



OpenVMS Update

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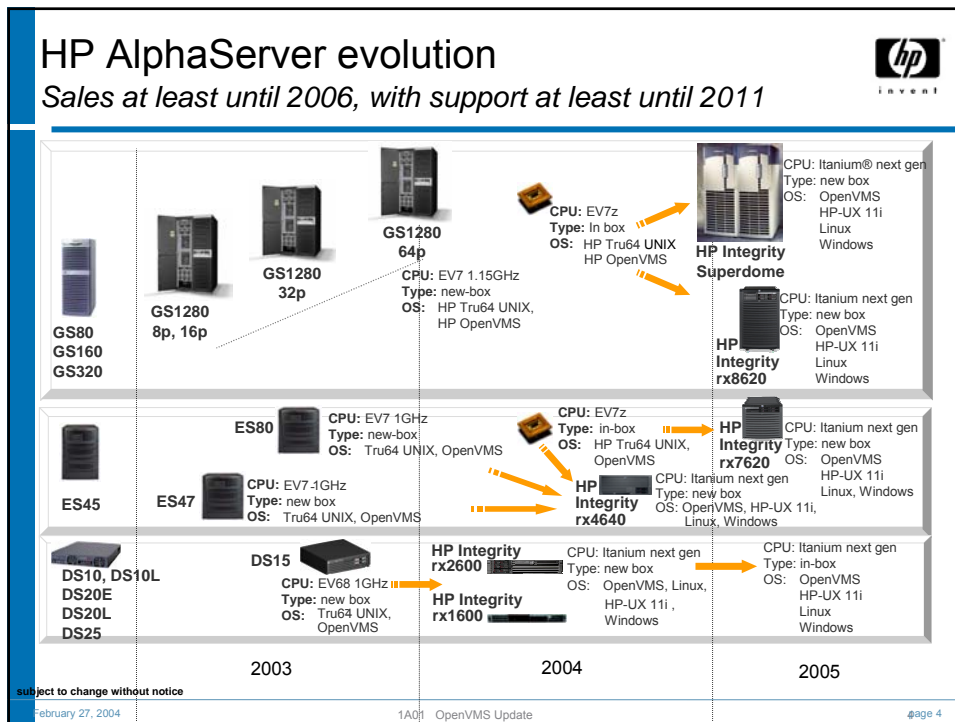
