OpenVMS Technical Update

2C05

Thilo Lauer, 28. April 2015

Agenda

OpenVMS V8.4-1H1:

- What you will get

  - Features
  - Quality
  - Performance

- How you will get it

  - Media
  - Licensing
  - Support, Roadmap, Services
  - Future

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Brief History (Getting to Field Test in 8 Months)

- VSI Announcement Day July 31, 2014
  - CEO, VP Engineering, VP Customer Engagement
  - Engineering Manager, Director of R&D
  - 2 Engineers, 1 Lab Team Member
  - Working in a "big closet" at Nemonix Engineering
- Get the Code from HP VMS Team
- Add a Few People
- Start Working on a Complete VMS build from Sources
- Move to Bolton, MA facility
- Add a Few people
- Create New Lab (Engineering and QTV)
  - XVMS Development Cluster
  - 4 QTV Clusters
  - Exec, Networks, and Storage standalone developer systems
- Add More people
- Recreate Our Test and Evaluation Processes

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Field Test Update

- Official Start – April 8
- Currently running on:
  - Supported: i2 & i4 BL8xx
  - Unsupported: rx6600, rx2620, rx2660, rx4640

- ***Everything VSI ships must be rebranded.*** The version number must be increased and the "producer" changed to VSI, replacing HP or DEC.
- The vast majority of incoming reports are about rebranding, kitting, licensing, and documentation. We made significant changes in these areas during the last two months.

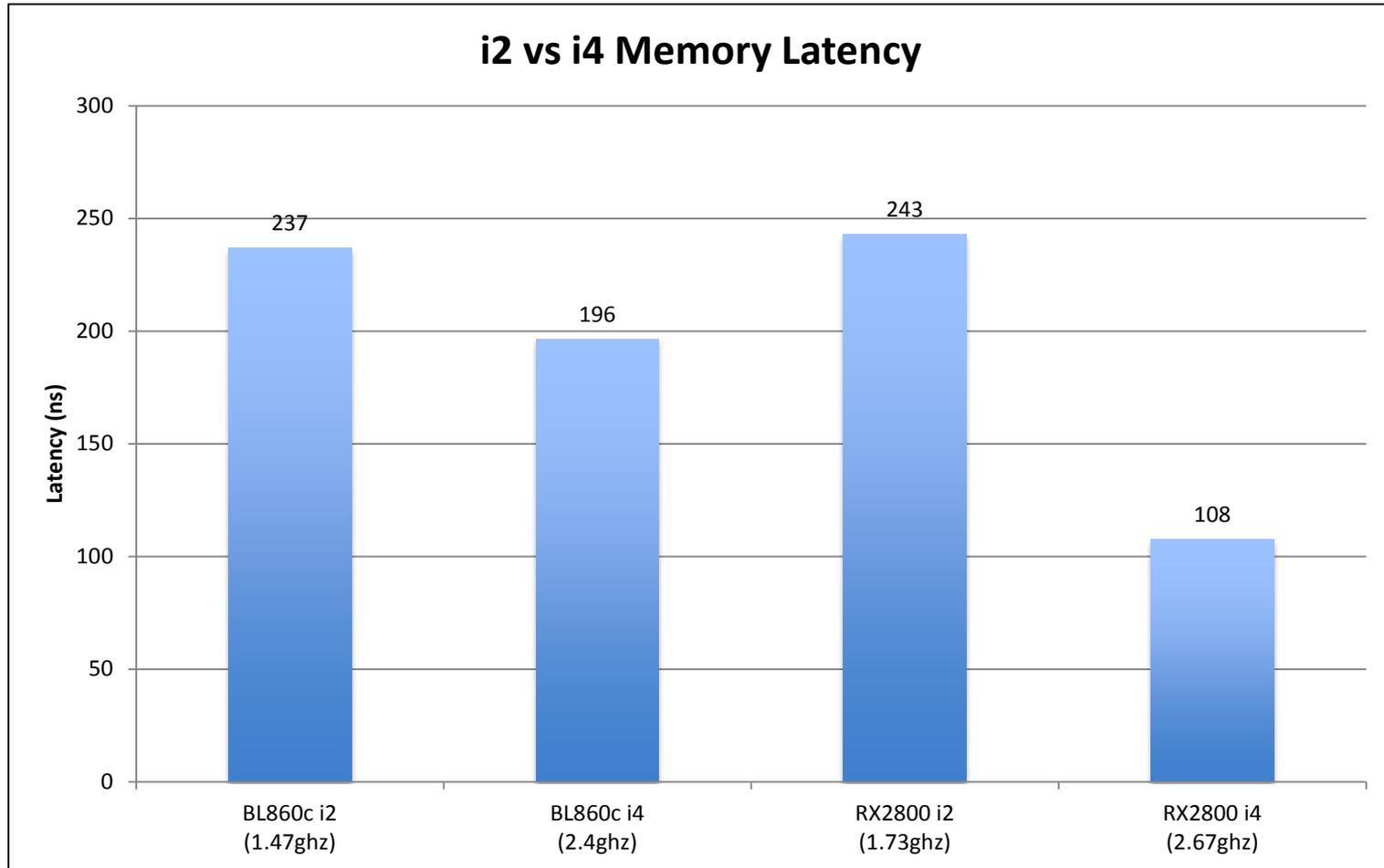vms Software

Preliminary Performance Results
i2 vs. i4

- The following slides contain preliminary data on performance differences between selected i2 and i4 servers running OpenVMS E8.4-1H1.

- The data was generated from VSI-written programs used to measure certain aspects of system performance . The results shown here should not be used as a general characterization of overall system performance or as an indication of how any specific application may perform.

