

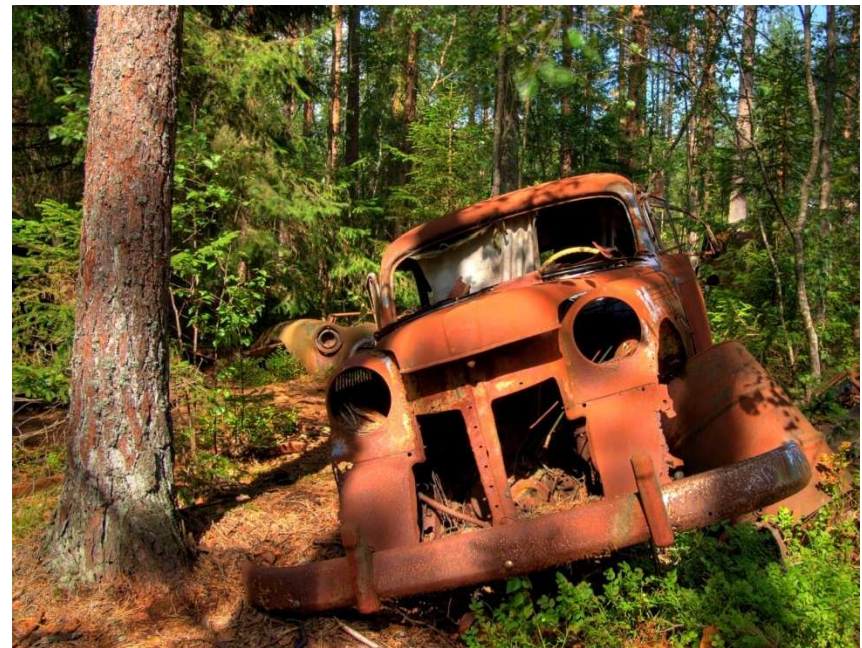


# Enhancing the VMS & Oracle Rdb Customer Experience Using CHARON OpenVMS Virtualization

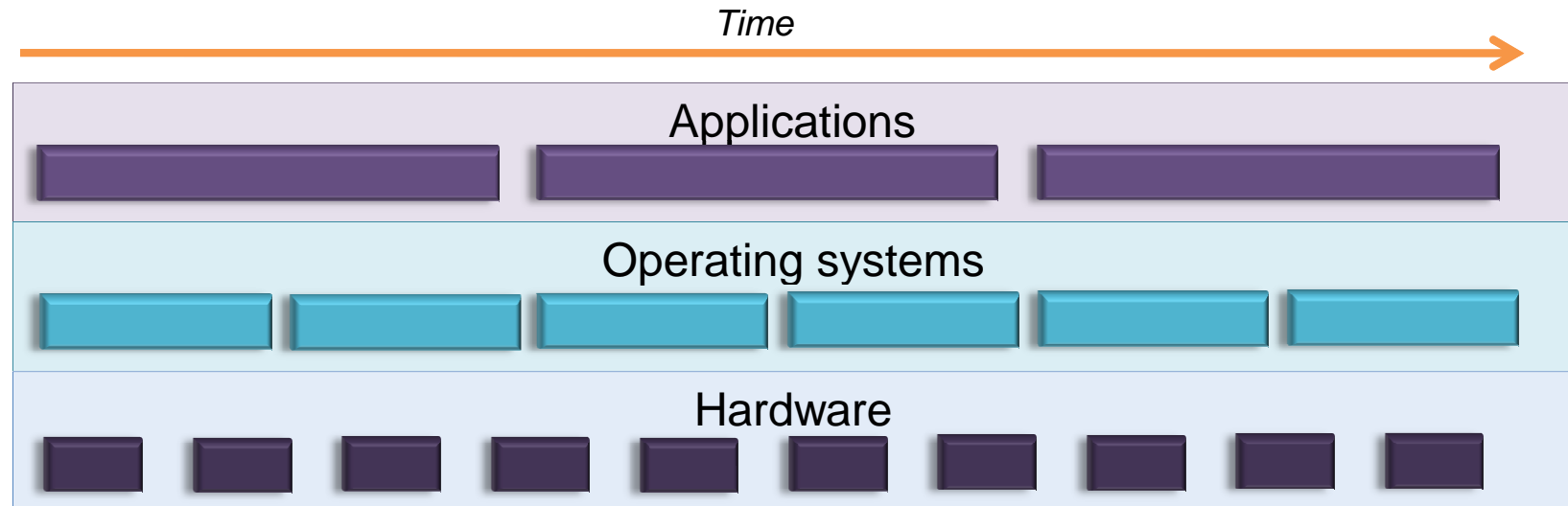
Roger Bales  
Business Development Manager  
Stromasys Inc. – October 2009