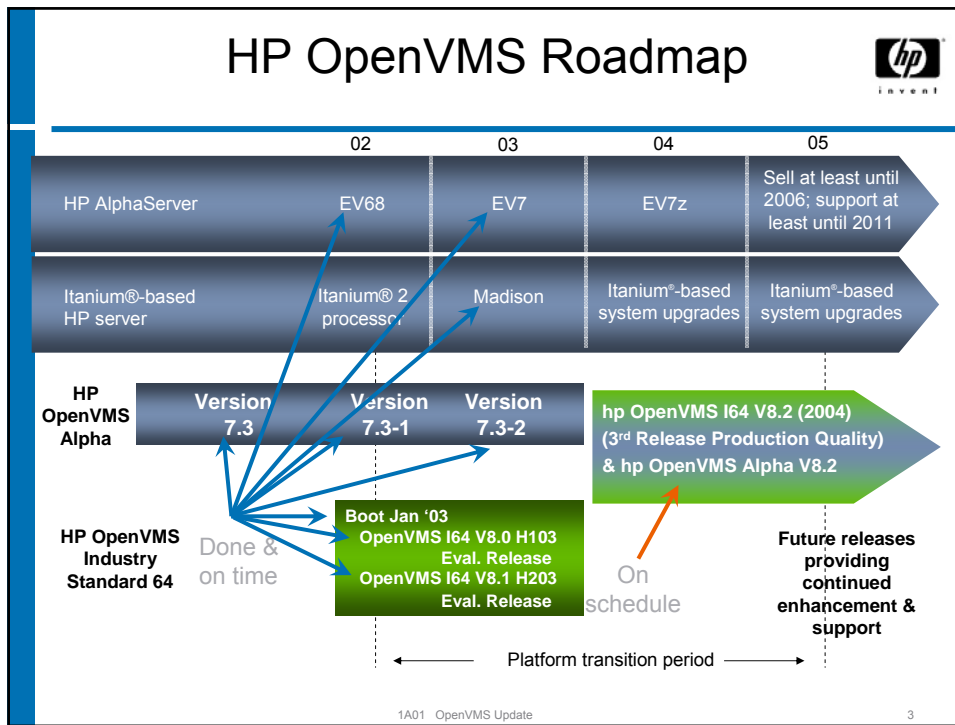
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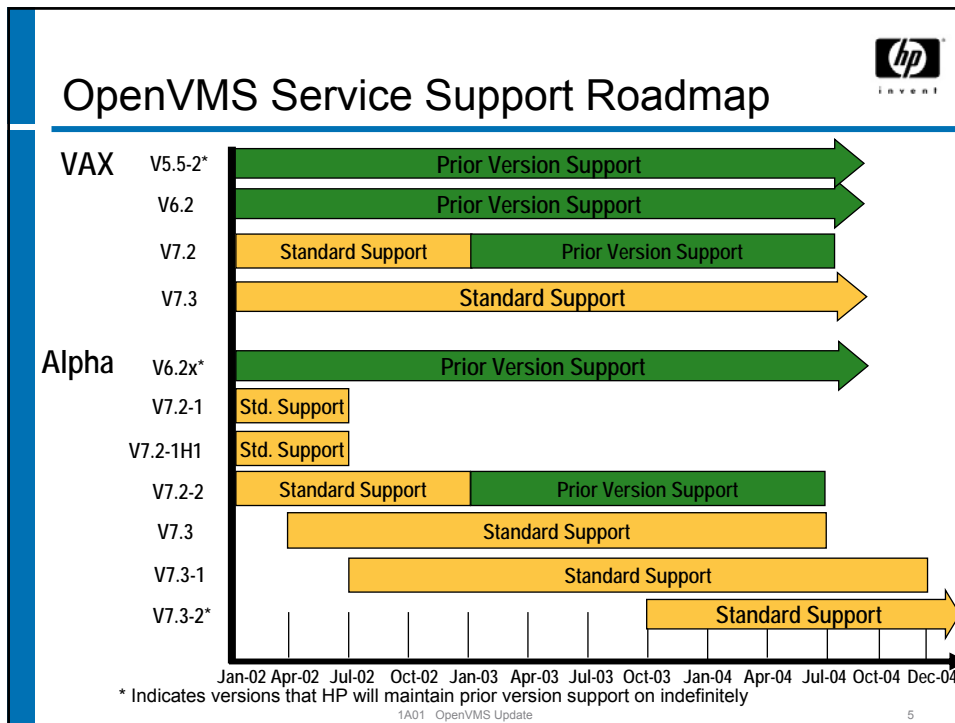


