

One of the nation's top 10 health systems gets even better

Kettering Health Network uses HP Client Virtualization and VMware View so that staff can reclaim 62,500 hours a year for patient care instead of computer systems



“Using HP Client Virtualization and VMware View, our 3,000 clinical users can easily save five minutes a day. That adds up to as much as 62,500 hours a year reclaimed for patient care.”¹

Bill Hudson, Director of Information Technology, Kettering Health Network

HP customer case study
HP Client Virtualization with VMware View enables award-winning health network to reclaim 62,500 staff hours a year for patient care instead of computer systems

Industry
Healthcare

Objective

Use virtualization to reduce server and client costs, speed time to value, and enhance patient care

Approach

- Reduce costly PC sprawl throughout facilities
- Maximize clinician-patient time by reducing clinician-PC time

IT improvements

- 100-fold faster time to value on virtual machine deployment (day vs. weeks)
- Enhanced information security due to data stored centrally vs. on endpoints
- Threefold faster deployment of tablet support vs. traditional environment

Business benefits

- 100 percent payback in three years from hardware, power, and maintenance cost reductions
- Increased IT resources available for new projects due to streamlined client maintenance
- Greater flexibility because users can access same desktop from inside or outside network
- Anticipated 62,500 hours of staff time reclaimed annually for patient care

The doctor will see you now

It's not just what your doctor knows, it's how your doctor interacts with you when you visit. Care is something you feel, not just receive. If you're a patient at the more than 60 facilities of the Kettering Health Network (Kettering) in the Dayton, Ohio area, it's easier to have more of your doctor's attention when you visit. Kettering has taken steps that enable its clinicians to focus less on technology, and more on *you*.

A barrier for today's clinicians is paperwork. In many settings, the person giving you care must hunt through paper records and maintain them during your visit. In some settings, health records are now digitized. But to use them, clinicians must sign on to and manipulate many applications and screens. The result is a reduced amount of attention they can give to you.

Kettering is changing the way this is done. It's helping clinicians have more time for patients by spending less time looking at the computer screen. Clinicians can sign on to a system at the beginning of the day, open needed applications, and interact with patients. When it's time to continue on their rounds, they press a button to close their sessions. Then, at the next computer that is convenient, they need only tap the card reader with their ID card, and up comes their desktop, just the way they left it at the previous system.

¹ 3,000 clinical users x 5 minutes saved/day x 250 working days a year = 3,750,000 minutes saved a year/60 minutes per hour = 62,500 hours per year.



About Kettering Health Network

Kettering is an integrated delivery network with more than 60 facilities and 10,000 staff in the Dayton, Ohio area. Kettering has been named one of the **Top 10 Health Systems** in the United States by Thomson Reuters for the last three consecutive years.

Needed applications are still open, regardless of where the clinicians are in the facility, or what device they are using. Everything has been left just the way they prefer. Minutes of repetitious clicking, typing, and waiting for screens to open are eliminated. And those extra minutes can now be focused on patient care.

Patients love it. Clinicians love it. So does the IT team and Kettering itself. It's this type of project that has enabled Kettering Health Network to be named by Thomson Reuters as one of the **Top 10 Health Systems** in the United States for the past three consecutive years.

To make this client virtualization solution possible, Kettering is using VMware View on HP Converged Infrastructure technologies. The benefits are many.

Casting off the bonds of hardware

The first step at Kettering to make this solution possible was server virtualization. That's using a hypervisor or code layer to enable multiple virtual servers to run on a single physical server. With a hypervisor, virtual servers can be moved among physical systems as needed without disruption, increasing service levels and utilization, and lowering costs.

Kettering began server virtualization several years ago. "The cost of provisioning multiple independent boxes for all the different projects we wanted to do started becoming prohibitive in space, energy, and maintenance costs," explains Bill Hudson, director of information technology at the organization.

Virtualization not only saves significant costs, "it makes us much more agile," Hudson adds. "We can spin up a new virtual server in minutes, whereas procuring a new physical server can take weeks."

"Epic, HP Client Virtualization, and VMware View together are accelerators, enabling clinicians to take a roaming session with them and focus on patients instead of keystrokes."

