



HP OpenVMS Technical Update and Roadmaps

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Agenda

- OpenVMS Roadmap Highlights
- OpenVMS Promotion Activities
- HP Support Policies
- Version 8.3 Technical Update
- OpenVMS Technical Futures





OpenVMS Roadmap Highlights

HP Integrity Servers: OpenVMS Madison9 support



New rx2620
Office Friendly
Conversion kit



rx1620
1u
2P/2C
OpenVMS V8.2,
V8.2-1, V8.3



rx2620
2u,
2P/2C
OpenVMS V8.2
V8.2-1, V8.3



rx4640
4u
4P/4C or
with MX2 8P/8C
OpenVMS V8.2
V8.2-1, V8.3



rx7620
9u
2 cell (8P/8C) OpenVMS V8.2-1,
V8.3



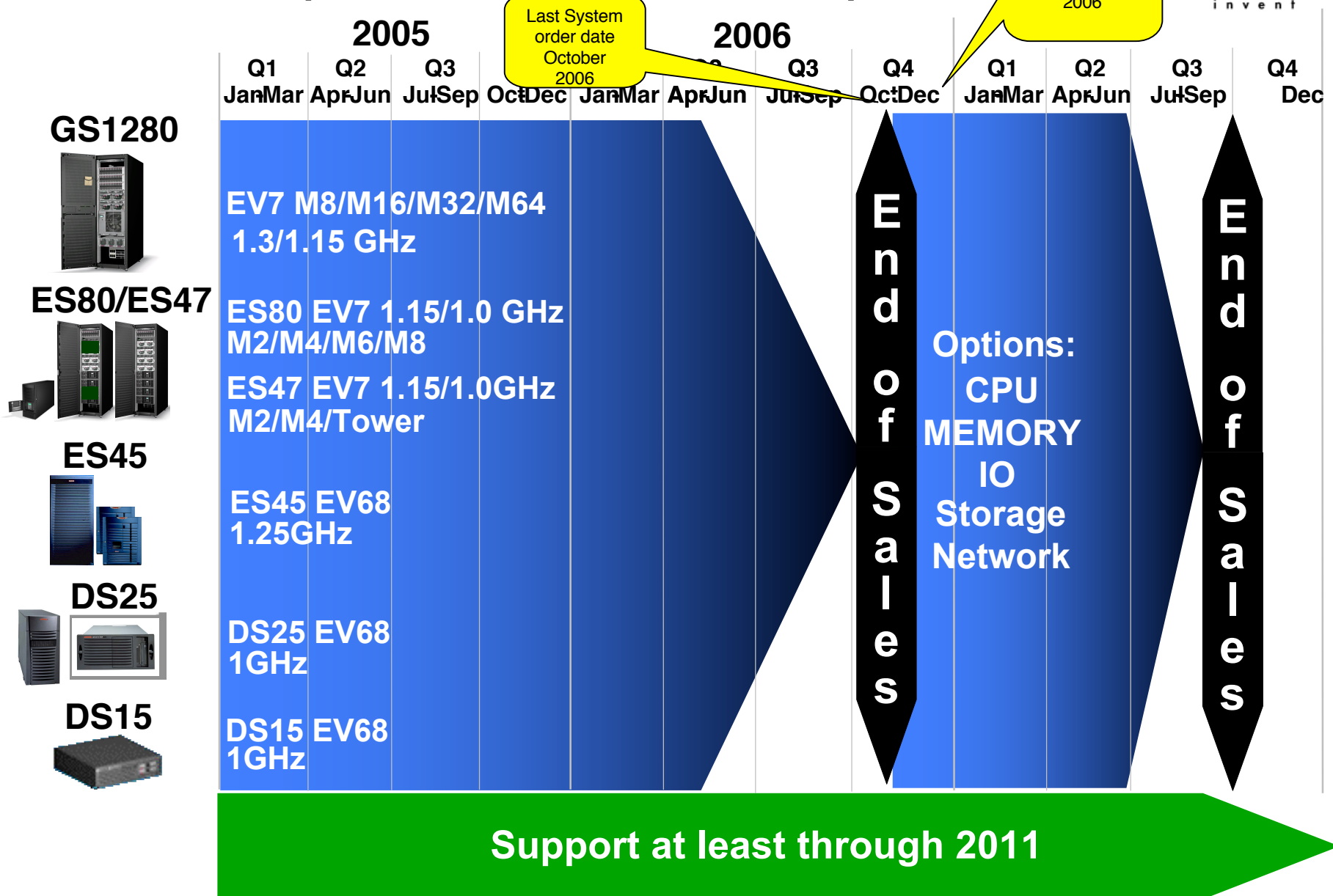
rx8620
17u
4 cell (16P/16C)
OpenVMS V8.2-1,
V8.3



Superdome
Max 4 cell
(16P/16C) partition
OpenVMS V8.2-1,
V8.3

OpenVMS supports the
sx1000 chip set with
only MAD9 processors
on the rx7620, rx8620
and Superdome.

HP AlphaServer Roadmap



License Trade In Rules to Integrity

- License transfer from AlphaServer or VAX
 - 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 Integrity Servers: OpenVMS V8.3 Montecito support



New Montecito Processor Systems



rx2660
2u
2P/4C

OpenVMS V8.3+
low cost server
H107



rx3600
4u
2P/4C

OpenVMS V8.3+



rx6600
7u
4P/8C
OpenVMS V8.3+



Processor upgrade
rx4640 4u, 4P/8C
OpenVMS V8.3



System board upgrade
rx2620 2u, 2P/4C
OpenVMS V8.3



rx7640
9u
2 cell
(8P/16C)
OpenVMS V8.3



rx8640
17u
4 cell
(16P/32C)
OpenVMS V8.3



Superdome
Max 4 cell
(16P/32C)
partition
OpenVMS V8.3

OpenVMS supports the
sx2000 chip with only
Montecito processors
rx7640, rx8640 and
Superdome.

