HP OpenVMS V8.4 for Integrity Server systems and AlphaServer systems—New features and benefits

HP OpenVMS V8.4 continues support for all of the systems and options supported in OpenVMS Versions 8.2-1 and 8.3.

OpenVMS V8.4 is supported on the latest generation of servers, using Industry standard Itanium processors from Intel, the BladeSystem c-Class BL860c i2, BL870c i2, and BL890c i2, and rackmount rx2800 i2 servers.

OpenVMS V8.4 includes all the capabilities of earlier versions of OpenVMS, along with the new features added to the OpenVMS operating system.

This document describes the new features and enhancements included in OpenVMS V8.4 for AlphaServer and Integrity server systems and its associated products.

Note: The information included in this document is subject to change.

Warranted Pairs, Migration Support, and Upgrade Paths

Features	Benefits
Supported v8.4 Upgrade Paths and Warranted Configurations: • Supported V8.4 Upgrade Paths: o Integrity servers: from V8.2-1 or V8.3 o Alpha: from V7.3-2, V8.2, or V8.3 • Warranted configurations: o V8.4 Alpha and V8.4 Integrity servers o V8.3 Alpha and V8.3* Integrity servers o V7.3 VAX and V8.3 Alpha • Migration support: o V7.3-2 Alpha, V8.2 Alpha o V8.2 Integrity servers, V8.2-1 Integrity servers	• Increases agility • Retains high RoI • Improves scalability

System Support

Features	Benefits
Enablement of OpenVMS support for the newest Integrity server systems including new entry level, mid-range and high-end systems, which are based on the latest generation of servers, using Industry standard Itanium processors from Intel, BladeSystem c-Class BL860c i2, BL870c i2, and BL890c i2, and rackmount rx2800 i2 servers.	• Provides customers with the ability to run their OpenVMS applications on the latest industry-standard HP Integrity servers • Enables running larger workloads over earlier versions of Integrity servers • Provides the ability to consolidate systems and reduce footprint in data centre, and reduce power consumption
Continued support of Integrity Servers supported in OpenVMS V8.3-1h1, V8.3, and V8.2-1: • HP BladeSystems Integrity BL870c Server Blade (2P/2C; 2P/4C); 1.6GHz/18MB, 1.4GHz/12MB, 1.6GHz/24MB; included in c7000 and c3000 enclosure. • HP BladeSystems Integrity BL860c Server Blade (2P/2C; 2P/4C); 1.6GHz/6MB, 1.4GHz/12MB, 1.6GHz/18MB; included in c7000 and c3000 enclosure. • HP Integrity rx1600 Server (2P/2C); 1.0GHz • HP Integrity rx1620 Server (2P/2C); 1.6GHz/3MB 267FSB (DP), 1.3GHz/3MB (DP) • HP Integrity rx2600 Server (2P/2C); 1.5, 1.4, 1.3, 1.0 GHz • HP Integrity rx2620 Server (2P/4C); 1.6GHz/18MB, 1.4GHz/12MB • HP Integrity rx2620 Server (2P/2C); 1.6GHz/6MB, 1.6Ghz/3MB (DP), 1.3GHz/3MB (DP) • HP Integrity rx2660 Server (2P/2C, 2P/4C); 1.6GHz/6MB, 1.4GHz/12MB, 1.6GHz/18MB	• Investment protection for customer already on Integrity • OpenVMS V8.4 improves TCO/TCE and improved performance on current Integrity servers.

