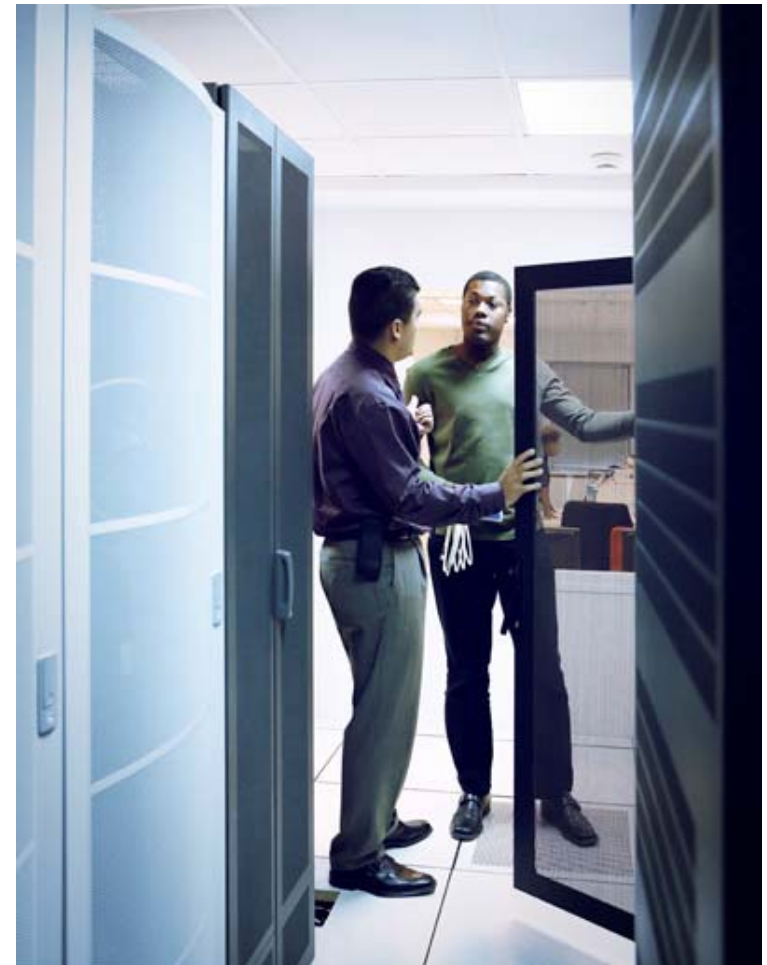


New:

- Tools to expose legacy application logic as part of implementing an integration solution
 - Tools can be used either individually or in combination
 - Generates JavaBean, Java, and JavaServer Page (JSP) clients

OpenVMS for Integrity server - development and integration technology from HP and partners

- Web servers and browsers
 - Secure Web Server (Apache)
 - Secure Web Browser (Mozilla)
- Development tools
 - Distributed NetBeans including support for C/C++, Pascal, Fortran, COBOL, MMS, BASH, DCL, CMS plus new toolkit for handling legacy apps.
 - Synergex Synergy (DIBOL)
- Security tools enhanced in V8.3
 - CDSA, including secure delivery and hrs
 - AES encryption, Kerberos enhancements, ACME agent, Kerberized SSH, KRB5 libraries, HP SSL



ISV Solutions for OpenVMS on HP Integrity servers



- Ongoing engagement with OpenVMS ISVs to ensure application availability on HP Integrity servers.
 - Over 1,100 applications from more than 550 partners are committed to move to OpenVMS on integrity
 - More than 700 applications and service offerings are currently available.
- Key databases are available including Oracle Rdb. (Oracle Server, November, 2006)
- HP-sponsored partner programs are assisting partners with porting and marketing their applications on Integrity servers.
- Many vertical market solutions already implemented or in process – several new commodity exchanges

Some examples





“When we looked for a computer platform on which to build our applications, we chose OpenVMS because of its security, reliability, and stability. Now OpenVMS offers even more value to our customers because of its availability on standards-based HP Integrity servers.”