i2 vs. i4 Memory Bandwidth

i2 vs. i4 Memory Latency
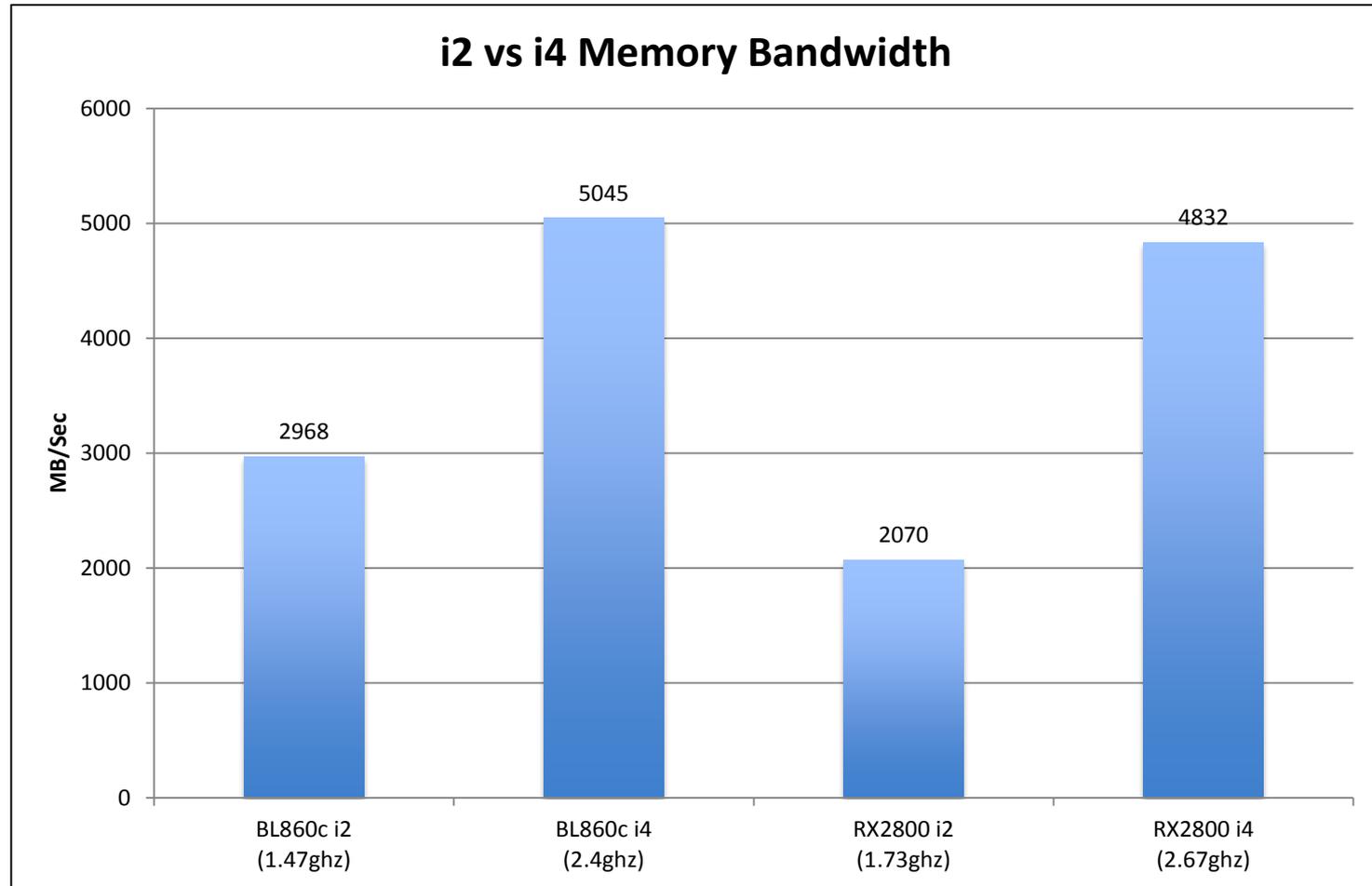
i2 vs i4 Memory Latency

