OpenVMS Strategy
2A01
April, 2003
DECUS-München

Mark Gorham
Vice President
OpenVMS Systems
Hewlett-Packard Corporation

BCS Portfolio Simplification

	today	future
processor technology	PA-RISC Itanium® processor family Alpha MIPS®	Itanium® processor family
server platform	HP Servers HP NonStop Servers HP e3000 Servers HP AlphaServer Systems HP Blade Server	HP Servers HP NonStop Servers HP Blade Server
operating system	HP-UX HP Tru64 UNIX® HP MPE/ix Linux® HP NonStop Kernel HP OpenVMS	HP-UX (with Tru64 UNIX® features) Linux® HP NonStop Kernel HP OpenVMS Windows® /64

OpenVMS Core Strengths

OpenVMS

Mission Critical Leadership

- ✓ Availability
- ✓ Reliability
- ✓ Security
- ✓ Global Services
- ✓ Solutions

Finance

Government

Healthcare

Telecomm

Manufacturing

hp business market strategy

HP will leverage its portfolio of products, services and partners to redefine the value proposition of IT, with a focus on increasing business value and reducing costs by way of:

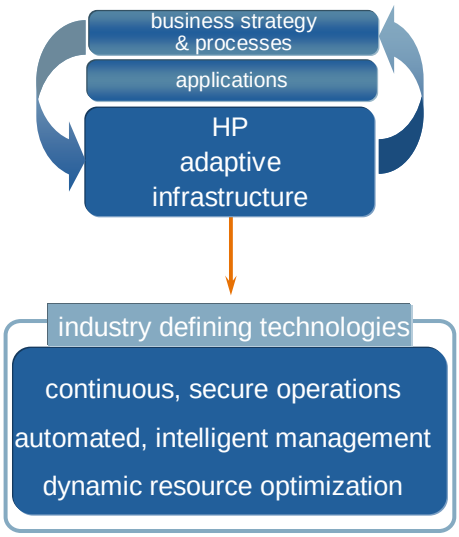
- Standards-based and modular systems that lower acquisition costs and increase flexibility
- Focused innovation to improve manageability and utilization
- Software and services that deliver reduced complexity and business agility

→ best return on information technology

("best RoIT")

HP adaptive infrastructure for business agility

- Industry defining technologies
- Unifying standards
- Collaborative industry partnerships
- Scalable to your unique environment
- Integrated with services and solutions