Montecito Upgrades

Configuration Equivalent: High End Alpha to Integrity Mid-range (Montecito)



Free O/S License
transfer



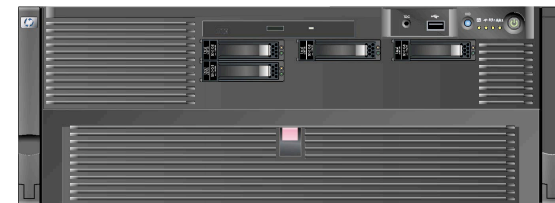
Alpha server GS1280
Full Cab
16 Alpha CPUs
EV7 1.15GHz/1.75MB
128 GB memory

Integrity Server: rx7640
9u
2 cell (8 Processors/16 Cores)
Montecito 1.6 GHz/18MB
128 GB memory

Configuration Equivalent: Mid-Range Alpha to Integrity Entry-class (Montecito)



Free O/S License
transfer



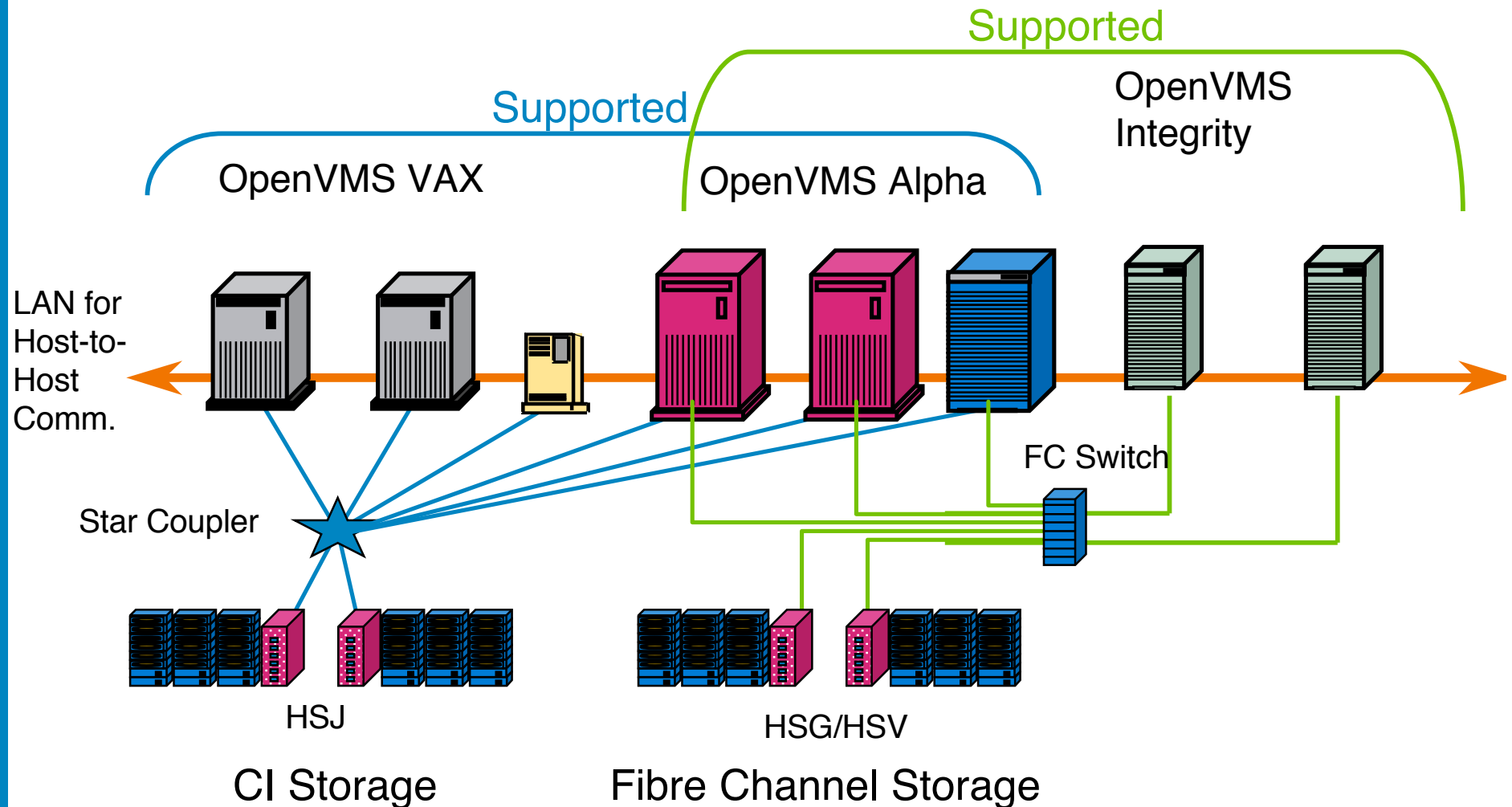
AlphaServer ES47
4u

4 Alpha CPUs
EV7 1.15GHz/16MB
32 GB memory
5 PCIX slots

Integrity Server rx3600
4u

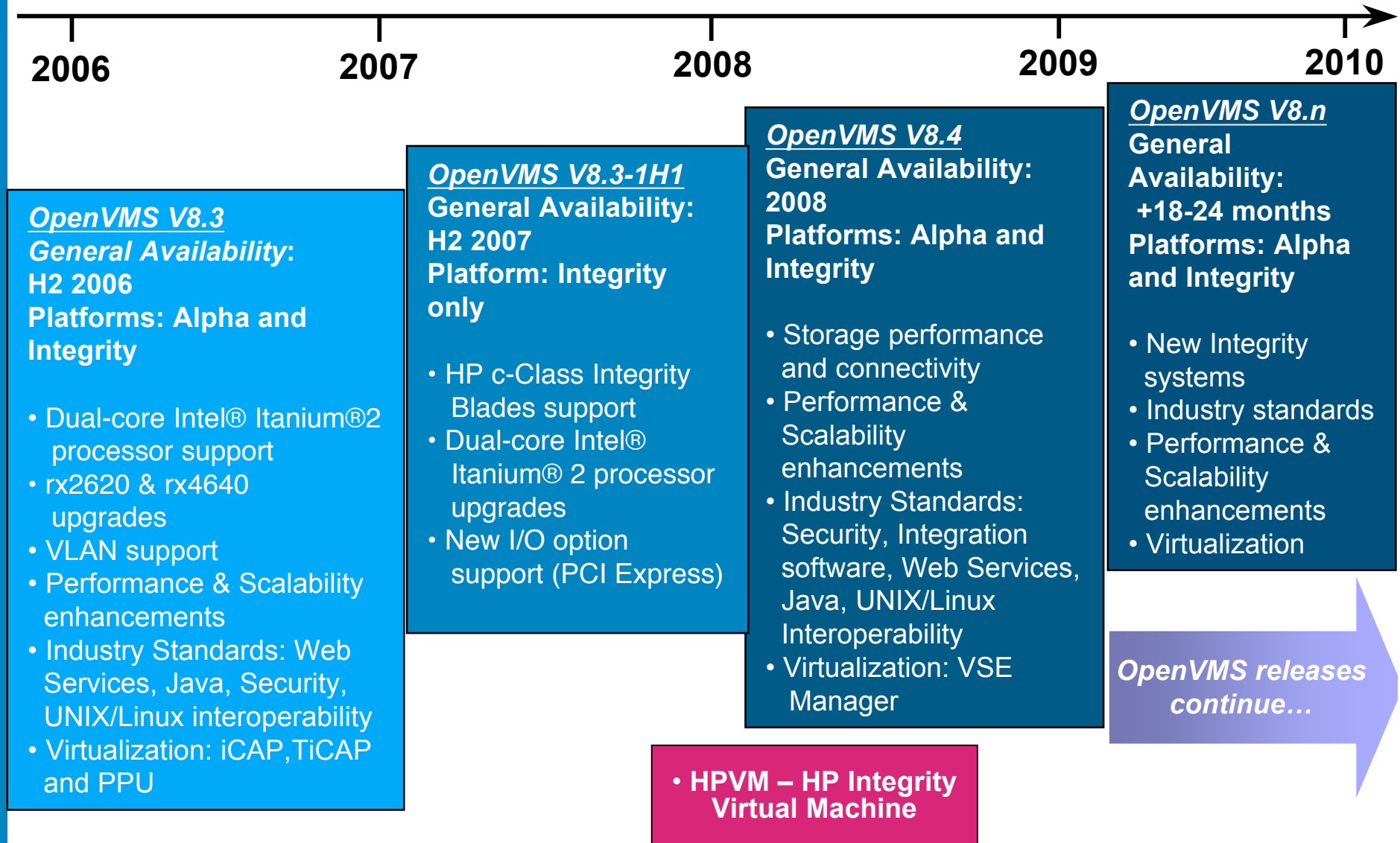
(2 Processors/4 Cores)
1.6 GHz/18MB Cache
48 GB memory
8 PCIX slots

