The Future of OpenVMS

Duane Harris
CEO
Agenda

1. Who is VMS Software, Inc. (VSI)?

2. How will VSI work with HP?

3. Who can you purchase new versions of OpenVMS from?

4. When can you buy and what is the price?

5. Where can you get support for future versions of OpenVMS?

6. What about support for current and older versions?

7. Concluding remarks.
1. Who is VSI?

• Independent corporation.
• Exclusive license from HP to:
  – Develop all future versions of OpenVMS
  – Including: Poulsen, Kittson
  – Future: X86, etc.
• We are focused 100% on OpenVMS
2. How will VSI & HP work together?

- Goal #1: Prevent customer confusion.
- Familiar SKUs and purchasing process.
- Continue to buy from HP.
- Continue to receive support from HP.
- Initially, VSI relies on HP for most of its sales.
3. Who to Purchasing from

- You can buy OpenVMS for HP Integrity i4 servers:
  - From HP, or
  - From VSI directly
  - HP will bundle the software with i4 servers from the factory.
4. When to Purchase

• Ship 2\textsuperscript{nd} Quarter 2015
• Pre-order as follows:
  o 30-day pre-order through HP
  o As early as February 2015 through VSI or Resellers.
• Price:
  o 10\% above current SKU list
  o 50\% trade-in credit
5. Support for New Versions of OpenVMS

For HP customers:
- Technology Services group to provide support
- New HP support contract required for new future versions of OpenVMS
- VSI provide L3 engineer support through HP

For VSI customers:
- Customers will receive all levels of support

HP support plans for x86 and any other versions of OpenVMS will be announced as they become available
6. Support for Current & Older Versions

• HP’s support roadmap of current and older versions of OpenVMS remain unchanged.
• VSI to will pickup support for any platforms that become unsupported in HP’s roadmap in the future.
7. Concluding Remarks

• Current installed base big enough to justify investment.
• Success requires growth.
• Growth requires port to X86 hardware.
• Committed to investing in innovation, including exploring new markets, such as ARM and embedded systems.
• We have hired some of the original VMS team members, like Clair Grant—who will be presenting today—to ensure a quality re-launch of OpenVMS
Thank you
The new future for OpenVMS with VSI and HP

Ken Surplice, HP Servers EMEA / November 25, 2014
Introduction

History

VAX
- OpenVMS, Ultrix
- MicroVAX

Alpha
- OpenVMS, Tru64 UNIX, Windows
- Servers

HP 9000
- Midrange, HP-UX

Integrity
- OpenVMS, HP-UX, Windows, Linux, SGUX
- Servers
- Project Odyssey
- Large ProLiant

Technical

Presales Support

Product Manager

Category Manager

Today

OpenVMS, HP-UX, Serviceguard
Integrity servers, DragonHawk x86, ProLiant DL980
Today’s discussion
How it began

1978-1979
Last year

2013
OpenVMS rolls on

1978

2013

2014 back on track
July 2014 announcement on the future of OpenVMS

- HP will continue to sell Integrity servers with OpenVMS V8.4 through 2015
- HP will continue OpenVMS V8.4 support through 2025
- Agreement with VMS Software, Inc. (VSI) to develop future versions of OpenVMS
- VSI will focus initially on extending the Integrity roadmap with a version of OpenVMS for HP Integrity i4 servers based on the Intel® Itanium® Processor 9500 Series
- VSI also plans to further extend the OpenVMS roadmap to x86-based systems in the future
- VSI will announce Release and Support roadmaps for future versions
A big change for OpenVMS

Big company, many products → Small company, one product
How will customers be able purchase new versions of OpenVMS?

- HP will be a reseller of OpenVMS for HP Integrity i4 servers based on the Intel® Itanium® Processor 9500 Series
- HP will also bundle and ship this version
- VSI is expected to further extend the OpenVMS roadmap to x86 platforms
- HP’s plan for reselling OpenVMS on x86-based servers and any other versions will be announced as they become available
How will customers be able to receive support for future versions of OpenVMS?

- HP Technology Services will offer HP support services for OpenVMS on HP Integrity i4 servers.
- Customers must set up a new HP support contract for the future version.
- Customers who purchase support from HP for the future version can use the current HP support channels.
- HP support plans for x86 and any other versions of OpenVMS will be announced as they become available.
Does this announcement impact currently supported versions?

