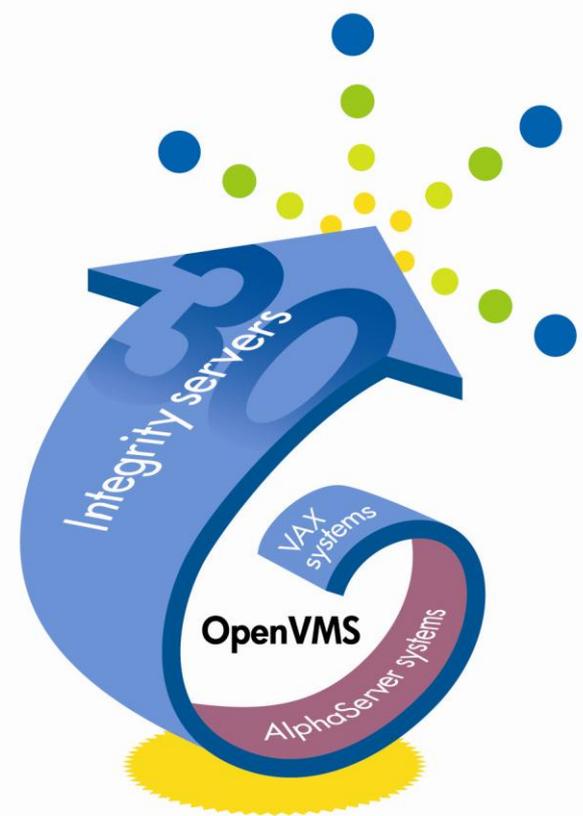
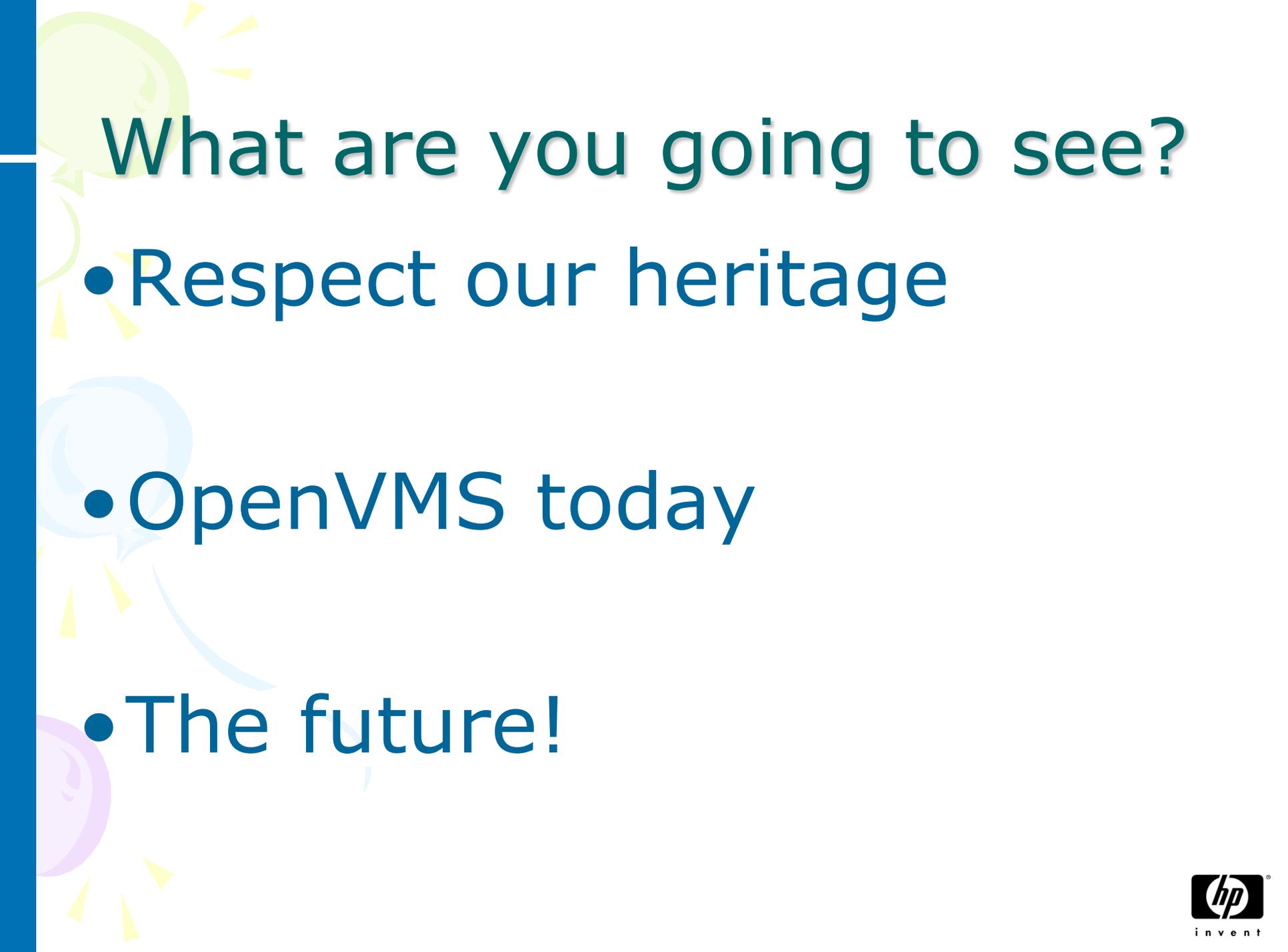