OpenVMS Clusters Facilitate Integrity Adoption

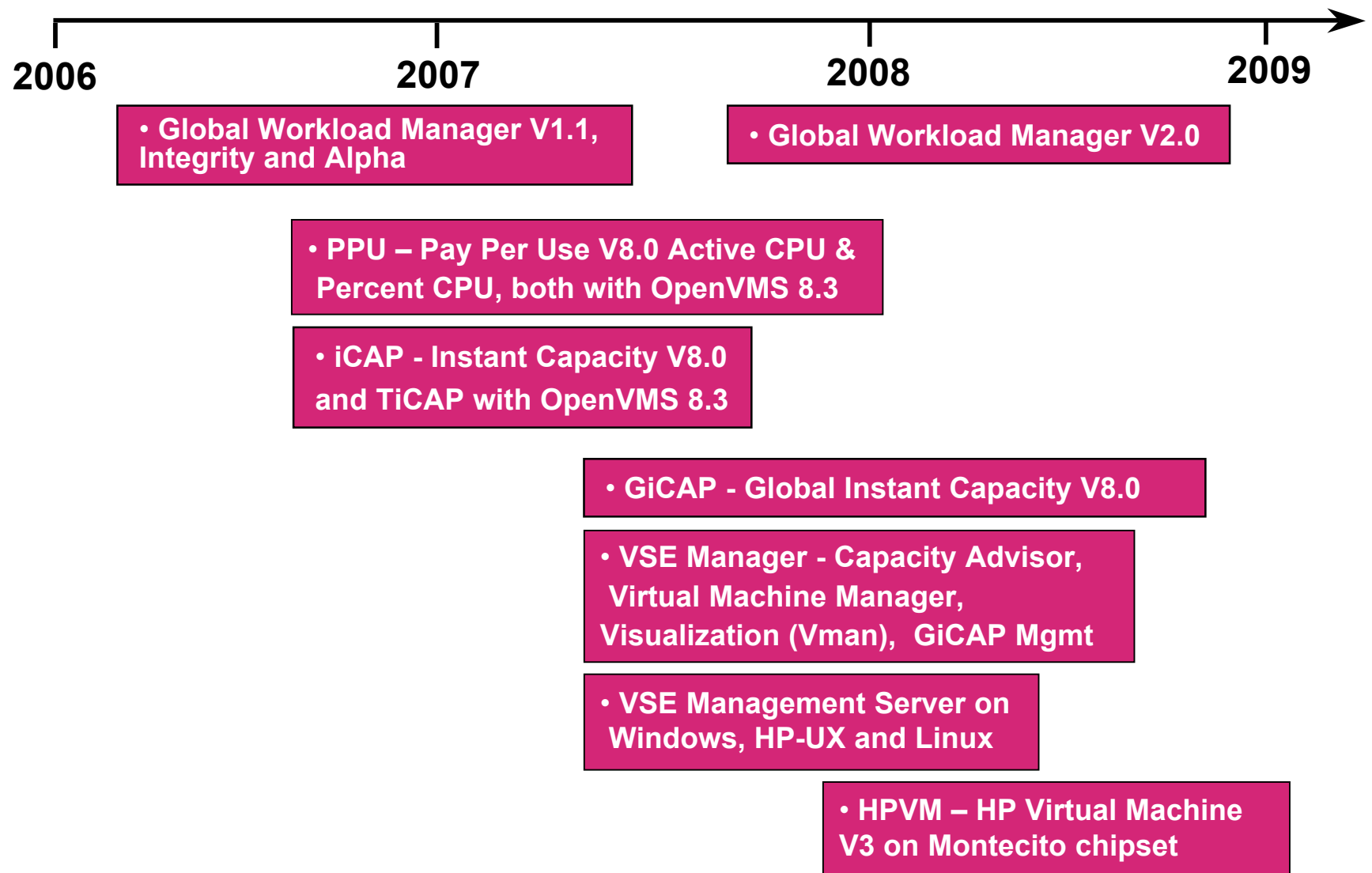


NOTE: Support for VAX and Integrity mixed environment is supported for migration purposes only.

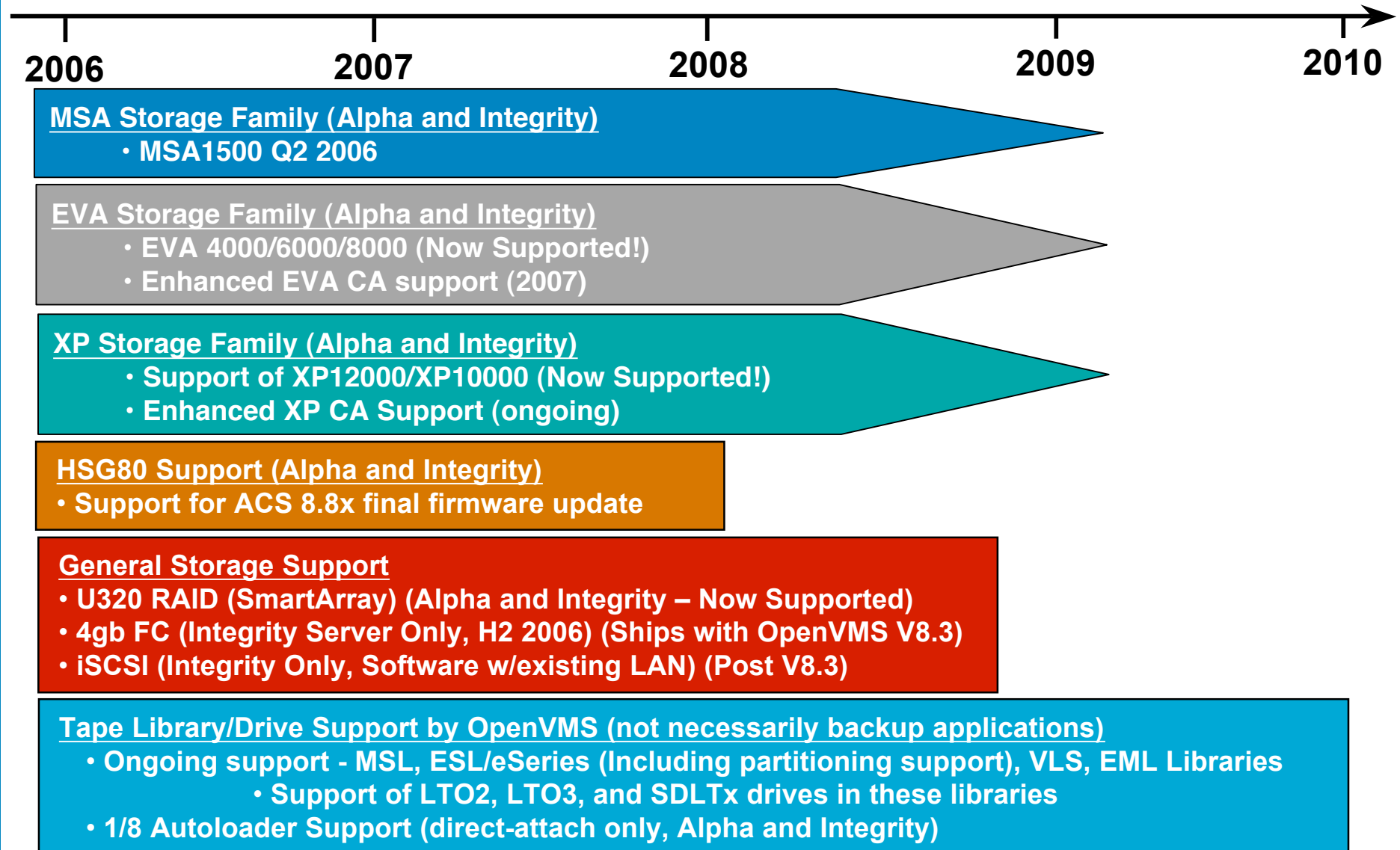
HP OpenVMS Operating System Rolling Roadmap



OpenVMS *Virtual Server Environment* Virtualization Roadmap



OpenVMS Storage HW Roadmap



Operating environments for OpenVMS on HP Integrity servers



OpenVMS I64 Mission Critical Operating Environment (MCOE)