The VSI agreement has no impact on:

- the support roadmap of the currently supported versions of OpenVMS
- the server sales roadmap of HP Integrity i2 servers
- HP Integrity Virtual Machines support
- decisions already taken related to currently supported versions of OpenVMS, such as product support status change
- decisions related to Java support
## OpenVMS

### Key facts

<table>
<thead>
<tr>
<th>HP plans unchanged</th>
<th>A great new future</th>
<th>HP support</th>
<th>Improving TCO</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support</strong></td>
<td></td>
<td><strong>V8.4-1H1</strong></td>
<td><strong>Costs down</strong></td>
<td><strong>Refresh</strong></td>
</tr>
<tr>
<td>To 2020 with patching. To 2025 mature support.</td>
<td><strong>VMS Software Inc</strong></td>
<td>HP can provide licenses and support</td>
<td>Integrity per socket license; ProLiant economy.</td>
<td>Layered products, OpenSource, Java, SSL...</td>
</tr>
<tr>
<td></td>
<td>Kittson support; ProLiant support; virtual</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Integrity i4 servers

Coming soon to OpenVMS users

- Biggest boost to Itanium in 10 years
- Exceeds customer expectations
- 8 cores per socket. Per-socket licence.
- Selling at least through 2016
- Increased per core performance. Fewer licenses.
New OpenVMS server future

Integrity i2

Integrity i4

Integrity i\textsuperscript{next}

ProLiant x86

Mission-critical x86 ?

Virtual / other x86
# HP mission-critical evolution

## Established mission-critical

<table>
<thead>
<tr>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HP NonStop</strong></td>
<td>Advancing fault-tolerant computing</td>
</tr>
<tr>
<td>Integrity with <strong>hp UX</strong></td>
<td>11iv3 updates: flexible and integrated workload solutions</td>
</tr>
<tr>
<td>V8.4 updates and enhancements – VMS Software Inc porting to new platforms</td>
<td></td>
</tr>
</tbody>
</table>

## Enterprise scale-up x86

<table>
<thead>
<tr>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4s rack and blades</strong></td>
<td>New RAS features</td>
</tr>
<tr>
<td><strong>2s-16s x86 blades</strong></td>
<td>SAP HANA</td>
</tr>
<tr>
<td><strong>HP NonStop</strong></td>
<td>Breakthrough reliability and scalability</td>
</tr>
<tr>
<td>100% NonStop</td>
<td>Linux</td>
</tr>
</tbody>
</table>

**Mission-critical experience (Services and Software)**
Some questions you may have

What is really happening with OpenVMS?

What happens? When?

Does VMS Software Inc have the right skills?

Does VMS Software Inc have the right vision?

?
Confidence
The story is not over

Some things to think about
## What I observe

<table>
<thead>
<tr>
<th>Need</th>
<th>Servers before</th>
<th>Servers today</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISSION-CRITICAL</td>
<td>Purpose built</td>
<td>Purpose built (CI)</td>
</tr>
<tr>
<td>SCALABLE</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>LONG LASTING</td>
<td>yes</td>
<td>somewhat</td>
</tr>
<tr>
<td>GENERAL PURPOSE</td>
<td>yes</td>
<td>mixed</td>
</tr>
<tr>
<td>FIT AND FORGET</td>
<td>yes</td>
<td>warning bells</td>
</tr>
</tbody>
</table>
Problems with fit and forget

Vendor investments are spread more widely

- More devices; many permutations
- Never ending multi-version software support not affordable

It’s about more than the server

- Storage
  - A world of its own
  - 5 year life cycle
- Networking
  - A world of its own
- Management dependencies
- Security dependencies
- Cannot stand still

Accelerating life cycles

- Processor
- Firmware
- Gen8...Gen9...Gen10...

Standing still doesn’t work any more
The future of OpenVMS

OpenVMS 8.4

Integrity
Conclusions

Your future is in your hands

1. Get onto v8.4 Integrity
2. VAX/Alpha: no future s/w support
3. Keep up-to-date
4. Spend money on licenses

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Get on the right track
Thank you
OpenVMS
Rolling Roadmap

November 25, 2014
OpenVMS Rolling Roadmaps

These roadmaps contain forward looking statements and are provided solely for your convenience. While the information in this roadmap is based on our current best estimates, all information in the roadmaps is subject to change without notice.
**OpenVMS Rolling Roadmap**

### OpenVMS V8.4-1H1
**Architecture: Itanium**
- Itanium® Processor 9500 series
- HP Integrity System Support
  - rx2800 i4
  - HP Integrity Server Blades
    - BL860c i4
    - BL870c i4
    - BL890c i4
  - i2 versions of the above
- **Release Goals**
  - Improved performance over i2
- **Aspirational**
  - FlexFabric LAN support
  - nPar support (max. partition of 32 cores, 2 threads/core)
  - JAVA 1.8
  - Availability Manager – update to 64-bit desktop
  - GNV & CRTL improvements