# OpenVMS @30 The Ride of a Lifetime



**30TH** ANNIVERSARY  
LOOKING TOWARD THE FUTURE

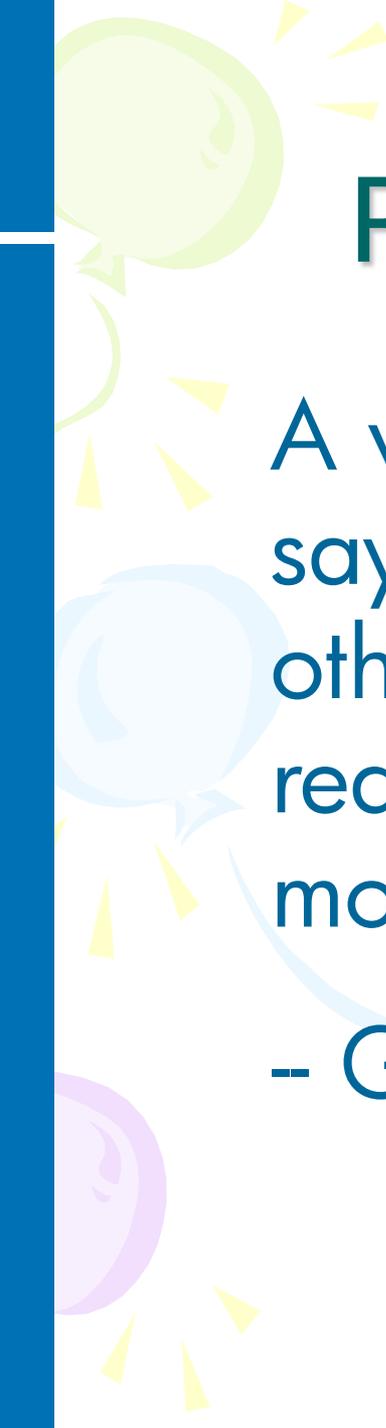


# What are you going to see?

- Respect our heritage

- OpenVMS today

- The future!



# Respect our heritage

A vision is not a vision unless it says yes to some ideas and no to others, inspires people and is a reason to get out of bed in the morning and come to work.

- Gifford Pinchot

It all began in a galaxy far far away



A

ES!

(actually in Maynard, Massachusetts)



# History of Major releases

2005

Announcing VMS V5.0 and *se party*

First production Integrity release

1996



64 bit addressing  
VLM.....

1993

C2 Security,  
DECnet/OSI.....

1992

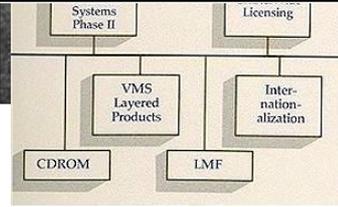
First Alpha release



1988

SMP, Mixed  
Interconnect clusters,  
Support for VAX  
6000..

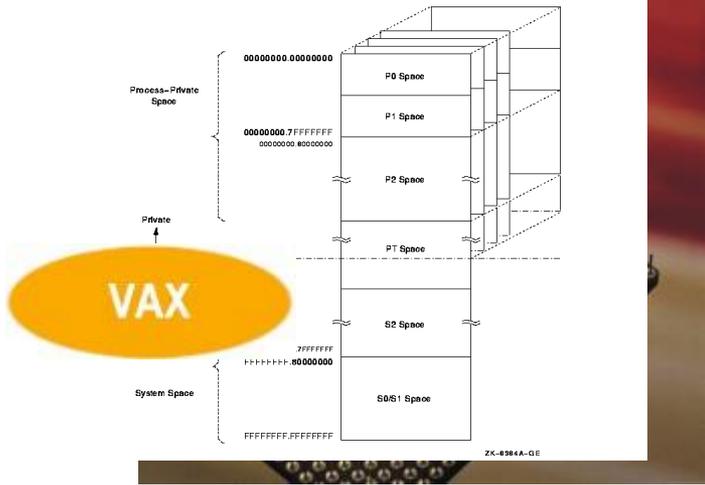
1984



Clusters, DAV, CFS,  
Shared system  
disk...

1982

Asymmetric  
multiprocessing,  
SCS, MSCP.....



1980

Multi-port Shared  
Memory, Support for  
VAX/750, new  
tools.....

1978

ODS-1 and ODS-2 file  
systems, DCL, Integrated  
DECnet.....

V1.0

V2.0

V3.0

V4.0

V5.0

V1.0

V6.0

V7.0

V8.2



# And now for some fun!



# Anecdotes

In 1986 DIGITAL created the first Internet firewall and establishes <http://gatekeeper.dec.com> as a major FTP site on the Internet

This web site which reports security vulnerabilities to date 19 have been recorded for for a softer 790 for the

The first VM sent in 197 Over 400 promotion network.

"So, you use OpenVMS to control the traffic of the half of city", I said.

"Oh, yes and many of the most important cities in the country", the customer answered.

The first VM and covered

"How many traffic lights do you control?"

"800 traffic lights in this city and 2000 vehicle detectors"

Sun Micro reps and s training so ... Window Structures

"And how many OpenVMS systems do you use?"

"Oh, just one!"

"Just one! What would happen if there is a problem with it?"

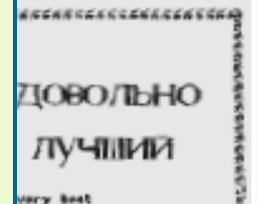
"Well, traffic lights have pre-programmed sequences just in case, but it is very rare we need them"

Jim Hibb group of smoked and since smokers went outside and that's now they ended up with the name.

"Ok, by the way, the other half of the city is controlled by another company. Do you know which platform they use?"

"They use OpenVMS too...!"

MS +1 officially erate 😊



Irish dark Brewery ody has ever erify 😊

# This one needs a slide all of its own

Since the late 1970s the Minor Planet Center, and Central Bureau for Astronomical Telegrams, which both operate at the Smithsonian Astrophysical Observatory in Cambridge MA, have been using OpenVMS.

The Minor Planet Center is the worldwide clearing house for astronomers who observe minor planets (asteroids) and comets, particularly those that can come close to, or possibly hit, the earth! The Central Bureau is the worldwide clearing house for reports of transient celestial phenomena (.e.g. novae, supernovae, high-energy bursters) . As such, we run a 24x365 operation and downtime could have dire consequences for the planet.

This need for near-continual availability of internal and on-line services had required us to run an OS that is rock solid, well documented (both in printed form and at the command line), well designed (e.g., consistent use of command qualifier names), easy to learn yet powerful, resistant to viruses, with excellent Fortran compilers and built-in-from-the-ground-up security. We could not shutdown operations in order to install patches to fix gaping security holes every few days or weeks, like users of other OSes around here have to do. Taking all this into consideration, this has meant OpenVMS is the only option for us.

We started with an early V4 version on a pair of MicroVAX: we currently run V8.2 on a dozen Alpha-powered workstations and servers.



