

TOPIC: VIRTUALIZATION

User Requisition of Virtual Servers Saves University Over \$2M and Cuts Deployment from Weeks to Minutes

Challenge/Goal

Our data centers were running low on space, our power consumption was growing, and server deployments could sometimes take six to eight weeks. We needed a way to provide faster deployment times while utilizing less power and space in our data centers.

Solution Overview

Our initiative, Virtual Server Services, implemented full server virtualization using management and request tools that allow users to requisition their own virtual servers. We created two independent virtual server farms to allow us to load balance between the two data centers. Clients from our administrative, business and academic areas use the tools, as well as our internal IT department.

Technology & Providers

We chose [VMWare vSphere](#) for our software layer due to its hypervisor and management suite. We utilize the vCenter management system components such as Capacity IQ. We looked at competing solutions from Microsoft and Citrix, but VMWare had more redundancy and was more robust. Specifically, it allowed us not only to migrate a system from one piece of hardware to another, but also from one site to another, something the other vendors did not offer at the time. We chose [Dell](#) for our server hardware. On the storage end, we started out with [Compellent SAN Storage](#) and stayed with it after the Dell/Compellent purchase. It is easy to expand and to maintain, and has excellent support.

Investment & Timing

Pilot program: Initial investment of \$100K in server hardware and licensing for VMWare suite, and six to eight weeks from planning to deployment. Full implementation: \$1.5M for entire virtual infrastructure over five years, which continues to expand.

Results/ROI

- About \$200K per year in power and cooling savings in our data centers, based on the number of active virtual machines at our farms versus the physical systems we would have needed.
- About \$2.3M in capital savings for server hardware over the life of the project.
- Salary savings of roughly \$120K per year from reduced server management costs.
- Deployment time for servers has gone from upwards of six to eight weeks to five to 10 minutes.
- Space reduction in data centers (including power considerations, cooling and generators) has extended our data center life without need for physical expansion.
- Initial \$100K investment paid off within first several months. It took **less than two years** to reach full ROI.

Staffing Requirements/Challenges

We didn't try to migrate our entire infrastructure within a month or two; we started small, got training for our staff, and put progressively higher loads onto the servers. To have done a quick complete migration of our existing infrastructure would have required hiring additional staff or professional services. **FTEs: Eight to 10** for the whole implementation; **2.5** for current operation and expansion.

Chief Risks & Mitigation Actions

We had to find a balance between our software vendors' hardware requirements and the real-life resource consumption of applications. Once we virtualized, we found that we were spending two-to-three times what was necessary on physical hardware. Now we typically give application managers half the vendor-specified resources, adjusted appropriately after 30 days of testing.

continued >>>



Council Member

Michael DiPaolo, Associate Vice Chancellor & CIO, University of North Texas System

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Company Profile

The University of North Texas System was founded as the Texas Normal College and Teacher Training Institute in 1890. It serves more than 40,000 undergraduate, graduate and professional program students around Dallas, Fort Worth and Denton.

Industry: Government & Nonprofits
Headquarters: Dallas, Texas
Revenue: \$1.1B
Total Employees: 5,700 full-time faculty and staff & 3,000 part-time students
IT Employees: 260
IT Budget: \$25M

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Lessons Learned

1. Investing early in good management reporting tools allows you to plan for your capacity much better than trying to estimate based on the view in standard interfaces. Examine the differences between your farms and growth patterns so that you're not caught in a high-load period without necessary resources.
2. Don't let your application owners tell you they can't have their applications virtualized. In our experience, almost every single virtualization attempted was successful on a technical level. There are very few legitimate business cases not to virtualize an application.

3. Be aware that vendors may give you problems over licensing and support when you run their software in a virtual environment. Before you virtualize any application, be sure you thoroughly understand how the vendor will or will not support you and if its licensing policy makes sense in the new environment.

-Michael DiPaolo, Associate Vice Chancellor & CIO
University of North Texas System
October 2012

COUNCIL BENCHMARKS - VIRTUALIZATION

Total Implementation Time



- 3 months or less: **3%**
- 3 to less than 6 months: **18%**
- 6 to less than 12 months: **31%**
- 12 to less than 18 months: **27%**
- 18 to less than 24 months: **10%**
- 24 to less than 36 months: **8%**
- 36 months or more: **4%**

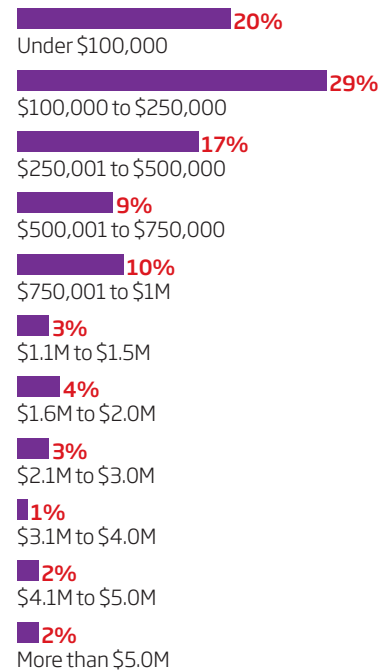
Primary Vendors

- Citrix: **45%**
- VMWare: **45%**
- Microsoft: **9%**
- Dell: **8%**
- HP: **8%**

Benefits Realized/Expected

- Lower IT capital costs: **59%**
- Lower IT operational costs: **76%**
- Better risk management: **48%**
- Improved business continuity: **62%**
- More efficient/effective business processes: **38%**
- Improved user communication/collaboration: **23%**
- Faster/better business decision making: **9%**
- Improved responsiveness to changes in industry/markets: **3%**
- Improved ability to acquire or retain customers: **10%**
- Better quality of products/services: **26%**
- Revenue from new IT-derived products/services: **4%**

Total Investment



173 respondents / Not all respondents answered all questions.

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