User-Centric Computing for Education

VMware provides an innovative approach to cloud computing that allows educational institutions to reduce IT complexity with the flexibility and scalability needed to support them as they grow. By adopting the VMware approach to user-centric computing, educational IT organizations gain the ability to manage, secure and deliver a superior end-user experience to students and faculty across devices, locations and platforms.

"VMware is the future of education technology. By virtualizing our environment, we provide a streamlined infrastructure for students and teachers that allows them to access the educational resources they need from wherever they are. VMware changes the way schools think about everything, from IT support to planning new projects to budgeting. It seems like every time I turn around something else good comes from launching our VMware virtualization projects."

— Julie Bohnenkamp,
Director of Technology,
Center Grove

## A New Era for User-Centric Computing

Computing has become commonplace in educational institutions over the years. Blackboards have been replaced with smart-boards, and binders have been replaced with iPads, Androids, iPods and notebook PCs. The number of applications designed to educate, manage and aid students with their courses has exploded. Students and teachers alike all want to be able to access their data and applications on any device from any location across campus or beyond.

To address these changing dynamics, educational IT organizations are shifting away from traditional approaches to device-centric computing and moving towards a user-centric model where data and applications are securely provisioned and readily available on demand, irrespective of the user's location or the device being used.

The Power of Desktop and Application Virtualization

Virtualization is the catalyst that makes user-centric computing a reality. VMware View, the industry's most complete solution for desktop and application virtualization, decouples applications and data from the underlying hardware so they can be managed centrally in the datacenter and securely delivered to users on any device at any location, whether online or off.

This approach allows IT organizations to reduce the time, resources and costs associated with provisioning and managing campus endpoints, ensures that more students can access the technology through shared or pooled resources, and provides schools with a more sustainable "eco-friendly" technology platform.
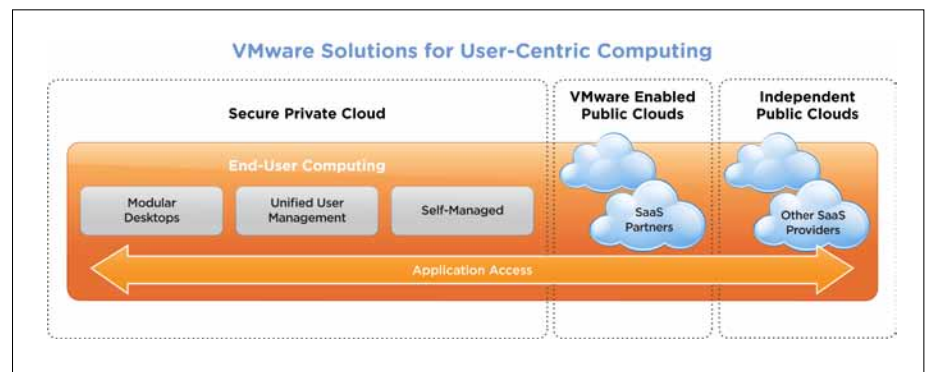
VMware solutions enable secure, ubiquitous access to applications and data across private and public clouds.

Enhance Scalability and Reliability

VMware View delivers high availability with no single point of failure. Built-in features ensure automatic failover and provide pervasive, cost-effective protection across the virtual desktop infrastructure while reducing the cost and complexity of traditional solutions. Advanced clustering capabilities on the physical and virtual layers provide enterprise-class scalability.

vmware®

- Enhance student and teacher productivity by providing users with anywhere, anytime access with a consistently good experience on any compatible device.
- Cut costs by more than 50 percent by eliminating capital expenditures and operational expenditures associated with managing and maintaining desktops.
- Test, develop and deploy new applications across campuses quickly and affordably.
- Quickly provision new desktops and reduce downtime.
- Maximize utilization of software licenses.
- Reduce energy consumption of classroom desktop PCs by 90 percent by extending the life of existing hardware and by leveraging thin clients.
- Provide cloud-based document storage and editing, instant messaging and simplified administrative controls.

"VMware View really extends the boundaries of the university out to our students wherever they are—students can access their H drives, applications, and network resources even if they're off campus."

— Joshua Spencer,
 Desktop Development,
 University of Toledo

Content and Applications, Campus and Personal, Accessible on Any Device, Anytime, Anywhere

Deliver a Superior Desktop Experience Over Any Network

VMware View with PC over IP (PCoIP) protocol technology allows campuses to address a broad range of use cases, from labs to distance learning, and deliver a high-performance desktop, even over high-latency and low-bandwidth connections. PCoIP is an adaptive technology that is optimized for the delivery of virtual desktops to users over both local and wide area networks. VMware View gives end users access to their endpoint environments over a wide variety of devices, from Windows and Linux desktops to Macs, iPads, iPhones, Android phones, and so on. Users can play rich media content, choose from any number of monitor configurations and seamlessly access locally attached peripheral devices such as printers and mass storage.

VMware View Client with Local Mode, a new feature in VMware View, further increases end-user productivity and mobility by allowing them to run fully managed virtual desktops on their local device while offline. Users simply download their virtual desktop onto a local client device. All existing security policies for that virtual desktop continue to be applied and enforced. When a network connection is available, the user can then check the desktop back into the datacenter for resynchronization.

Strengthen Endpoint Security

VMware View offers campuses strong network security to protect sensitive data. SSL tunneling ensures all connections are completely encrypted. Additionally, VMware View fully supports RSA SecurID® and provides the added security of two-factor authentication for tightened access control.

Optimize Application and Desktop Management

Desktop and application virtualization breaks the bonds between software, hardware and operating systems, eliminating the need to actually install or manage desktop environments on end-user devices. From a central location, IT teams can deliver, manage and update Windows desktops and applications in minutes.