Agenda

- OpenVMS Directions
- OpenVMS Support
- OpenVMS V7.3-2
- Next Version
- Roadmaps

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Recent Service Support Changes

- http://www.hp.com/hps/os/os_openvms.html
- Standard Support end date for OpenVMS Alpha **V7.3** has been moved out to June 30, 2004. Prior Version Support (PVS) will NOT be offered on this version.
- Standard Support end date for OpenVMS Alpha **V7.3-1** has been moved out to December 31, 2004. Prior Version Support (PVS) will NOT be offered on this version.
- OpenVMS Alpha **V7.3-2** is the last version of the 7.x family and therefore Prior Version Support (PVS) WILL be offered on V7.3-2. It is not known yet, just when PVS will commence, but for planning purposes, we are announcing that this version will be placed into PVS at an appropriate time in the future. Once in PVS it will have an extended PVS cycle with a posted ending date of ..."with 24 month notice".


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OpenVMS V7.3-2 (Nov 2003)

- System and Hardware Support
- General User Features
- System and I/O Performance Enhancements
- Security Features
- System Management
- More updates for e-Business and integration
- More UNIX Portability features
- Availability Features


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System and Hardware Support

- Marvel Enhancements
 - 32P mixed-speed CPUs support
- Error Log Viewer (ELV)
 - Easy to use bit-to-text errorlog translation tool
 - No analysis just decoding
- Analyzer Tool for EV7
- SDA support for OCLA (On Chip Logic Analyzer)
- DS15 Support
 - DS10 follow-on
 - Supported on OpenVMS V7.3-1
- MSA1000
 - Support for new low-end Fibre Channel RAID Array
 - Supports both switched and arbitrated-loop


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General User Features - DCL

- Blocks to Bytes Enhancements
 - \$ SET PROCESS/UNITS=(BYTES,BLOCKS)
 - \$ SHOW PROCESS/UNITS
 - Allows a process to display information from a variety of DCL commands as bytes (KB, MB, GB, ...)
 - The DCL commands that honor the units setting are:
 - COPY
 - DELETE
 - DIRECTORY - /SIZE=(UNITS=(BYTES,BLOCKS) to override
 - PURGE
 - SHOW DEVICE - /SIZE=(BYTES,BLOCKS) to override
 - SHOW MEMORY
 - SHOW QUOTA


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General User Features - DCL

- DCL command size limits increased
 - Interactive DCL commands have been increased from 255 characters to 4095
 - DCL commands in a file have been increased from 1024 characters to 8192
 - DCL Symbol sizes have been increased from 1024 to 4096
- The sizes for logical names (255) has not changed
- The default size of system parameter TT type ahead buffer has been increased
- New SHOW SYSTEM qualifiers - /TOTAL and /GRAND_TOTAL – provides process count totals


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General User Features - DCL

- F\$UNIQUE
- \$ CLOSE /DISPOSITION
- \$ RECALL /SEARCH
- \$ DIRECTORY /SELECT=SIZE=UNUSED
- \$ SET DEVICE /RESET ={ERROR_COUNT|
OPERATION_COUNT}

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System Management - Backup

- New Qualifiers for the BACKUP utility
 - /FILES_SELECTED=filename
 - Allows the use of a file to contain a list of files to be selected when a save set is restored.
 - This can be used in place of the /SELECT qualifier
 - /INPUT_FILES=filename
 - Allows the use of a file to contain a list of files to be specified for a BACKUP operation
 - /HEADER_ONLY=(keyword)
 - Can be used to specify that only the header of shelved or preshelved files are saved in a backup
 - Avoids unshelving shelved files which is the default behavior

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System and I/O Performance WSMAX and BALSETCNT



- Large systems often had to make compromises between large working sets or a large number of processes in memory
- If you wanted a large BALSETCNT, you often had to reduce WSMAX or vice versa
 - These trade offs could result in either increased swapping activity if BALSETCNT was too low or increased paging activity if WSMAX was too low
- These restrictions have been removed
- The BALSETCNT parameter has also become dynamic

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System and I/O Performance SMP Improvements



- SMP systems synchronize various code with spinlocks
- Only a single CPU can hold a specific spinlock and thus operations that use the same spinlock are serialized
- A commonly used spinlock is the SCHED spinlock
- A high frequency operation to lookup a process has been improved to use a “process specific” spinlock for the necessary synchronization
- In addition, the \$HIBER and \$WAKE system services have been improved to reduce the usage of the SCHED spinlock
 - In some cases – SCHED is no longer required at all

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System and I/O Performance Fastpath

- LAN Drivers
 - Move off of IOLOCK8 to LAN device specific spinlocks
 - Allow device interrupts to CPUs other than the primary
- PEdriver
 - Move off of IOLOCK8 to PE specific spinlocks
 - Allow a specific CPU to be chosen for PEdriver processing
 - Allows PEdriver to process cluster communications on a single CPU
 - Reduces CPU cost due to streamlined codepath also for served block data
- Fastpath for Smart Array 5300 (KZPDC)
 - Backplane RAID controller
 - Offload IOLOCK8 spinlock, allows CPU selection


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System and I/O Performance eXtended File Cache (XFC)

- Performance boosts for small I/Os
- Support for read ahead hint
- Reclaim unused and closed files
- Fixed misaligned fields in context block
- „Depose“ operation improved by an order of magnitude (dismount volume)
- Usability and debugging improvements
- Display files by volume instead of random order (SDA)
- Miscellaneous XFC SDA changes to help troubleshoot
- More efficient use of memory
- More useful and readable displays