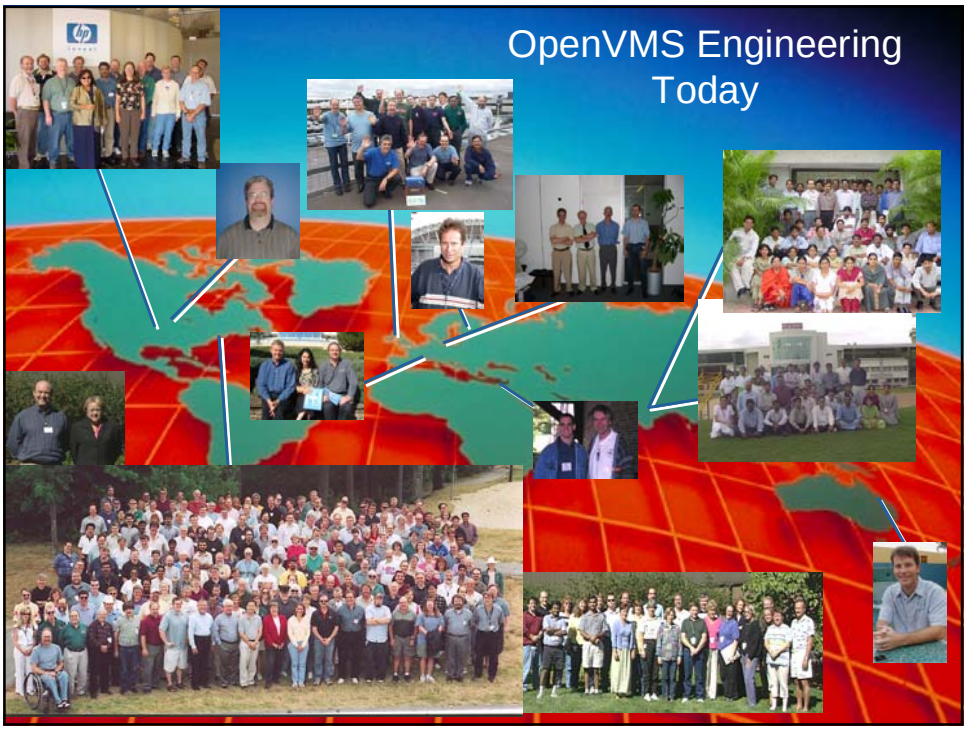


Adaptive Infrastructure delivers customer value

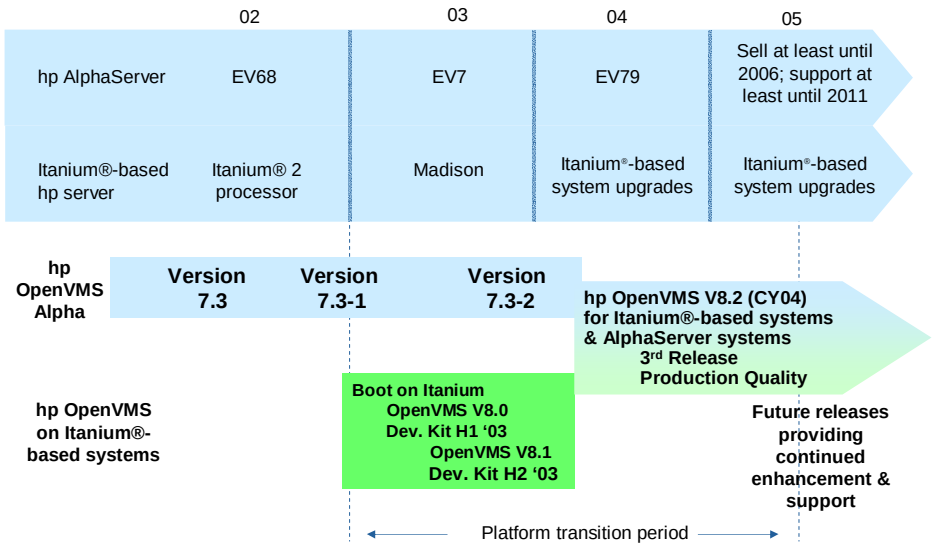
Demands on IT:	BCS areas of focus:
• More capacity with less money • Always available	• Continuous and secure operation
• Avoid over/under capacity • Robust and secure environment	• Dynamic resource optimization
• Fewer people managing more equipment • Flexibility	• Automated and intelligent management
• Deriving more value from assets • Integrating new technologies	• Foundation for the future

The adaptive infrastructure and our offering

Areas of focus:	VMS Solutions From HP And Our Partners:
Continuous & secure operations	• OpenVMS Clustering • Security Excellence • Mission Critical Quality • Superior Services • Solutions with Partners
Automated & intelligent management	• Clustering • Manageability
Dynamic resource optimization	• Mixed Architecture Clustering • Partitioning continuum • ENSA Extended
Foundation for the future	• Itanium architecture • J2EE and .NET infrastructure • Customer 1st program



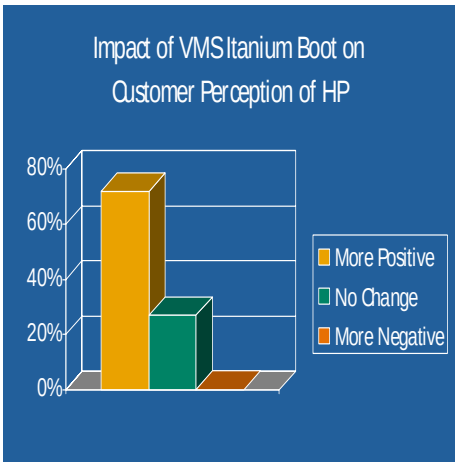
hp OpenVMS roadmap

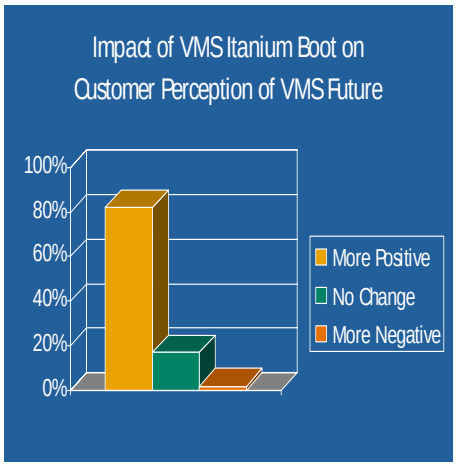


OpenVMS on Itanium at Cebit 2003

The first public showing of OpenVMS on Itanium occurred at Cebit 2003, Hannover, Germany on March 10th, 2003

Customer Reactions to VMS boot on Itanium





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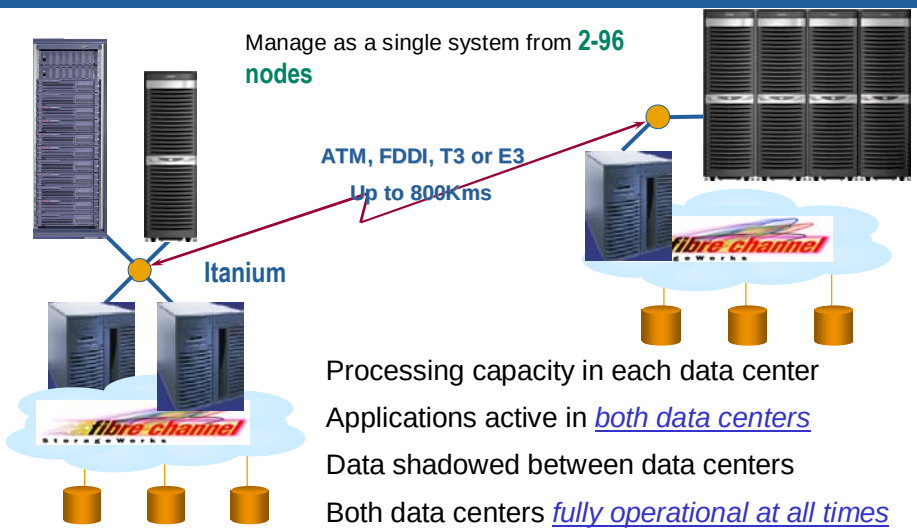
Current Cluster Comparisons

