

Stromasys legacy server emulation on Azure

Running applications designed for SPARC, Alpha, VAX, PDP-11, and HP 3000

By Ricardo Galvan
AzureCAT

January 2020

Contents

A cloud solution for legacy software	3
A legacy is reinvented as SaaS.....	3
Stromasys cross-platform hypervisors	5
Azure and mainframe modernization.....	5
Learn more	6

Authored by Ricardo Galvan. Edited by Nanette Ray. Reviewed by AzureCAT and Stromasys.

© 2020 Microsoft Corporation. This document is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS SUMMARY. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

A cloud solution for legacy software

Many private and public sector organizations continue to operate mission-critical applications that run on servers from an earlier generation, such as SPARC, VAX, Alpha, and HP 3000. By rehosting applications on Microsoft Azure using emulation software—known as a lift-and-shift migration—you can safely phase out legacy hardware in a matter of days. Stromasys provides cross-platform server virtualization solutions that enable you to use the Azure cloud platform to run applications designed for Solaris, VMS, Tru64 UNIX, and MPE/iX operating systems, respectively.

As a case in point, an actuarial services company continued to use a vital financial application that ran on Alpha hardware—a server well past its end-of-life date. They kept the system running with help from user groups who located vintage hardware components. But as experts in risk management, the company knew it was time to modernize.

After the application was running in a Stromasys Charon-AXP emulator on an Azure Virtual Machine, the company began offering its solution as a service to other financial companies, effectively reinventing their mainframe application as software as a service (SaaS). Two major insurance companies immediately signed up for this service.

If your organization is using legacy hardware, you know the risk and cost of maintaining it. A virtualized environment on Azure Virtual Machines can offer better performance, lower costs, and less risk for running a legacy software stack.

In this guide, we use the example of the actuarial company to introduce Stromasys virtualization solutions for Alpha, VAX, PDP-11, HP 3000, and SPARC architectures and show how they work on Azure. Not only does Azure open the doors to innovations like SaaS, you also gain the global reach and disaster recovery strategies only available in the cloud.

A legacy is reinvented as SaaS

Stromasys and Microsoft worked together to find a solution for the actuarial services company. Their mission-critical application ran on a DEC Alpha ES40 server with four CPUs (1 GHz), 16 GB of RAM, and 400 GB of storage. Downtime wasn't an option, so the company wasn't interested in taking on a full-bore migration.

Stromasys proposed using Charon-AXP, one of a family of legacy system cross-platform hypervisors. Charon-AXP creates a virtual Alpha environment on Azure in a virtual machine (VM), which is used to isolate and manage the resources for a specific application on a single instance. Charon-AXP presents an Alpha hardware interface to the original Alpha software, which cannot detect a difference. User programs and data are copied to the VM, and the application continues to run unchanged.