Walter Kuhn
Head of Development
PKE Electronics AG

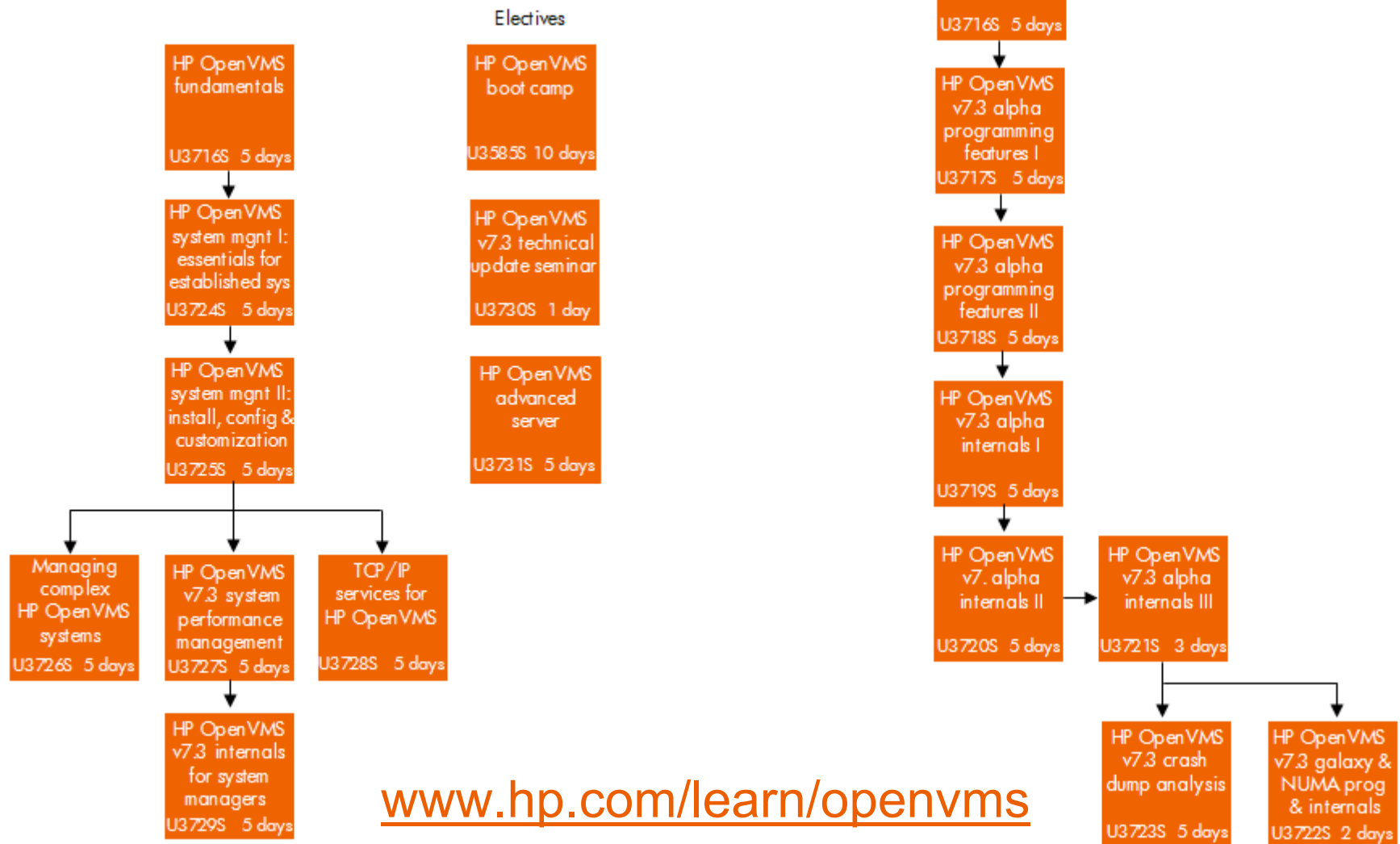


OpenVMS education Services – Making the most of HP OpenVMS



For Programmers

For System Managers



OpenVMS education Services – Certifications



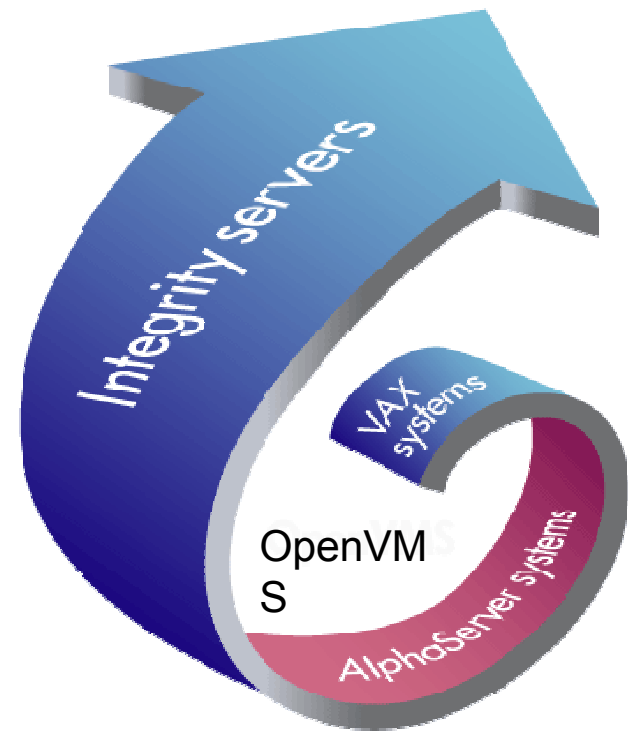
Certification	Pre-requisite	Recommended courses
Certified system administrator - HP OpenVMS v7 OpenVMS systems administration exam #HP0-651	None	HP OpenVMS fundamentals (U3716S) HP OpenVMS system management I: essentials for established systems (U3724S) HP OpenVMS system management II: installation, configuration & customization (U3725S) HP OpenVMS system performance management (U3727S)
Certified system engineer - HP OpenVMS v7 HP OpenVMS v7 advanced administration, performance and support exam #HP0-450 and HP OpenVMS v7 network administration exam #HP0-436	Certified system administrator - HP OpenVMS v7	TCP/IP services for HP OpenVMS (U3728S) HP OpenVMS v7.3 internals for system managers (U3729S) HP OpenVMS system performance management (U3727S)

www.hp.com/learn/openvms

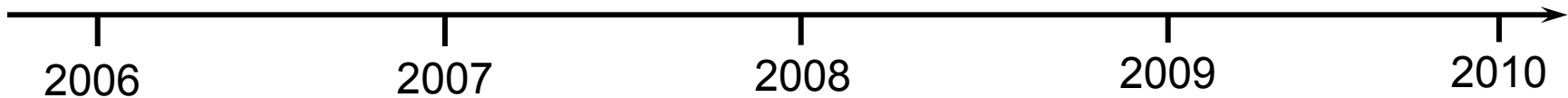
Moving forward with OpenVMS on HP Integrity servers



- New line of multi-core servers
- A smooth, logical upgrade path
- Programs to assist you



HP OpenVMS operating system rolling roadmap



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

- New Platform support with dual-core
- rx2620 & rx4640 dual-core upgrades
- VLAN support
- Performance & Scalability enhancements
- Industry Standards: Web Services, Java, Security, UNIX/Linux interoperability
- Virtualization: iCAP, TFCAP, and LDDU

OpenVMS V8.3-1 H1 Available : H2 2007 Platform: Integrity only

- Multi-core upgrade support
- New I/O option support (PCI Express)
- Next Generation
- Integrity Blades support

OpenVMS V8.4 Available : 2008 Platforms: Alpha and Integrity

- Storage performance and connectivity
- Performance & Scalability enhancements
- Industry Standards: Security, Integration software, Web Services, Java, UNIX/Linux Interoperability
- Virtualization: VSE Manager

- HP Integrity Virtual Machine support for OpenVMS

OpenVMS V8.n Available : +18 24 months Platforms: Alpha and Integrity

- New Integrity systems
- Industry standards
- Performance & Scalability enhancements
- Virtualization

OpenVMS releases continue...

