The Cost-Effective Alternative to Expensive Hardware Migration



Allowing Classic Systems to Flourish in the Modern Utility Data Center



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Mission-Critical Classic Systems Vs. the Modern Data Center

Not an either/or decision

Are you considering migration to replace your classic hardware?

While it seems that modern data centers and classic systems are mutually exclusive, this is not the case. Hardware virtualization represents an affordable alternative for those wary of joining the rush to replace classic systems.

Tired of relentless capital investment in technology, business executives are now eager to see IT solutions that contribute directly to their organizations' profitability. Only too eager to please, many CIOs dive headlong into data center transformations to reap the cost-saving benefits offered by the latest technologies, like cloud computing. A cuttingedge data center offers the promise of a not-so-distant and nimble future of doing more with less, relying on highly flexible, scalable, and adaptable solutions with smaller, more efficient footprints.

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For many organizations, the question of what to do with their mission-critical classic systems is a constant source of worry. These systems have been some of the most reliable, secure, and indestructible in any data center and provide the highest possible performance and uptime, but they still run on expensive, proprietary hardware platforms. They are comprised of the likes of VAX, Alpha, HP 3000, PDP-11, and SPARC hardware running OpenVMS, Tru64, MPE, and Solaris—and they still run mission-critical applications for some of the biggest names in government and industry. Utility company executives in particular should think twice before joining the current rush to replace classic systems that is sweeping corporate thinking.





The Case for Classic Systems

Consider the example of NASA's space shuttle program. Although NASA did not retire the fleet until mid-2011, all the space shuttles ran on 1970s-era classic systems until the conclusion of the program. The reason for this was that upgrading any component of the original closed system would have required extensive testing for flight recertification—a process that would have lasted longer than the planned lifespan of the new part. By the time the newly certified shuttles would have received clearance for takeoff, the new upgrade would already be obsolete.

Classic systems are also extremely valuable in terms of the knowledge they contain about organizations' business processes. Most classic systems still running today were built and refined through an iterative process spanning many years.

In fact, many industries—like banking, air traffic control, rail freight and energy distribution—rely heavily on classic systems to this day. Classic systems are the bedrock of operations that require 99,999 percent uptime, stellar security, high fault tolerance, and ensured disaster recovery. The fact of the matter is that these classic systems are still in use because they are very robust. All else being equal, the assumption among experts is that most classic systems today were built to run forever (more like a Volkswagen Beetle and less like Windows Vista). Classic systems are also extremely valuable in terms of the knowledge they contain about organizations' business processes. Most classic systems still running today were built and refined through an iterative process spanning many years. Is your business's succession-planning and knowledge transfer top-notch? Dismantling a classic system's architecture may mean losing institutional knowledge contained therein. To this day, classic systems provide enterprise-class functionality that many new systems have yet to match:

Disaster Recovery

These classic systems' fault tolerance and disaster recovery features are legendary. Historically, these systems run the most mission-critical applications on the planet, on which billions of dollars and thousands of lives depend: transaction processing systems, manufacturing systems, and Enhanced 9-1-1, among others.

Constant Uptime

For enterprises requiring 99,999 percent uptime, these industrial-strength operating systems can keep up with the demands of round-the-clock business. Many companies and government institutions refuse to move from an operating system like OpenVMS because it simply works—all the time and with minimal intervention.





Stellar Security

Classic systems typically have stronger security than the more recent UNIX or Windows environments. For example, studies have shown that OpenVMS is ten times more secure than other popular operating systems currently available, and it has 75 to 91 times fewer unaddressed security vulnerabilities on any given day. Additional vulnerabilities in newer systems continue to be discovered, potentially enabling malicious compromise or re-infection before security software publishers have a chance to update their virus/ malware filters.

Certification

Many companies that must abide by government regulations (as was the case with NASA) stay with classic platforms because the impact of maintaining compliance is just too high (think Sarbanes-Oxley or HIPAA). In many industries, regulators require that if any core aspect of the software stack is changed, the entire solution must be re-certified—an expensive and timeconsuming proposition.