OpenVMS I64 Enterprise Operating Environment (EOE)

OpenVMS I64 Foundation Operating Environment (FOE)

- OpenVMS Operating System
- OpenVMS Unlimited User Licensing
- CDSA
- DCE RPC Runtime
- DECnet-Plus for OpenVMS End System
- DECnet IV
- DECprint Supervisor (DCPS)
- DECwindows Motif for OpenVMS
- Distributed NetBeans, including plugins for C/C++, Fortran, EDT keypad, and CMS
- Enterprise Directory
- Java™ Platform, Standard Edition, Development Kit (JDK)
- Kerberos
- NetBeans IDE, including plugins for C/C++, Fortran, EDT keypad, and CMS
- Performance Data Collector
- Secure Web Server (SWS) (based on Apache server), including Tomcat, mod_PHP, mod_Perl, and Perl
- Secure Web Browser (SWB) (based on Mozilla)
- Simple Object Access Protocol (SOAP) Toolkit (based on Apache Axis)
- Secure Socket Layer (SSL) (based on OpenSSL)
- TCP/IP Services for OpenVMS
- Universal Description, Discovery, and Integration (UDDI) Client Toolkit (based on UDDI4J)
- (Web) Management Agents (for operation with HP Systems Insight Manager)
- Web Based Enterprise Management (WBEM)
- XML Technology (based on Apache Xerces and Xalan)

Add to Foundation:

- RMS Journaling
- VolumeShadowing
- DECram
- OpenVMS Management Station
- Availability Manager



Add to Enterprise:

- OpenVMS Clusters
- OpenVMS RTR Backend



One DVD media for all 3 OE's

Easier to order

Easier license management

Straight forward installation of OE's from a single DVD

Simpler support contracts

➔ higher customer satisfaction

OpenVMS Integrity Operating Environment Per-processor Core License (PCL) Pricing

	<u>US\$ List Price</u>
	<u>PCL Price</u>
Tier 1 - up to 2 socket systems	
Foundation OE	\$ 895
Enterprise OE	\$6,160
Mission Critical OE	\$10,410
Tier 2 - 2 to 4 socket systems	
Foundation OE	\$1,195
Enterprise OE	\$6,160
Mission Critical OE	\$10,410
Tier 3 - unlimited socket systems	
Foundation OE	\$2,970
Enterprise OE	\$7,940
Mission Critical OE	\$12,170
Operating Environments (OE's) are sold per core. One OE license is required per active core.	

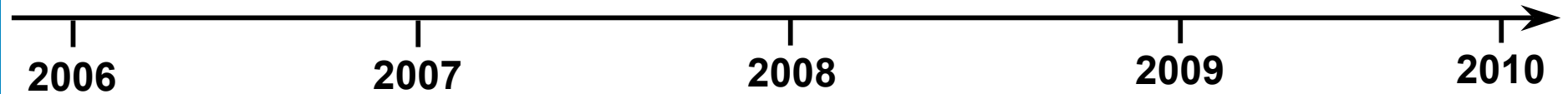


OpenVMS Integrity Layered Product Phase Rollout Plan



Available Now!		2006
<ul style="list-style-type: none"> • Compilers: <ul style="list-style-type: none"> • BASIC • C • C++ • COBOL • Fortran • Pascal • DECset tools • DCE • DQS • FMS • OpenView OVO Agent • RAID Software • Archive Backup System • Data Cartridge Server • Disk File Optimizer • Hierarchical Storage Manager • Media Robot Utility • Reliable Transaction Router • Save Set Manager • X.25 • HP OpenVMS Migration Software 	<ul style="list-style-type: none"> • ACMS (including TP Web & TP Desktop Connectors) • BaseStar Family <ul style="list-style-type: none"> • BASEstar Open Server • Omni API • Omni MMS • DECoasp/H1 • DECosap/ AP • Siemens S7 • Datatrieve • DECforms • Global Workload Manager (gWLM) • GKS • Samba evaluation kit • TDMS 	<ul style="list-style-type: none"> • BEA MessageQ • DEC/EDI • IBM Interconnect Family
		Not Porting
		<ul style="list-style-type: none"> • Advanced Server • Storage Library System (SLS)