# Top Ten reasons to Run OpenVMS

1. SCO can't sue you
2. You want to run the only OS Kevin Mitnick admits he couldn't get into without being given the password
3. 9 out of 10 hackers prefer another OS
4. You want a system that won't trash the disk structure if you get a power failure
5. Your preferred unit of measurement for system uptime is years, not hours
6. You can count to more than five. Five nines that is (99.999% availability)
7. You know that "Reboot and if that doesn't work, Reinstall" is NOT the answer to every problem
8. You don't want to be a member of the Virus-of-the-Week Club
9. To you, "downtime" is a four-letter word
10. You want to run more than one thing on a system at a time

With thanks to Keith Parris



# The Purple bag competition



# OpenVMS today

The greatest test of any product is how and where it is used, in OpenVMS's case you will find it in many of the world's mission critical environments.

We've created our own map of the world with an example from each country showing how our technology to sustain one of that country's key environments.

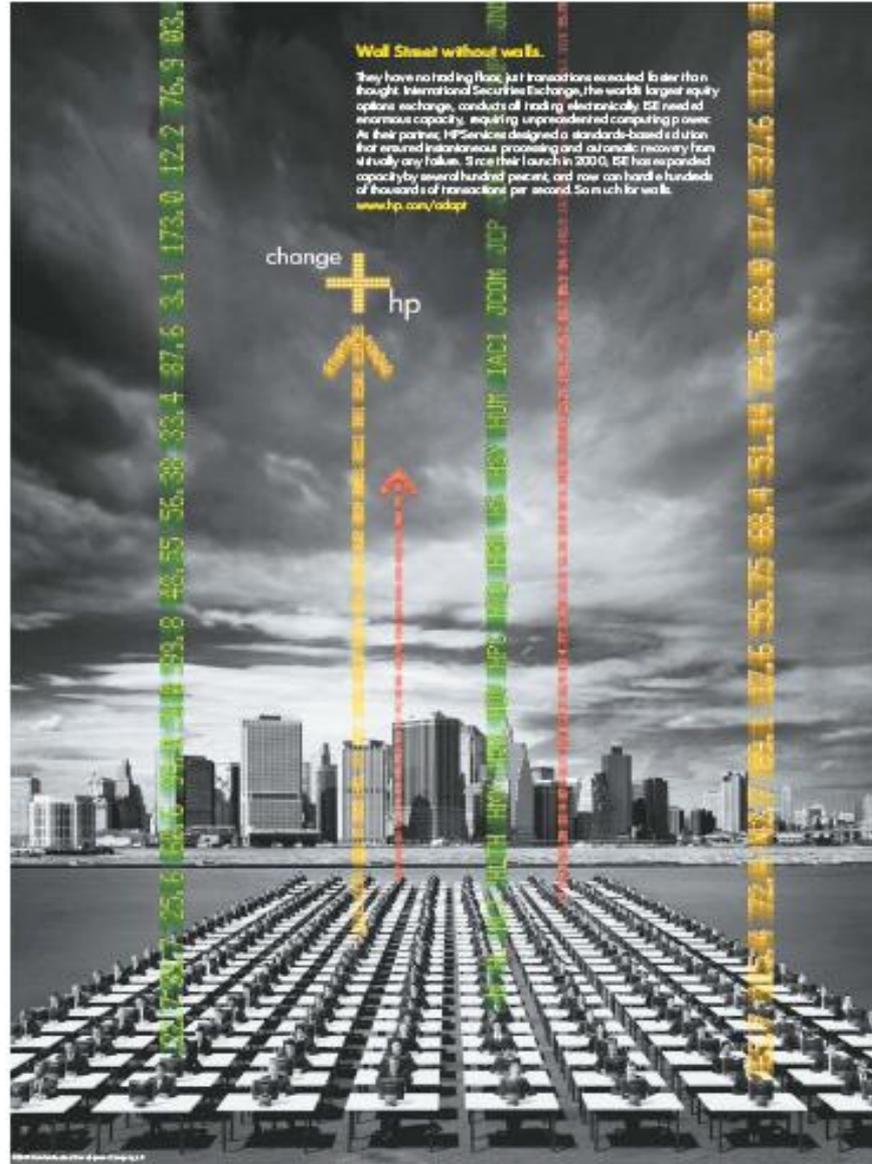
Pick a country, find out how OpenVMS is powering the world's major companies and organizations.



# THE WALL STREET JOURNAL

## Wall Street Journal

19<sup>th</sup> Sep 2007



Solutions for the adaptive enterprise.



# The VISTA Control Systems website, 20<sup>th</sup> September 2007



## Products

- [Vsystem®](#)
- [Open Interfaces](#)
- [Scanners](#)
- [Integrated Video](#)
- [Security Applications](#)
- [Simulation, Training and Complex Control](#)
- [VTRIP](#)
- [VLS License Utility](#)
- [Hytec Electronics](#)
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## Press Release

### Mission-Critical SCADA on OpenVMS Success of first customer application on HP Itanium server

**Los Alamos, February 15th, 2007** After implementing mission-critical systems on Windows-based computers for many years, a customer experienced a virus in one of these systems that shut down production for two days while the infected systems were diagnosed, restored and tested. The impact was that plant production was severely impacted at no small cost. Despite internal opposition because of the established standard, Vsystem on HP Itanium servers running OpenVMS was chosen for the next system to be replaced.

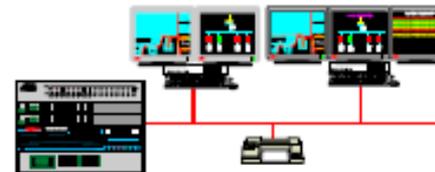
Very recently, this system was commissioned with no errors found and with excellent performance - one of the smoothest installations known. The heightened scrutiny of this project has made this significant success especially visible.

Customers have also proved that the better a production system is instrumented, the better the plant can be operated, increasing productivity and quality. In addition, problems can be successfully diagnosed and corrected when the historian holds an excellent data record of the period leading up to and through the problem. This invariably requires that the operating system have excellent determinism to capture fast data. OpenVMS on Itanium has been proven to meet this requirement.

