



connect

# OpenVMS Boot Camp

> Bedford-Glen, MA

## Possible Future Directions for the OpenVMS Ecosystem

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- I work in HP Technology Services (TS)
  - Global Solutions Engineering (GSE)
    - Part of Level 3 in the remedial services escalation chain within HP
    - Multi-disciplinary team:
      - Operating systems, databases, networks, storage, SANs, datacenters / environment
      - Multi-vendor expertise (HP plus Cisco, Oracle/Sun, EMC, etc.)
    - Team handles complex problems; difficult to trace to any single product
    - Team also does performance and high-availability consulting
- Co-Global Lead (with Ian Miller) of the OpenVMS Technology Profession (around 800-900 OpenVMS Professionals within HP)
- OpenVMS Ambassador (one of about 140)



## Disclaimers

- In this session, I am not presenting HP's product plans
- We'll be looking at long-term future here, not short-term
- Opinions expressed are my own, not HP's
- I have no authority to make any commitments on the part of HP
- I have no authority over the OpenVMS Product or its directions
- I have no budget; I have nobody working for me
- I have no access to OpenVMS business financial information
- I have no insider information to share about OpenVMS' future
  - Ask Lorraine Bartlett or Rohini Madhavan
- I'm interested in feedback from the user community
- Things can change



# **BACKGROUND, AND CIRCUMSTANCES SURROUNDING US**



## Neophilia

Definition of NEOPHILIA (from Merriam-Webster.com):

- neo·phil·ia noun \,nē-ə-'fi-lē-ə\
  - love of or enthusiasm for what is new or novel
- Neophiles have:
  - distaste or loathing of tradition, repetition, and routine
  - tendency to become bored quickly with old things
  - desire, even obsession, to experience novelty
  - desire to create novelty by stirring unrest and dissatisfaction with the present environment
  - "Eric S. Raymond observes that this personality is especially prevalent in certain fields of expertise; in business, these are primarily computer science and other areas of high technology."
    - <http://en.wikipedia.org/wiki/Neophile>



“So, OpenVMS. We sometimes love to affectionately refer to this as the Original Mission-Critical Operating System. It's still around. We're still thrilling our customers in that space. We aren't actively pursuing a lot of new customers on OpenVMS, but we have some, and we make sure that we take care of the ones that we have, very, very well, because they are extremely loyal, and they're happy with the OpenVMS product, and continue to be so as we continue to upgrade and enhance it.”

-- Ric Lewis, HP VP - Business Critical Systems, at HP Discover 2012, Frankfurt, Dec. 2012  
Strategy Session: Extending and expanding your full mission-critical experience  
25:31 into the video at <http://h30614.www3.hp.com/Discover/MyEvent/session/BB2174>



## Project Odyssey

- HP's Project Odyssey includes plans allowing OpenVMS customers to continue to use OpenVMS on the Itanium platform going forward, while at the same time, HP will be making mission-critical features available on the Linux and Windows platforms
  - <http://hp.com/go/ProjectOdyssey/>
  - <http://h30507.www3.hp.com/t5/Mission-Critical-Computing-Blog/Got-Questions-About-HP-Project-Odyssey-Single-Platform-Mission/ba-p/103473>
  - [http://h18004.www1.hp.com/products/solutions/mcci/MCx86\\_FAQs.pdf](http://h18004.www1.hp.com/products/solutions/mcci/MCx86_FAQs.pdf)
- Components of Project Odyssey:
  - Continued Integrity Server development, including Poulson and Kittson processors from Intel; and continuing support for OpenVMS, NonStop, and HP-UX
  - Serviceguard for Linux (SGLX)
  - HydraLynx
  - DragonHawk





