STROMASYS

Cross-Platform Virtualization Solutions

**Preserving Your Software Investment
Across Hardware Generations**

Virtualization, the Easy Way: The Stromasys Solution

In today's uncertain economy, smart IT professionals are considering the benefits of virtualization. Virtualization breaks the traditional dependencies between hardware and software, allowing customers to save money and increase efficiency, while IT departments can do more with less.
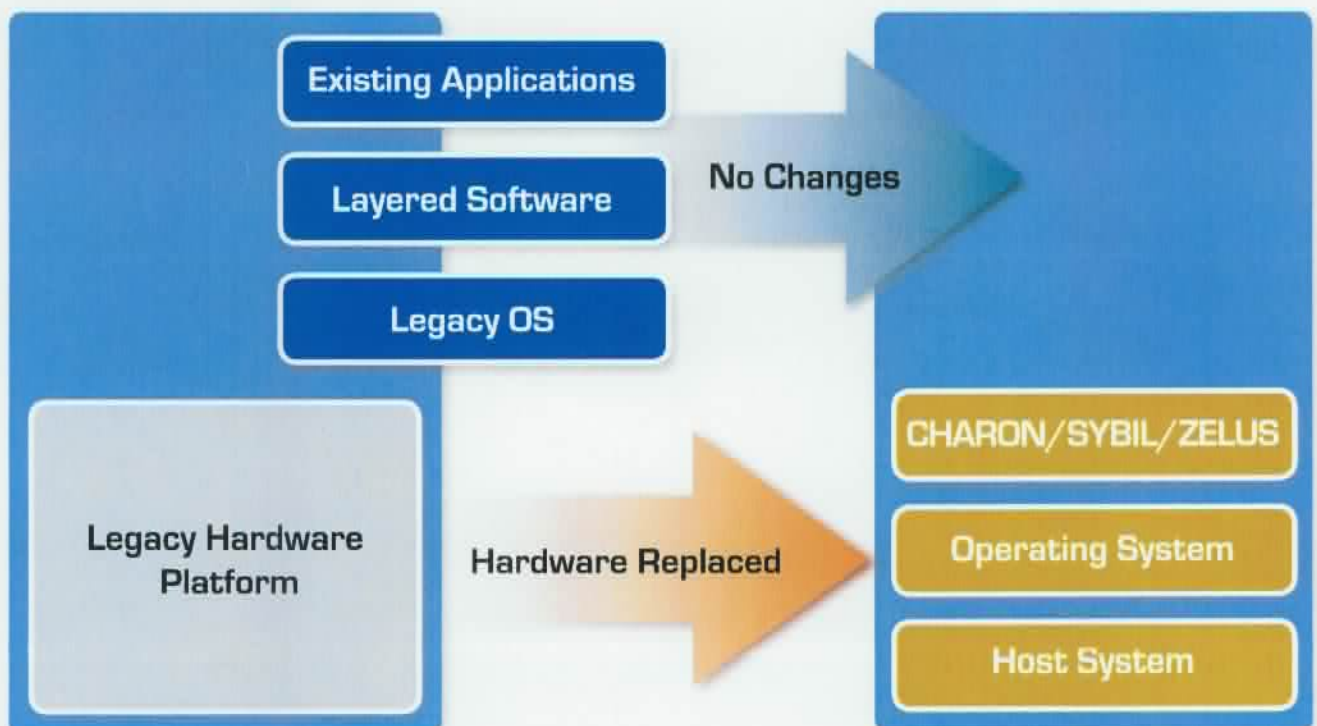
Legacy System Virtualization

Legacy systems (for example, Digital Alpha and VAX, SUN Sparc, HP3000) are still running business or mission-critical applications. Companies are under increasing pressure to migrate as maintenance costs increase and system reliability declines, but how can virtualization work for them? These systems hinder companies' disaster recovery planning because their data isn't as well protected for system security or business continuity. The cost of space, power and cooling for the IT data centre becomes a key agenda item. Migration is expensive and risky for legacy applications.

Cross-platform virtualization addresses each of these concerns with viable alternatives. Stromasys has the ability to serve its clients globally with the products, services and support that make virtualization not only easy and low-cost, but the smartest way forward.