• HP Integrity rx3600 Server (2P/4C); 1.6GHz/18MB,1.4GHz/12MB • HP Integrity rx4640 Server (4P/8C); 1.6GHz/24MB; 1.6GHz/18MB • HP Integrity rx4640 Server (4P/4C); 1.6GHz/9MB, 1.6GHz/6MB, 1.5GHz/4MB, 1.5GHz, 1.3GHz • HP Integrity rx4640 Server (8P/8C); 1.1GHz • HP Integrity rx6600 Server (4P/8C); 1.6GHz/24MB, 1.6GHz/18MB, 1.4GHz/12MB • HP Integrity rx7620 Server, 2 cell (8P/8C); 1.6GHz/6 MB, 1.5GHz/4 MB • HP Integrity rx7620 Server FAST Base Systems-2,4,6,8-core • HP Integrity rx7640 Server, 2 cell (8P/16C); 1.6GHz/18MB, 1.4GHz/12MB • HP Integrity rx7640 Server FAST Base Systems-4,8,12,16-core • HP Integrity rx8620 Server, 4 cell (16P/16C); 1.6GHz/6 MB, 1.5GHz/4 MB • HP Integrity rx8620 Server FAST Base Systems-2,4,8,12,16-core • HP Integrity rx8640 Server, 4 cell (16P/32C); 1.6GHz/24MB, 1.6GHz/18MB, 1.4GHz/12MB	

Performance and Scaling Enhancements

Features	Benefits
Add Memory/strcmp API's on Integrity servers • Reduces the compute time of memcmp/strcmp routines on Integrity server platform • Integrity servers only	• Improves performance by reducing the compute time

Improved Exception Handling on OpenVMS Integrity servers • Integrity servers only	• Improves performance of exception handling on OpenVMS for Integrity servers thus increasing the performance of application that uses OpenVMS exception handling.
Integrity RAD Support • Allows OpenVMS operating system and applications to take advantage of supported memory configurations available on Integrity NUMA platforms • Integrity servers only	• Improves system performance • Better performance for applications that are tailored to exploit RAD support in OpenVMS
Reducing I-cache Flushes • Changes memory management to reduce the number of instruction cache (I-cache) flushes • Integrity servers only	• Improves performance • Eliminates the overhead by only flushing data pages on demand
Dynamic Enabling/Disabling of XFC Cache for Mounted Volumes • New features in XFC to dynamically enable/disable cache for mounted volumes • Users can dynamically disable caching on a volume and then perform huge backup, copy and search operations. Once this is complete caching can be enabled on that volume • Alpha and Integrity servers	• Improves performance for filesystem operations as the caching can be disabled for cache thrashing applications like back up/copy • Since the caching can be turned on/off dynamically applications up-time is maintained
PCSI Validation of VMS Integrity servers Product Kit • Provides a mechanism for authenticating and validating the OpenVMS Integrity servers operating system product kit (the "VMS kit") during installation or upgrade • Integrity servers only	• Enhances security as all kits from HP will be signed

Storage, I/O, and LAN

Features	Benefits
Serial Attached SCSI (SAS) Smart Array Support • Support of the next generation of SAS Smart Array HBA and SAS Blade interconnects • Integrity servers only	• Delivers low-cost shared storage solutions for HP C-class blade servers • Provides high performance, high capacity storage, and scalable infrastructure
Shared SAS Blade Storage • Solutions to connect multiple HP C-class I64 blade systems to a storage shared over the SAS • Integrity servers only	• Delivers low-cost shared storage solutions for HP C-class servers. • Provides high performance, high capacity storage, and scalable infrastructure
Backup Enhancements (Alpha and Integrity): • **Compression Support on Disk** Allows BACKUP to generate compressed save-sets • **2TiB Volume Support** Maximum volume size supported is increased from 1TB to 2TB • **Compression Support on Tape** Allows BACKUP to create and restore the compressed save sets on sequential devices	• Common tool support across all architectures • Common data format thus allowing interoperability across platforms • Lower storage requirements for savesets • Faster restoration of savesets • Improved performance • Allows support for volume size up to 2TB • Faster BACKUP • Improved performance • Allows sequential devices to store more data

OpenVMS on HP Integrity Virtual Machines (Integrity VM)

Features	Benefits
Integrity VM I/O Performance	
AVIO (Accelerated Virtual I/O) • New LAN and storage drivers that use the Accelerated Virtual I/O interface provided by Integrity VM	• Improved performance over standard virtualized I/O of an unmodified guest