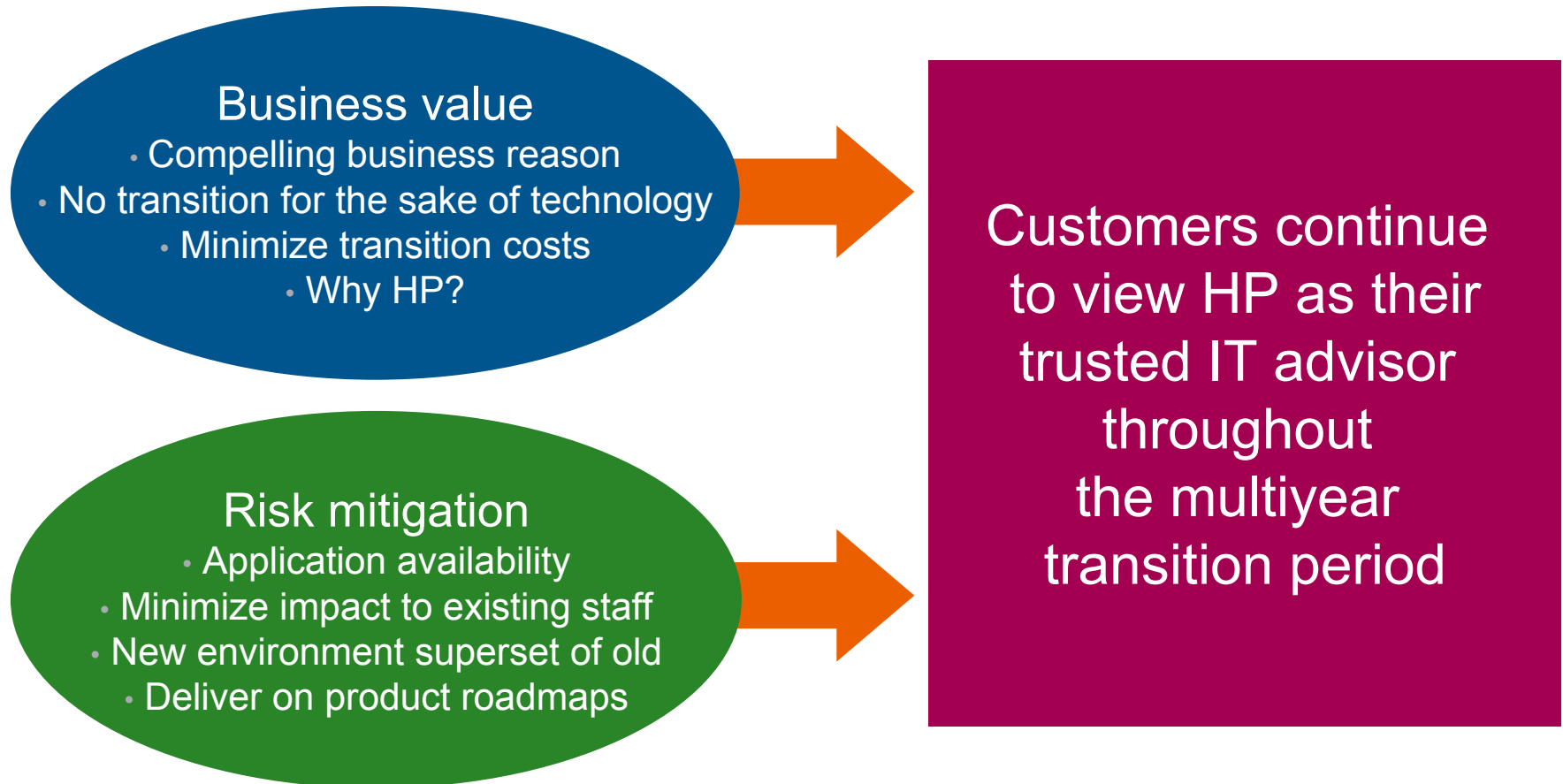
License transfer policies for OpenVMS on HP Integrity servers from AlphaServer or VAX systems