Cross-Platform Virtualization

Cross-platform virtualization is the answer for these companies. It allows applications created for one CPU and operating system to run on different platforms without modification, using combined methods of virtualization and hardware abstraction layers. A hardware abstraction layer (HAL) is an interface that makes it possible to add support for new devices and new ways of connecting devices to the computer, without modifying every application that uses the device. Stromasys is a pioneer in the field of cross-platform virtualization technologies, and provides a solution to the virtualization challenge for legacy systems of DEC, HP and Sun.

Legacy System Virtualization Principle

Existing Applications		
Layered Software	No Changes	
Legacy OS		CHARON/SYBIL/ZELUS
Legacy Hardware Platform	Hardware Replaced	Operating System
		Host System

Preserving Your Software Investment Across Hardware Generations

Using Stromasys cross-platform virtualization software, customers can replace legacy hardware, whilst the original operating system, applications, and layered software continue running without modification on new, industry-standard hardware. Stromasys software products provide the benefits of virtualization, without many of the

usual drawbacks; it costs a fraction of what typical migration or virtualization projects cost, and increases performance automatically by using modern CPUs, storage systems, and networks. Finding a solution that does not break the budget is always an important benefit, especially in the current economy.

Step by Step Migration Process

1 Plan

- Define goals and performance acceptance criteria
- Collect original legacy systems data
- Choose best fit Stromasys products
- Choose pilot (proof of concept) and implementation strategy
- Select target hosting systems

2 Install

- Deploy target hosting systems
- Plan and execute data move
- Plan and execute switchover
- Execute functional and performance testing
- Analyze and eliminate behavior differences

3 Migrate

- Define migration phases (group systems which have to be migrated together)
- Follow pilot project steps for every migration phase
- Evaluate results against acceptance criteria
- Analyze and eliminate behavior differences and close the project

"While still a niche market, the use of processor emulation (cross-platform virtualization) is gradually accelerating with an increase in maturity, support and acceptance. With net performance after overhead for processor emulation still meeting the desired performance level, while benefitting from the cost economics of x86 technology, the capability is an opportunity for older architectures and instruction sets to be deployed on newer platforms."

Andrew Butler,
Vice President, **Gartner Research**

"The legacy Alpha system was the IT backbone of our company and controlled our entire production system. The cost of replacing it with customized Windows software would have cost millions, so the CHARON-AXP solution has proved to be a real Godsend for us."

Lesleyanne Clifton
Project Manager, **Tomago Aluminium**

"We needed a way forward, and CHARON provided that, and more. Using the CHARON software allowed us to reduce energy consumption, increase our available floor space, and save on maintenance costs."

Wayne Graham
Resource Manager, 14 Software Engineering Squadron
Department of National Defence, Canada

The Benefits of Virtualization — Why Virtualization is Your Best Option?

Business Continuity

- Minimal disruption in migration to new hardware platforms, as all applications, middleware and data remain unchanged.

- Disaster recovery facilities use industry standard hardware platforms and require a lower investment than providing duplicate legacy hardware.

- Modern hardware improves reliability and availability using redundant hardware and data replication technologies not available previously in legacy hardware.
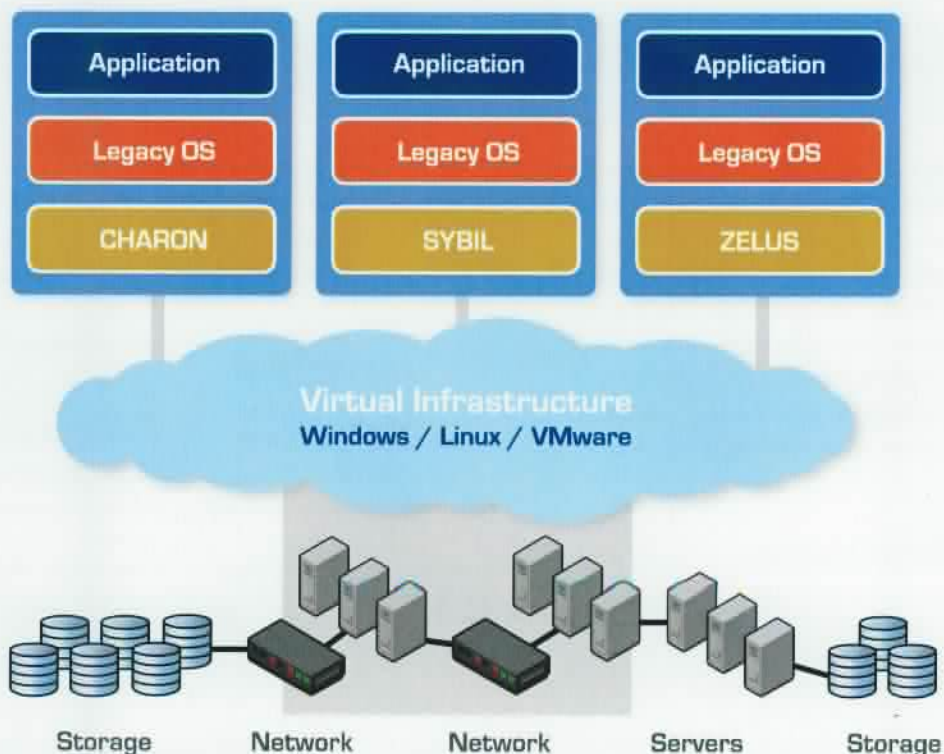
Green IT