Explore the Options for Replacing Classic Systems

Carefully Weigh the Benefits Vs. Risks

Organizations saddled with decades-old computer systems cannot easily replace them. Classic hardware, software, and operating systems often form the bedrock of their operations, and these companies have incrementally modified or enhanced these systems over many years, to the point where they are exceedingly complex and prohibitively expensive to duplicate. To bring these mission-critical applications in line with a broader data center transformation strategy, companies have two main options to consider with greatly varying costs and benefits:

Application Migration or "Porting"

Re-writing the application to run on more modern operating systems and hardware platforms is an expensive and risky proposition. The classic system has likely been running for 20 or more years, is composed of millions of lines of code, contains thousands of workflow processes, and has had hundreds or even thousands of modifications over the years. Furthermore, the company has an absolute dependence on the proper and effective operation of the application to keep operations running.

✓ "Porting" is a high-risk, multi-year, multi-million dollar proposition.





Buy a New Application

Companies can look for off-the-shelf solutions. Typically, these are written with a "one size fits all" approach and come with the best and brightest consultants to configure and implement this type of new system to meet an organization's specific workflow requirements.

Both the "porting" or "buying" options necessarily require large-scale retraining of administrators and end users, which tends to create large change management headaches for organizations—all at a time when people are already overworked just keeping up with their day-to-day responsibilities.

Down the Road Less-Virtualized

Upon closer inspection, the operating systems and programs of mission-critical classic systems are usually rock solid. More often than not, it is failing or obsolete hardware components that are behind these classic systems' skyrocketing maintenance costs and growing risk. Maintenance contracts for these platforms are getting more expensive every year, as gualified technicians leave the workforce, parts become harder to find, and vendors push customers toward more modern hardware. Mercifully, there is a middle-of-the-road strategy: many companies have found a way to move forward with data center transformation and simultaneously maintain their classic systems by way of hardware virtualization. With this approach, you effectively recreate a virtual version of your classic hardware on top of new and current hardware. The new virtual hardware imitates the classic hardware, and the mission-critical application and its native operating system will keep running seamlessly. The result is a modern, cost-effective hardware infrastructure and true, mission-critical enterprise-level performance. Once a workload has been virtualized on standard x86 Linux or Windows hardware, future upgrades or replacing commodity hardware on an ongoing basis is straightforward and more affordable. Additionally, with hardware virtualization, organizations avoid the cost of new software licenses, other than for the virtualization package itself, and assume a lower risk of downtime by keeping existing software applications in place. They also avoid expensive retraining, and business processes effectively remain untouched and ongoing.

In the Real World

Just listen to what these mandarins of industry had to say reflecting on their choice of hardware virtualization:

✓ The classic 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 www.tomago.com.au



«Stromasys» virtualization software solution, implemented by CMC Limited at our plant, has enabled us to seamlessly transition our business-critical applications to a vendor-independent platform, rather quickly and much to our delight. »

Anurag Agnihotri, Chief, Operational Assistance and Systems Administration, Tata Steel Limited www.tatasteel.com

✓ The system remained up 100% of the time for a year before we shut down again for routine maintenance. It is even more stable than the real VAX was. ≫

Blair Simister, Information Systems Manager, Flexi-Coil www.flexicoil.com

Conclusion

When it comes to mission-critical classic systems and modern data centers, don't make the mistake of keeping the bad along with the good. It does not have to be an "either/ or" decision, and a "one size fits all" approach can be similarly hazardous. Decadesold classic hardware may be causing you problems, but the operating systems and applications in which you have invested thousands of man-hours and millions of dollars are likely still performing at a mission-critical level.

Support your classic software stack with a virtualized hardware solution to improve performance, increase reliability, save money, reduce the data center footprint, and fall in line with today's data center transformation strategies—all in a single move. Learn how at Stromasys.com.

Companies who seek a competitive advantage and adopt this cost-effective strategy of a common computational platform for their mission-critical classic applications win by avoiding complexity, stabilizing the infrastructure, and saving millions of dollars.

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