## QEI Provides Active/Active SCADA with OpenVMS

September 2007

For almost 50 years, QEI of Springfield, New Jersey, ([www.qei.com](http://www.qei.com)) has been supplying highly available SCADA systems to the electric, transit, gas, water, and other utilities. A SCADA (Supervisory Control and Data Acquisition) system provides controllers with the facilities required to monitor and control the field devices upon which these utilities depend. It automatically generates alarms should conditions in the field demand immediate controller attention and provides a raft of historical data for trend analysis, root cause analysis, and many other functions important to the utilities.



QEI's current SCADA system, TDMS-PLUS (Total Distribution Management System), focuses on the monitoring and control of electrical power substations used for the distribution of power to electric utility customers and transit systems. Built on the highly reliable and secure HP OpenVMS platform, TDMS-PLUS provides extreme availabilities through the use of dual, triple, or quadruple active/active redundancy in disaster-tolerant configurations.

We first describe the TDMS application and its hardware and software architecture. We then focus on its high-availability features.

### The Electrical Distribution Network

The household and building electrical power upon which we all depend comes to us through three major infrastructures – generation, transmission, and distribution:

- Electricity is generated by large electrical generators which are themselves powered by coal, oil, gas, water, or other sources.
- This electricity is carried over long distance transmission lines to local points of distribution. Since power loss over the transmission network is a function of the current flowing through the lines, transmission networks distribute electricity at very high voltages and low currents (power is voltage times current). Typical transmission voltages are 230 to 500 kilovolts.

# The Availability Digest, September 2007

# OpenVMS Pearls

**August 2007** Based on input from customers and changing market conditions, SAS is making adjustments to its product roadmap. SAS plans to deliver SAS 9.2 Foundation products on OpenVMS 8.3 for HP Integrity Server with Intel® Itanium® 2 CPUs.

<http://support.sas.com/techsup/pcn/92support.html#alpha>

## **New OpenVMS on Blades white paper**

HP OpenVMS on HP Integrity server blades for HP BladeSystem c-Class

30 years' experience meets the next-generation datacenter

<http://h71028.www7.hp.com/ERC/downloads/4AA1-4753ENW.pdf>

## **BRUDEN-OSSG and PDV-SYSTEM Nord**

**GmbH** teamed up recently to install and configured Oracle 10gR2 RAC on a 2-node OpenVMS Integrity Server cluster for a large financial institution in EMEA. The hardware configuration for this proof-of-concept was provided by PDV-SYSTEME

<http://www.brudenossg.com/index.php?c=47&a=35&w=2&=Y>

## **Hudson Printing migrates Synergy apps to OpenVMS on Integrity**

Hudson Printing, founded over 100 years ago in Salt Lake City, UT, is a commercial Web-press operation which prints many short to medium run publications and recently completed the migration of some of their Synergy/DE-based applications from HP OpenVMS Alpha to HP OpenVMS on the Integrity server.

Migration of the other applications will soon follow.  
<http://www.synergex.com/media/article.aspx?id=2828>

## **Virtualization and HP OpenVMS**

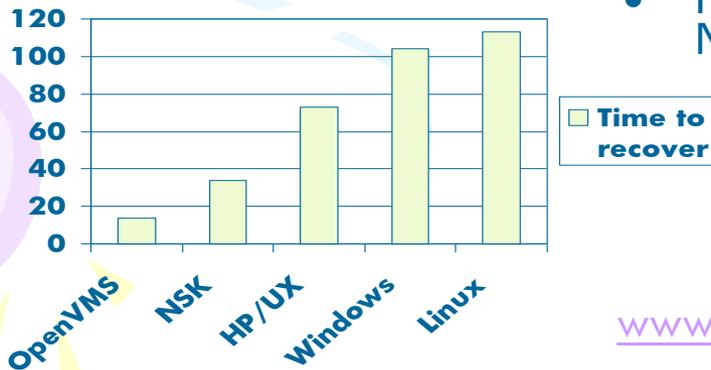
HP is leading the delivery of computing resources as services, based on a flexible, virtualised infrastructure. This white paper outlines how HP OpenVMS is embracing virtualisation technologies so that customers can begin to plan integration of their current and future OpenVMS environments into the Adaptive Enterprise and Virtual Server Environment (VSE).