	VMS	AIX	Solaris
Cluster Style	Campus-Continental	Geographic	Campus
DT Focus	Excellent	Very good	Fair
Max Nodes	96	8	2
Intersite distance Limit	800 KM	None (IO Performance Trade off)	45 KM
Remote Serial Console Mgmt	Yes	No	No

Illuminata August 2002 UNIX Cluster paper

DISASTER TOLERANCE… multiple sites — long distances



Processing capacity in each data center

Applications active in *both data centers*

Data shadowed between data centers

Both data centers *fully operational at all times*

Minimal effect on performance

hp OpenVMS *"Security by design"*

From the Start

• Security built in to the O/S no add on security.

• First commercial "C2" O/S VAX/VMS V4 (1988)

•Certificate "C2" & "B1" in 1993.

•Security encompasses the entire cluster and certified! (1998 RAMP)

Now

• Supporting new Industry Standards
- •OpenSSL
- •Kerberos
- •CDSA

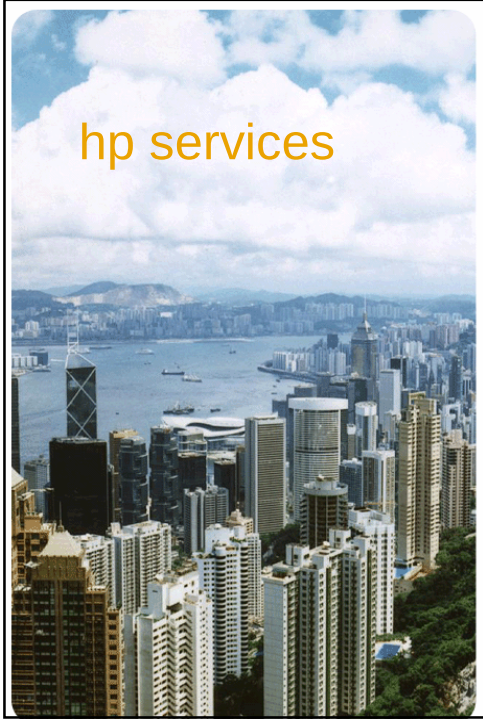
•Ready for new evaluations and standards
- •DII COE
- •ITSEC
- •HIPAA

Future

•Enterprise wide security external authentication for:
- •LDAP
- •Kerberos
- •User defined

•eBusiness security

DEFCON 9 Winner July 2001 Cool and Unhackable



Market leader in the following areas . . .

#1 mission-critical infrastructure services

#1 services for open IT environments

#1 enterprise-ready Microsoft integration and support services

#3 in IT services

The industry's largest channel partner network

- ✓ 105 Response and Operations Centers worldwide
- ✓ 80 customer education centers
- ✓ 15 SAP/HP Competency Centers
- ✓ 65,000 service professionals with unmatched technical expertise in 160 countries:
  - 18,000 UNIX-experienced engineers
  - 5,300 experienced OpenVMS engineers
  - 5,000 Microsoft ® certified engineers
  - 23,000 Microsoft-trained specialists
  - 1,100 certified Cisco engineers
  - 4,500 experienced Cisco engineers
  - 2,100 project management professionals

6/02

OpenVMS Vertical Solutions

Finance

- **Capital Markets:** Wall Street Systems, Inc., Rolfe and Nolan, OMR, Deutsche Börse, OM Technology, Sema Capital Markets, Computershare
- **Retail Banking:** Sanchez, Real Solutions, ABSL
- **Wholesale Banking:** Montran, GIFTS, Logica

Telecom

- **Billing:** TelesensKSCL
- **Billing, SMS:** Sema Group
- **SMS:** CMG
- **Cable and Satellite Television:** Convergys Solutions, Ltd

Healthcare

- **Clinical and management information systems:** Cerner
- **Billing, scheduling, clinical systems:** IDX
- **Clinical, financial and decision support:** Siemens Medical Systems (SMS)

Government

- **Aircraft analysis, including modeling and simulation**: Lockheed Martin
- **JointStars**: Northrop Grumman:
- **Military Training and Planning, Disaster planning**: BCD Modeling
- **Simulation Middleware:** MAK Technologies
- **Automated Lottery Systems**: ESSNET, GTECH, Scientific Games

Manufacturing

- **Semi-conductor MES:** Brooks-PRI Automation, Applied Materials
- **Pharmaceutical, Clinical Research Data Management:** Cincom Systems
- **Manufacturing Resource Planning:** CA
- **Utilities power brokering**: OM Technology

OpenVMS Databases

- ORACLE
  - Oracle 9iRAC
    - Preconfigured Systems
  - Oracle Rdb
  - Oracle 10i
  - HP Oracle Web Shelf
  - Cache
  - Ingres