OpenVMS IBM SNA Solutions



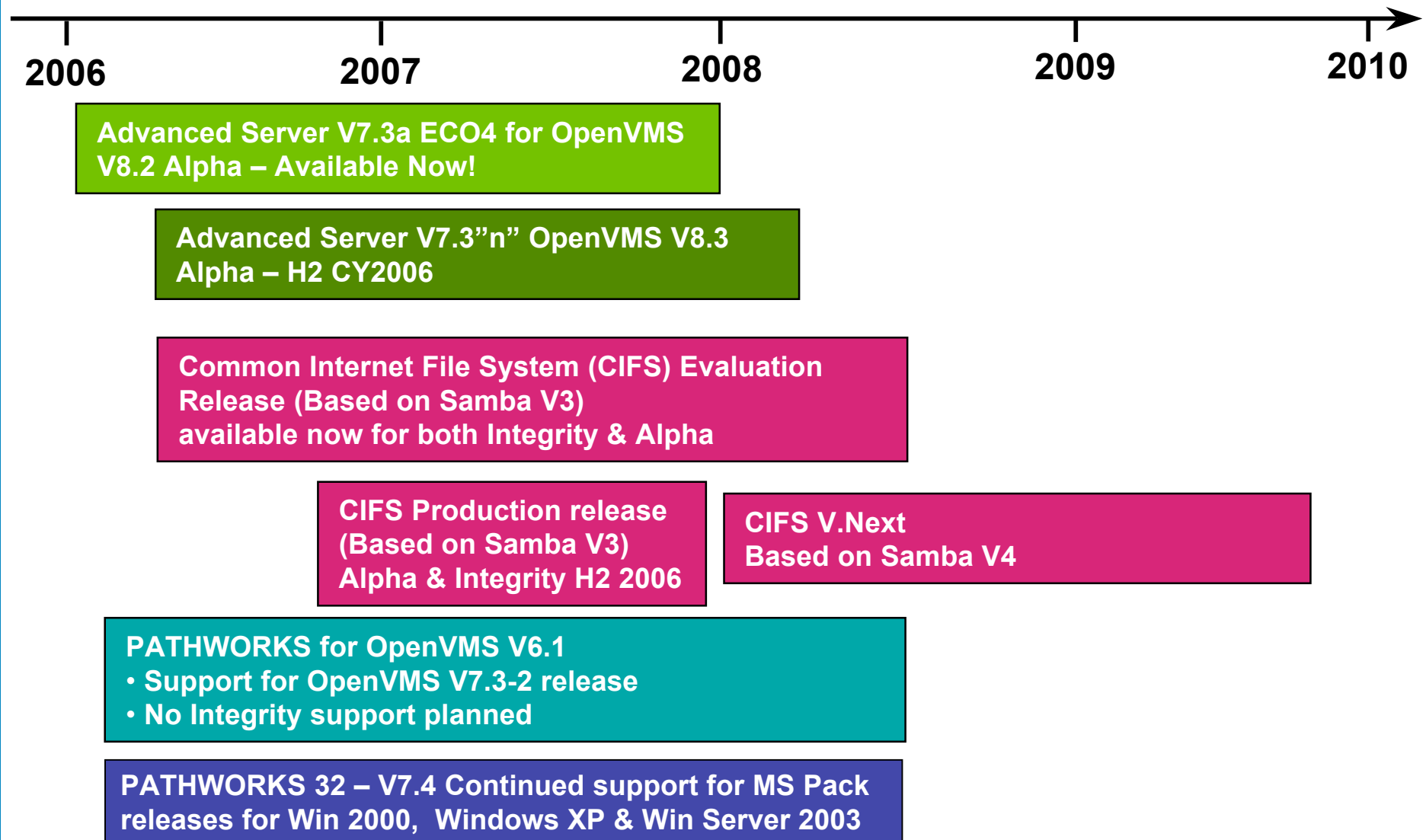
**Support for HP OpenVMS SNA product set on
OpenVMS Version 8.2 Alpha available now**

IBM SNA product port to Integrity Supporting OpenVMS V8.2-1 November CY2006

- HP SNA 3270 Terminal Emulator for OpenVMS
- HP SNA Remote Job Entry for OpenVMS
- HP SNA Application Programming Interface for OpenVMS
- HP SNA 3270 Data Stream Programming Interface for OpenVMS
- HP SNA APPC/LU6.2 Programming Interface for OpenVMS
- HP SNA Printer Emulator for OpenVMS
- HP SNA Data Transfer Facility "Client & Server" for OpenVMS

**Support for HP OpenVMS SNA product set on
OpenVMS V8.3 H2 2006**

File/Print Servers & Common Internet File System (CIFS) - Samba



BEA MessageQ for OpenVMS on Integrity

- BEA MessageQ Version 5.0 has been ported to OpenVMS 8.2 on Integrity.
- Availability – July 2006
- Customers running MessageQ under OpenVMS Alpha with a current Service Contract will receive a 100% trade-in credit for the license to run MessageQ under OpenVMS on Integrity.
- Questions: Contact Gene Spadi at gene.spadi@hp.com