# Agenda

- The issue: Aging technology running critical applications
- Hardware virtualization
  - What is and how it works
- Client Experiences
- CHARON Products & Future Plans
- Q&A



# The lifecycle dynamics of applications & systems



## VAX and Alpha computers still play an important role

- Business continue to run essential / “Mission Critical “ applications that are dependent on OpenVMS and/or Tru64
  - Large applications with many years of development
  - Manufacturing and shop floor applications often key to plant automation and process control systems
  - Certified Software and/or applications



# What keeps system owners awake at night?

## Hardware is old, outdated or beyond EOL

- Disk spin / processor heat-up / moving parts wear out over time
- Significant increase in downtime and operational costs
- Increased failure of physical hardware
- Higher maintenance and warranty costs
- Limited inventory of spare parts and refurbished hardware

**But,** the **applications** are still doing their job and may not need to be replaced or ported



# A choice to make – how to move forward?

## Traditional Migration

Disguised as typical multi-phased, complex application “rewrite” or “conversion”

- Migration is expensive, labor intensive and risky
- Source code for current system may not be available or up to date
- Porting or rewriting applications is expensive AND error-prone



## Hardware Virtualization

Upgrade to a modern server platform without changes to the software & business logic

- Avoid risky changes to application software
- Leverage advantages of modern hardware advances (performance & reliability)
- Lower overall cost than manual migration services