OpenVMS and Oracle 9iRAC
Fraport

Selection Criteria

- **Availability**
  - Cluster
  - no SPOF
- **Performance**
  - single machine must be able to handle complete system load
  - transition time < 3 minutes
- **Scalability**
  - CPU, main memory and storage
- **Simple Migration Path**
  - if possible no changes to application code

Figures for year 2000
~ 50 million passengers
~ 460,000 aircraft movements
~ 1.6 million tons airfreight

Software Environment
- OpenVMS
- Oracle 9i RAC
- MQ-Series
- MetaObject
- Java RTE
- Visual Basic-, Java- and C-applications

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VMS Clusters lower TCO and raise operational efficiencies

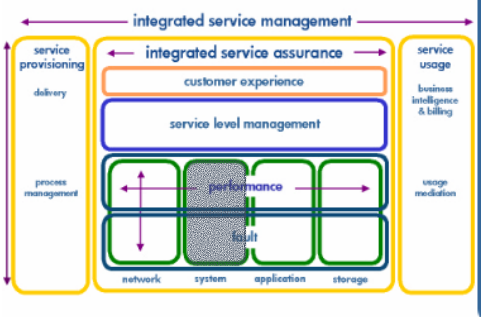
global services

- OpenVMS Clusters dramatically reduce:
  - Storage requirements
  - Staff requirements
  - Operational Resources
  - Operational Complexity

- 99.999% Uptime Guarantee
- Major improvements in Server management
  - While requiring no changes in current operational procedures and management

HP OpenView

Works | Right | Now



- Agent support for OpenVMS
- Partnerships with many ISVs for component solutions
  - CA
  - BMC
  - -- Synthesis
  - Heroix
  - PointSecure
  - Itheon
  - -- TDI
  - ISE
  - Fortel
  - Orsyp
  - Raxco
  - Legato
  - -- Many more …..

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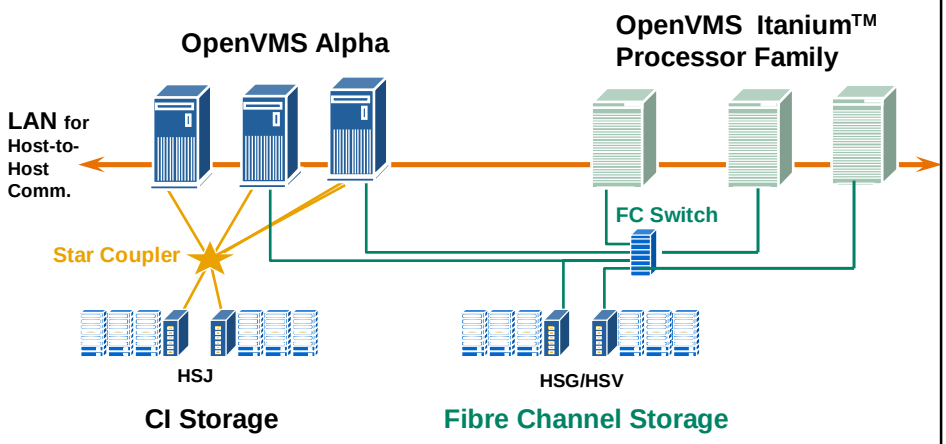
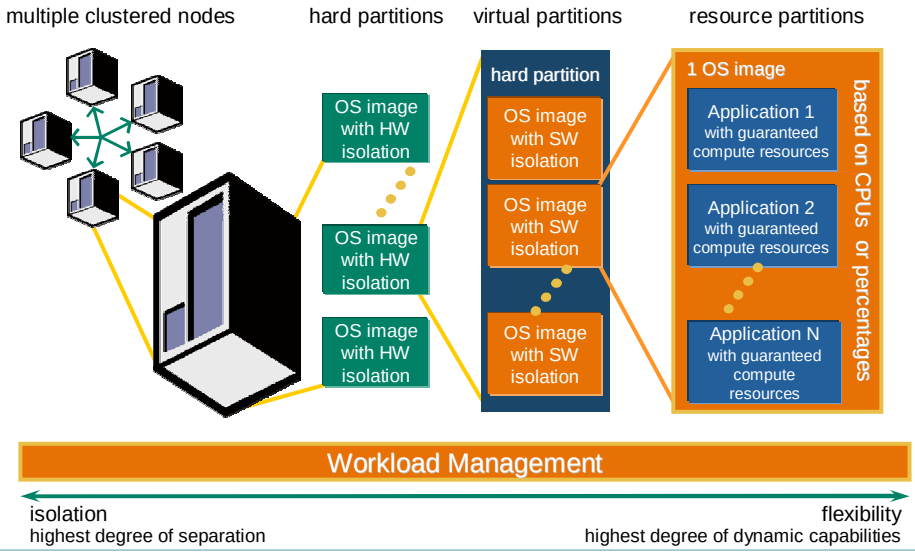
Mixed Architecture *OpenVMS* Clusters