Clusters and Shadowing

Features	Benefits
IP Cluster Interconnect (IPCI) • Enables OpenVMS clusters to use IP (Internet Protocol) for Cluster Communication in addition to 802 LAN for Cluster Communication • Alpha and Integrity servers	• Provides multi-site disaster tolerant customers with the ability to use common carrier IP services instead of requiring special extended LAN services between sites • Provides system managers with the ability to manage or monitor VMS cluster use of IP and to diagnose problems • Lowers costs of cluster deployment
Extended Shadowing Membership • Increases the number of member disks in a host-based volume shadowing set from 3 to 6 disks • Alpha and Integrity servers	• Higher Availability • Better Flexibility
Volume Shadowing Enhancements: • On-demand write lock • LNN based read selection • Multiple Minicopy Bitmaps	• Improved Performance for VMS shadow set operations

Virtualization

Features	Benefits
OpenVMS as an HP Integrity Virtual Machine (Integrity VM) Guest • OpenVMS V8.4 supported as a guest Operating System with HP Integrity Virtual Machine V4.2	• New opportunities for hardware consolidation
VSE Suite • Management of all physical, logical and virtual resources from a 'single pane of glass'	• Allows management on Integrity servers and Blades of new features including Integrity VM and Capacity Advisor
Capacity Advisor • Tool for assessing the impact of adding a new work stream, reorganizing system configurations, upgrading systems, splitting workloads, and so forth	• Enables system managers to perform 'what-if' analysis on systems across the network based on historically gathered data, highlighting where performance can be optimized by shifting workloads
iCAP for Integrity Cell-based Systems	• HP Utility Pricing on OpenVMS for Integrity servers enables customers to pay for CPU resources when they need them, thereby allowing them to respond to planned or unplanned permanent load increases and temporary spikes
Enhanced Blade Management • Continued addition of WBEM based 'Providers' on Blade systems enabling more and more aspects of these systems to be managed from a single 'pane of glass' based on Systems Insight Manager (SIM)	• Enhanced Manageability
Full Operating System Provisioning • Ability to simultaneously provision and/or upgrade up to eight Integrity servers or Blade systems remotely from the common SIM	

WBEM Services	
System Management Homepage (SMH) – free download • Provides the framework for seamless consolidation of different Management Tools and a framework to simplify the management of individual Alpha and Integrity servers running OpenVMS	
SNMP Management Agents	

System Management

Features	Benefits
Insight Power Management (IPM) • Integrated solution to manage, analyze and optimize physical, logical & virtual resources on Integrity servers & Blades • Integrity servers only	• Provides tools needed to increase the capacity of your datacenter by reducing power and cooling requirements of servers to an amount that accurately reflects the workload of your server • Provides performance when you need it, and cost savings when you don't

UNIX Portability

Features	Benefits
Symlinks Enhancements • Supports logical names in POSIX filenames and symlinks • Loop detection in RMS directory wildcarding • Following of symlinks in RMS directory wildcard search • Redesign of on-disk symlink representation • A volume characteristic to enable/disable symlinks (and other special files)	• Allows users to fully utilize the RMS synmlinks and POSIX filename support that was originally introduced with OpenVMS V8.3

Open Group Specifications Compliant CRTL Semaphores • Support for the Open Group semaphores (POSIX and System V) control operations to the CRTL	• Easier port of applications from Non VMS environments • Less cost and effort to customers and partners
CRTL Support for UTF-8 • Support for UTF-8 format file specifications when given in UNIX style	• Provides support for input/output in UTF-8 format mainly used by Japanese OpenVMS • Enables use of OpenVMS CIFS for Samba by Japanese OpenVMS customers
GNV update	• Enhanced portability

Security

Features	Benefits
SSL Refresh • Based on new openssl.org baselevel, 0.9.8h • Includes new cryptographic algorithms • Alpha and Integrity servers	• Security Updates
Active Directory (LDAP) Auth Support • Add mapping of login name to VMS username in LDAP authentication • Alpha and Integrity servers	• Allows an invalid or VMS-inappropriate login name to be mapped to a valid SYSUAF account record
Secure Delivery Enhancements • New, corporate-wide signing standard which requires all kits shipped to customers to be signed by a central, HP signer • Alpha and Integrity servers	• Protection of customers against unauthorized/unsigned kits which may include malware

