Solving Server End of Life Instability

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Why Technology Refresh is a better solution than Traditional Refurbish or Emulation

The Problem: Aging Hardware

Mission critical applications that manage everything from asset management to real-time train schedules to financial stock exchanges still run on hundreds of thousands of VAX, Alpha, IBM, Sun and other legacy machines. In many cases, OEM's continue to support the operating systems for these servers. For example, HP released OpenVMS version 8 in June 2010 for VAX, Alpha and Itanium-based servers.

The operating systems and applications that run on these legacy machines still meet current business computing requirements. However, OEM's no longer support the legacy hardware on which these systems run. Worse, original parts are scarce or non-existent, and new parts and upgrades are even harder to come by. The federal government, for example—one of the largest consumers of legacy technology—has responded to this growing problem by creating DMSMS (Diminished Manufacturing Sources and Material Shortages) standards (see DoD 4140.1-R for example) to help plan for solutions to hardware end of life-related issues.

The Solution is Often Not Simple

On the surface, the solution is simple: migrate to new hardware. However, the reality is far more complex. Enterprise and military consumers are resistant to migration because of the following major reasons:

1. Too costly or difficult to recertify new hardware (let alone new software) to meet government regulatory requirements—this is especially true in the pharmaceuticals and industrial chemicals industries;

2. The original hardware was installed into custom enclosures and can't easily be replaced with off-the-shelf new hardware—submarines, jet fighters, and naval surface ships are examples of this setup;

3. Changing to new hardware will trigger changes to software and business process workflows—which end up being cost prohibitive in the aggregate.

Available Solutions

For those enterprises that choose not to migrate to new hardware, for reasons stated above, there are three reasonable solutions available:

1. *Emulation*:
   Run your existing application solution and operating on virtual legacy hardware on a virtual machine hosted on new hardware/software. For example, run your OpenVMS application solution on a VAX virtual machine (software emulated

hardware) hosted on Windows 7 running on an Intel x386 server.

2. *Refurbish:*
   Clean up and repaint external casings. Fix only problems that are immediately apparent, and leave the rest alone. Provide a warranty for 30-60 days.

3. *Technology Refresh:*
   Clean up and repaint external casings. Test and fix ALL critical failure points, whether they pose an immediate problem or not, and warranty for 10 years maximum. Subsequent refreshes extends warranty for decades.

Why Technology Refresh is the Right Choice

If the goal is to maintain 100% of current application capabilities while achieving hardware stability at a manageable cost, the choice is clearly Technology Refresh. The following table outlines how each option rates against the original machine:

	Tech Refresh		Refurbish		Emulation	
Performance	√	Same	√	Same		Slower
Energy Efficiency	√	More		Same	√	More
Native I/O (No Latency)	√	Yes	√	Yes		No
Max Warranty	√	10 years		60 days		1-3 years
All New Mechanicals	√	Yes		No	√	Yes
All New CPU Battery	√	Yes		No	√	Yes
Total Wins	**6**		**2**		**3**	

Conclusion:

Technology Refresh achieves the above wins by taking a proactive approach to End of Life issues. ALL potential points of failure are addressed, not just the apparent ones. Furthermore, because the parts used to replace original OEM parts are new, more efficient, military-grade parts, you end up with a much greener machine. Refurbished machine do not receive complete mechanical and electrolytic overhauls, and so they will not gain the same energy efficiency.

Because a technology refresh does not change the fundamentals of the hardware platform, all original software solutions will run natively without the significant I/O latency and performance degradation of an emulated solution.

Overall, Technology Refresh is the best option for addressing End of Life server issues.