### OpenVMS V8.4-1H2, etc.
**Architecture: Itanium**
- Itanium® (Kittson) series
- HP Integrity system support
  - Continued support of 8.4-1H1 supported servers
  - Selected new servers & I/O
- **Release Goals**
  - Improved performance over 9500
  - New TCP/IP stack
  - Support 64 cores (threads off)
  - GNV & CRTL improvements

### OpenVMS V9.0
**Architecture: Common**
- New File System
  - Eliminate 2TB volume size limit
  - Improved performance
- **Cloud (Private or Public)?**
  - OpenStack?
  - Apache jclouds (JAVA API)?
- **Architecture: Integrity**
  - Continued support of 8.4-1H2 supported servers
- **Architecture: X86**
  - Selected HP server(s)
  - OpenVMS as a VM guest
  - Binary Translator
  - Updated Language Standards
    - C
    - C++
    - FORTRAN

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**Spring 2015**

**Summer 2016**

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**VMS Software**
OpenVMS Services Rolling Roadmap

Today

- OpenVMS V8.4-1H1
  - 5 Years Minimum VSI Standard Support

Future

- OpenVMS V9.n ** Common
  - 5 Years Minimum VSI Standard Support
- OpenVMS V.4-1H2 **
  - 5 Years Minimum VSI Standard Support
- OpenVMS V8.4-1H1
  - 5 Years Minimum VSI Standard Support

Customers who want to have HP provide V8.4-1H1 support can do so directly through HP.

** VSI Standard Support policy is for current version and one version back.
Top 10 OpenVMS Questions for VSI

• What is the order process for OpenVMS 8.4-1hx?
• Will I be able to order FIS images on i4 servers?
• Are there new part numbers/SKU’s?
• How do I get support for OpenVMS V8.4-1Hx?
• What’s the Licensing model?
• Binary compatibility - do I need to recompile?
• Is there an updated Clusters support matrix?
• What about an Upgrade matrix/chart?
• What platforms are you supporting?
• Storage subsystem support matrix?
Order Process

HP will resell VSI versions of OpenVMS and LPs

Order Licenses Through

Order Support thru HP

The choice is yours
Will I be able to order FIS images on i4 servers?

Order OpenVMS and as you normally would through HP including FIS images (option 0D1)

Order from HP

VSI’s OpenVMS V8.4-1Hx Image files
Are there new part numbers/SKU’s?

VSI will use a common part number scheme with HP. Simplifies ordering through HP or VSI or through partner/resellers.
How do I get Support?

If you buy through

- HP will provide support services for 8.4-1Hx on HP Integrity i4 servers for up to five years after the end of sale of the product.

- Customers who purchase support from HP for versions 8.4-1Hx can use the current HP support channels.

- VSI will provide Engineering support for 8.4-1Hx. HP will make fixes available to their supported customers through the normal support channel that you are using today.

*Transparent to customers

HP Support Services
Call logging, problem analysis, review solutions, provide answers
How do I get Support?

If you buy through VSI Support Services

- Call logging, problem analysis, review solutions, provide answers
- In depth analysis, Engineering patches, product qualifications
- VSI will provide support services for versions 8.4-1Hx
What’s the Licensing model?

- Integrity

- v8.4-1H1 & v8.4-1H2
  Licensing same as on OpenVMS 8.4

- Per Socket*

* Except compilers which are sold per user
What’s the Licensing model?

v9.n Licensing same as on OpenVMS 8.4

Per Socket*

* Except compilers which are sold per user
What’s the Licensing model?

v9.n Licensing same as on OpenVMS 8.4 plus Subscription option

* Except compilers which are sold per user
What’s the Licensing model?

v9.n Licensing same as on OpenVMS 8.4 plus Subscription option and ?

Per Socket*

* Except compilers which are sold per user
Binary compatibility - do I need to recompile?

OpenVMS 8.4-1Hx will be binary compatible with prior versions of OpenVMS on Integrity
What about an Upgrade matrix/chart?

Direct Upgrade Paths
(Same as v8.4)

- You can upgrade directly to OpenVMS Integrity servers Version 8.4-1Hx from the following versions of OpenVMS Integrity servers:
  - Version 8.3-1H1
  - Version 8.3
  - Version 8.2-1
Updated Cluster Support Matrix?

v8.4-1Hx

<table>
<thead>
<tr>
<th>Integrity Server</th>
<th>V7.3-2</th>
<th>v8.2</th>
<th>v8.3</th>
<th>v8.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>V8.2</td>
<td>Warranted</td>
<td>Warranted</td>
<td>Migration</td>
<td>Migration</td>
</tr>
<tr>
<td>v8.2-1</td>
<td>Warranted</td>
<td>Warranted</td>
<td>Migration</td>
<td>Migration</td>
</tr>
<tr>
<td>v8.3 &amp; v8.3-1H1</td>
<td>Migration</td>
<td>Migration</td>
<td>Warranted</td>
<td>Migration</td>
</tr>
<tr>
<td>v8.4</td>
<td>Migration</td>
<td>Migration</td>
<td>Migration</td>
<td>Warranted</td>
</tr>
<tr>
<td>v8.4-1H1</td>
<td>Migration</td>
<td>Migration</td>
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</tr>
<tr>
<td>V8.4-1H2</td>
<td>Migration</td>
<td>Migration</td>
<td>Migration</td>
<td>Warranted</td>
</tr>
</tbody>
</table>
What platforms are you supporting?