i2 vs. i4 Floating Point Performance

i2 vs i4 Floating Point Performance

Relative Performance

Value
1,57
1,33
1,14
1,00

BL860c i2 (1.47ghz) — 1,00
BL860c i4 (2.4ghz) — 1,33
RX2800 i2 (1.73ghz) — 1,14
RX2800 i4 (2.67ghz) — 1,57
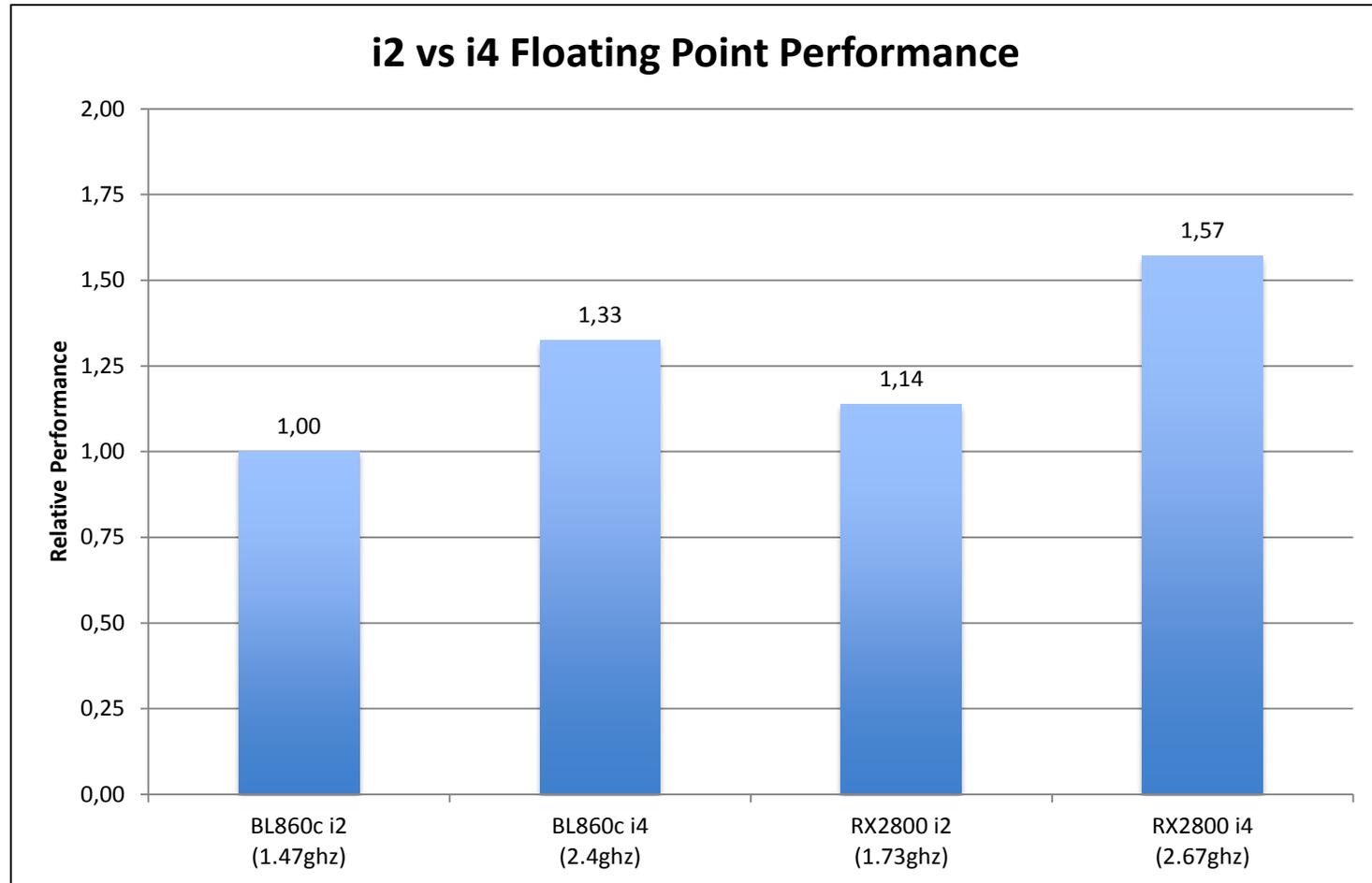
i2 vs. i4 Integer Performance
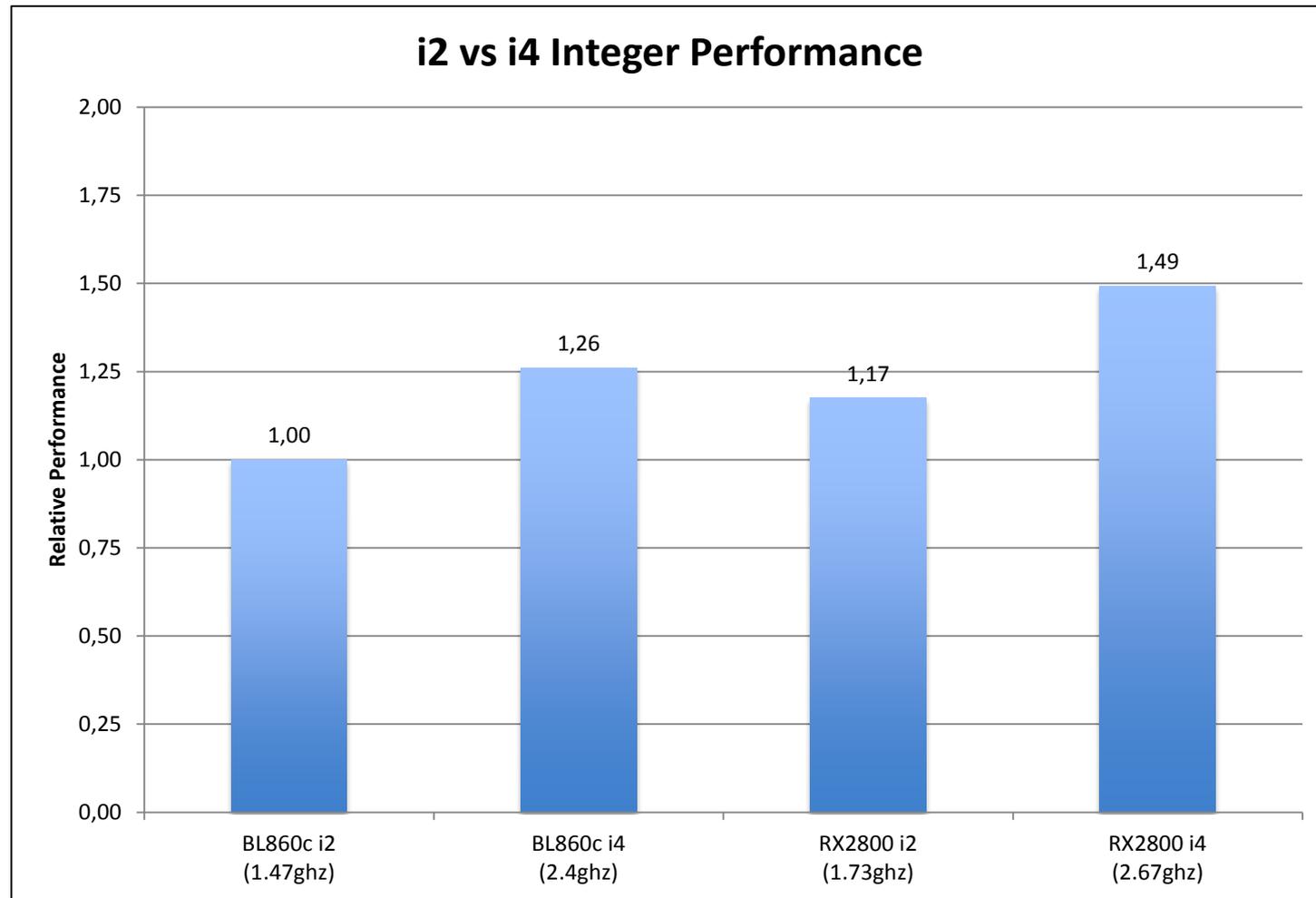
Foreword

VSI has licensed OpenVMS and associated layered products from HP. VSI will be developing new releases going forward. Given this, OpenVMS v8.4-1H1 is a VSI product and requires a VSI license, with program discounts - please see later slides, and VSI support services. HP has signed a reseller agreement with VSI so HP will resell VSI versions of OpenVMS and layered products along with support services.

The Right To New Version (RTNV) inherent in the HP support of HP versions of OpenVMS and layered products only applies to HP products, not VSI products. Support services of VSI products carry a Right To minor Version feature. Please see later slides for additional information.

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OpenVMS Operating Environments

- ## Base OE (BOE)
  - An internet ready, feature rich product set for the price sensitive customer

- ## High Availability OE (HAOE)
  - Has the highest cost, but delivers the ultimate customer experience in terms of multi-system availability and security

Base OE (BOE) Components

Q2 2015

➢V8.4-1H1 operating system
➢ANT
➢AXIS2
➢CDSA
➢CIFS
➢CSWS_JAVA
➢DCPS
➢DECnet Phase IV, & Decnet Phase V
➢DECdfs
➢DECram
➢DECwindows Motif
➢DCE (runtime)
➢Encryption
➢Kerberos
➢PERL
➢Secure Web Server
➢SSL
➢TCP/IP
➢UDDI
➢VSI Binary Checker
➢WBEM/CIM
➢WBEM providers
➢WSIT
➢XML C++

Q4 2015

➢CSWS_PERL
➢CSWS_PHP
➢Enterprise Directory (LDAP)
➢JAVA 1.8
➢I18N
➢Insight Management Agents
➢OpenVMS Management Station
➢Secure Web Browser
➢The Data Collector
➢XML Java

One DVD Media for all OEs

High Availability OE (HAOE) Components

Q2 2015

- V8.4-1H1 operating system
- ANT
- AXIS2
- CDSA
- CIFS
- CSWS_JAVA
- DCPS
- DECnet Phase IV, & Decnet Phase V
- DECdfs
- DECram
- DECwindows Motif
- DCE (runtime)
- Encryption
- Kerberos
- PERL
- Secure Web Server
- SSL
- TCP/IP
- UDDI
- VSI Binary Checker
- WBEM/CIM
- WBEM providers
- WSIT
- XML C++

- Availability Manager
- RMS Journaling
- Volume Shadowing
- OpenVMS Cluster Client
- OpenVMS Cluster Software

Q4 2015

- CSWS_PERL
- CSWS_PHP
- Enterprise Directory (LDAP)
- JAVA 1.8
- I18N
- Insight Management Agents
- OpenVMS Management Station
- Secure Web Browser
- The Data Collector
- XML Java
- RTR backend

NOTE: Items in BLUE are available as separately licensable products outside the OE package.