- Compared to legacy systems, modern server hardware offers significant savings in energy consumption, cooling requirements, and footprint.

- Further consolidation of multiple legacy systems into a single industry standard hardware platform.

Data Center Consolidation

- With Stromasys' legacy systems virtualization solutions under VMware, customers can finally realize 100% consolidation and integration using a common virtual data center infrastructure.

- Replacing legacy systems hardware with industry standard server infrastructure simplifies data center management and operations with the same set of management tools used for modern server platforms.

- Customers save a great deal of time and effort in regard to backup and archive tasks using the latest network and removable media and automated tools.

Application	Application	Application
Legacy OS	Legacy OS	Legacy OS
CHARON	SYBIL	ZELUS

Virtual Infrastructure
Windows / Linux / VMware

Storage Network Network Servers Storage

Stromasys Products

CHARON-VAX for Windows — VAX Hardware Virtualization

Designed to virtualize the VAX hardware platform, CHARON-VAX products run as a software application on industry-standard systems. CHARON-VAX presents a virtual replica of the original VAX hardware system to the VAX software. CHARON-VAX runs the VAX operating system and application software, including the original hardware diagnostics, in their existing binary form, while allowing you to replace aging hardware with new, modern equipment. HP recognizes CHARON-VAX as a valid VAX replacement platform to run OpenVMS. No application source code or conversion is required, no matter on which VAX hardware platform your software was running.

CHARON-TB for Windows — PDP-11 and VAX Virtualization

CHARON-TB is a "ToolBOX" and set of APIs (Application Program Interfaces) that allows for the creation of custom PDP-11 or VAX components to support non-standard hardware and peripherals. Typical examples include custom components used in embedded systems, industrial process control systems, or specialized military applications. CHARON-TB was designed with these complex systems in mind, and allows for development of additional virtual systems components that you can use with other CHARON-VAX systems.

CHARON-AXP for Windows — Alpha Hardware Virtualization

Designed to provide full binary compatibility with Alpha systems, CHARON-AXP runs on industry-standard 64-bit Intel/AMD multi-core HP ProLiant servers to create a virtual replica of the original Alpha hardware. CHARON-AXP solutions support a full range of Alpha virtualization solutions, from small single-processor solutions to multi-processor, high-end Alphas such as the AlphaServer DS20, ES40, and GS80. HP recognizes CHARON-AXP software as a valid platform to run OpenVMS or Tru64, and CHARON-AXP passes the original Alpha hardware qualification tests. As with CHARON-VAX software, no conversion or modifications are required to run your original Alpha environment, operating system, layered software, and applications on the new host servers.

SYBIL — SPARC Hardware Virtualization

Sybil provides a SPARC's hardware abstraction layer on an industry standard x86 computer system. The hardware abstraction layer appears to any software running on it (typically a Solaris OS) as SPARC's hardware. This 'virtual hardware' executes any binary software that the original hardware would execute, including self-modifying code, kernel code and drivers. No code conversion or source code is needed. SYBIL is fully binary compatible with SPARC's hardware, including storage, Ethernet and serial line I/O.

