



University of Houston's New Virtualized Computing Center Receives High Marks.

“**Möbius Partners** Makes the Grade.”

Virtualization Enables University of Houston to Do More with Less

Founded in 1927, The University of Houston (UH) is the leading public research institution of higher learning in the fourth largest city in the U.S. With a student body of approximately 35,000 students, UH offers its undergraduates more than 100 majors and minors, while its graduate students have access to nearly 200 top-ranking degree programs.

Unprecedented Demand Overwhelms Aging, Underutilized Servers

In 2007, UH's central computing infrastructure was facing unprecedented demands for power from its High Performance Computing Lab, yet its facility capacity was fixed. In addition, departmental requests for accelerated deployments of new servers went unfulfilled for months. Like many institutions, UH central computing had to find a way to do more with less. According to Mike Alleman, manager of operating systems, enterprise computing for UH, “Two facts were undeniable. Disk drive utilization of our current servers was only 5-15%. And about half our machines would be out of warranty within two years. The message was clear: We had to increase effectiveness and prepare for additional capital investments to keep our servers current.”



Overview

CUSTOMER

- The University of Houston

INDUSTRY

- Higher Education

CHALLENGES

- Escalating computing requirements
- Finite budget
- 5%-15% disk drive utilization on aging systems

SOLUTION

- HP Enterprise Virtual Array (EVA) Series 6000
- HP C-Class Chassis Blades
- “Data center in a box” with VMware virtualization layered on top

RESULTS

- Accelerated deployment of servers
- 60-80% disk drive utilization
- Flat power consumption
- 28 new virtual machines — not one purchased
- Reduced cost to own and operate

“...Mobius Partners’ can-do attitude, ability to grasp our vision, and great project management skills have made the relationship tremendous!”

Pure Blade Solution Leaves Traditional Rack-Mounted Servers Behind

The IT leadership team at UH had been exploring virtualization and blade technology as possible solutions for about a year when Alleman joined the enterprise computing team in mid-2007. “UH was an HP shop and we already had one P-class blade. Right off with the new C-class blades, I noticed it had a back plane that was well designed, good network switch integration and simplified storage area network (SAN) integration. I could see HP had thought it through nicely.”

HP’s local representative recommended that UH meet with Mobius Partners, a local IT solutions provider that specializes in enterprise level data center technologies. Mobius Partners met with Alleman and his team and recommended HP’s Enterprise Virtual Array (EVA) 6000 Series for SAN and C-Class Chassis and blades for the data warehouse environment and for the virtualization environment. “The only way we were going to get there was by leaving traditional rack-mount server computing in the dust. And that is exactly what we did,” says Alleman. Intelligent blade enclosures monitor power draws and can shut down unneeded power supplies. “Mobius Partners leveraged our VMware so that, in our data warehouse, it supported our Windows and Linux operating systems running in a virtual environment. This is no trivial achievement, I can assure you,” says Alleman. “They brought the right HP technical people to sit down with us and they designed a pure blade solution for the back-end in the data warehouse that is elegant!”

28 New Virtual Machines Created Without Buying Any New Equipment

The virtualized centralized computing environment enabled the university to create 28 new virtual machines without buying any new equipment. That



helped centralized computing stay within its budget and produced other benefits including load balancing, simplified administration and power conservation in a high-availability environment. Thanks to virtualization, the university now achieves 60-80% utilization rates on its servers — up from 5-15% before virtualization. “For each single physical blade, we get 10 to 15 virtual machines in the same space. That’s why we find that the combination of VMware and HP hits a sweet spot in many ways,” says Alleman. “We can now turn around new servers within a matter of weeks and instantly adjust memory to meet actual needs. Now that we can offer faster deployment times and unheard of flexibility with virtual memory, we have extremely happy customers.”

Adds Alleman, “We could not have done it without Mobius Partners’ technical staff and its ability to tap into the expertise at HP. Mobius Partners’ can-do attitude, ability to grasp our vision, and great project management skills have made the relationship tremendous!”

Looking ahead, Alleman envisions a time when UH departments can implement virtual servers on demand from a Web page. “They will submit their needs to centralized computing and we will quickly create a virtual server for them. By going to blade architecture in combination with virtualization — and by doing it with HP C-Class and introducing a variety of blades and interconnect options — we have advanced campus computing into the future.”