Automated Provisioning

VMware View provides a single management tool to provision new desktops or groups of desktops, and an easy interface for setting desktop policies. Using a template, IT administrators can customize specific groups ("pools") of desktops, provision and manage applications, and set policies to govern the number of virtual machines in a pool, login and logoff parameters, and so on. This feature enables greater IT efficiency by automating and centralizing desktop provisioning activities.

Advanced Virtual Desktop Image Management

VMware View allows educational IT administrators to rapidly create desktop images from a single parent image. Updates implemented on the parent image can be pushed out to any number of virtual desktops in minutes, greatly simplifying deployment and patches and reducing costs. The process does not affect user settings, data or applications, so users remain productive even while the changes are being applied.

"View is starting to prove itself out in that not only is it really a rock solid solution, but in the long term it's going to save us tons of money in training and hiring additional IT people. If we had conventional desktops here, we'd need five to probably six extra people. View has given us pretty much an end-to-end IT solution for a very small district. And, I find it to be not only an amazing product, but a game changer in technology for education"

— Rick Schliemann,
    Director of Technology,
    Babylon School District

Streamlined Application Management

VMware ThinApp, available as part of VMware View or as a standalone solution, separates applications from underlying operating systems to streamline application management and eliminate compatibility problems. Applications packaged with ThinApp can be run on servers in the datacenter and accessed through shortcut on the virtual desktop, reducing the size of the desktop image and subsequent storage needs. ThinApp also lets users run multiple applications, or multiple versions of the same application, without conflict.

Increase Energy Efficiency

With VMware View, campuses can leverage energy-efficient thin clients and zero clients to deliver customized virtual desktops to faculty and students and save up to 90 percent on power consumption over traditional PCs. IT administrators can also set policies that govern when virtual machines get powered up and down to further reduce IT power consumption.

Reduce Total Cost of Ownership

Desktop and application virtualization streamline capital expenditure costs by allowing campuses to invest in lost-cost thin clients as an alternative to desktops, and to extend the life cycle of existing hardware by converting legacy equipment into thin clients.

CAPEX Savings	OPEX Savings	Increased Productivity
Lower cost Storage and Hardware	Average 50% fewer help desk calls	68% reduced end-user downtime
Concurrent user pricing	55% reduced desktop management time	Automated desktop and data backup
Delayed Hardware Refresh	Ability to provision users in minutes	* Customer examples compiled from typical cases in the industry
	Patch or update from a single image	

VMware end-user computing solutions help to reduce capital and operating expenditures while increasing productivity.

The real benefit of virtual desktops and applications however results from the savings that can be realized in operational expenses. This is important because for every dollar spent on hardware in traditional desktop environments, roughly three dollars is spent on managing those environments.

By decoupling the operating system, applications and data from the end device and by pushing those components into the datacenter where they can be more effectively managed, campuses can dramatically save on the time and resources needed to fulfill help desk tickets, push out updates and patches and provision new images to individuals or pools of users.

"We are very happy with our decision to choose Zimbra. It boils down to this: the solution is very good and the support has been extremely helpful. We've really enjoyed working with the entire Zimbra team."

— Tom Golson,
   Chief System Engineer
   Texas A&M (60,000 users)

KEY FEATURES OF ZIMBRA

- A full-functioning, easy-to-use, Web-based interface
- A lower total cost of ownership compared to other vendors
- Native integration with Blackberry, iPhone and other smart phones
- Simplified administration capabilities with superior deployment flexibility
- Extensibility that enables the integration of new functionality and services
- An open, standards-based architecture, that leverages AJAX, Linux and SOAP

FIND OUT MORE

To learn more about VMware solutions for healthcare, visit us online at http://www.vmware.com/go/healthcare/. For information or to purchase VMware products, call 877-4-VMWARE (outside of North America dial 650-427-5000), visit www.vmware.com/products, or search online for an authorized reseller.

Harness the Power of Collaboration

In addition to desktop and application management, VMware also enables educational institutions to move beyond traditional email with the Zimbra Collaboration Suite (ZCS). This next-generation email and collaboration software provides cloud-based document storage and editing, instant messaging and simplified administrative controls- all in an award- winning webmail user interface built with the latest AJAX Web technology.

To date, more than 500 institutions, including Stanford, University of Pennsylvania, Texas A&M, Georgia Tech, Purdue, as well as many K-12 institutions have deployed the Zimbra Collaboration Suite, and many education customers are running tens of thousands of concurrent mailboxes.

Key Use Cases

Labs and Classrooms

With VMware View and ThinApp, IT administrators can provision customized desktops to pools of users or individual desktops in minutes. IT can benefit from only having to manage a single image per classroom, and the ability to provision applications to users through the parent image or ThinApp and Active Directory entitlements. IT can also maintain full control of the desktops by setting policies so that students do not have the ability to install applications and malware or make any modifications to the operating system.

Libraries and Kiosks

With full support for kiosk mode, VMware View allows IT administrators to set up virtual desktops for universal student and faculty access without any log on required in libraries and career centers.

Cyber Cafes

Schools looking to offer a dedicated pool of desktops to students to view personal email, surf the web or catch up on school related work between classes, can turn to VMware View to provide a rich user experience with policy driven settings that limit students from uploading applications and provide USB redirection support so that students can save their work/data as needed.

Distance Learning and Remote Access

Campuses can expand enrollment and increase revenue by creating virtual desktops that can be accessed both locally and remotely. Applications no longer need to be installed on hardware at remote labs, but rather can be provisioned centrally by IT, saving significant time, resources and costs. Students additionally have the benefit of receiving a consistent user experience regardless of the age or location of the devices they are using, and can enjoy the flexibility of not having to travel miles to attend courses on a central campus.

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