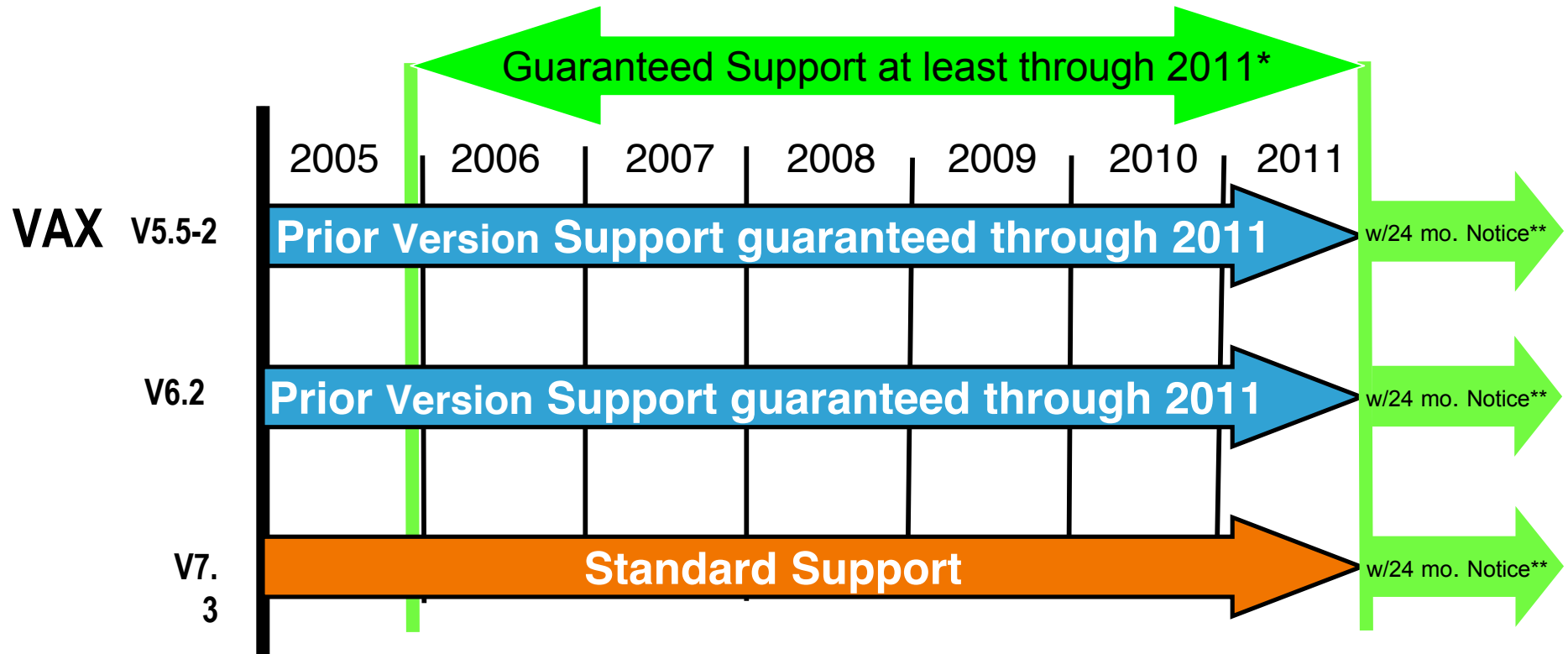


HP Support Policies

HP Support Policy

- Unless otherwise agreed to by Hewlett-Packard Company (HP), HP provides HP Support Services only for the current and immediately preceding versions of HP software, and only when the software is used with hardware that is included in HP-specified configurations. A version is defined as a release of a software product that contains new features, enhancements, and maintenance updates."
- http://h71000.www7.hp.com/openvms/openvms_supportchart.html

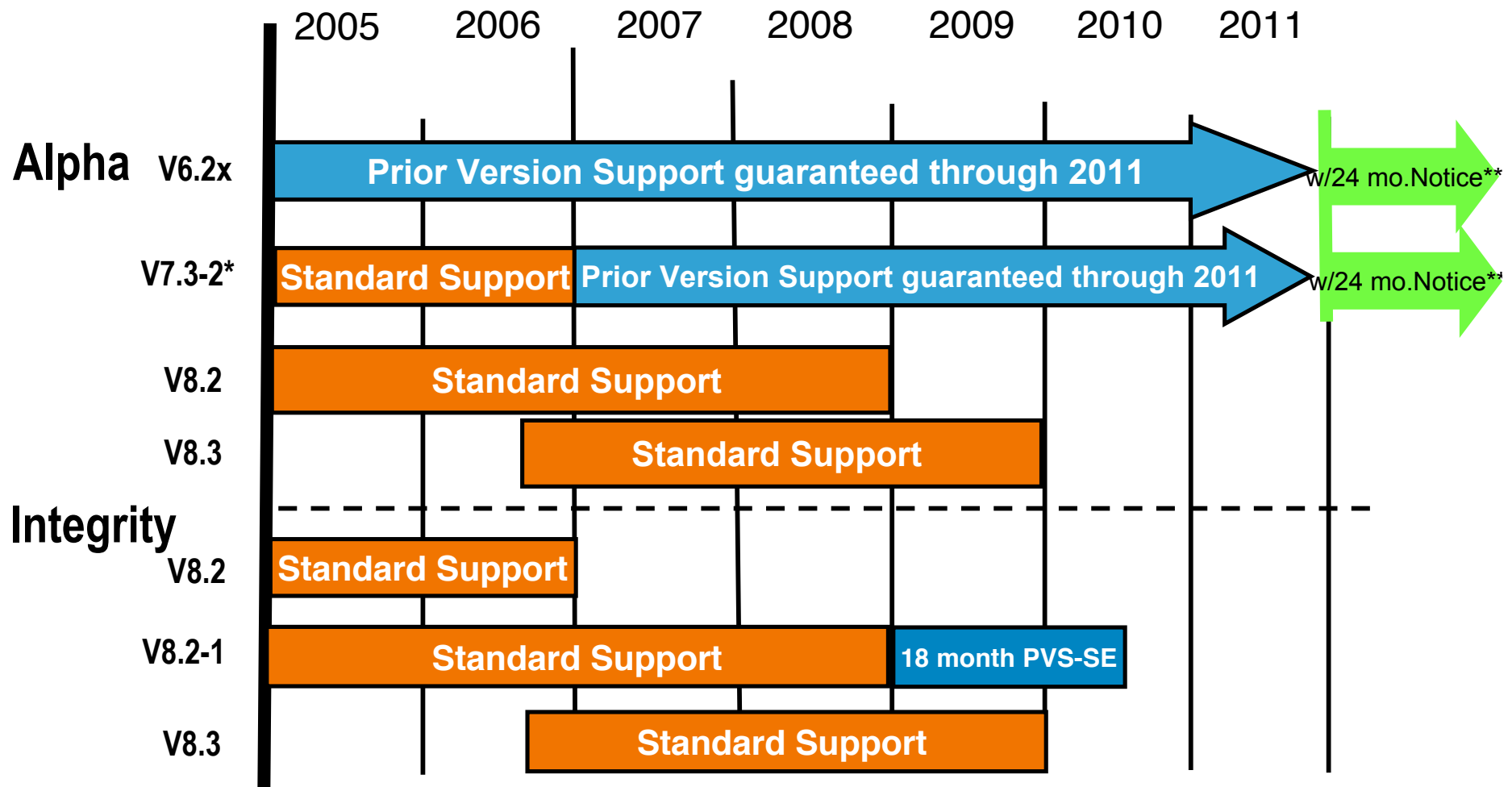
Enhanced OpenVMS Service Support Roadmap



* Prior Version or Standard support will be provided on these versions at least through 2011.

** w/24 mo notice: A 24-month notification will be provided before support is ended.

Enhanced OpenVMS Service Support Roadmap



• Prior Version or Standard support will be provided on these versions at least through 2011.

** w/24 mo notice: A 24-month notification will be provided before support is ended.

Standard support ends when the 2nd subsequent release ships. HP supports the current version and one back. Future version shipment dates are estimates.