One DVD Media for all OEs

Separately Licensed Products

- Q: Do I need to buy an HAOE if I only need a Cluster and Volume Shadowing License?

  – A: No, products within the BOE and HAOE, listed in BLUE on the previous slide, may be purchased separately

- Example: A customer wants only a cluster license and volume shadowing license, so they purchase:

  – BOE and

  – VMScluster license and

  – Volume Shadowing license

- Note: BOE is the smallest set of OpenVMS functionality for sale; so functions within BOE are not separately available

OpenVMS Layered Products

Q2 2015

Layered Products DVD:

➤ ACMS dev, remote, runtime
➤ BASIC
➤ C
➤ C++
➤ COBOL
➤ DECforms dev, runtime
➤ DECset (CMS, DTM, MMS, SCA, LSE, PCA)
➤ DFO
➤ DFS
➤ Fortran
➤ GNV
➤ GNUpg
➤ MRU
➤ PASCAL
➤ STUNNEL

Q4 2015

Layered Products DVD Additions

➤ ABS Client
➤ ABS Server
➤ Datatrieve
➤ FMS Development
➤ FMS Runtime
➤ HSM
➤ RTR frontend
➤ SSM
➤ TDMS Development
➤ TDMS Runtime
➤ X.25

LPs on one DVD Media

C++ - Pending license from Intel
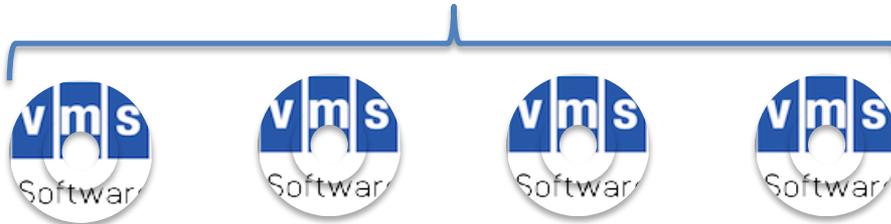
OE and Layered Products Media

- OE DVD Media
  - The OpenVMS Operating System
  - All layered products that make up the Base and High Availability OE Components
  - OE DVD updates ONLY when the OS revises (8.4-1H1, 8.4-1H2, 8.5)

- Layered Product Library Media
  - Library package of software layered products not included in the OE distributions
  - Includes on-line documentation

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OpenVMS Media Kits

Operating Environment Media Kit

Quarterly Update Kit

OpenVMS OE Media	**OpenVMS Doc Media**	**Layered Products Media**	**Freeware Media (Q4 2015)**		**OE Delta Disk**	**Layered Product Library**
- Base						
- High Availability						
Contents: Both OE bundles	Contents: OE bundle Docs	Contents: OpenVMS Layered Products	Contents: Products for All Three Architectures		Contents: Updated OE components	Contents: OpenVMS Layered Products
Media: DVD	Media: CD	Media: DVD	Media: CD		Media: DVD	Media: DVD
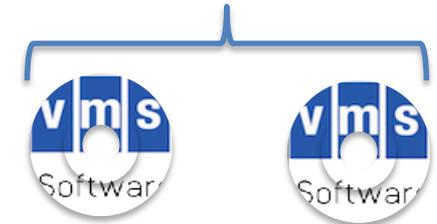
Complete OpenVMS Media Kit

Software Licensing

- **Per-Socket (PSL)**
  - Very **flexible** licensing design
  - Purchase software based on the **# of SOCKETS** in a partition or system

- **Benefits of PSL**
  - **More granular** – customer pays for exactly what they need
  - **More flexible** – licensing is not per box, but per-socket so customer can move assets as needed
  - **Accommodates partitioning** – allows use of different types of OEs in different hardware partitions and different Operating Systems
  - **Expandable** – customers can purchase processors and software to meet needs over time

License Trade-in Policy

- A single cross platform license trade-in policy is introduced for customers migrating to VSI OpenVMS on Integrity servers. Cross platform trade-ins include:

From	To
HP OpenVMS VAX	VSI OpenVMS on Integrity
HP OpenVMS Alpha	VSI OpenVMS on Integrity
HP OpenVMS Integrity	VSI OpenVMS on Integrity

If upgrading server to newer model: One (1) SOCKET on older server equals one (1) SOCKET on newer server when trading in a HP OpenVMS license for a VSI OpenVMS license

Trade-in Policy
(Continued)

- HP OpenVMS Licenses are traded in for new VSI OpenVMS licenses at 50% discount (prior HP support not required)
  - Commitment to buy VSI OpenVMS support* on new licenses for one (1) year minimum
- Trade-in applies to 'equivalent product' or operating environment licenses
- Parallel usage of licenses on both platforms is allowed during transition

*Support = VSI Service contract with License to Use (LTU) Right to minor Versions (RTmV)

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Trade-in Policy
(Continued)

- Example: If a customer licensed 1 SOCKET in an AlphaServer DS20E and upgraded to an Itanium BL870c i4 and licensed 4 sockets, they will get a 50% trade-in credit on 1 SOCKET and pay list price for the 3 additional licensed SOCKETS.

- Example: If a customer licensed 1 SOCKET in an Itanium rx2600 and upgraded to an Itanium rx2800i4 and licensed 1 SOCKET, they will get a 50% trade-in credit on 1 SOCKET.

If upgrading server to newer model: One (1) SOCKET on older server equals one (1) SOCKET on newer server when trading in a HP OpenVMS license for a VSI OpenVMS license

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Trade-in Policy
(Continued)

HP OpenVMS Alpha	VSI OpenVMS Operating Environment License
OpenVMS Base	Base Operating Environment (BOE)
OpenVMS SMP	
OpenVMS User	
Enterprise Integration Package	
DECram	
RMS Journaling	High Availability Operating Environment (HAOE)
Volume Shadowing	
VMSClusters	