HP partitioning continuum strategy



hp Storage Products

ENSA eXtended

software

- storage area management
  - device management
  - provisioning
- data management
  - data protection
  - data recovery
- availability management
  - data replication & migration
  - multi-pathing/ failover
- storage virtualization
  - heterogeneous storage services
  - enterprise scale

network storage

E700, VA7110, VA7410, MA/EMA, EVA, XP, B3000, MSA1000, NAS 8000

Storage on OpenVMS
Full Support of ENSA

New Enterprise Storage Management products for OpenVMS

- MSA1000 Q2 2003 – low cost fiber storage
- DRM support for EVA platforms H1 2003, 2004
- Investigating Virtualization (SV3000, VersaStor Adaptor)
- Legato Networker (Q4 2002)
- HP OpenView Data Protector Q3 2003
- EVM, SAM H2 2003

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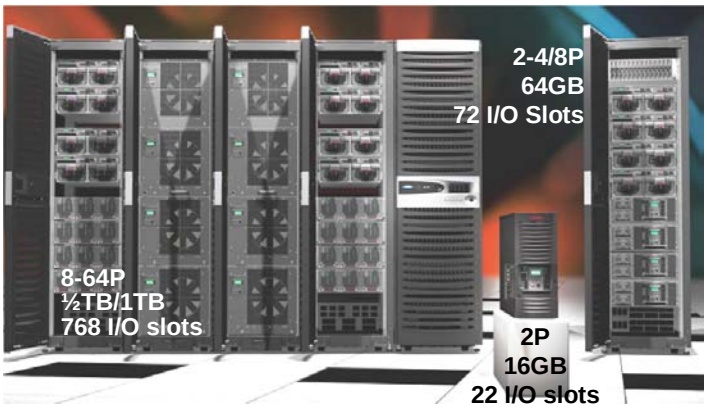
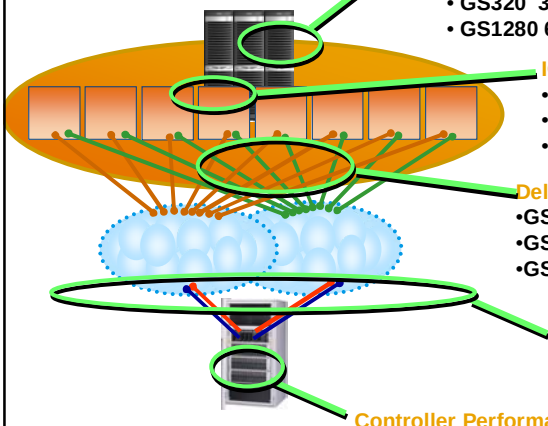
the new hp AlphaServer Series



family-wide capabilities

- partitioning
- clustering
- dynamic multi-path I/O
- integrated server management
- "on demand" capabilities
- OpenVMS, Tru64 UNIX®, and Linux support
- RAID memory
- limitless I/O
- AGP graphics
- enterprise RAS

AlphaServer Peak vs Delivered Performance



Memory Subsystem Performance
GS140 12p: 2.1 GB/sec -> 1.1 GB/sec (copy)
• GS320 32p: 51.2 GB/s -> 24.1 GB/sec
• GS1280 64p: 1.0 TB/s -> 320 GB/sec

IO Bandwidth Performance
• GS140 12: 786 MB/sec -> 512 MB/sec
• GS320 32: 25GB/sec -> 5.5 GB/sec
• GS1280 64: 205 GB/sec-> 56.8 GB/sec

Delivered IO/sec Performance (2KRandom)
•GS140 12p : -> 22K IO/sec
•GS320 32p: -> 285K IO/sec
•GS1280 64p: -> 2M IO/sec

HBA Performance per adaptor
• KGPSA: 200 MB/s (2 Gb)
• SA5304: 380 MB/s

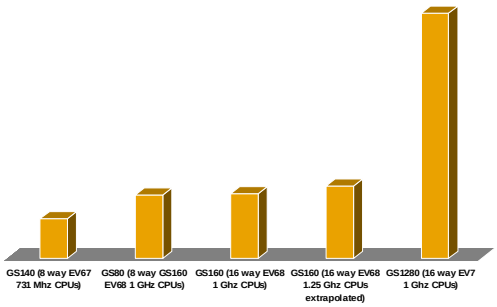
Controller Performance per unit
• HSG80: 80 MB/s (1 Gb)
• HSV: 540 MB/s (2 Gb)

GS1280 driving customer performance gains

- Running out of capacity on existing system.
- Solution based on Cerner Millenium software
- Replace 10 CPU GS140 with 8 CPU GS1280
- **Performance increase of up to 500%** over previous GS140