OpenVMS Cluster Support Matrix



		AlphaServer Releases		
		V7.3-2	V8.2	V8.3
Integrity server Releases	V8.2	Warranted	Warranted	Migration
	V8.2-1	Warranted	Warranted	Migration
	V8.3	Migration	Migration	Warranted

Notes:

- Same platform/version pairings are always warranted
 - Alpha V7.3-2 and V8.2 are warranted together
- Alpha V7.3-2 goes into Prior Version Support 31-Dec-2006
 - Integrity V8.2 goes EOSL 31-Dec-2006

		AlphaServer Releases		
		V7.3-2	V8.2	V8.3
VAX Release	V7.3	Warranted	Warranted	Warranted

Note: VAX and Integrity Servers can ONLY exist in the same cluster for temporary migration purposes



OpenVMS Technical Update

OpenVMS V8.3 (Nemo)



- Shipment date = September 2006
- Highlights:
 - New Integrity platform support
 - New Hardware option support
 - General User enhancements
 - UNIX Portability features
 - Security Enhancements
 - Virtualization: iCAP, TiCAP and PPU
 - Continued Java, web services updates
 - Performance improvements

Hardware and Option support

- Dual-core Intel® Itanium®2 based systems
 - _ Maximum 32 cores
 - _ Maximum 4 cells
 - 10gb Ethernet NIC
 - 4gb Fibre channel
- Integrity only**
- DVD Record: easily record locally mastered volumes/files onto optical media
 - USB MUX serial terminal connections
 - VLAN: Reduces the number of NICs required for connectivity



General User Features V8.3

- LMF terminology update – Integrity only
- AES encryption support in BACKUP
- Performance improvements to BACKUP, Queue Manager & Copy
- New lexical functions
- Queue job limit increased to 65535 jobs!
- "Live view" of Process Quota consumption
- Cluster satellite boot for Integrity



Unix Portability (UP) V8.3

OpenVMS will be like any other “UNIX flavor” for easy application portability

- POSIX style pathname processing brings
 - _ system-wide root
 - _ mount points
 - _ current working directory
- Symbolic Links
- Byte range locking
- Encryption routines
- GNV update



Security Enhancements

- Secure Software Delivery
 - Verification/authenticity of software kits installed on OpenVMS with cryptographic signature
- ACME Login (real external authentication!)
 - LDAP ACME
 - Kerberos ACME
- AES Encryption
 - Industry standard, stronger encryption included in the base operating system
- SSL as a SIP
 - Automatically part of operating system installation script



TCP/IP Version 5.6

Highlights:

- NFS Server support for Integrity
- SSH upgrades now with Kerberos support
- SCP/SFTP preserves OpenVMS file attributes
- TCP/IP\$CONFIG.COM enhancements (failSAFE IP)
- DNS/BIND 9 Resolver and v9.3 Server
- DNSSEC
- NTP Security Update (SSL), NTP AutoKey
- SMTP Multi-Domain Zone (Mail improvements)
- TELNET Server Device Limit
- IPv6 support for LPD and TELNETSYM
- FTP Performance Boost
- Improved Management Utilities (ifconfig etc.)

V8.3 Performance & Scaling Enhancements



- RMS Global Buffers in P2 Space
- File not found errors perform much faster on Integrity
- Reduced alignment faults in the OS and numerous components
- Installed Resident Images now have code in S2 space
- Support for shared address data for installed images
- Improvements in the code to Probe access to virtual address
- Improvements for PEDRIVER Block Transfers
- Reduced the time to write an Integrity crash dump
- Lock Manager improvements for computing group grant mode (available in remedial kits too!)
- Eliminate usage of the SCHED spinlock for PFW and PFC upcalls affects POSIX threads apps

Performance – hardware

- The Integrity Processors are fast
 - Future processors will continue to increase the performance over current Alpha processors
- I/O performance is comparable between Alpha and Integrity
 - Integrity has an edge in CPU cost per I/O and in cached and DECram I/O
- The rx46xx and rx26xx systems have great memory bandwidth and good memory latency
 - In most cases, these systems perform similar or better than comparable Alpha systems today
- The larger Integrity servers have slower memory latency
 - If your application taxes a large GS1280, we recommend testing on larger Integrity servers before moving performance critical applications
 - Even so, RAD support is off on Integrity because the difference between local and remote access is too small

Performance - software

- The OpenVMS operating system performs well on Integrity servers with just a few caveats
 - alignment faults – apps as well as OS need to eliminate them
 - exception handling – we are working on significant improvements
- Each OpenVMS release shows performance improvements over the previous – 8.0, 8.1, 8.2, 8.2-1, 8.3.....
- We expect most applications to perform well on Integrity servers today and even better in the future
 - If you port an application and are disappointed in performance, we want to know.
 - Please contact:

Gregory.Jordan@hp.com

Integration and System Management



- Web Services Integration Toolkit (WSIT) 1.1
 - additional ease of use features and JSP support
- Java releases:
 - Java 1.4.2 update on Integrity
 - Java 5.0 release on Alpha
 - Java 5.0 release on Integrity
 - Coming soon! (Beta: June 2006, Kit: Sept/Oct. 2006)
- Certification of BEA WebLogic Server 8.1 SP3 on Integrity
- OpenView Performance Agent



OpenVMS Future Directions

Version 8.4 New Feature Potentials

- >32 core support on Integrity
- 2TB LUN file system support
- iSCSI support
- Shared Stream I/O (SSIO)
- Cluster communication over IP
- Virtualization tools – Capacity Advisor, Virtualization Manager
- Performance enhancements – signaling and condition handling improvements, Threads, I/O, system service dispatching
- New TCP/IP release featuring IPSEC

Version 8.3-1H1:

- Montvale upgrade support
- New I/O option support (PCI Express)
- Next Generation Integrity Blade support