Networking

Features	Benefits
HP TCP/IP Services for OpenVMS V5.7 Enhancements (Alpha and Integrity servers): • IP Cluster Interconnect (including early boot startup) • Packet Processing Engine (PPE) (for kernel performance and scaling) • NFS enhancement: Improved symbolic link support • FTP enhancements: Major browser compatibility, Anonymous Light, FTP over SSL (FTPS) • LPD port configurability • IMAP Long Line • TCPIP$PEERNAME Utility • SSH and SFTP Access Control Improvements • POP Security Enhancements • SMTP Configuration via ASCII files • SMTP Cluster-wide Operation	• Performance Improvements with PPE • Enhanced functionality and features support
DECnet V8.4 Enhancements (Alpha and Integrity servers): • DECnet over IP connections to pass through SSH. • OSI Transport connection failure events to contain the information about the involved "TSAP"	• Speeds up USB installation

Hardware

Features	Benefits
Memory Disk Boot	
The Intelligent Platform Management Interface (IPMI) Driver • Support features required for the IPMI driver to work on new Integrity servers hardware • Integrity servers only	

USB Enhancements: • Support for new USB controllers • Existing drivers modified to work without I/O translation buffers • New driver for the Universal Host controller interface • Support for a 64 bit data buffer version of the High-Speed controller • Support for high speed boot • Alpha and Integrity servers	• Users will not experience a difference on the new controllers and systems • Ability to plug in any device that works today and it will work
vKVM • "Virtual" USB keyboard and mouse implemented in firmware by the management processor designed to allow a remote user to control a system as if they were using a VGA monitor and Keyboard directly attached to the local system • Integrity servers only	• Allows OpenVMS to be managed with the same tools used by Windows in a mixed architecture Blade configuration
InfoServer on EFI Drivers • Updates the InfoServer Application to boot in a manner similar to satellite boot on Integrity servers today • Integrity servers only	• Needed to support Blades systems
Fibre SCSI IOLock8 • Avoid IOLOCK8 in Fibre/SCSI drivers	• Increases the performance and scaling of Fibre/SCSI drivers

Utilities Enhancements

Features	Benefits
Large Device Name Support for Accounting Utility • Longer device name support allows 16 character long terminal names • Alpha and Integrity servers	• Features enhancements to support additional use cases making OpenVMS management simpler

OpenVMS MAIL Enhancements (Alpha and Integrity): **Support for more than 255 Characters in Mail Headers** • Removes OpenVMS Mail limitation of maximum 255 characters in Mail headers. **Mail interface message placement** • Provides new callable MAIL API "mail$put_message_in_folder" that allows the caller to place the message directly in folder specified. **Support for forwarding entry limit to be more than 32 characters** • Increases the forward entry size of USERNAME field from 32 to 512 characters	

Other:

Features	Benefits
Per Process Kernel Threads Limits • The number of created kernel threads controllable on a per process basis.	• The number of kernel threads can be individually controlled for every process on the system.
PageDyn LALS • Implement optional PageDyn LookAside Lists (LALs) for customers experiencing severe Paged • Dynamic Pool free list fragmentation • Alpha and Integrity servers	• Decreases the fragmentation of its variable freelist • Speeds up allocation and deallocation of commonly used packet sizes

Dynamic Processor Resiliency (DPR) Ability of a system to: • Recognize degrading processors • Indict and eventually to remove (deallocate) them from the running system • Replace them with iCap resources (if possible), and • Mark an indicted processor as not available for use on the next reboot (deconfigure)	• Improved RAS
Partial Dump Copies • Allows a system dump to be broken up into smaller portions so that only needed portions are copied over the network, and multiple portions can be recombined when analyzing a crash • Alpha and Integrity servers	• Helps resolve problems of copying huge system dumps across the network • Cuts down traffic by only copying the most useful parts of the dump, yet allowing access to the rest of the dump if necessary