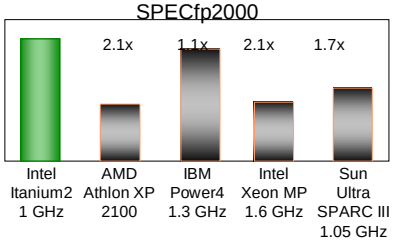
CERNER

Memorial Hermann

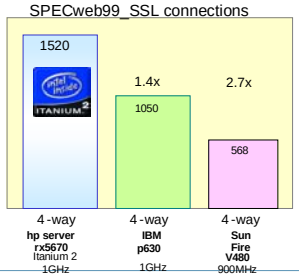


Intel® Itanium® 2 chip performance

floating point performance
SPECfp2000

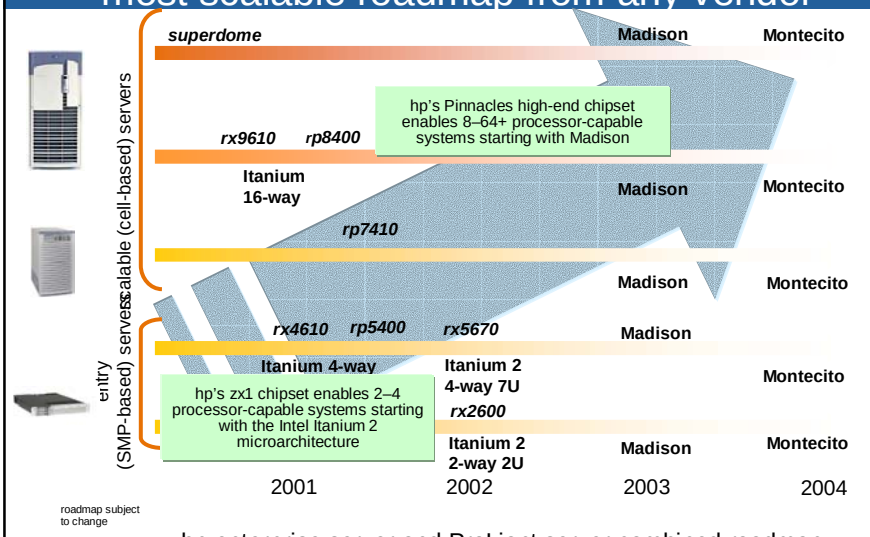


SPECweb99_SSL connections



- best 2-way OLTP performance
  - any architecture or database
- best 4-way OLTP performance
  - any architecture or database by at least 1.4X
- beats all IA-32 8-way servers in OLTP
  - by at least 10%
- world's fastest floating-point engine
  - SPECfp2000
- fastest SPECweb_SSL performance on Linux
  - best of any architecture

Itanium-based servers from hp: the most scalable roadmap from any vendor



hp enterprise server and ProLiant server combined roadmap

Web Integration Standards with OpenVMS

New Web Integrations Standards for OpenVMS

Shipping in 2003

- Secure Web Server V1.4, V2.0 (based on Apache 1.3.x, 2.0)
- XML V1.1
- SOAP Toolkit V1.1
- Secure Web Browser V1.2
- Java Software Development Kit (SDK) v 1.4.0, 1.4.1
- NetBeans 4.0
- COM V1.4
- Attunity Connect 4.0 “On Platform” Package
- Enterprise Directory V5.3
- BridgeWorks V2.2

Customer first program

- The world’s best customer continuity programs
  - free architectural workshops
  - white papers, solutions guides
  - web-based training, newsletters
  - symposia, developers’ conferences
  - porting tools, development kits
  - partner resources, loaner programs
- Evolve at your own pace
  - a choice of technology roadmaps
- Rich technology destinations
  - next-generation Itanium architecture
  - robust operating environments: HP-UX (with Tru64 functionality), OpenVMS, Linux, Windows

easiest, lowest cost path to the future

Training future OpenVMS resources

- CSLG: 120 educational institutions
- VMS Free License Program: 131 educational institutions
- OpenVMS Boot Camp
- HP ETS, HP OpenWorld, HP Interex
- OpenVMS Advanced Boot Camp
- Updated Courses
  - 2,479 Attended VMS Training Courses WW
- OpenVMS Certification Program
- New Digital Press Books
  - Apache, Internals, VMS for beginners, Clusters, Security, Disaster Tolerance, Oracle, OpenVMS and Linux Interoperability, System Management…
- OpenVMS Technical Journal returns!

•HP North American training partners
- •Bruden Corporation
- •Mind IQ
- •The Parsec Group
- •Institute for Software Advancement

•HP EMEA training partners
- •Global Knowledge (UK, Ireland, France, Netherlands,Italy)
- •Onsite Computer GmbH, GFN (Germany)
- •HOST Computer Services (UK, Ireland, EMEA)
- •Europe Train.& Ed Center (EMEA)
- •Cornerstone (Sweden)
- •CRONOS (Belgium)

VMS visibility improves

When it comes to interoperability, HP and BEA provide a complete heterogeneous J2EE platform for distributed applications and the integration of legacy and .NET environments. And we do it across multiple platforms and operating systems, including HP-UX, OpenVMS, NonStop Kernel, and Tru64 UNIX. We do it on Itanium 2-based systems, and we do it on Windows 2000, Windows NT and Linux. BEA's WebLogic Server is available on all of HP's key platforms and operating systems.

BEA eWorld 2003 — Carly Fiorina
Orlando, Florida — March 3, 2003

They (our customers) can have a platform that does more than just HP/UX. It also runs Windows, Linux and OpenVMS. This is my baby.…

Scott Stallard introducing the Itanium based HP Superdome at the Intel Developer Forum, San Jose, California – February 18, 2003

It is already well on its way to being ported to IA-64. We will continue to support it on IA-64. It is a very special class of operating system. We are not planning to do anything else other than to continue supporting this environment, as well as the 450,000 users around the world that are on this. So we are going to maintain it and make it run very well on Itanium. The same [is true] with the Non-Stop environment. It currently runs on the MIPS chip. It will be migrated to IA-64 as well.