## Project Moonshot

- “HP Project Moonshot is a multiyear, multiphase program dedicated to designing extreme low-energy server technologies. The project uses HP Converged Infrastructure technology to allow the sharing of resources—including storage, networking, management, power, and cooling—across thousands of servers while reducing power and cooling usage.”
  - <http://hp.com/go/Moonshot/>
  - <http://www8.hp.com/us/en/hp-information/environment/hp-project-moonshot.html#.UUi2rWznacM>
  - <http://www.hpl.hp.com/news/2011/oct-dec/moonshot.html>
  - <http://www8.hp.com/h20621/video-gallery/us/en/products/1331565686001/hp-project-moonshot---extreme-low-energy-server-technology/video/>
- ARM and x86 (Acorn) CPU architectures
- ARM is a low-cost, low-power CPU considered by some to have high potential to be a disruptive technology in servers



# **LIFE EXPECTANCY OF THE OPENVMS BUSINESS**



## Types of Support OpenVMS Customers Need from HP:

- Hardware to run OpenVMS on
  - Some need new, faster hardware on a continuing, on-going basis
- Licenses & media for Operating System and layered products
- Hardware support (e.g. break/fix)
- Software support
  1. New features and functionality
  2. Support for new hardware
  3. Bug fixes and new ECO patch kits
  4. Access to existing patch kits
  5. Technical assistance



## Lifecycle Terminology

### Hardware

- **End of Sales** – The last time hardware is purchased as new
- **End of Service Life** – When HP can no longer provide break/fix hardware service, typically due to lack of spare parts
- HP typically guarantees hardware support for a minimum of 5 years after last sale
- VAX End of Sales was 2000; hardware support still available on some models

### Software

- Typically supported long after hardware support ends
  - Customers may self-maintain their own hardware
  - Software may continue to run on emulators long afterward



## OpenVMS Support Plans

- Per Lorraine Bartlett in Tuesday's keynote. HP's Technology Services plans:
  - OpenVMS Alpha support through at least 2016
  - OpenVMS Integrity support through at least 2020
- TS decisions are significantly affected by the volume of support contracts from customers



“Let me reassure you. HP plans to continue the development and innovation of Itanium-based Integrity NonStop and Integrity server platforms with our HP-UX and OpenVMS operating systems for more than 10 years.”

“HP has plans to continue the development and innovation of Itanium-based Integrity servers for more than 10 years.”

-- Martin Fink, HP CTO and Director of HP Labs (Director of BCS at the time)

Mission Critical Computing Blog, April 1, 2011:

<http://h30507.www3.hp.com/t5/Mission-Critical-Computing-Blog/HP-puts-customers-first-and-remains-committed-to-Integrity/ba-p/89983>



"HP will have access to Intel's Itanium processor until 2022, according to Intel's Kirk Skaugen. Skaugen, who used to be VP of Intel's Datacentre and Connected Systems Group, testified under oath during the HP versus Oracle lawsuit that HP and Intel had an arrangement that 'enabled HP to have access to the Itanium microprocessor through 2022, and that HP could extend even longer.'"

"HP can force Intel to develop Itanium until at least 2022"

The Inquirer, April 25, 2012

<http://www.theinquirer.net/inquirer/news/2170327/hp-force-intel-develop-itanium-2022>



## What we know

- Fact: Poulson chips and systems are available from HP today (with HP-UX)
- Fact: Intel's Roadmap includes a Kittson generation 2-3 years after Poulson
- Fact: HP can buy Itanium chips from Intel through at least 2022, with an option to extend that contract
- Possibility: Intel could do an Itanium generation after Kittson. Documents exposed by Oracle spoke of a Kittson+ or Kittson22.
- Possibility: HP could do an end-of-life bulk Itanium chip purchase and continue to produce new systems for a while after the Intel chip supply ends





## What we know

- Fact: HP's policy is to provide hardware maintenance for a minimum of 5 years after last sale of new systems; sometimes longer
- Historical Fact: HP Financial Services tends to sell refurbished systems for several years after last sale of new systems; sometimes many years
- Historical Fact: HP tends to support OpenVMS software long after hardware support ends
  - OpenVMS VAX is still supported by HP



## Worst-case Scenario for Transition Planning

How could OpenVMS on Integrity support possibly end as early as 2020?