ZELUS — HP3000 Hardware Virtualization

The ZELUS program is aimed at satisfying the needs of the MPE/iX customer base for continuity after the phase-out program of the HP3000 hardware, as the inter-dependence between business processes and MPE/iX applications will remain for current MPE/iX users. The ZELUS products that are under development will be very similar to our current Virtual VAX and Alpha products and do not require modification of the MPE/iX operating system, database or application. This will benefit the whole MPE/iX user community and has great potential to reduce the maintenance costs and the business risks typically applicable to legacy applications.

Hosting Platform Support

CHARON-VAX : Windows Server 2003/2008, Windows 7, Linux RedHat Enterprise v 5 and 6, SUSE Enterprise Server 10 (64 bit), VMware ESX(i) 4.0

CHARON-TB : Windows XP / Vista / (32 bit)

CHARON-AXP : Windows Server 2003/2008, Windows 7 (64 bit), Linux RedHat Enterprise v 5 and 6, SUSE Enterprise Server 10 (64 bit), VMware ESX(i) 4.0

SYBIL : Windows Server 2003/2008, Windows 7, Linux RedHat Enterprise v 5 and 6, SUSE Enterprise Server 10 (64 bit), VMware ESX(i) 4.0, SUN Solaris 10

ZELUS : Windows Server 2003/2008, Windows 7, Linux RedHat Enterprise v 5 and 6, SUSE Enterprise Server 10 (64 bit), VMware ESX(i) 4.0

Stromasys Services

Product Support Services

Stromasys' comprehensive technical support includes CHARON problem diagnosis and troubleshooting, software fixes, product usage questions, and configuration assistance. Support services also provide exclusive access to CHARON product updates, enhancements, and fixes. Whether your business requires support during standard business hours or 24/7 availability, Stromasys offers a level of support to meet your company's specific needs.

Platinum Support

For customers who need round the clock support for their business or mission-critical applications, our comprehensive Platinum Support plan provides telephone, web, and email support 24 hours a day, seven days a week.

Gold Support

For customers who require support during normal business hours, our comprehensive Gold Support plan provides telephone, web, and email support Monday through Friday, local time.

Professional Services

Stromasys could provide its expertise whenever you are interested in virtualization, migration, Stromasys products deployment, or re-engineering your current legacy systems and infrastructure.

Engineering Services

Stromasys' highly qualified pool of local engineers can help you achieve the ideal system for your business needs, while keeping your OpenVMS/Tru64/Solaris/MPE operating system running smoothly.

License Transfer Options

HP OpenVMS and Tru64 License Transfer

Keep your OpenVMS or Tru64 UNIX operating system supported with a transfer license from HP. These licenses allow the transfer of OpenVMS and Tru64 UNIX operating systems and layered product licenses to servers running the CHARON-VAX and CHARON-AXP environment, providing a continuation of the existing HP software warranty agreements. HP Services supports HP OpenVMS software and Tru64 software on CHARON products running on HP systems only.

Oracle Rdb License Transfer

Oracle Corporation supports VAX or Alpha versions of Oracle Rdb and Oracle CODASYL DBMS and their related products running on CHARON-VAX or CHARON-AXP. Customers migrating from VAX or Alpha to a CHARON emulated environment should check with their Oracle account managers regarding licensing.

HP MPE/ix License Transfer

Keep your MPE/ix operating system supported with a transfer license from HP. These licenses allow the transfer of MPE/ix operating system licenses to servers running the ZELUS environment, providing a continuation of the existing HP software warranty agreements. HP Services supports MPE/ix software on CHARON products running on HP systems only.

Stromasys Value-Added Resellers

Stromasys delivers solutions through partnership with its Value-Added Resellers (VARs). More than 40 VARs across 5 continents are supporting Stromasys solutions, combining Stromasys' software expertise with high-level industry and domain knowledge in order to present our joint customers with a complete solution offer. Please refer to the Stromasys website to locate your nearest VAR: http://www.stromasys.com/partners/

About Stromasys

Stromasys SA is a privately held company based in Geneva, Switzerland, serving thousands of users in more than 50 countries. Stromasys SA was established in 1998 as part of a management buyout of DEC's (Digital Equipment Corporation) European Migration and Porting Centre following the HP/Compaq merger. The vast experience gained from years of large-scale migration and porting projects, system-level VMS engineering projects and development of Binary translators eventually led to the development of the CHARON-VAX and CHARON-AXP products.

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