Peter Blackmore responding to a VMS question from a Computerworld (US) reporter – March 26, 2003

Hewlett-Packard engineers on Friday got the OpenVMS operating system up and running on an Itanium-based computer, a crucial step to ensuring the venerable OS doesn't suffer the fate of many of its shorter-lived contemporaries.

Stephen Shankland
Staff Writer, CNET News.com
- February 3, 2003

OpenVMS Marketing – H1 2003

upgrade to next generation hp AlphaServer systems and enjoy:

- Top operating system choices: OpenVMS, HP Tru64 UNIX®, and Linux
- Higher availability and improved system utilization
- Improved performance (4 to 10 times better performance than earlier AlphaServer 8400 systems)
- Simplified management with lower support cost
- Increased flexibility and smaller footprint

"These new AlphaServer systems deliver what we require for the largest non-defense supercomputer we have here at PSC. Not only do they deliver more usable bandwidth than anything else, the modularity of the system architecture in conjunction with its manageability makes this an outstanding platform for this decade. We continue to be delighted by the decision we made to use AlphaServer technology."
Dr. Michael Levine, Scientific Director
Pittsburgh Supercomputing Center

Customer Success with Alpha EV7 Systems

"We are absolutely impressed by the performance that the new AlphaServer GS1280 with OpenVMS delivers for our (Wall Street Systems) banking application. Timely end of day roll up is a challenge for many financial operations. The GS1280 dramatically accelerates this process and cut the time required in half. That's important!"

Karin Spevak
Manager, IT
Financial Markets Information Service
WAVE Solutions Information Technology GmbH.,
a Bank Austria Creditanstalt company

"As a long-time customer, we are very excited about the new AlphaServer technology and the future we have with HP," said Gary Carter, director of ITS production for Dollar Rent-A-Car Systems, the industry leader in leisure rentals. "We put great demands on our AlphaServer systems. They handle some 10 to 20 million transactions or queries a day on our Oracle databases. The new AlphaServer systems will give us the increased performance and scalability needed to continue to grow our business and better serve our customers as we develop new applications and deliver new funcionality."

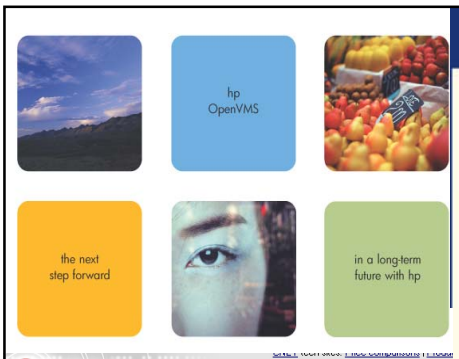
Gary Carter
Director of ITS production
Dollar Rent A Car Systems, Inc

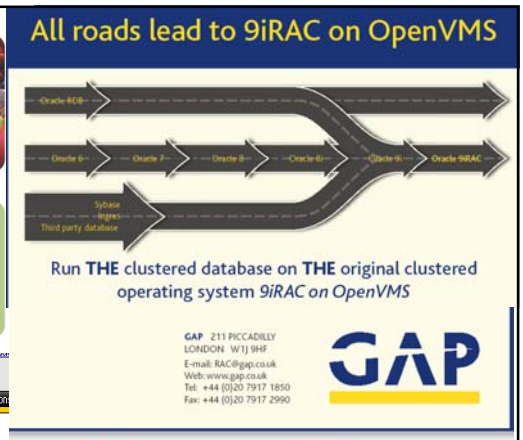
"We are very impressed with the new AlphaServer system because it provides a secure, resilient and powerful path forward that protects and builds on our application investments. The advances in redundancy, memory bandwidth and I/O capabilities delivered by the new distributed mesh architecture, will allow us to meet our growing user requirements by consolidating very large and powerful SMP configurations in an easy to manage, single system."

Gerd Koebschall
Head of Xetra/Eurex Operations
Deutsche Boerse Systems

"We are very impressed with the powerful new AlphaServer systems. The advances in redundancy, memory bandwidth, and I/O capabilities delivered by these new systems, will give our clients even faster access to the information they need to make better business decisions, while allowing us to reduce our cost and system complexity by consolidating our operations on a very powerful, easy to manage, configuration that is fully compatible with our existing applications investment."

Stacey Gelman
Chief Product Officer
Factiva a Reuters, Dow Jones Company





cnet NEWS.COM TECH NEWS FIRST

Front Page | Enterprise | E-Business | Communications

Itanium gives OpenVMS new lease on life

By Stephen Shankland
Staff Writer, CNET News.com
February 3, 2003, 1:34 PM PT

Hewlett-Packard engineers on Friday got the OpenVMS operating system up and running on an Itanium-based computer, a crucial step to ensuring the venerable O doesn't suffer the fate of many of its shorter-lived contemporaries.

Booting OpenVMS on an HP i2000 Itanium server is a momentous event for the operating system, which just passed its 25-year anniversary. HP is moving all its server lines to Inte Itanium chip, meaning that OpenVMS must make the switch or be left behind with HP's A processor, the last generation of which is planned for 2004.