All license trade-ins require Proof of License for license being traded-in

Example: Trade-in Base, 3 SMPs, Users and EIP from a four CPU server and receive credit for 4 BOE PSL licenses on the Target server
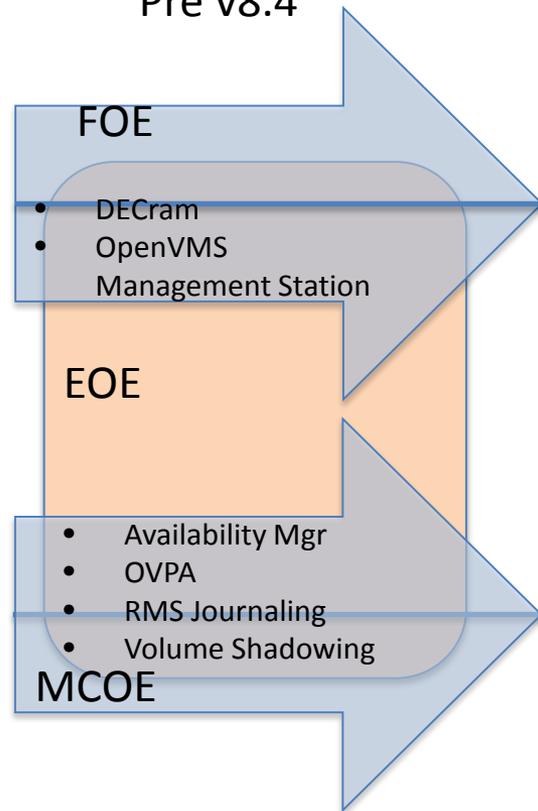
Example: Trade-in all of the above plus 2 of the 3 HAOE products and receive credit for 4 BOE PSL licenses

Example: Trade-in all of the above plus VMSClusters and receive credit for 4 HAOE PSL licenses
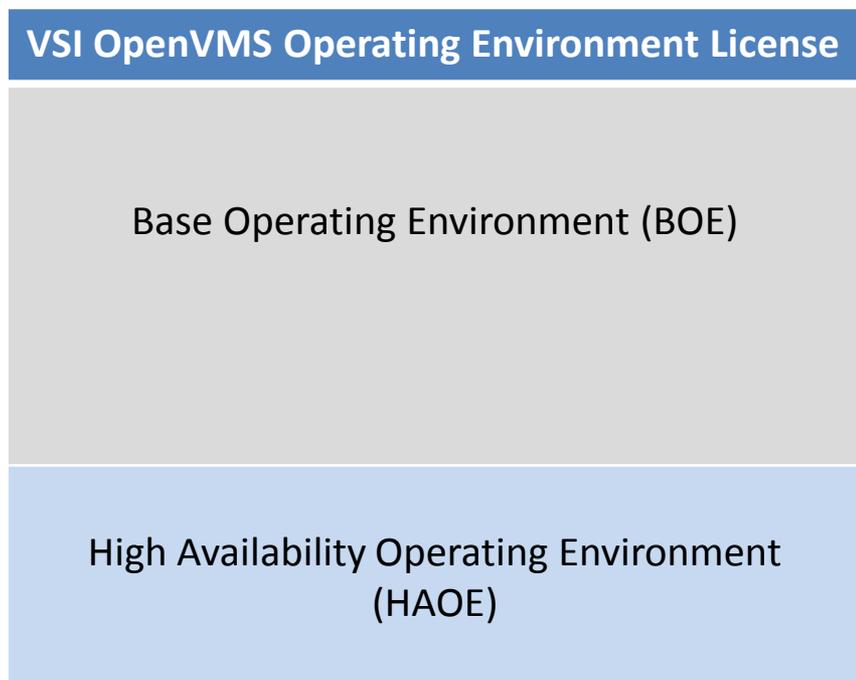
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Trade-in Policy
(Continued)

HP OpenVMS Integrity Pre v8.4

FOE

- DECram
- OpenVMS Management Station

EOE

- Availability Mgr
- OVPA
- RMS Journaling
- Volume Shadowing

MCOE

VSI OpenVMS Operating Environment License

VSI OpenVMS Operating Environment License
Base Operating Environment (BOE)
High Availability Operating Environment (HAOE)

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How is Trade-in Credit Applied

Example: Customer trades-in a single SOCKET OpenVMS Alpha operating system, Volume Shadowing and RMS Journaling licenses for the High Availability Operating Environment (HAOE) with a single SOCKET licensed on a 4 SOCKET server

Product Description	Product Number	License or credit Price
BOE for Integrity 4 socket	M1J87AC #848	$ 3,080.00
PSL Trade-in Credit for 4 SOCKET server	M1J87ACN #848	($ 1,540.00)
		Net $ 1,540.00

When a license is traded-in, the equivalent new license(s) is added to the order along with the applicable credit product number option

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Layered Product Equivalency Map

License for License Trade-in

HP OpenVMS VAX	HP OpenVMS Alpha	VSI OpenVMS Integrity
VAXCluster	VMSCluster	VSI VMSCluster
Fortran VV	Fortran VA	VSI Fortran
C VV	C VA	VSI C

All license trade-ins require Proof of License for license being traded-in

Example: Trade-in VAXCluster from OpenVMS VAX and receive 50% credit for VSI VMSCluster on VSI OpenVMS

Example: Trade-in Fortran from OpenVMS Alpha and receive 50% credit for VSI Fortran on VSI OpenVMS

Example: Trade-in C from OpenVMS Alpha and receive 50% credit for VSI C on VSI OpenVMS

Quote Policy

- If an HP part number exists for a product, then VSI will quote the HP part number so customers and partners see a consistent part number scheme

- HP will not sell all VSI products in all variants. VSI will quote VSI part numbers only when there is not an HP equivalent. HP will not sell the following:
  - VSI OpenVMS and layered products on non-i4 servers
  - VSI Open source services
  - VSI Professional services
  - VSI Campus wide Software License Grant (CSLG)

Pricing Policy

- ## Not to increase the price for OpenVMS or layered products over current HP pricing levels

  - VSI Pricing on i4 is equivalent to the HP price for equivalent software on I2 servers

  - VSI pricing on i2 is equivalent to i4 price

  - For previous (pre-i2) generations Itanium servers (1 and 2 core servers) a 15% discount is provided off of VSI OpenVMS and layered products i2/i4 list price (before trade-in credits, if any)

- ## VSI services do not have trade-in credits, full list price applies

Other Pricing Programs

- **VSI CSLG**
  - To be eligible for the CSLG program, Integrity systems using OpenVMS are required to have a valid Base Operating Environment (BOE) at the appropriate number of processors.
  - Annual renewal
  - RTmV included

- **VSI Education License Program (work in progress)**
  - Free license for classroom teaching
  - Annual renewal

- **VSI Hobbyist (work in progress)**
  - Free license for non commercial, non business use
  - Annual renewal

Consult program License Terms and Conditions when available

V8.4-1H1 Supported Platforms

Version 8.4-1H1 Initial Support
Rx2800 - i2, i4
BL860c - i2, i4
BL870c - i2, i4
BL890c - i2, i4

Under Investigation for Future Support
rx1600
rx2600, rx2620, rx2660
rx3600
rx4640
rx6600
Rx7620, rx7640
Rx8620, rx8640
Superdome SX1000/SX2000

Server Support Matrix

Server Name	Max Number of Sockets	VSI Support Date	HP Support Date
rx1600	2	July 2015	Check with HP
rx2600	2	July 2015	Check with HP
rx2620	2	July 2015	Check with HP
rx2660	2	July 2015	Check with HP
rx2800i2	2	June 2015	Check with HP
rx2800i4	2	June 2015	June 2015
rx3600	2	July 2015	Check with HP
rx6600	4	July 2015	Check with HP
rx7640	8	July 2015	Check with HP
rx8640	16	July 2015	Check with HP
BL860c i2	2	June 2015	Check with HP
BL870c i2	4	June 2015	Check with HP
BL890c i2	8	June 2015	Check with HP
BL860c i4	2	June 2015	June 2015
BL870c i4	4	June 2015	June 2015
BL890c i4	8	June 2015	June 2015

- VSI will support OpenVMS 8.4-1H1 on the servers listed in the chart.