<http://www.cio.co.uk/whitepapers/index.cfm?whitepaperid=2722>

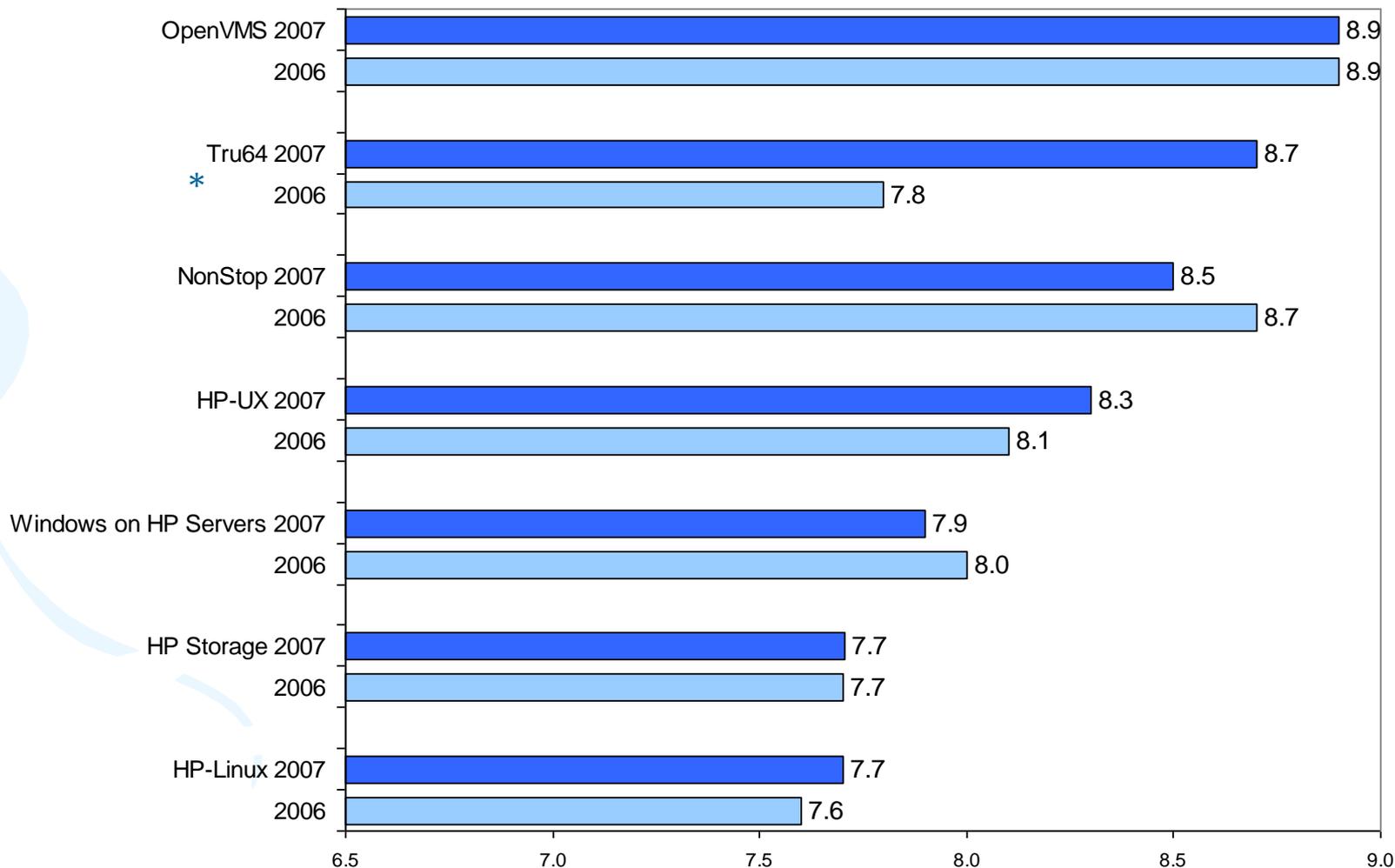
# Disaster Proof Project

## Disaster Tolerant Solutions That Work!

- HP-UX
  - Integrity rx4640 server with ServiceGuard Extensions for RAC failing over to Integrity Superdome
- HP OpenVMS
  - AlphaServer ES40 with OpenVMS clusters failing over to Integrity Superdome
- HP NonStop
  - NonStop S88000 with RDF/ZLT failing over to Integrity NonStop NS16000
- Red Hat Enterprise Linux
  - ProLiant ML350 with HP Serviceguard for Linux failing over to ProLiant DL380
- Microsoft® Windows® Server 2003
  - Integrity rx4640 with Cluster Extension/XP and CA Synchronous Replication failing over to Integrity Superdome
- HP StorageWorks
  - XP Continuous Access
  - XP Cluster Extension
  - HP StorageWorks 4/256 SAN Director
- HP Software
  - HP Storage Essentials
- HP ProCurve Networking
  - Switches
  - Gigabit Ethernet



# Overall Satisfaction - All Products



# The Future!

“My interest is in the future because I am going to spend the rest of my life there”

- Charles F Kettering

# The server families

Then in 1992

And now we have  
Integrity servers



# HP Integrity systems:

## *The success story that keeps getting better*

### Continued growth

- Overall strong all round Integrity revenue growth (60% YoY in Q2)
- OpenVMS growth trend is 150% YoY

### More applications

- 1469 applications and services from over 661 partners are committed to be ported
- 1178 are available today\*

### Long-term commitment

- Intel and HP's continued commitment to the Itanium roadmap and Integrity servers
- OpenVMS turns "30" with no signs of slowing down



\* As of September, 2007

# The OpenVMS application ecosystem

All major development languages

Fortran C  
C++ Cobol JAVA

Web and Application Servers

jboss.org bea

Full blown IDE

NetBeans  
hp invent DECset

Web Services support

gSOAP WSIT



Legacy application integration

hp invent  
WSIT TPware.NET

Relational & Codasyl databases

MySQL  
InterSystems CACHE  
ORACLE

Screen Integration technologies

ERICOM ACCESS DONE RIGHT  
attachmate  
SEAGULL SOFTWARE

Transaction Processing Monitors

hp invent bea

Message Orientated middleware

TIBCO The Power of Now  
bea  
hp invent WebSphere

Data Integration & Extraction technologies

ADO.NET  
ODBC  
ATTUNITY JDBC  
CONNEX Solutions

# The OpenVMS Value Proposition

- Significant technology innovation
  - Integrity Servers – Industry standard, multi OS, Blades
  - Availability – Disaster Tolerant
  - Clustering – Scalable to 96 nodes up to 800 kms **or more** apart, multi-architecture
  - Security – System and Cluster
  - Integration – Premier technologies
- TCO
  - Best in class
- Customers
  - Some of the largest and most successful organizations in the world
- Commitment
  - Intel and HP's continued commitment to the Itanium roadmap and Integrity servers
  - HP's commitment to the OpenVMS roadmap