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System and I/O Performance

- Quieter MOUNTVERIFY messages
 - Reduces noise on the console and in operator log file
 - Multiple reasons for mount verifications in a Storage Area Network (SAN) environment
 - Path switch by another cluster node
 - Dropped Fibre Channel packets
 - Rezone of a SAN, which causes in-flight I/Os to be dropped
 - Those messages should not be flagged as errors
 - Filter real “attention needed” error messages
 - MVSUPMSG_NUM and MVSUPMSG_INTVL are new system parameters to control


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RAS Features

- LAN Failover
 - Ability to define multiple network adapters as virtual network interface
 - Transparent failover to similar LAN device
- Multipath Party Intercept
 - Allows multiple DDT intercepts for multipath devices
 - Primarily for 3rd party disk caching products who try to intercept I/Os
- Component Indictment – CPU
 - Pro-active stop failing CPU
 - Target audience are customers using Compaq Analyze


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Shadowing

- Dynamic Volume Expansion
 - Initialize device with a “maximum” size to which volume can expand (can also be done with SET VOLUME) if disk is privately mounted – actual expansion can occur with disk mounted shared
 - Allows the size of a disk to increase
- Dissimilar Device Shadowing
 - Disks with different sizes and/or geometrical configurations can now be members in the same shadowset
 - Allows larger disks in size to be added, one by one, to a shadowset to increase and expand its size
- SET/SHOW SHADOW
 - Enhanced commands to view and monitor shadow environments
- Host Based Mini-Merge
 - Initial support on V7.3-2 (H2/2004)
 - Integrated in OpenVMS Alpha and Integrity V8.2

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Network Enhancements TCP/IP Services

- Scalable Kernel
 - Performance and scalability improvements for SMP systems
- Multiple dynamic spinlocks
 - No more IOLOCK8
- Queue KRP (kernel request packet)
 - Handled by fork thread on non-primary CPU
 - Similar to dedicated lock manager
- Improve concurrency
 - Multiple concurrent network I/O
 - Multiple processes can allocate mbufs, fill in data and queue requests

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Network Enhancements TCP/IP Services



- SSH – secure shell (SSH) client and server
- Secure POP – secure socket layer (SSL) for POP
- IP address failover (failsafe IP)
- New IPv6 software examples using IPv6 APIs
- BIND server update to version 9.2.1
- BG devices
 - Maximum number of BG devices increases from 9999 to 32K
 - Fast BG device creation and deletion
- Performance improvements
 - INET driver
 - NFS server
 - TELNET server

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System Management Enhancements



- The Data Collector (TDC)
 - Version 2 will be available on the web
 - Can be used to gather performance data for systems running V7.1 or later
 - Collect and stores the following types of data
 - Cluster configurations and communications
 - CPU utilization
 - Disk performance
 - System wide performance metrics
 - System parameters
 - Process utilization
- Performance API (\$GETRMI)
 - Added a few new items to retrieve per-mode CPU info

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Security Enhancements

- Support standards based security technologies for secure heterogeneous communication
 - CDSA (common data security architecture)
 - Kerberos V5 API's, KDC (key distribution center) and GSSAPI V2
 - OpenSSL (secure socket layer) expanded to include 64-bit addressing
 - SSH V2 (secure shell)
- Provide Open Source security tools
 - Stunnel (secure tunnel)
 - GnuPG (encryption for mail and support of digital signatures)

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Security Enhancements

- Expand OpenVMS Authentication
- ACME Login (SDK)
 - New LOGINOUT and SET PASSWORD image that uses SYS\$ACM system service
 - Allows external authentication like LDAP
- ACM\$LDAP Agent (evaluation version incl in SDK)
 - ACM\$ agent for authentication against LDAP directory
- UNIX Security Interoperability
 - UID and GUID security identifiers
 - Case sensitive passwords
 - CDE deadman and screenlock

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Unix Portability (UP)