<table>
<thead>
<tr>
<th>Platform</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rx2800</td>
<td>i2, i4</td>
</tr>
<tr>
<td>BL860c</td>
<td>i2, i4</td>
</tr>
<tr>
<td>BL870c</td>
<td>i2, i4</td>
</tr>
<tr>
<td>BL890c</td>
<td>i2, i4</td>
</tr>
<tr>
<td>Rx1600</td>
<td></td>
</tr>
<tr>
<td>Rx2600</td>
<td></td>
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<tr>
<td>Rx2620</td>
<td></td>
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<tr>
<td>Rx2660</td>
<td></td>
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<tr>
<td>Rx3600</td>
<td></td>
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<tr>
<td>Rx6600</td>
<td></td>
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<tr>
<td>Rx4640</td>
<td></td>
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<tr>
<td>Rx7620, rx7640</td>
<td></td>
</tr>
<tr>
<td>Rx8620, rx8640</td>
<td></td>
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<tr>
<td>Super Dome</td>
<td></td>
</tr>
<tr>
<td>(SX1000/SX2000)</td>
<td></td>
</tr>
</tbody>
</table>
VSI is working with HP to have OpenVMS 8.4-1Hx on Integrity certified with HP storage arrays, switches and HBAs – Check SPOCK

SPOCK:  http://h20272.www2.hp.com/
Porting OpenVMS
Disclaimer

This presentation contains forward looking statements and is provided solely for your convenience. While this contains our current thinking, all information is subject to change without notice. Information will be updated as planning progresses.
Porting ‘Degree of Difficulty’ Perspective

**Alpha**: It will never be this hard again!
- First time and VMS was not created (mid-1970s) with porting in mind
- Create AMACRO compiler and make 1100+ MACRO-32 modules ‘compileable’
- Everything had to become 64-bit aware
- Advantage: PALcode made Alpha look VAX-like in many ways to VMS

**Itanium**: Completely unfamiliar architecture
- Industry standard platform support: EFI, ACPI, IPMI
- Modified Intel Calling Standard plus ELF/DWARF for images and symbol tables
- Replace PALcode functions with operating system routines
- Multiple stacks and Unwind Tables
- IEEE floating point only; VAX FP operations in software
- Advantage: GEM knew about Itanium; HP-UX had ported

**X86**: Predictably Unfamiliar
- Previous porting experiences greatly increase confidence in plan and execution
- More able to exploit widely-used development and analysis tools
- Forward-thinking compiler strategy
- Many VMS engineers now have x86 experience
Porting Play Book

Chapter 1 – Executable Images
- **Definition**: Register Mapping, Calling Standard extensions
- **Creation**: Compilers, Assembler
- **Action**: LIBRARIAN, LINKER, INSTALL, Image Activator
- **Analysis**: SDA, DEBUG/XDELTA, ANALYZE IMAGE, ANALYZE OBJECT

Chapter 2 – Architecture-Specific Needs (a.k.a. “The 5%”)
- Booting
- Interrupts, Exceptions
- Memory Management: protection types, access modes, address space, etc.
- Atomic Instructions
- Floating Point
- Special needs for code in assembler (e.g. VAX QUEUE instruction emulation)

Chapter 3 – Compiling and Linking Everything Else (a.k.a. “The 95%”)
- Large task but mostly mechanical
- Flush out any remaining ‘inter-routine linkage’ problems
Sequence of Significant Events

1. Boot Contest
2. Full Build
3. Compiler Testing (compilers not needed to boot)
4. Build and Test Layered Products
5. Build Everything with Native Tools
6. Partner Release
7. Customer Field Test
8. General Release

Beyond the Initial Release (not necessarily in this order)

- VMS as a VM guest on x86-based hosts (Red Hat?, VMware?)
- More x86 Platforms?
- Other architectures (ARM?)
Time Tested and Still Delivering

• 1978  VAX (DEC)
• 1992  Alpha (DEC)
• 2005  Itanium (COMPAQ, HP)
• 201x  x86 (VMS Software)

A solid architectural foundation made it all possible.