- OpenVMS gets support for Poulson in 2014, but not for Kittson
  - Note: HP Roadmap we saw on Tuesday indicates support is planned for both
- Kittson is released 2-3 years after Poulson, in 2015. and Poulson sales immediately dry up, resulting in end of sales for Poulson-based Integrity Servers.
  - Note: Usually hardware sales take a while to wind down
- HP supports hardware for 5 years after last sale, resulting in end of hardware support for Poulson-based systems in 2020.
- For the first time ever in history, operating system support ends at the same time as hardware support ends, thus ending support for OpenVMS on Integrity in 2020.



## More-likely Possible Scenario for Transition Planning

How long could OpenVMS on Integrity reasonably go on?

- Kittson is released 2-3 years after Poulson, in 2015. OpenVMS gets support a while after HP-UX.
- Intel continues to sell Itanium chips to HP until 2022, per contract. Worst-case, HP chooses not to exercise its option to renew its contract, and chooses not to do an end-of-availability bulk purchase.
- Worst-case, HP chooses to support the hardware for only the minimum of 5 years after last sale, resulting in end of hardware support for Kittson-based systems in 2027.
- Operating system support continues for 10 years after last sale (as it did for VAX, and is tentatively planned for Alpha), thus ending support for OpenVMS on Integrity in 2032.



## Possible future directions for OpenVMS customers:

1. Port to proprietary OpenVMS on x86, if a port were done
2. Back-port from Itanium to Alpha emulator on PC hardware
3. Stay on Itanium
4. Move to Itanium emulator on PC hardware, if developed
5. Port to Linux
6. Port to Windows
7. Port to an open-source OpenVMS-compatible OS, if developed



## Option: Port to proprietary OpenVMS on x86 architecture

- Has often been requested by customers
- HP has repeatedly stated HP has no plans to port OpenVMS to x86
- C code is easy to port; but with lots of Macro and Bliss code it's harder
- Past ports (VAX → Alpha, Alpha → Itanium) provided ported OS, compilers, and layered products and left users and ISVs on their own to port their software and applications, with VEST and AEST for binary translation, with some limitations
- Risks loss of what few ISVs still remain, with another forced migration to yet-another platform
- Documents released during HP-Oracle lawsuit indicate HP started porting HP-UX to x86 and got as far as first boot of on x86, but expected cost to complete that port was \$100M+ (apparently too expensive)



## Option: Back-Port to Alpha; run on Alpha emulator on PC

- Probably not an attractive option for most Integrity customers
- Can stay on OpenVMS at least through the end of support life for OpenVMS Alpha
  - Earliest possible date for end of support for OpenVMS Alpha: 2016



## Option: Stay on Itanium

- Poulson (Integrity i4 Server/Blades) support for OpenVMS:
  - Not in 2013; most likely 2014
- Kittson processor available from Intel in 2-3 years
  - My guess: Supported on HP-UX first again, and OpenVMS after
  - Intel says Kittson is now to be socket-compatible with Poulson and made in same 32 nm process (not a shrink)
    - likely easier to add support for Kittson than for Poulson / i4 servers
- Can stay on OpenVMS at least through the end of support life for OpenVMS Itanium
  - Earliest possible date for end of support for OpenVMS Itanium: 2020



## Option: Move to Itanium Emulator and run on PC

- This option provides a hardware alternative after end of Itanium availability & end of hardware support
- There are 4 vendors for Alpha emulation today, so it's likely at least one would provide an Itanium emulator
- Can stay on OpenVMS at least through end of support life for OpenVMS on Integrity
  - Earliest possible date for end of support for OpenVMS Itanium: 2020





## Option: Port to Linux

- Yuck!
  - Lower reliability, availability, quality, security
  - Loss of significant features
  - Inferior clustering
- But a lot of customers seem to have this as a high future probability in planning, and
- Some are already doing it



## Option: Port to Windows

- Double Yuck!
  - Lower reliability, availability
  - Much lower security
  - Loss of even more features
  - Inferior clustering
- But again, some customers are actually thinking of or even already moving this way



## What are the values of the OpenVMS ecosystem?

Things like:

- Reliability, Predictability
- Security with no compromises (4 security levels, ACLs, auditing, etc.)
- Quality and Consistency (both in code and documentation)
- High availability, Gold-Standard clustering, disaster tolerance
- Undetected data corruption is unacceptable
- Problems WILL get fixed, and in a timely fashion
- The user is not to blame for shortcomings in the product
- Just "good enough" is not good enough
- Architecture and design are the basis and origin of new features
- New features are always backward-compatible
  - Programs created on earlier versions continue to run on later versions



What does OpenVMS offer that the marketplace needs desperately right now?

