



VMware Increases Serena's Ability to Test and Debug Software

KEY SUCCESSES

- Accelerated setup time by leveraging standard configurations
- Automated tasks that could not otherwise be reliably automated
- Reduced test machine reset time from minutes to mere seconds
- Delivered better project quality through more rigorous testing on different operating systems – QA reliably reproduced bugs for development
- Reduced costs associated with buying, configuring, and supporting physical systems

VMware Workstation Ups the Efficiency of Serena QA Groups

Complex Products Demand Complex QA Testing

Serena™ is a leading provider of software and services supporting the management of enterprise code, content, and digital assets. As a maker of change management software, Serena's products are complex systems that must address multiple operating platforms. To ensure the highest quality products and solutions, Serena completes thorough QA testing on a variety of platforms. However, installing, configuring, and running these complex QA tests can take days, weeks, or even months. One of Serena's main challenges was to control the cost of maintaining such a large number of test environments, and to protect those environments from loss or corruption in an effort to ensure reproducibility.

VMware Workstation Accelerates Test Provisioning, Reduces Testing Configuration Challenges

For more than two years, Serena's Integration and Test groups have been using VMware™ Workstation to create an easily accessible library of operating systems, pre-installed servers, and development tools in virtual machines. Once an environment is installed in a virtual machine, the image is easy to share, clone, and modify. VMware Workstation ends the drudgery of searching for the right tool and installing-uninstalling-reinstalling new environments. Using VMware Workstation to build a library of virtual disk images, Serena has:

- Reduced the time QA engineers spend installing, configuring, and repairing test systems by allowing the work done by one individual to be leveraged by the whole team.
- Reduced hardware and support costs.
- Increased the speed at which they reproduce bugs for the development team, streamlining the software lifecycle.
- Reduced the time required to restore a test environment to a clean state from 10 to 15 minutes with disk cloning software to a matter of seconds by using undoable disks.
- Used VMware Workstation as a tool to help implement "best practices," ensuring the release of high quality products.



MERANT™

"Instead of buying new machines, we create virtual machines that we can just download whenever we need them. This stock of images has made a huge improvement in our process. It gives us a really efficient, rapid way to test a lot of cases, and we save on both the cost of new hardware and the associated support costs."

*Connie Gaudin
Director of Test and Integration, Serena*



VMWARE WORKSTATION AT WORK

- VMware GSX Server and VMware ESX Server running on Compaq DL 360 and IBM x440
- 200+ virtual machine images used in large testing lab with 50+ physical systems
- Typical hardware configuration is PIII or P4, 500MHz-2.2MHz, 512MB-1GB RAM
- Both Linux and Microsoft® Windows® hosts (including NT, 2000, and XP)
- At least one of nearly every supported guest OS
- Used extensively for network applications testing and development
- Machines configured with various applications
 - Web browsers
 - Web servers
 - Java application Servers
 - Database servers
- Test automation development and execution environment

The Virtual Machine Library: Serena's Secret Weapon for QA Efficiency

Over the past couple of years, Serena's QA team has developed a library of more than 200 virtual machine images, which are stored on a common server that can be accessed by anyone in the group. The various images contain all of the x86 architecture operating systems on which their products are supported, combined with every reasonable permutation of supported Web browser and/or Web server, application server, database, and so forth. Additional images have old versions of PVCS™ products installed into these environments and saved so that they can reproduce customer reported defects. When investigating a defect, Serena engineers simply download a clean version of the environment they need, do what they need to do with it, and then discard it when they are done.

"Instead of buying new machines, we create virtual machines that we can just download whenever we need them," says Connie Gaudin, Director of Test and Integration for Serena. "This stock of images has made a huge improvement in our process. It gives us a really efficient, rapid way to test a lot of cases, and we save on both the cost of new hardware and the associated support costs."

"One of the things I like most is that VMware Workstation facilitates adhering to best practices," says John Arrowwood, Serena quality assurance engineer. "Any practice that is time consuming, intrusive, or tedious is the first to be discarded when under pressure to produce. For example, disk cloning software works but it forces you to maintain one computer for testing and a separate one for e-mail, etc. Before VMware Workstation, we would just trust the uninstall program or maintain multiple parallel installs. But now using undoable disks all we have to do is power off and hit discard and we

are automatically returned to a clean state. The host remains unaffected, so you don't have to maintain two computers. In my opinion, VMware Workstation makes testing in a clean, controlled, and reproducible test environment almost trivial."

For example, Arrowwood does all of his test automation development work in a virtual machine. "I prepare the virtual machine. All of my source code is saved on the host, accessible to the virtual machine via a network drive. I commit all my changes and set the virtual machine disk to undoable. Now I can power-on, install our product on a clean machine, and run our automated tests against it. At any time, if something goes wrong or we get a new build, I can power-off the virtual machine, discard changes, and be right back where I started. Any script changes I may have made are still stored on the host, so I don't lose anything, no matter when I do it."

Says Arrowwood, "What we'd have to do to achieve the same results we get with VMware Workstation – if it were even possible – would include installing every configuration onto every physical computer, coming up with a way to automatically switch between configurations, automatically initiate a restore of the disk, and somehow know when the computer is ready for use."

In other words, "If we didn't use VMware Workstation, we'd be much less efficient in our testing group," says Gaudin. "It helps us keep our equipment costs low, and because the images are portable to almost any system in our lab, we can make maximum use of all our hardware with minimal frustration and effort. It's an enormous advantage for our development and QA environment."

www.vmware.com

VMware, Inc. 3145 Porter Drive, Palo Alto, CA 94304 USA
Tel 650-475-5000 Fax 650-475-5001