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*Continuity in Computing*

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## Peerless Virtualizes a Mandelli VMS System



RELIABILITY > WHEN IT MATTERS

When it came time to preserve an important shop floor application, Peerless Pump turned to Migration Specialties for assistance. Peerless utilizes a VMS 5.3 system at one of its Indiana-based manufacturing facilities to support three large Mandelli machine centers. Each machine center is an automated tooling station that loads, drills, cuts, finishes, and returns large pump casings. A single operator mans each station, interacting with the VMS system to retrieve tooling programs and write production data. The VMS system tracks each machine center, the location of its RGV (Remote Guided Vehicle), and the work in progress. Network connectivity is handled via the DECnet and LAT protocols.



*Mandelli machine center*

A MicroVAX 3100 sat at the heart of this system. At least 20 years old, the system resided in a control shack on the shop floor. The harsh environment had taken its toll and the system had started to periodically crash with detrimental impact on production. The system was left on standby after being replaced and failed completely within 6 months.

Utilizing an HP Proliant system running Windows Server 2003, Migration Specialties ported the VMS system in its entirety to a virtual VAX running under the SimH VAX hardware emulator.

The system was ported in two stages. Peerless supplied an archived set of VAX system backups which Migration Specialties ported at its facilities in Colorado. Peerless personnel then remotely accessed the ported system and confirmed basic functionality. During a two-day shop floor maintenance window, Migration Specialties installed the ported system at the Peerless manufacturing site, incrementally backed up the MicroVAX 3100 to the virtual VAX to synchronize the systems, then assisted Peerless personnel in confirming full functionality using the virtual replacement system.

Given the Mandelli equipment dependencies on serial and LAT communications protocols, the DECnet network was retained. The Proliant host system was housed in a conditioned data center and connected to a shop floor DECserver 700 via a CAT-5 network link. Each tooling station was also equipped with a separate VT terminal. These were replaced with networked PCs using the PuTTY terminal emulator.

The Mandelli machine centers have decades of life left in them. Virtualizing the VAX environment ensures the control software will last as long as the Mandelli hardware. Migration Specialties enabled Peerless to modernize several million dollars worth of equipment without downtime or retraining for under \$15,000.

Migration Specialties offers legacy hardware virtualization solutions for Alpha, VAX, PDP-11, and HP1000 systems. Visit the [Migration Specialties Virtual Systems page](#) for additional information.