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

- C-RTL (delivering UNIX style API's on OpenVMS)
 - Introduced UP with C-RTL features like UNIX file names, 2 GB files, POSIX root, 64-bit pointers and signals in V7.3-1
 - Currently improving performance of API's and adding functions like binary tree, Glob
 - Work will continue on more UNIX feature like signals, byte range locking, symbolic links and fork()
- GNV (providing a UNIX style shell and utilities)
 - Introduced UP with a UNIX style shell (bash) and utilities in V7.3-1
 - Currently improving compiler interfaces (CC and GCC commands)
 - Adding new tools like BZIP2, GAWK and MAN
 - Continue to improve configure and MAKE

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E-Business and Integration

Expanding the OpenVMS eBusiness Offerings!



- SWS V1.4 (based on Apache 1.3.x)
 - including updates for Perl, PHP, and CSWS_Java (Tomcat)
- SWS V2.0 (based on Apache 2.0)
- XML V1.1
- SOAP Toolkit V1.1
- SWB V1.2
- Software Development Kit (SDK) v 1.4.1, *for the Java platform*
- NetBeans 4.0
- RTR V4.2
- COM V1.4
- Attunity Connect 4.0 “On Platform” Package
- Enterprise Directory V5.3
- BridgeWorks V2.2

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Applications Shipping With V7.3-2

- TCP/IP Services for OpenVMS, V5.4
- DECnet-Plus V7.3-2
- DECnet Phase IV V7.3-2
- Advanced Server V7.3A
- PATHWORKS V6.1
- DECwindows V1.3

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Upgrading OpenVMS Alpha Environments

System Software Upgrade Paths to V7.3-2

- Direct Upgrade Paths
 - V7.2-2 to V7.3-2
 - V7.3 to V7.3-2
 - V7.3-1 to V7.3-2
- Cluster Upgrade Paths
 - Cluster rolling upgrades are supported from V7.2-2 and V7.3x

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OpenVMS Cluster Version Support