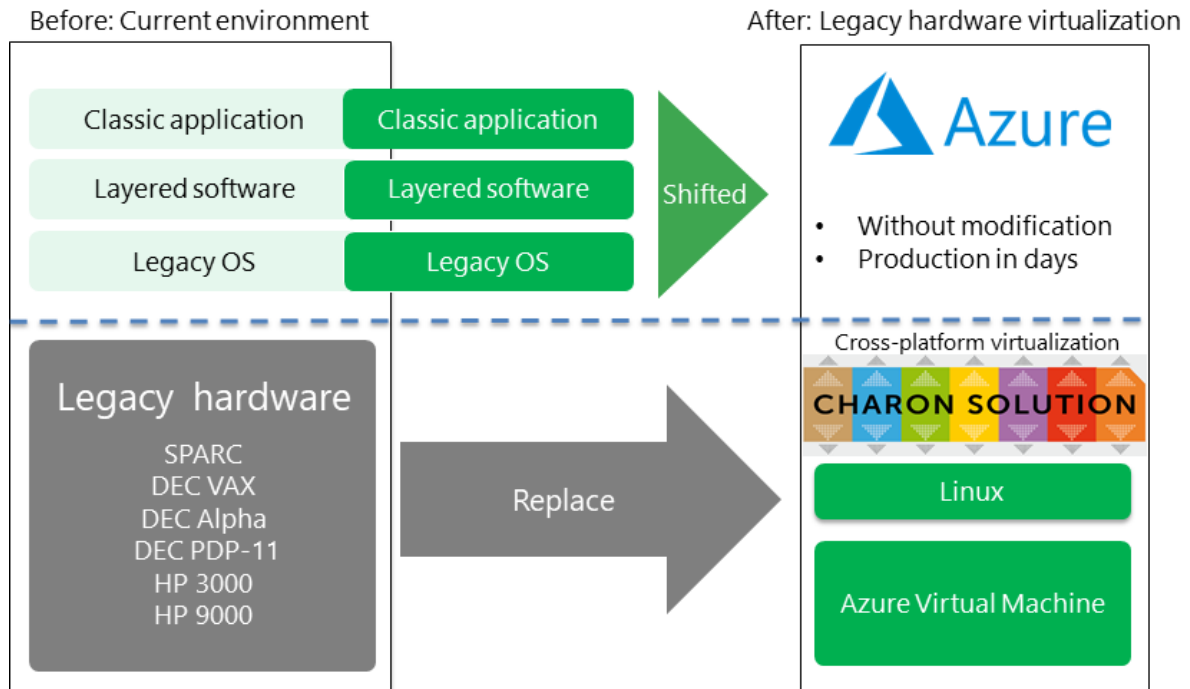


Figure 1. Charon-AXP runs on Azure, enabling an application designed for Alpha to run unchanged in an emulation environment on a VM

In this example, the architecture on Azure features:

- Charon-AXP for Windows, which runs the legacy apps.
- One VM with four CPUs (3.0 GHz), 32 GB of RAM, and 500 GB of storage.
- Three network interface cards (NICs)—one provisioned for Windows, and two for OpenVMS.
- Virtual private network (VPN) connection to the company's datacenter. Users connect to the VM running the application using remote desktop protocol (RDP).

For details about how Charon-AXP works, see the [Charon-AXP V4.10 for Windows documentation](#).

Stromasys cross-platform hypervisors

In addition to Charon-AXP, Stromasys solutions can emulate SPARC, HP 3000, PDP-11, and VAX hardware on Azure as the following table summarizes.

Product	Operating system	Description
Charon-SSP	SPARC	Creates a virtual replica of sun4m and sun4u SPARC family members on standard x86-x64 VMs running Linux. See Charon-SSP in Azure Marketplace.
Charon-HPA	HP 3000	Creates a virtual environment running MPE/iX 7.5 on VMs with standard Intel x64 servers running Linux (Red Hat 7.x or CentOS 7.x).
Charon-PDP-11	PDP-11	Replaces DEC PDP-11/93 and PDP-11/94 systems with a virtual environment that runs on x86-x64-compatible VMs.
Charon-VAX	VAX	Replaces MicroVAX II; VAXserver, VAXstation, and MicroVAX models 3600 and 3900; VAX 3100-96; VAX 4000-106; and VAXstation 4000-90 systems with x86-x64-compatible VMs running Windows or Linux.
Charon-AXP	Alpha	Creates a virtual Alpha environment on a standard Windows-based or Linux-based VM.

For more information, contact your Microsoft representative.

Azure and mainframe modernization

For many organizations, a lift-and-shift migration is a quick way to begin taking advantage of Azure services. You can make mainframe applications—and the value that they provide—available as a workload whenever your organization needs it. The total cost of ownership (TCO) of the cloud's subscription-based, usage-driven cost model is typically far less expensive than mainframe computers.

A Stromasys solution rehosts your application on Azure and builds a bridge between your on-premises datacenter and the cloud. It gives your organization more options—for example, using Azure cloud resources like Azure Backup to protect on-premises resources, or using Azure analytics to gain insights into on-premises workloads. After your mainframe applications are running in Azure, they can still integrate with on-premises applications if necessary.

Microsoft and cloud partners like Stromasys provide many types of support for hybrid cloud deployments.

For more information about our virtualization solutions for VAX, SPARC, Alpha, HP3000, and PDP systems, see the [Stromasys](#) and [Azure](#) websites.

Learn more

The following Azure resources can help in your cloud journey:

- [Azure Cloud Adoption Framework: Mainframe migration overview](#)
- [Mainframe rehosting on Azure Virtual Machines](#)
- [Application migration patterns and examples](#)