- Services contract (with license to use)
 - Even swap at no charge for “equivalent product”
 - Parallel usage for a set period
 - Must purchase at least one year of support
- No services contract
 - 60% discount on new license price
 - Parallel usage for a set period
 - Must purchase at least one year of support



HP's evolution value proposition



Alpha RetainTrust transition program



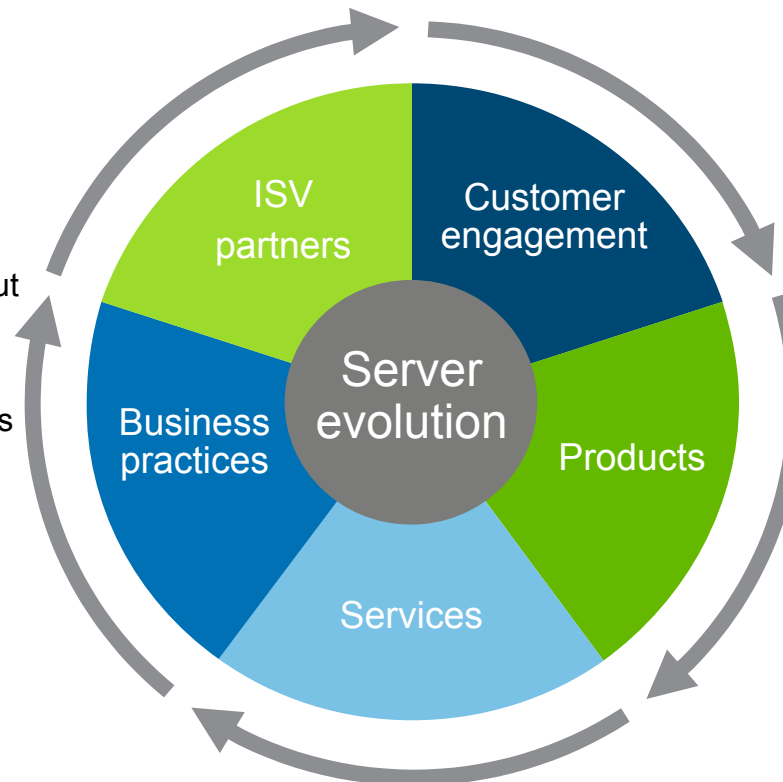
Illustrative examples

- Accelerate top ISV transition to Integrity

- 8,000+ ISVs available now across all integrity OEs
- Itanium Solution Alliance to add more
- OpenVMS 8.3 Integrity ISV apps – over 700 available out of >1100 planned
- Porting seminars
- Emulators to run applications that are not ported
- GTM programs with key ISV partners

- Complete portfolio

- Generous hardware and storage investment protection programs
- 100% trade-in for OS & layered OS products for Integrity equivalents
- Flexible financing, trade-up credit, parallel usage of old and new systems



- Fee-based services

- IT strategy and architecture
- HP Start-up and Implementation services
- HP Integrity services and support

- Comprehensive customer programs

- 1 to 1; 1 to many.
- International Customer Executive Council, Technical Advisory Forums, Meet the Customer Forums...

- Industry-leading products

- Industry-standard architecture approach across multiple operating systems
- Incredibly reliable, flexible systems to meet our customer's needs

- Complimentary services & tools

- Robust porting, planning, and deployment tools
- Solution stack assessment
- Consulting Sessions and Transition Workshops
- HP Demo Centers, HP-Intel Solution Centers (proof-of-concept)

www.hp.com/go/ART

HP OpenVMS on Integrity Servers

Legendary security, availability, data integrity and easily-managed solutions to real business problems at the right price.

HP OpenVMS
has always had
integrity

Now HP Integrity
servers
have OpenVMS