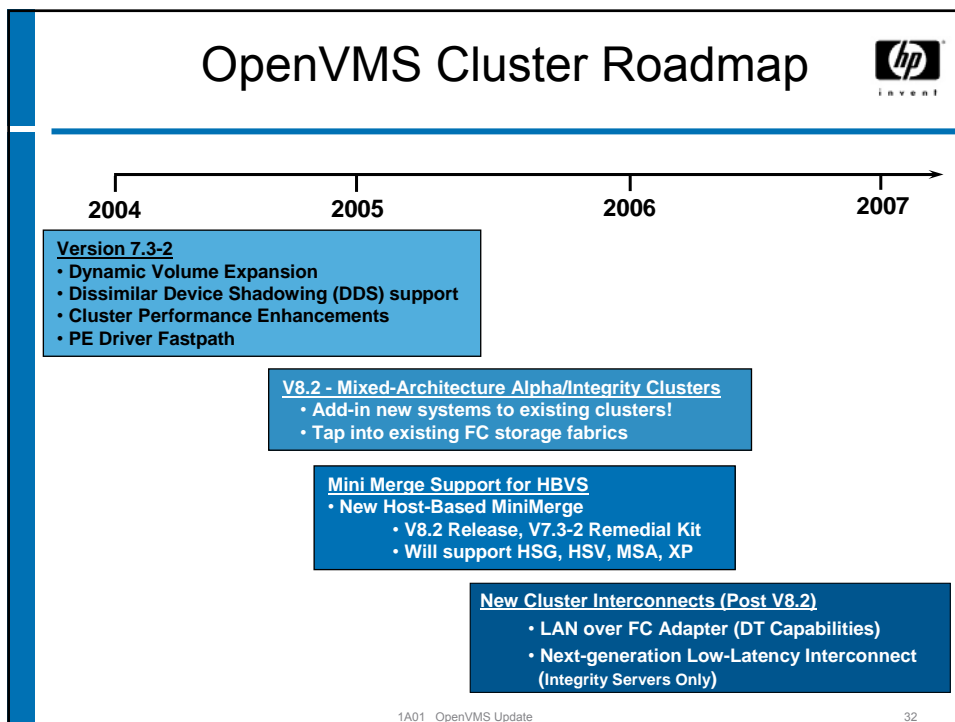
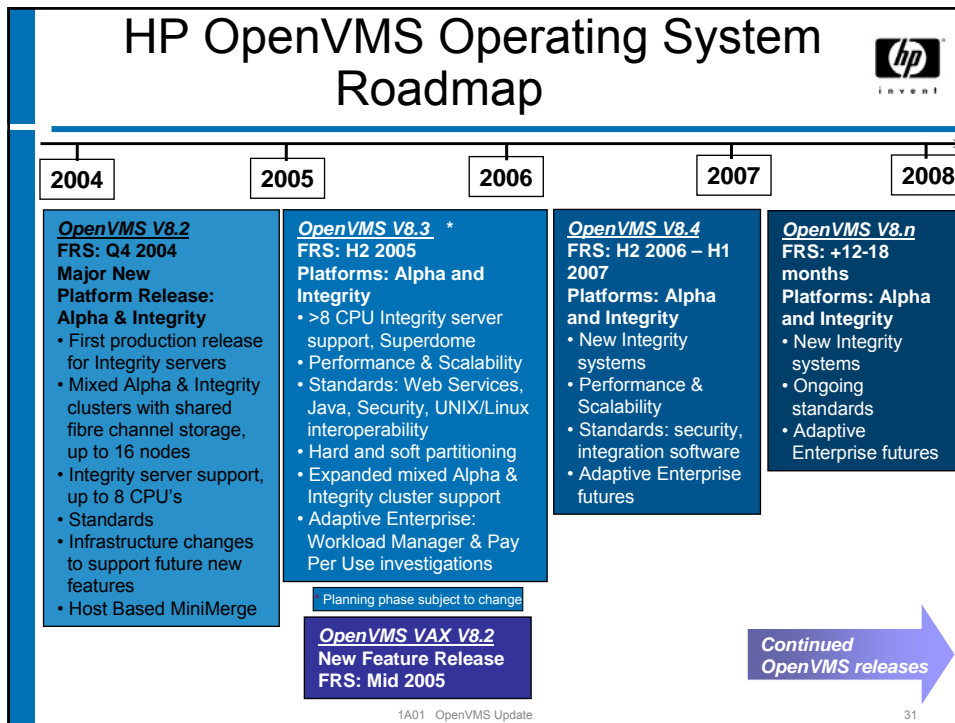
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Version 7.2x	Warranted	Migration
Version 7.3x	Migration	Warranted