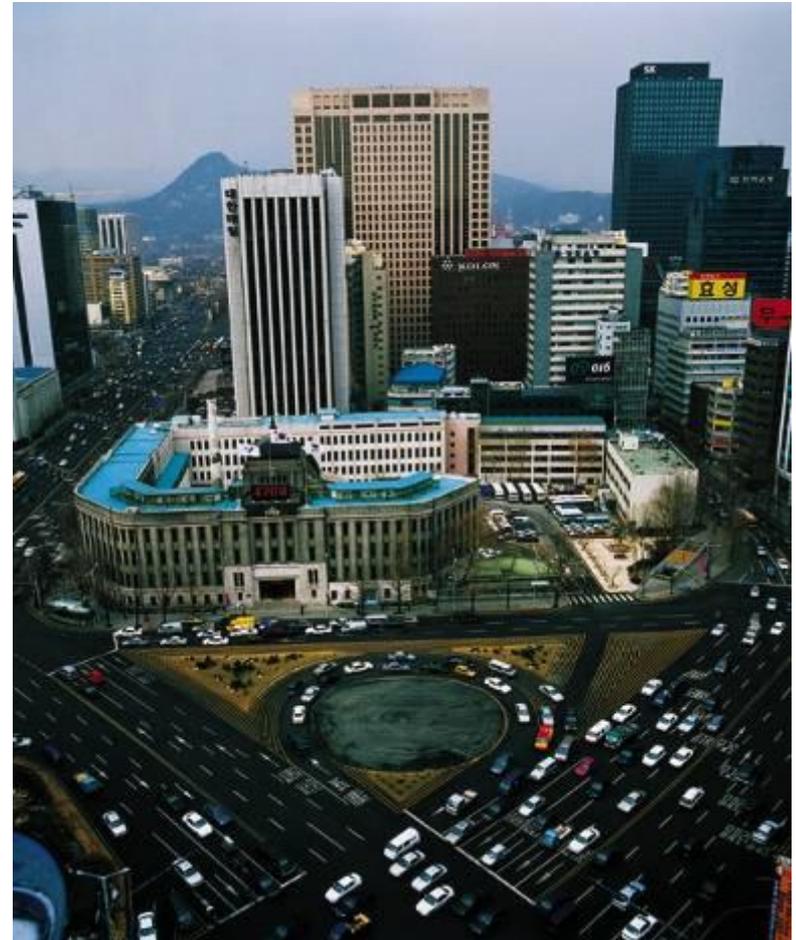
# HP OpenVMS

## mission critical & secure computing

Hundreds of thousands systems installed with millions of users

OpenVMS provides the core IT infrastructure for:

- 1000's of major hospitals
- The world's largest CPU chip manufacturing
- Mobile phone billing systems scaling to millions of users
- Major futures and derivative exchanges worldwide
- Dominant in automated lottery systems
- Many of the world's most demanding Government environments requiring security and availability



OpenVMS, the  of



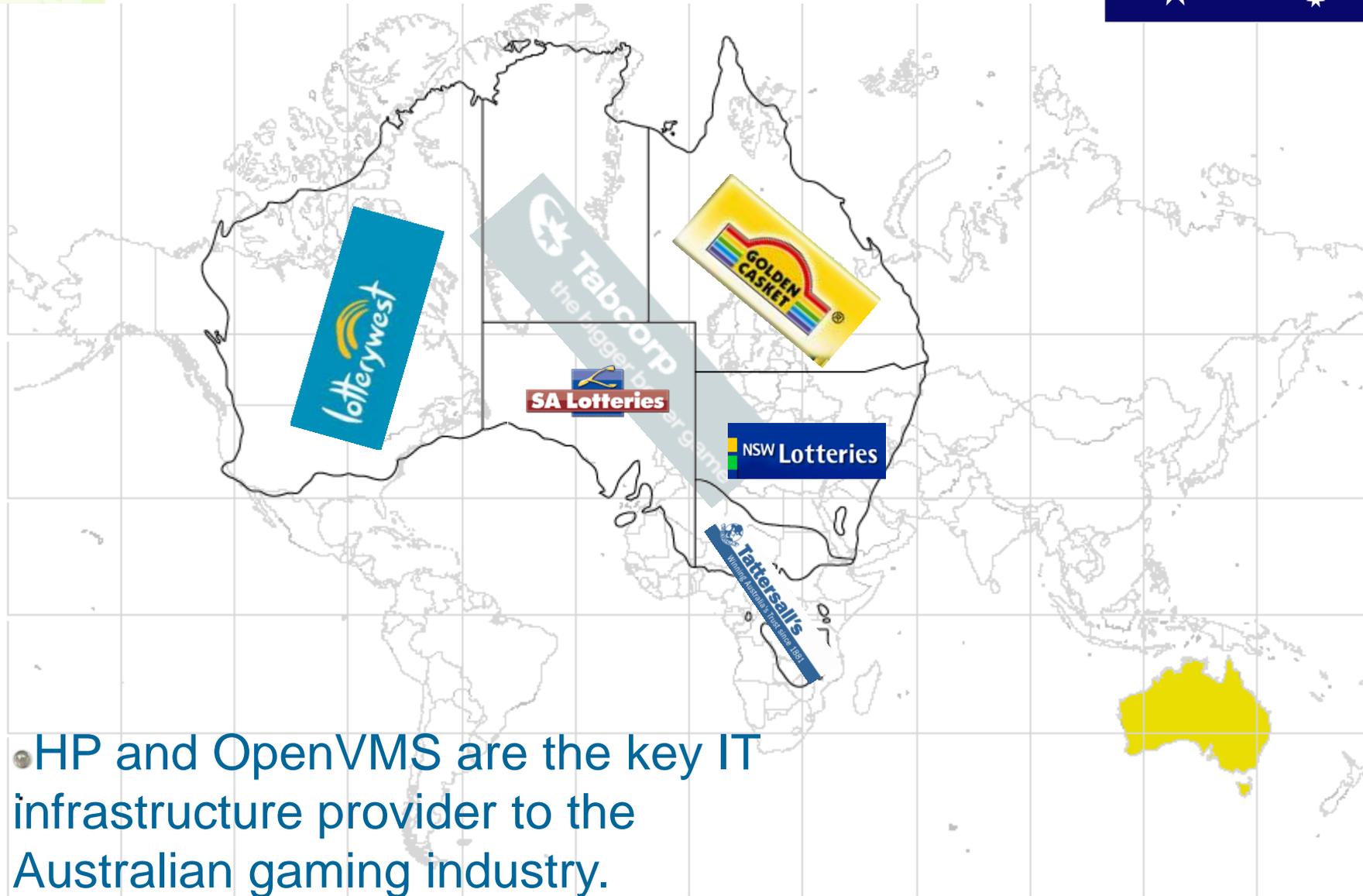
# Argentina



- Telefonica Moviles de Argentina with more than 14 Million subscribers is the major wireless company in Argentina.
- They use Open VMS for Movics, their billing system.



# Australia



• HP and OpenVMS are the key IT infrastructure provider to the Australian gaming industry.



invent

# Brazil



- This is the largest oil company in Brazil
- Uses OpenVMS to control its petroleum operations.



# Canada



- This major energy company has produced over 1 billion barrels of oil since it started to pump oil.
- It uses OpenVMS to manage its pipelines and keep the oil flowing



invent

# Caribbean



- Cable & Wireless are the largest mobile telecommunications operator in the Caribbean with a presence in most of the major islands.
- They use OpenVMS to provide management and billing information.



