The Need For Fewer, More Efficient Servers

With more than 2,000 clients worldwide, Itron Inc. is the leading global provider of solutions for collecting, analyzing and applying electric, gas and water usage data. The company was using more than 150 physical servers to support a wide variety of enterprise applications, from smaller applications used by just a few people to a Siebel CRM system used by most employees. With server management becoming a costly headache, Itron sought a solution that would reduce the number of servers without sacrificing performance.

In August 2003, Itron contracted VMware partner Solutions-II, Inc. for a server consolidation study. Solutions-II specializes in server and storage consolidation and business continuance services, complemented by an award-winning professional services organization. The consultants looked at percentage of server use within an eight-hour period of time. They found that Itron's largest server, a backup server, was being used 40 percent of the time. The next largest server was being used seven percent of the time, and 80 or 90 of the servers were running just two percent of the time.

For example, Itron uses Equity Edge, a stock option tracking program. Equity Edge was on its own server, but the machine was underutilized because the program has only a few users. "The Solutions-II study made a pretty compelling argument for using VMware to maximize usage on our underutilized machines," says Kyle Goodwin, manager of network and computer systems for Itron. "With VMware, we could free up the under utilized machines and use the processors more efficiently."

"Solutions-II is dedicated to finding our clients the solutions that will bring them long-term business value," says Mike Thompson, senior account manager for Solutions-II. "We recommended a server management and consolidation strategy using VMware because it we knew it would deliver the cost savings and results that would positively impact the bottom line."

The company chose VMware® ESX Server™ because of the strength of the product and VMware's reputation as the leader in virtual machine technology. Goodwin explains that VMware already had fans at Itron because system developers were using VMware Workstation to run more than one operating system on their computers. "We had VMware Workstation already in house, and based on the resiliency of the software and its solid reputation, VMware Server software seemed like a good solution," he says. "Also, no other solution provided the robust services we needed."

Server Consolidation With VMware Saves Itron Money and Resources Without Compromising Performance

Itron developers gain flexibility for testing, development and production deployment of enterprise applications, including CRM and ERP systems

Results

- 15:1 server consolidation ratio
- Created efficient test, development, integration and production environments for Siebel eCRM
- Saved more than $48,000 in hardware costs
- Cut server deployment time from weeks to hours
- Improved server utilization by 300 percent
- Saved resources including physical space, heating costs
- Increased system scalability

"VMware gives us a complete virtual environment, with servers that can grow, expand and change dynamically. We’re able to react more quickly because we don’t have to justify or make hardware purchases, and we can make changes quickly because we have all the equipment here."

Kyle Goodwin
Manager of Network and Computer Systems
Itron
An Effective Simulation of Physical Servers

To test VMware ESX Server, Itron and Solutions-II created a proof of concept machine on one IBM x440 server. Following a week of VMware training, Itron attached the server to its IBM ESS 800 storage area network (SAN), and then created six virtual machines on the server to provide a new Siebel test environment. “We had some servers running Siebel coming off their leases, so we put them into a virtual environment. That way, it was easy to evaluate VMware in a test and development environment.”

The pilot program was successful. “We replaced more than five servers, running them as virtual machines on a single physical server, and had the ability to add more applications to that single machine,” explains Doug Dominey, system administrator for Itron. “The developers didn’t even notice they were in a virtual environment. The performance equaled that of the applications running on separate physical machines.”

Using ESX Server, Itron now has more than 60 virtual servers on four physical machines, and plans to add two more systems and eventually deploy more than 80 virtual servers. Itron also uses VMware P2V Assistant to migrate applications from single-use servers into virtual machines.

VMware Benefits Positively Impact Itron Business

VMware ESX Server has helped Itron meet its goal to reduce the number of servers, while providing several other benefits, including:

- **Server Consolidation.** Itron is able to put 15 or more virtual machines on each server, increasing CPU utilization and server utilization without loss of speed or performance.

- **Cost Savings.** Looking at hardware costs savings alone, Goodwin says the company has saved at least $48,000.

- **Reduced Physical Space Requirements.** VMware software allows Itron to run a large number of applications, including those that are CPU-intensive, while reducing space requirements. “We are in a datacenter that is landstarved, so we cannot put a lot more servers in the room. Also, in IT, the business requirements are getting more complex. If we had a server for each environment we needed, we’d be stacking the servers on the floor.”

- **Faster Server Deployment.** VMware software enables Itron to deploy servers much more quickly, so the IT team can be more responsive to internal customers. “For example,” Dominey says, “I was approached to create a new development environment that required 12 servers, and I was able to deploy those servers in the course of an afternoon. Before ESX Server, it would have taken weeks.”

- **Virtual Environment Brings Scalability.** VMware software gives Itron the flexibility to quickly react to business needs. “VMware software gives us a complete virtual environment, with servers that can grow, expand and change dynamically. We’re able to react more quickly because we don’t have to justify or make hardware purchases, and we can make changes quickly because we have all the equipment here.”
Meeting the Demands of Enterprise Applications

VMware enables Itron to create multiple environments for its larger enterprise applications, including its Siebel CRM system and its PeopleSoft ERP system. Goodwin explains: “For Siebel, we start with three environments: development, test and production, and each can have up to seven servers. When we upgrade our ERP system or other systems, the requirement for multiple environments becomes even more complex.”

Itron can quickly and easily deploy virtual servers with VMware ESX Server. “The ability to create virtual servers without having to set up dozens of physical machines has helped us create these environments and meet the demands of our business developers more efficiently,” says Goodwin.

Itron used VMware P2V Assistant to migrate many of its single use servers into virtual machines. Dominey says they were also able to install PeopleSoft applications in separate virtual machines on one physical box without the help of the P2V tool. “Everything went straight into VMware virtual machines on one physical box, so it was a fairly rapid deployment.”

Future Plans Include More ESX Server, Blade Servers Plus VMware® VirtualCenter™ and VMotion™

Pleased with the scalability and flexibility that virtual infrastructure provides, the Itron IT team plans to build on its current server infrastructure by adding blade servers, VMware VirtualCenter and VMotion. This solution will simplify the management of virtual machines on multiple servers. The team will also be able to migrate virtual machines across different physical servers connected to the same SAN, including blade servers, without service interruption.

“I’m excited about the capabilities that we get with VirtualCenter,” Goodwin says. “One of our initiatives this year is to use blade servers. A blade deployment in conjunction with VMware VirtualCenter and VMotion would really save us money.”