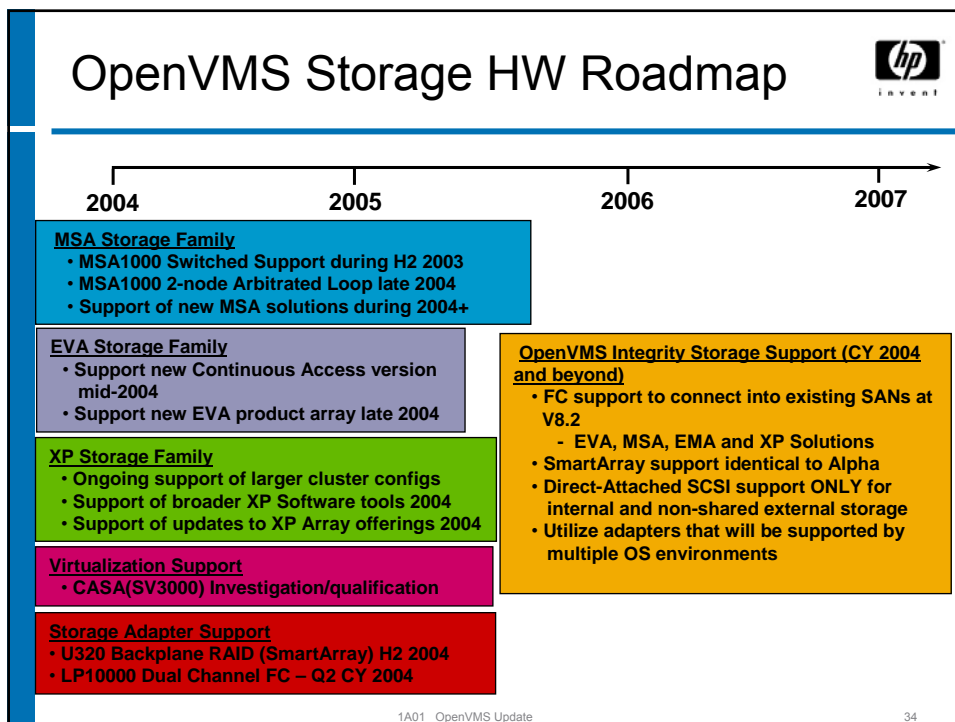
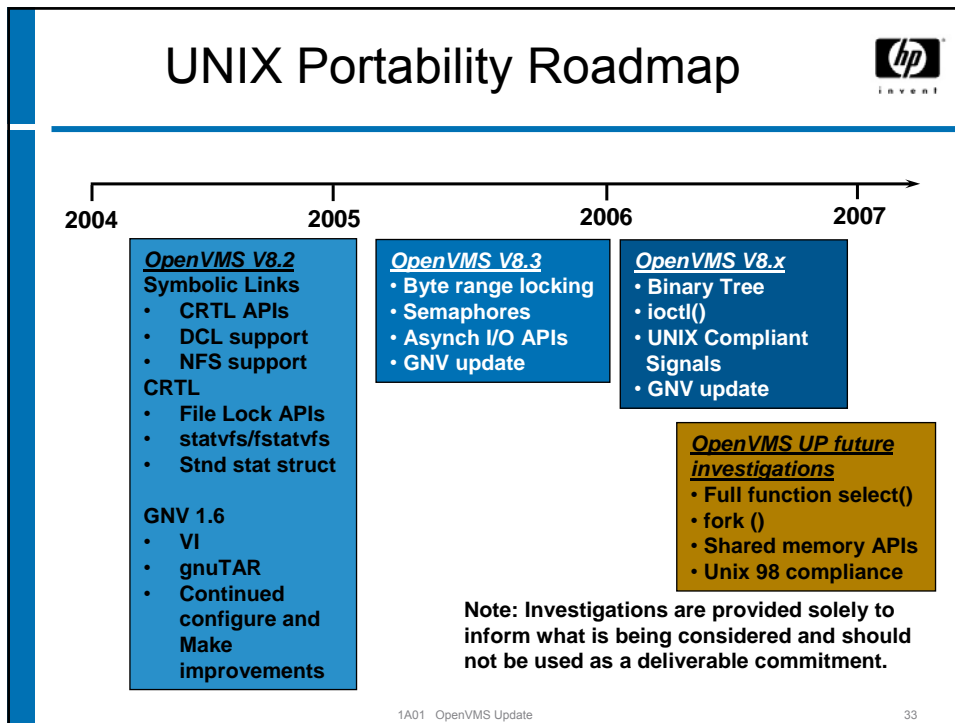
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OpenVMS V8.2


- Target shipment date = Q4 2004
- Candidates:
 - System & I/O Performance Enhancements
 - Cluster Interconnect Enhancements
 - Fibre/SAN enhanced support including Disaster Tolerance Enhancements
 - Native optimized Language Compilers
 - Continued Security Enhancements
 - More updates for e-Business and integration
 - Alpha Compatibility with OpenVMS Itanium™ release, including Clusters
 - More UNIX Portability features
 - DECram will be a system integrated product - license still required
 - Host Based Mini-merge (HBMM)

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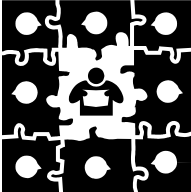



Resources



- OpenVMS Homepage
<http://www.hp.com/go/openvms>
- OpenVMS Rolling Roadmaps
http://h71000.www7.hp.com/openvms/roadmap/openvms_roadmaps.htm
- OpenVMS Documentation
<http://h71000.www7.hp.com/doc/index.html>
- OpenVMS Support
http://h71000.www7.hp.com/serv_support.html

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Questions?



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