# Chile



- With 36 stores in Chile and 9 in Peru, Ripley is one of the major retailers in South America plus it has a significant stake in the Credit, Banking and Real Estate industries.
- Ripley use OpenVMS in it's Credits application to keep its business's up and running 24 x 7..



# China



- This organization is responsible for the surveillance and control over all the imports and exports for the city of Shanghai (which is the busiest port in the world by cargo tonnage).
- It uses OpenVMS servers to help keep the port moving 24 x7



invent

# Egypt



- This Water Authority is in northern Egypt to the west of the Nile delta, here water is a precious commodity.
- It uses OpenVMS servers to ensure continuity of supply



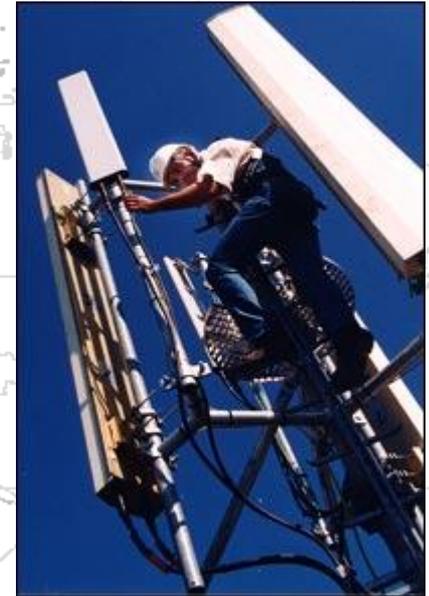
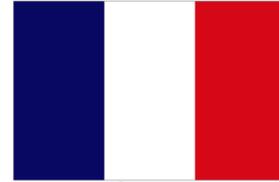
# Finland



- This organisation is responsible for gathering all taxes in Finland.
- They use OpenVMS to manage their Taxation databases 24 x 7.



# France



- This is the largest mobile phone operator in France
- It uses OpenVMS servers to run its Billing application 24 x 7



invent

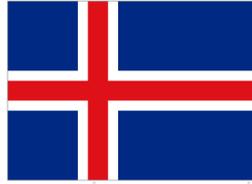
# Germany



- Saturn Electrohandels is a music retailer and consumer electronics chain with 120 stores throughout Germany, Austria, France, and Italy. The Saturn Music Dome in the Cologne superstore houses the world's largest CD and DVD collection.
- OpenVMS was Saturn's preferred solution, the HP configuration offers the best clustering and superior price/performance benefits."



# Iceland



- This organisation has been tracking events in the north Atlantic for 20+ years now via four strategically placed radar sites.
- They have been using OpenVMS since the system's inception and it continues to meet their demanding requirements



invent

# Ireland



- This company is responsible for running all Inter-City and provincial rail services in Ireland.
- They use the latest OpenVMS servers to run its commercial systems



Limerick (via Nenagh) - Ballybrophy - Dublin - Monday - Sunday (excluding public holidays)  
 Luimneach (bealach an tAonach) - Baile Uí Bhróithe - Baile Átha Cliath - Luan go Domhnach (gan Saoire Poibí san áireamh)

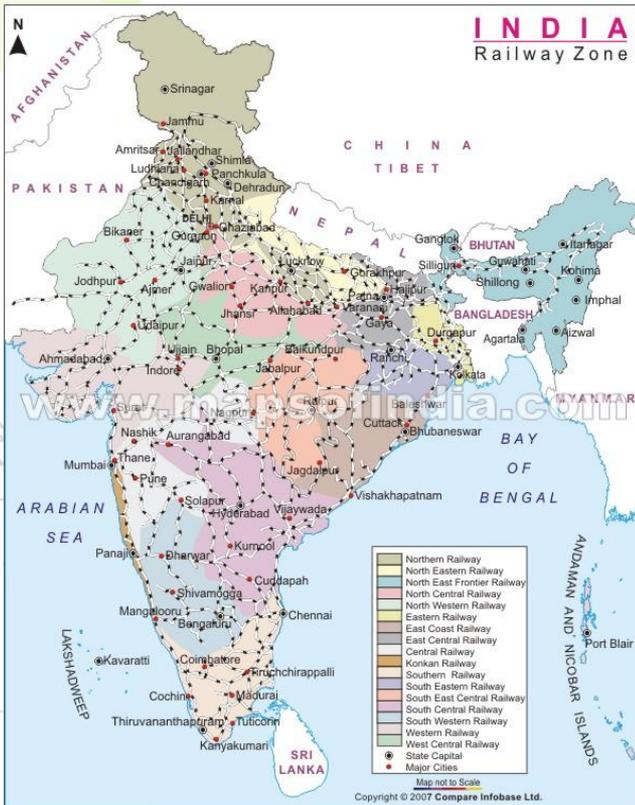
		1 2	2	1 2	2
		MON	MON	MON	MON
		TOSAT	TOSAT	TOSAT	TOSAT
DUBLIN Heuston	Dep	09.00	....	17.25	....
Ballybrophy	Arr	10.05	..	18.47	..
Ballybrophy	Dep	....	10.10	....	18.55
Roscrea	Arr	..	10.27	..	19.12
Cloughjordan	Dep	....	10.45	....	19.30
Nenagh	Dep	..	11.02	..	19.47
Birdhill	Dep	....	11.25	....	20.10
Castleconnell	Dep	..	11.35	..	20.20
LIMERICK	Arr	....	11.55	19.55	20.39

		1 2	2
		SUN	SUN
DUBLIN Heuston	Dep	18.25	....
Ballybrophy	Arr	19.43	..
Ballybrophy	Dep	....	19.50
Roscrea	Dep	..	20.07
Cloughjordan	Dep	....	20.25
Nenagh	Dep	..	20.42
Birdhill	Dep	....	21.05
Castleconnell	Dep	..	21.15
LIMERICK	Arr	20.50	21.35

Dublin Bus link Connolly/Heuston  
 1 First Class  
 Restaurant Car - Monday to Friday  
 Bus link to/from Dublin Airport  
 2 Standard Class  
 Snacks/Drinks  
 LUAS Tram link  
 Station Platform gates will close 2 mins prior to departure.