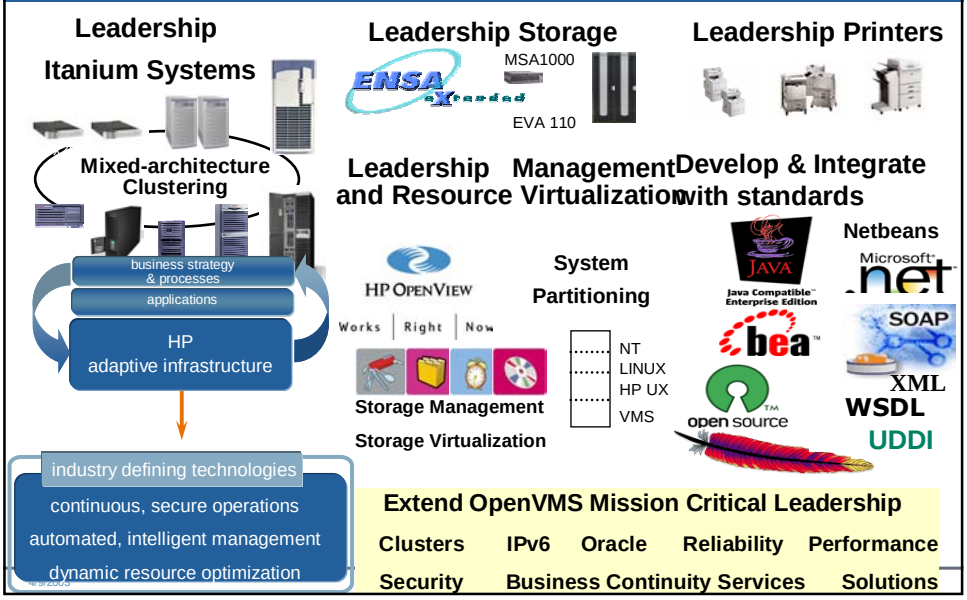
"We're celebrating here," said Mark Gorham, vice president of OpenVMS at HP, who said the success was the culmination of 19 months of work at the

Volume 10, Number 6 *Not authorized by, affiliated with, or endorsed by Hewlett Packard Company* February 5, 2003

Shannon *Knows* HPC

***H* P's OpenVMS: One OS, Now THREE Architectures with IPF Boot**

OpenVMS in the adaptive infrastructure



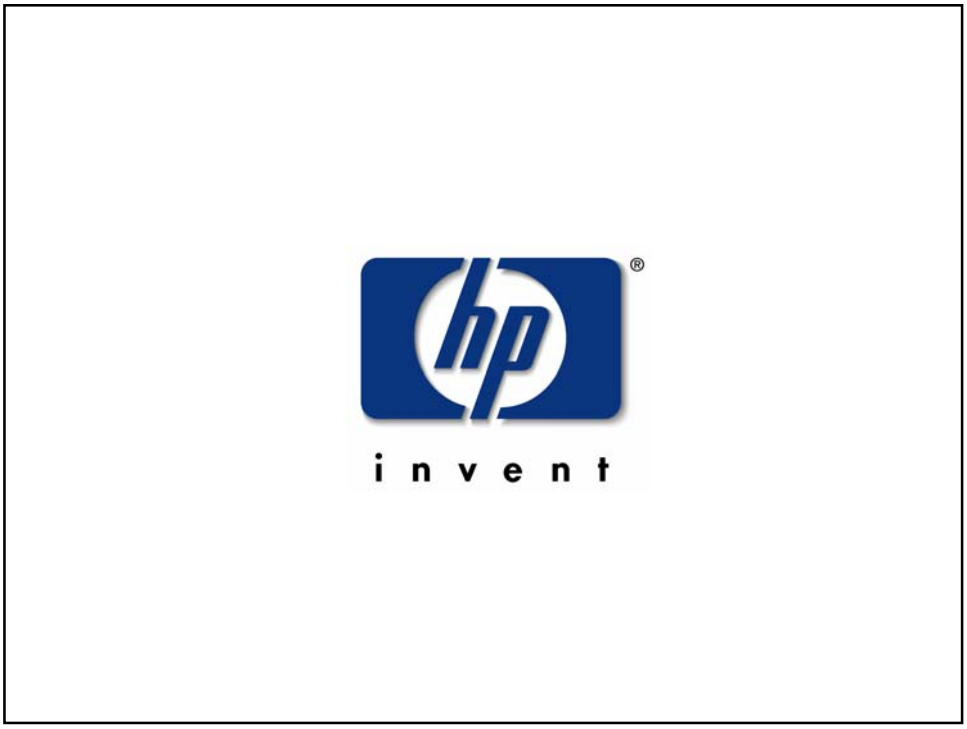
Focused on making you successful

- Immediate benefit by simply integrating new systems into existing environments
- Choose from a full range of customizable service offerings to satisfy even the most demanding needs
- Participate in unprecedented customer guarantee and trade-in programs

"HP clearly understands that it's the whole solution including system, applications and ultimately business results that matter to us. More than half a year prior to the product announcement, they were working closely with our software supplier (Wall Street Systems) to ensure our complete solution worked perfectly."

A partner who knows how to make your IT infrastructure work for you

A partner who delivers on its promises and commitments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