- Please check with your HP sales representative for the official HP support policy.

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OpenVMS Rolling Roadmap

Q2 2015	Q4 2015	Q3 2016	Q3 2017

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
- Blades FlexFabric LAN support

Software
- Improved performance over i2
- Availability Manager – update to 64-bit desktop

Architecture: Itanium

HP Integrity system support
- V8.4-1H1 supported servers and more - such as rx2660, rx3600, rx6600, ….
- More network and storage devices
- Kittson-based systems (when available)

Software
- Improved performance, reliability
- New TCP/IP stack
- Support 64 cores (threads off)
- Enhanced GNV/CRTL for open source porting and development
- JAVA 1.8
- Updated Open Source Kits
  - Apache, gSOAP, Samba
  - SSL, Kerberos
  - and more

OpenVMS V9.0
Architecture: Common

New File System
- Eliminate 2TB volume size limit
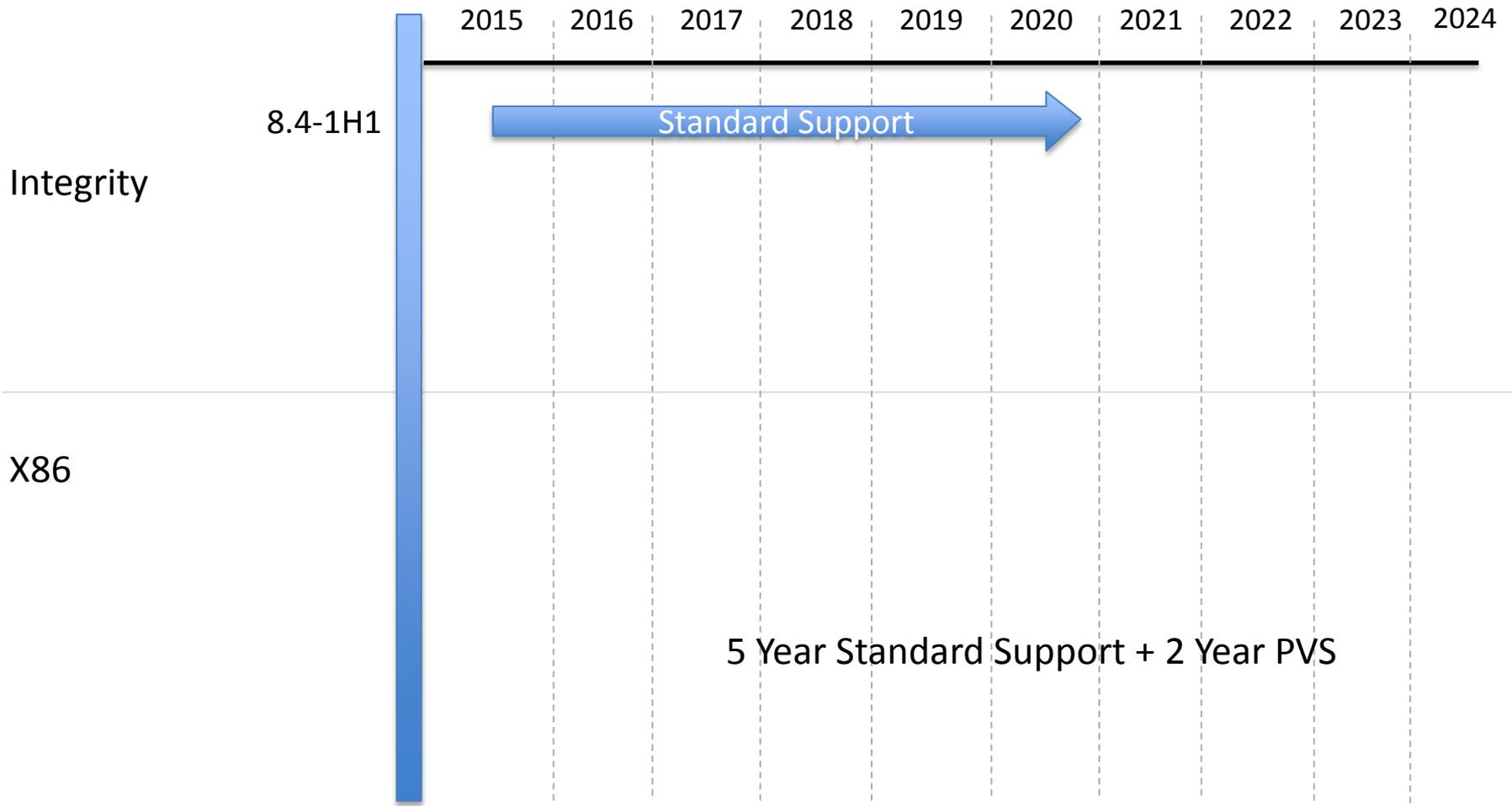- Improved performance

Architecture: Integrity
Additional servers & I/O, depending on feedback

Architecture: X86-64
- Selected HP servers
- OpenVMS as a VM guest
- Binary Translator
- Updated Language Standards
  - ➢ C
  - ➢ C++
  - ➢ FORTRAN