# India



भारतीय  
रेलवे

- India Railways is the largest single commercial employer in the world.
- India Railways uses OpenVMS servers to keep its ticketing system running 24 x 7.



# Italy



- The Politecnico di Torino (Turin Polytech) is the leader in Italy and in Europe in the field of technical-scientific training for engineering and architectural research.
- One of the key areas of research is cryptographic algorithms where OpenVMS servers are used to crunch the numbers



invent

# Japan



This is one of the world's most successful brands in optical technologies

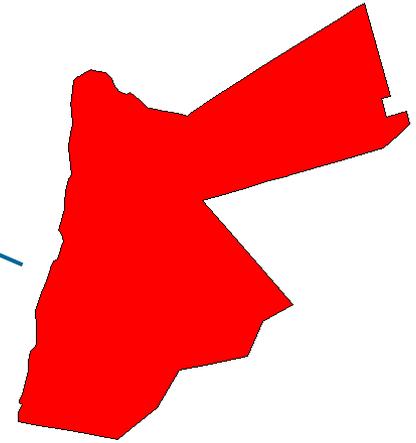
- They use OpenVMS in their manufacturing process



# Jordan



- This organisation is responsible for all internal security within the Kingdom.
- They use OpenVMS to manage their immigration and border control systems, a prime example of 24 x 7 operations.



# Mexico



- This major Mexican educational organisation is based in Mexico City
- They were the first customer in the world to deploy OpenVMS on an Integrity Superdome server (and it's been running for over 700 days)



# Morocco



- Many government departments in Morocco use OpenVMS in their IT Infrastructure (Social Security, Ministry of Interior, Ministry of Habitat, National police etc.)



invent

# New Zealand



- The Ministry of Education is the New Zealand government department responsible for empowering education in New Zealand.
- A suite of OpenVMS-based applications collectively known as EDUMIS is used by the Ministry of Education to address a broad range of financial and administrative requirements within the Ministry.



# Nigeria

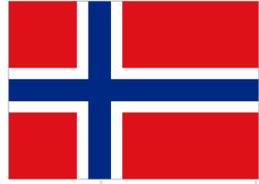


- This was the largest lottery in Nigeria.
- In conjunction with its local partners, HP with OpenVMS provides the infrastructure for the Lagos Lottery.



invent

# Norway



- This company designs, develops, manufactures and markets satellite terminals and gateways for land mobile and maritime satellite communications.
- It runs OpenVMS servers world-wide in their Earth Stations and the Immarsat communications network



invent

# Peru



- This major Peruvian bank is the most profitable in the Peruvian financial system
- It has been using OpenVMS since the beginning of its operations



invent

# Russia



- This St. Petersburg based mobile phone company was the first mobile operator in Russia.
- It is continuing to expand its customer services and OpenVMS servers are a key element in that expansion, from Billing to Dealer information systems.



invent

# Saudi Arabia

لَا إِلَهَ إِلَّا اللَّهُ  
مُحَمَّدٌ رَسُولُ اللَّهِ



- The state-owned national oil company of Saudi Arabia, is the largest oil corporation in the world and the world's largest in terms of proven crude oil reserves and production.
- It uses OpenVMS to monitor its control systems, another 24 x 7 operation



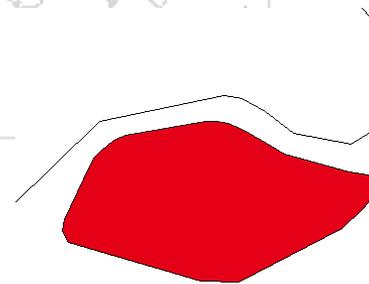
invent



# Singapore



- This is the world's leading Information company.
- It uses OpenVMS to ensure it's global news service is always available 24 x 7.



invent

# South Africa



- This organisation collects revenue and ensure compliance with South African tax law.
- They use OpenVMS servers in their critical Customs and Excise environment.



# South Korea



- This Exchange is a dynamic and reliable securities exchange with investors from more than 60 countries. It is ranked 10th in the world in trading volume and market capitalization.
- It uses OpenVMS servers in its Trading environment.



# Spain



- This Stock Exchange is the largest and most international of Spain's four regional stock exchanges, passing the €1 trillion trading volume for the first time in 2006.
- It uses OpenVMS servers to keep its trading system up and running 24 x 7.



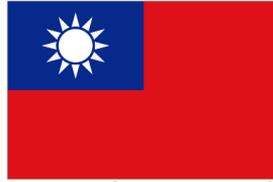
# Sweden



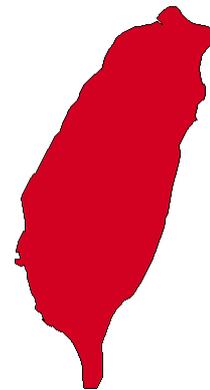
- This is the most successful furniture retailer in the world
- Each store has an OpenVMS server, Keeping customers upto date on stock and making sure the check-out process is fast and efficient.



# Taiwan



- This is the world's largest Semiconductor foundry
- It uses OpenVMS to keep its production lines rolling 24 x 7.



invent

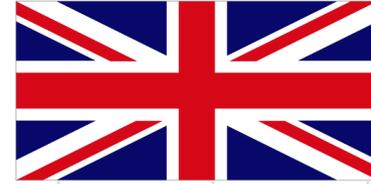
# Turkey



- This logistics support management agency is part of the major northern hemisphere treaty organization.
- It uses OpenVMS to control the radar facility on top of Mount Ararat



# United Kingdom



- The National Blood Service guarantees to deliver blood, blood components, blood products and tissues from our 15 blood centres to anywhere in England and North Wales.
- Through its partnership with Savant, OpenVMS is deployed on systems used from the point of donation, to issue for transfusion or transplant, 24 hours a day 365 days a year!





# USA



- This is the largest Healthcare provider in the United States
- It uses OpenVMS servers as a key component in its Medical Record infrastructure



invent

# Venezuela



- This hydroelectric facility at the base of Angel Falls (the highest waterfall in the world) in the Amazon jungle
- It uses OpenVMS to monitor the operations of the plant 24 x 7.

