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Bruce Claremont, October, 2008

SimH VAX Emulator Virtualizes MAN Diesel VAX Applications



In the late 1980's and early 1990's, MAN Diesel used a small VAX cluster to support the information technology associated with engine design, maintenance, and record keeping.

Properly maintained marine engines have a long life expectancy, often in excess of thirty years. One of many customers is the U.S. Navy. MAN Diesel periodically receives engines back from the Navy for repair and rebuild. The Navy contract requires that MAN Diesel maintain build and maintenance records for all engines purchased by the Navy while they remain in service.

Over time, MAN Diesel has progressively updated its IT infrastructure. However, the VAX cluster, comprised of two VAX 4000's and a VAX 3100 running OpenVMS 5.5-2, soldiered on. VAX hardware reliability and VMS O/S quality allowed the system to perform without requiring any special care. It was soon almost forgotten, humming away in a dusty second floor room that predated a data center located on the first floor. Users that relied on the information archived in the VAX applications continued to access the system on a daily basis, but the people that maintained the hardware and software moved on.

The situation changed in early 2008 when the VAX disk drives started to fail. A wheel had finally squeaked, bringing the legacy system to the attention of IT management. While no longer critical, the applications on the VAX cluster were important and needed to be preserved. Since MAN Diesel no longer had VAX or VMS expertise on staff, an outside expert was sought.

Internet research on VAX replacement solutions led MAN Diesel to Migration Specialties. After assessing the VAX hardware, software applications, and MAN Diesel's goals for the system, Migration Specialties provided cost estimates and technical information regarding three possible VAX replacement solutions:

- Refurbish the existing VAX hardware.
- Deploy the commercial CHARON-VAX emulator.
- Deploy the open source SimH VAX simulator.

After due consideration, MAN Diesel selected the SimH solution. The VAX hardware refresh was ruled out because MAN Diesel no longer wanted to support legacy VAX hardware. The CHARON-VAX emulator was ruled out due to high acquisition and maintenance costs. The SimH VAX simulator provided the means to economically virtualize the VAX systems onto a Windows-based server and integrate them into MAN Diesel's current IT environment.

Migration Specialties went onsite to acquire images of the legacy VAX systems. Over the course of a single day, a SimH simulator configured as a VAX was networked into the VMS environment and utilized to acquire image backups of all legacy disk drives. Migration Specialties took the acquired disk images offsite to build and test the SimH replacement solution. The systems were ported to an HP Proliant system running Windows Server 2003.

Upon completion of testing, Migration Specialties returned to the MAN Diesel facility. The Proliant system hosting the SimH VAX was installed in the local data center and acceptance testing was conducted. All tests were successful with one exception.

One of the applications supported by the VAX systems was SuperCapes. During acceptance testing, one of the tests generated a SuperCapes license error. The SuperCapes license dameon objected to the change from a genuine VAX 4100 to a virtual VAX 3900. Fortunately, SuperCapes is still a supported application and PS Industry resolved the issue by generating a new SuperCapes license for the SimH installation.

So with little drama an important legacy application has been virtualized. The SimH VAX simulator provides the means for the application to continue to run in a native environment with no changes to the application or the way users interact with it. The virtual VAX environment is hosted on a modern Windows platform, which is easily supported within the current MAN Diesel IT environment. All of this was accomplished at a reasonable cost and in a short period of time. An essential legacy application and its associated data have been preserved and will continue to provide value to MAN Diesel for the foreseeable future.

Migration Specialties offers legacy hardware virtualization solutions for VAX and Alpha systems. Visit the [Migration Specialties Virtual Systems page](#) for additional information.