Two releases are planned between V8.4-1H1 and V9.0. The order in which work makes it into these releases will be determined by readiness, HW availability, and customer feedback.
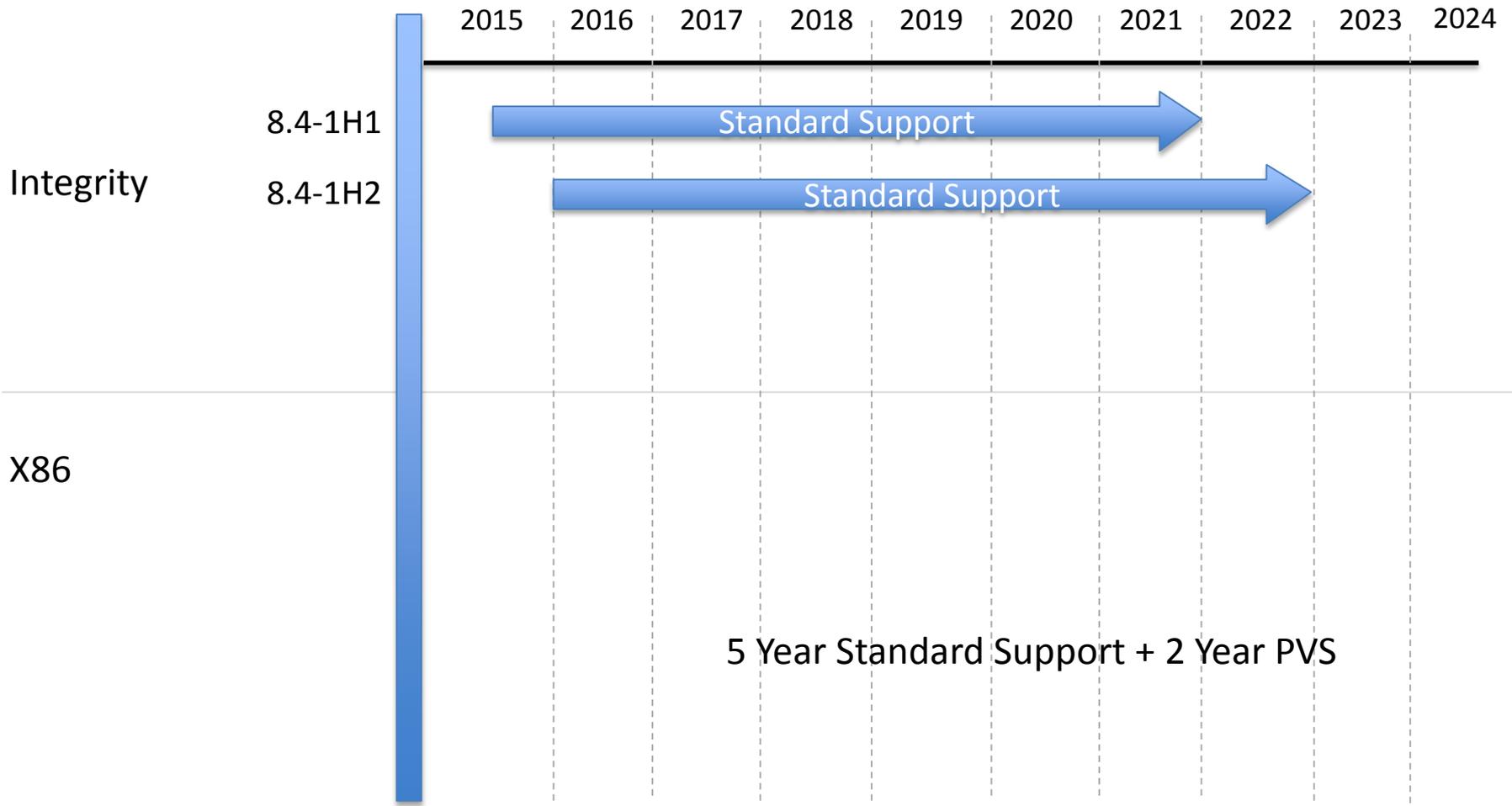
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VSI OpenVMS Service Roadmap

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

8.4-1H1

Standard Support →

Integrity

X86

5 Year Standard Support + 2 Year PVS
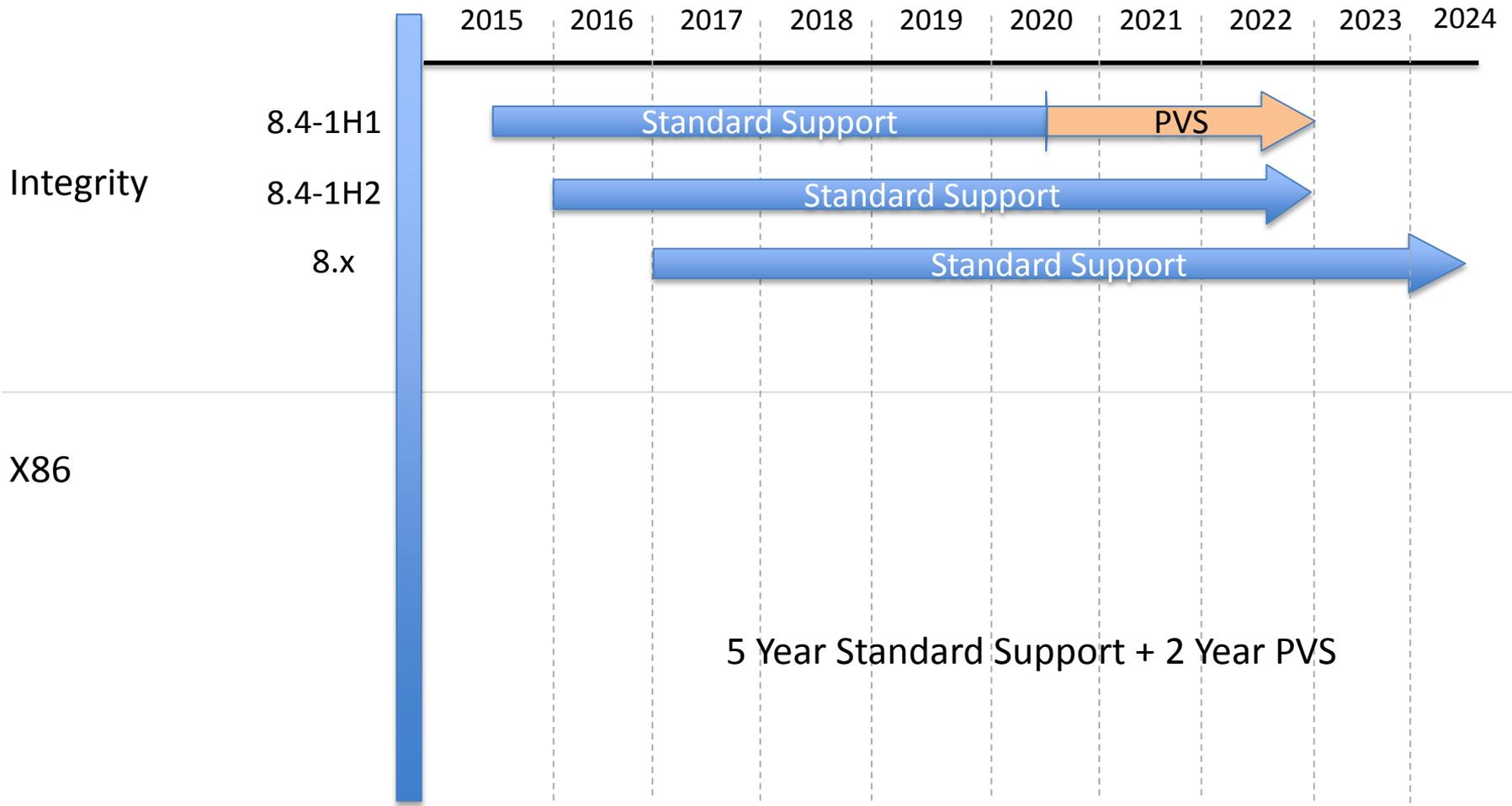
PVS – Prior Version Support without Sustaining Engineering
* 24 Month notice will be provided before support is ended