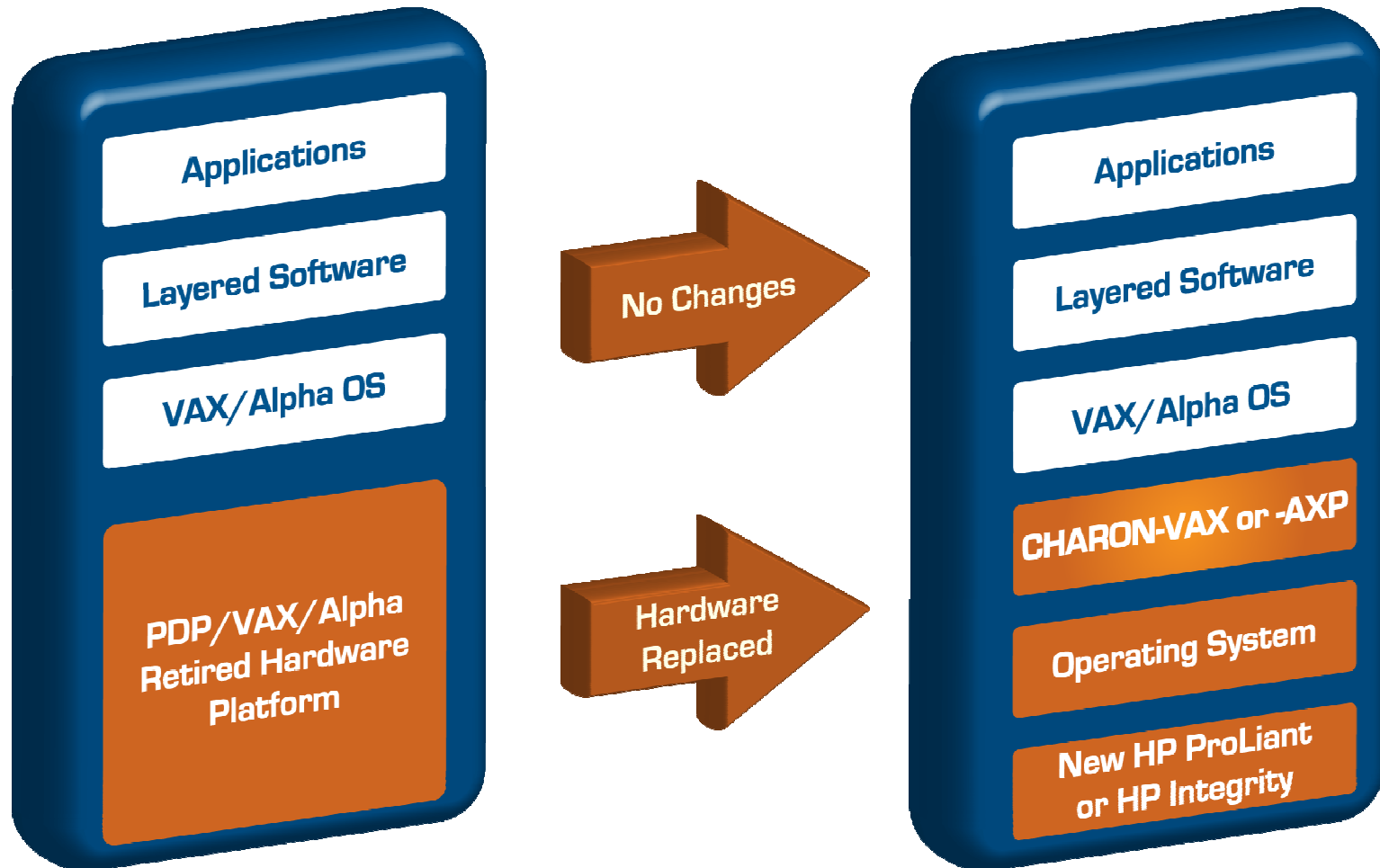




# Hardware Virtualization



# Cross-Platform Virtualization: The Principle



# CHARON Cross-platform Server Virtualization for VAX and Alpha systems

## Hardware virtualization at the server level

- No VMS emulation
- No Tru64 emulation
- No VMS or Tru64 patching
- No emulation of any component of software stack





# Remove VAX Hardware?



- “Oracle Corporation supports VAX versions of Oracle Rdb and Oracle CODASYL DBMS and their related products running on CHARON-VAX provided that any problems reported can be reproduced by Oracle Support on an actual VAX.”
- “HP Services supports HP OpenVMS software on the CHARON-VAX and CHARON-AXP emulators running on HP systems only. Existing software service contracts are valid on supported OpenVMS VAX and OpenVMS Alpha AXP applications running on the appropriate emulator. HP fixes software problems if they are also seen in the comparable VAX or Alpha AXP environment.”

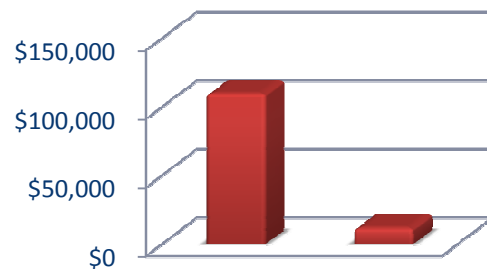


# Increased performance and ROI

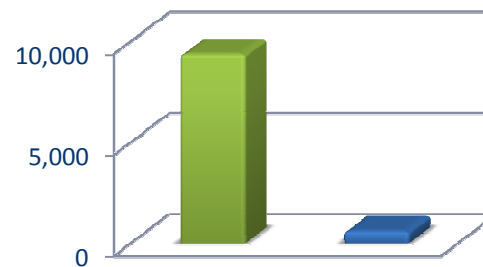
## A real-world example

Metric	Old System(s)	CHARON
Annual Maintenance costs	\$120,000	\$9,000
Power consumption	9,360 watts	600 watts
Heat dissipation	31,937 BTU/h	2,038 BTU/h
Footprint	48 square feet	4 rack units (9 inches)
Full backup time	12 hours 33 minutes	1 hour 41 minutes
End of month sales processing	8 hours 33 minutes	1 hour 8 minutes

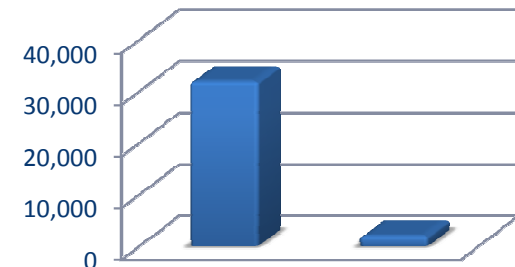
Annual Maintenance costs



Power consumption (watts)



Heat dissipation (BTU/h)



# Stromasys Clients

**Over 3,000 Sites  
World-Wide**

BAE Systems

Bell Canada

Boeing

Cerner Corporation

Corning Inc.

DRS Communications

General Electric

General Motors

Hanson Brick

Hewlett-Packard

Honeywell

Northrop Grumman

Lockheed Martin

LSI Logic

Midwest Microwave

U.S. Navy

Nikon Precision Inc.