- Security (never an OpenVMS virus found "in the wild")
- Reliability
- High availability
- Best clustering (active-everywhere, multi-site disaster tolerance)
- Mirroring that works, reliably

Many problems have already been solved in OpenVMS that other platforms don't even know that they will run into!



So why hasn't OpenVMS been a roaring success in recent years, and thus growing rapidly?

- Proprietary in an age where openness is in vogue (or at least multivendor hardware support like Windows)
- Perceived as being old in an age which [over]values new things
- Dependent on proprietary hardware in an age when x86 hardware is ubiquitous
- Students in college aren't learning it, because teachers aren't teaching it
- Perception vs. Reality
  - Dead, or in Maintenance-only mode vs. Still in active development
  - Not sold anymore vs. Still available for sale to any new customer
  - Old vs. Younger than UNIX
- OpenVMS is perceived as being "legacy", old-fashioned, dull, boring, out-of-date, dead, dying, doomed, or at least irrelevant
- How do we change the marketplace perception?



## Option: Port to an open source OpenVMS-compatible OS

- OpenVMS-like operating system
- Community-based, Open Source development model, assisted by HP expertise
- Run on x86, and/or maybe ARM
- High degree of compatibility with OpenVMS
- Even-higher degree of philosophical compatibility with OpenVMS values

Basically, provide all the same values people know and love from the OpenVMS ecosystem, in a new, fresh, open source package



## Why an Open Source OpenVMS-compatible OS

- Illustrative example: Linux
  - Linux is basically UNIX, warmed-over
  - Yet Linux is perceived as:
    - New and exciting
    - Zero acquisition cost
- University professors can teach Computer Science using Linux, giving examples of source code in textbooks and student exercises, because it is open source
- Teachers have incentive to teach it, because it is accessible via open source, and free
- Students (and businesses) can try Linux on any PC, at zero cost



## What should HP's role be? And how deep?

1. Profit from selling x86 (and/or ARM) hardware which will run it
2. Test and certify that hardware will run on it
3. Encourage the project like any other open source project, and allow employees to contribute
4. Provide leadership and sponsorship for the project
5. Profit from technical support services
6. Profit from consulting and migration services
7. Profit from training and educational services
8. Handle putting together the actual OS distribution CD/DVD/.iso
9. Profit from selling subscription-based support with updates, like Red Hat or SuSE Linux





## What would this open source project need from HP?

- Minimum: Acceptance of this direction as one possible migration alternative for OpenVMS customers
  - **Helpful:** Endorsement of this direction
  - **Ideal:** Include this strategy as part of Project Odyssey
- Minimum: Benevolent (or at worst, apathetic) attitude toward the project
  - **Helpful:** Supportive relationship with the project
    - Allow HP employees to lead and contribute to the project like other open source projects
  - **Ideal:** Fully support, lead, and sponsor the project; provide hardware/labs
- Helpful: Assurance from HP that things like documentation and APIs won't be subject to copyright infringement lawsuits like Oracle did with Java



## What would this open source project need from HP?

- Ideal: Grant royalty-free license to the Project for any OpenVMS-related patents and trade secrets
  - This eliminates the need to indemnify customers from patent and trade secret lawsuits from HP
- Helpful: Allow HP employees with exposure to OpenVMS source code (and customers with source listing licenses) to contribute to the code base
  - **Ideal:** Either release OpenVMS itself as open source, or at least allow access to OpenVMS source code listings by contributors
- Ideal: HP “owns” the project, generates and releases the OS distribution, and sells subscription-based support, training, consulting, migration services, handles certification, etc.
  - In effect, acting like Red Hat does for Linux





# Questions?



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