



## Chicago Systems Group Uses VMware Workstation to Plan Customer Server Deployments, Upgrades and Rollouts

### Chicago Systems Group Can Fully Test Client Systems with VMware Workstation to Ensure Smooth Deployments

#### RESULTS

- Lower hardware costs
- Ability to put four virtual machines on each laptop
- Consultants gain more hands-on experience
- Increased productivity testing and developing systems
- Ability to deliver customized, fully tested solutions for clients

#### Design Mockups Require Hardware

Founded in 1997, Chicago Systems Group (CSG) is a rapidly growing IT consulting firm that helps clients build effective e-business and e-government solutions. The firm combines the complex disciplines of technology architecture, software engineering and back-end application integration with design and project management methodologies to help clients transform IT strategies into business results.

CSG builds complex business applications and integrates them with large databases, legacy applications and external systems. In order to design and rigorously test its solutions before deploying them at client sites, CSG needed additional hardware. "To do a mockup of a design, the first thing I would need is hardware—five or ten servers," says Doug Horton, principal for CSG. "You never want to be in front of a client trying to figure something out. You want to be able to go through it on your own first, in your own environment, to get the hands-on experience."

Horton had used VMware® Workstation at a previous company, so he knew it would be a valuable tool for CSG. "When I first used Workstation, I was at a client with a large Solaris environment," he says. "Workstation allowed me to try out the Solaris Intel version. I ran a Solaris desktop and used it to manage Solaris servers. Workstation allowed me to use an operating system that I would not have been able to run without using a dual boot or getting more hardware."

Horton knew that VMware software would enable CSG to take on complex projects because whole user environments could be set up in virtual machines to test and perfect the solution, without having to purchase additional hardware. "When doing migrations and such, there are always unique aspects to each project," Horton says. "Or maybe the client wants us to use a specific tool. We use VMware software to simulate the environment so we can go back to the customer and put their solution into production, and even though we've never done this specific kind of project before, it works exactly as we say it will."

#### Practice Makes Perfect

When working on projects such as migrating from NT4 to Windows 2003, or upgrading from Exchange 5.5 to Exchange 2003 for a client's multiple locations, CSG first does a mockup on virtual machines. "We can use migration tools from different vendors, testing each on virtual machines, so when we're ready to do the project, we know exactly what will work best, what downtimes are involved, and how it will impact systems in their environment."

With VMware software, Horton is able to recreate a variety of complex environments without needing to rely on rooms full of hardware. "With VMware Workstation, we can put any type of application on any type of hardware system and carry it around," he says. "Not everyone can afford to have a basement full of servers and old computers. With VMware software, you can build mock environments on a single workstation."

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*Doug Horton  
Principal  
Chicago Systems Group*



## VMWARE WORKSTATION AT WORK

- VMware Workstation on Dell and HP laptops
- Host operating systems: Microsoft® Windows® XP, Windows 2000 Pro
- Guest operating systems include: RedHat Linux, Solaris, Windows 98, Windows NT4, Windows 2003, Novell Netware
- Applications running in virtual machines include: Exchange, Active Directory, Nessus

CSG keeps a library of base images with different operating systems on DVDs. When a consultant visits a client, the consultant can copy the relevant base image onto whatever hard drive is available. CSG laptops can run up to four virtual machines concurrently.

“With virtual machines, I don’t have to keep installing everything from scratch,” Horton explains. “I have clients running all kinds of operating systems. I keep an image of every operating system that can run on the Intel architecture so when I go to different clients, I can customize to their needs.”

Working in virtual machines also gives CSG the flexibility to revert to earlier states of testing, without damaging the operating system or application or having to start over. “We don’t have to worry because if it doesn’t work and we want to go back, we do a snapshot of the disk and install the product,” Horton says. “If we don’t like it or want to change an option, we just replay the snapshot and start over. It greatly streamlines the whole process of testing, migration and deployment.”

Workstation also has powerful networking options with NAT devices, DHCP server and multiple network switches, allowing CSG to accurately emulate a customer’s environment. “We can simulate a whole network with virtual machines, which we normally would not be able to do at the client site,” Horton says. “We are able to control access, so certain virtual machines can get onto the Internet, for example, but only certain people can actually see the machines on the network.”

## Freedom from Hardware Limitations

VMware Workstation has made it easier for CSG to focus on designing and implementing the best solutions for its customers. The benefits of using VMware software include:

- **Hardware savings.** Instead of buying new hardware to accommodate development and testing needed to design a solution, CSG can use the hardware it already has, freeing up budget and reducing client costs by reducing the hardware requirements for a testing and development platform.
- **Quadrupled capacity.** CSG is able to run four virtual machines on each laptop, easily switching between them rather than booting separate machines. For example, CSG uses Nessus, a freely available scanning tool, for security assessments. “There are two pieces,” Horton explains. “One is the server side, which only runs on Unix or Linux, and the other is the GUI, which will run on most platforms including Windows. I can test both on one computer. If I didn’t have VMware Workstation, I’d need two machines or need to dual-boot.”
- **Increased productivity.** Being able to run multiple operating systems on a single computer allows CSG to do more in-depth development and testing, and take on additional projects. “We’re no longer limited in what we can do by how much hardware we have, or how much hardware the client can provide,” Horton says.



- **Freedom to mess up.** CSG can develop and rigorously test systems before implementing them for clients, without worrying about causing problems on client hardware. "Since we're working on the virtual machines instead of directly on our laptops, we don't have to worry about filling up the laptop, or needing to uninstall components," Horton says. "Also, if something crashes, we don't need to worry about ruining the disk image because we can just revert to an earlier state. This allows us to really dive in and get wet when working on projects."
- **Increased flexibility.** Armed with a library of images, CSG has the flexibility to work with clients using multiple operating systems and configurations. "It makes us more adaptable and able to design solutions more quickly and effectively," says Horton.
- **Hands-on experience.** CSG consultants are also able to use VMware software to stay up-to-date on the latest technology. "When you have computing resources at hand, it is easier to practice and become proficient with tools and expand your knowledge," explains Horton. "You're more valuable to the client because you've been there, done that."

### The Bottom Line—Better Solutions

With VMware Workstation, CSG is able to offer its clients custom solutions that have been fully developed and tested at a lower cost. "Customers notice the fact that migrations go much faster and more smoothly," Horton says. "If it's the client's first migration, they're not even going to know what a hassle it can be because we've already worked out the issues."

"It gives our customers the assurance that things will go as we say they will because we have already done it—not for another client whose environment was slightly different, but in an environment that replicates the client's environment exactly."

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