Northrop Grumman

Oracle

Pfizer

Philip Morris

Raytheon

Rochester Electronics

Ship Analytics

The Pentagon

TRW Automotive

University of San Diego

U.S. Air Force

U.S. Army

House of Representatives



# About Stromasys, Inc.

- Leading supplier of cross-platform virtualization solutions.
- Based in Geneva, Switzerland, serving thousands of users throughout more than 50 countries.
- Established in 1998 through a management buyout of Digital Equipment Corporation's (DEC) European Migration and Porting Centre.
- Over 3,000 licenses in use world-wide
- In-depth expertise in OpenVMS and Tru64



Stromasys Inc, North American Headquarters  
Raleigh, North Carolina



# Navigant Consulting

- International consulting firm providing legal assistance addressing conflict, performance and risk related issues
- 40 Offices in North America, Europe and Asia supporting over 2500 employees
- Oracle Rdb database to track insurance claims
- Legacy system running on AS4100 with OpenVMS 7.1

## Key Challenges:

- MAINTAINING SYSTEM AVAILABILITY – Navigant sought to ensure their critical claims system would remain available and to avoid service disruptions
- REPLACEMENT PARTS – replacement parts for existing system becoming difficult to find and repairs were becoming time-consuming and costly



"The CHARON-AXP system is faster and more reliable than the original hardware, and the improved stability was well worth the investment for our client."

— Timothy Hunter, Analyst Manager, PACE, a unit of Navigant Consulting, Inc.

## Solution

- Use CHARON-AXP virtualization to replace AS4100 system
- HP Proliant DL185 Server
- Stromasys Professional Services for Installation and Support
- New system increased storage capacity, system performance while reducing overall data center footprint and environmental requirements





# Alameda County Behavioral Health Care Services

- Server Alameda County by promoting early intervention and prevention services for mental illnesses
- Oracle Rdb database to track services for substance abuse patients
- Production: Two clustered VAXes
  - 7620 – Production System
  - 4100 reporting system
  - Oracle Rdb
  - OpenVMS v7.3-1



While CHARON is not their final destination, the increased performance and efficiency is worth the investment if they only keep the system for 2 or 3 years.

## Key Challenges:

- RELIABILITY – Age and size of current system hardware
- PERFORMANCE – Length of time to generate reports – system is at full capacity
- MIGRATION OPTIONS – looking to migrate, but no other system fits client's needs today

## Solution

- Replaced reporting system with CHARON-VAX/XL+ and production system with CHARON-VAX/6620+
- Backups and report generation 10 times faster on CHARON-VAX solution
- Increased capacity and efficiency now enables reporting system to serve as mirror backup for production system - enabling new disaster recovery capabilities



# Hong Kong University of Science and Technology

- Major university with 9,000 students
- Student course registration & administration apps
- Production: AlphaServer Cluster
  - ES45 (4 CPU/10GB)
  - DS20E (2 CPU/4GB)
  - DS25 (2 CPU/12.5GB)
  - Fibre-Channel EVA 3000 SAN
  - OpenVMS v7.3-1
- Development:
  - AS4100 (4 CPU/8GB)
  - Rdb on OpenVMS v7.3-1 / CorVision V5

## Key Challenges:

- CAPACITY PLANNING – 25% student growth in 3-5 years. No new Alpha production and refurbished machine selection is limited
- MAINTENANCE – support contract expiring and uncertainty in future support (knowledgeable personnel diminishing)
- SAN COMPATIBILITY – New SAN firmware does not support VMS 7.3



## Solution

- Replace 4 Alphas with CHARON-AXP software and Intel servers
- Use current Alpha hardware maintenance budget to fund annual licenses of CHARON
- Resolve SAN compatibility as VMS servers become Windows 2003 servers
- Minimal disruption in platform migration (no change in data storage)
- Development Environment migration complete and Production Cluster in-process to be completed in November 2009



# Midwest Microwave

- International manufacturer of RF/Microwave Components and Cable Assemblies
- Plants in the US and United Kingdom
- Legacy VAX system with Rdb database for manufacturing and distribution of microwave components



“Overall, I couldn’t be more pleased with the CHARON-VAX solution and can honestly expect this configuration to allow Midwest to continue to run and grow our existing software system for at least the next five years, and perhaps easily ten or more.”