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VSI OpenVMS Service Roadmap

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

Integrity

8.4-1H1 → Standard Support

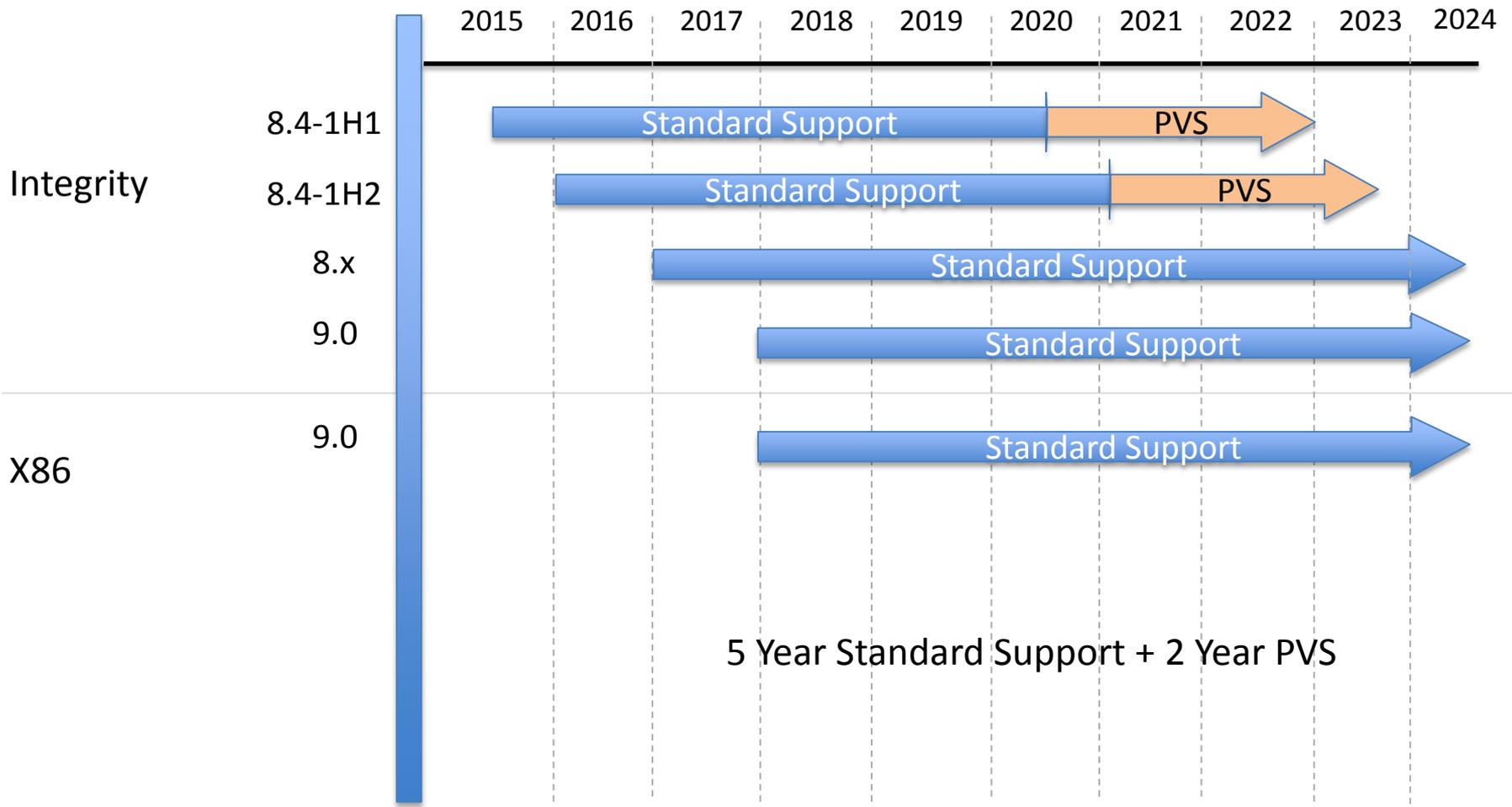8.4-1H2 → Standard Support

X86

5 Year Standard Support + 2 Year PVS

PVS – Prior Version Support without Sustaining Engineering
* 24 Month notice will be provided before support is ended

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VSI OpenVMS Service Roadmap

2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

Integrity

- 8.4-1H1 — Standard Support | PVS
- 8.4-1H2 — Standard Support
- 8.x — Standard Support

X86

5 Year Standard Support + 2 Year PVS

PVS – Prior Version Support without Sustaining Engineering
* 24 Month notice will be provided before support is ended

VSI OpenVMS Service Roadmap

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

Integrity

- 8.4-1H1: Standard Support → PVS
- 8.4-1H2: Standard Support → PVS
- 8.x: Standard Support
- 9.0: Standard Support

X86

- 9.0: Standard Support

5 Year Standard Support + 2 Year PVS

PVS – Prior Version Support without Sustaining Engineering
* 24 Month notice will be provided before support is ended

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VSI Services

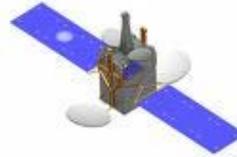| Support Services	Installation Services	Professional Services	Education Services
Critical Support	OpenVMS Installation Service	Custom Support	System Mana-gement Courses
Proactive 24*7 Support	Cluster Installation Service	Migration Service	Programming Courses
24*7 Support	Shadow Set Installation Service	Web Integration Service	User Courses
9*5 Support	Onsite Consultant Service	Onsite Support	General Courses
Standard Part Numbers Also Sold through HP	Standard Part Numbers	Customized Statement of Work	Standard Part Numbers

Support Service Note: A minor version is a dot (.) release of a VSI product e.g. V8.4-1H1 or V8.5 are all minor releases to the major version V8. Once OpenVMS V9.0 is released, a new licensing paradigm will be in place and licenses must be renewed at that time.

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Future Directions - Strategic Areas

- Security
- Processor Architectures
- Hardware Platforms
- Virtual Machine Hosts
- New File System
- Performance
- Up-to-Date Compilers
- Up-to-Date Open Source
- Porting Applications to/from VMS
- Networking
- System Management (installation/upgrade, licenses, applications)
- Investigations
  - Containers
  - Graphics
  - OpenStack
  - Big Data

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Questions?