— Barry Treahy, Jr., VP/CIO, Midwest Microwave

## Key Challenges:

- EXPANDING SYSTEM CAPACITY – increase in database size and user load with no ability to expand existing hardware
- REPLACEMENT PARTS – replacement parts for existing system becoming difficult to find and repairs were becoming time-consuming and costly

## Solution

- Use CHARON-VAX/XL Plus virtualization software to replace VAX system
- Tyan dual-processor based system using Athlon 2600+ processors
- New system increased storage capacity, system performance while reducing overall data center footprint and environmental requirements



Our Products

# CHARON-VAX & CHARON-AXP

# CHARON-VAX & CHARON-AXP Solutions

- Low to mid-range VAX virtualizations
  - CHARON-VAX/XM/XL/XK (Plus) for Windows
- High-end VAX virtualizations
  - CHARON-VAX/66x0 Plus for Windows
- Real-time virtualization or embedded systems
  - CHARON-TB for Windows (TB = “ToolBox” and APIs)
- Alpha virtualizations
  - *New* Multi-processor High-end CHARON-AXP Solutions  
DS20, ES40, GS80 & GS160
  - Single Processor CHARON-AXP Solutions  
CHARON-AXP SMA/SMA (Plus), AXPstation





# CHARON-AXP Solutions

## CHARON Single-Processor Solutions

- Replaces Departmental and Workgroup class Alpha systems
- 1 Alpha CPU; 1 – 8 GB Alpha memory
- OpenVMS and Tru64 support
- Consolidate multiple Alpha systems into one host computer; increase the benefits of consolidation by using Blades/Racks



# CHARON-AXP GS80 & GS160

- Replaces AlphaServer GS80s and GS160s
- Original AlphaServer GS architecture replication
- 1 – 16 Alpha CPU's
- Supports most common AlphaServer peripherals
- OpenVMS and Tru64 support
- Consolidate your GS into a smaller computer
- Cut down on energy consumption, cost, and system size
- A flexible, reliable, HP-branded option



# CHARON – Planned Enhancements

4Q2009

1H2010



VAX Products

## Planned Software Release

- Windows Server 2008 Support
- Multiple products encoded on single license key support
- Multi-instance support
- VAXstation 4000 Model 90 Virtualization (no graphical hardware emulation)
- Service Pack 2 fixes (Networking, I/O, CPU/Memory included)

## Concept Plan Preview

### Planned exploration of Limited VMware ESX support

- VMware ESX 3.5 or higher.
- OS on top of VMware - Windows XP, Windows Server 2003, Vista, or Windows Server 2008.
- Virtual machine should have 1:1 mapping to physical resources (no sharing), dedicated CPUs, RAM and Network interfaces required
- No dynamic relocation of the physical system
- No pass through functionality, no bus adapter support

Alpha Products

## AXP-4100

- Replaces AlphaServer 2000, 2100, 4000 or 4100
- Original AlphaServer architecture replication
- Supports 2-4 CPUs and 4-8GB Memory
- SCSI adapters (KZPBA) (1 pre-loaded)
- Ethernet (DE500) (AS2x00: 1 pre-loaded)
- FibreChannel (KGPSA) Pass-Through (Emulex)
- OpenVMS (v6.2-1h3) and Tru64 (4.0B) support



# CHARON-TB Planned Enhancements (4Q2009)

- Version change: 1.3 → 1.4
- Hardware licensing change: introducing HASP-HL
  - Both Hardlock and HASP-HL licensing accepted
- More CHAPI devices
  - DPV11 sync serial interface
- Logical Company PCI-2-QBUS adapters support
  - BCI-2104 (old style)
  - 230x (new style)
  - Available to purchase with CHARON-TB
- Parallel QBUS adapter support
  - Recommended for embedded systems build on Intel Atom

# Benefits

- Increases performance with modern CPUs, storage systems, and networks
- Preserves current investments
  - Keep current applications and business processes
  - No re-training or re-staffing
  - No impact on day-to-day operations
- Reduces cost of ownership
  - Reduced footprint, energy consumption, cooling needs
- Minimum effort and low risk to migrate
- Tangible ROI on new platform
- Maintains your current VMS / Tru64 HP Software Support contracts





# Taking the next step

- For Product and Technical Information
  - Visit the Stromasys Website [www.stromasys.com](http://www.stromasys.com)
- For solution consultation or to request a proposal
  - Contact one of our North American Value Added Resellers
    - [www.stromasys.ch/about-us/value-added-resellers/north-america/](http://www.stromasys.ch/about-us/value-added-resellers/north-america/)
  - Or . . .
  - Contact our Business Development Team Directly
    - Bill Driest (980) 253-1734 [bill.driest@stromasys.com](mailto:bill.driest@stromasys.com)
    - Roger Bales (919) 239-8455 [roger.bales@stromasys.com](mailto:roger.bales@stromasys.com)