Bill Hudson, Director of Information Technology,
Kettering Health Network

The virtues of VMware on HP BladeSystem

Kettering consolidated 282 physical servers onto nine HP ProLiant BL460c G7 Server Blades, running VMware vSphere 4.1 U1 to host 282 virtual servers in a Microsoft® Windows® Server 2008 R2 environment.

"VMware tools are more advanced, with better technology than competitors' tools that we evaluated," Hudson explains. "I've worked with other hypervisors at other healthcare organizations in the past. We were familiar with VMware and HP technology from a client and server perspective. And tying it all into a client virtualization infrastructure was a big plus for us."

Consolidating 282 physical servers onto nine HP server blades reduced 18 racks of equipment to one rack, making data center space, power, and cooling resources available for new projects such as client virtualization.

How to standardize on client savings

Just like with server sprawl in the data center, Kettering was concerned about PC sprawl in the clinical environment. "We were putting PCs in every nook and cranny so that we could make paper processes digital—nurses can do tasks such as meds administration online, and physicians can order results. But we knew some of these devices would get little use in some areas," Hudson notes.

The answer was to deploy thin clients instead of traditional PCs. Thin clients don't have hard disks, so a user's desktop and applications—instead of being hosted on the device—are hosted remotely and stored centrally in the data center. The user accesses them over the network via the thin client.

To provide this service, Kettering deployed the **HP Converged Infrastructure Reference Architecture for VMware View**. This includes HP ProLiant BL490c G7 and BL460c G7 Server Blades in an HP BladeSystem c7000 Enclosure, HP Virtual Connect Flex-10 10Gb Ethernet Modules, and HP P4800 LeftHand SAN for BladeSystem. HP 600 Modular Disk Systems have been added to increase disk capacity.

Customer solution at a glance

Hardware

- HP ProLiant BL490c G7 Server Blades
- HP ProLiant BL460c G7 Server Blades
- HP BladeSystem c7000 Enclosures
- HP Virtual Connect Flex-10 10Gb Ethernet Modules
- HP P4800 LeftHand SAN for BladeSystem
- HP 600 Modular Disk Systems
- HP t5740e Thin Clients

Software

- HP Onboard Administrator
- HP iLO 3 Management
- HP LeftHand SAN/iQ 9.5
- VMware View 4.6
- VMware vSphere 4.1 U2 for VDI
- Epic 2009

Network protocol

- 10 Gigabit Ethernet
- Gigabit Ethernet

HP Services

- HP service and support

“Kettering is a standards-driven organization,” Hudson explains. “We’ve standardized on enterprise computing, enterprise storage, and now client virtualization. The HP reference architecture wasn’t just servers and storage put together—it’s a solution stack that HP warranties and supports as a unified solution, purpose-built to support VMware View. We like the fact that the stack is self contained.”

By using HP Converged Infrastructure technologies, the staff gains several other benefits, Hudson explains. Kettering administrators are familiar with tools such as HP iLO and Onboard Administrator, and together they streamline server and storage management.

By using HP Virtual Connect Flex-10 10Gb Ethernet Modules in the HP BladeSystem c7000 Enclosure, the Kettering team can throttle bandwidth up and down as needed between management, application, VMware servers, and the P4800 SAN. Bandwidth is no longer static as it is in non-converged infrastructures.

Kettering worked with Open Systems Technologies (OST), an HP Elite Partner, to finalize the solution and roll it out. “OST has been a fantastic partner for us,” Hudson says. “They did a great job helping us spec the system, deploy the back-end architecture, and roll out Epic. We challenged them to reduce the overhead of VDI sign-on to be imperceptible to the user, and they did it.”

Dropping client TCO

The solution will support about 40 percent of Kettering’s clinical environment with VMware View desktops on HP thin clients, such as the T5740, Hudson says. “We can have up to 4,500 concurrent sessions,” he notes.

Savings occur in multiple areas. “Thin clients reduce power usage by up to 75 percent compared to thick clients,” Hudson observes. “And thin clients can be configured, patched, and maintained in about 50 percent less time. Because they don’t have hard disks—the part of a system most likely to fail—I can replace them every seven to eight years instead of four to five years. And I can manage them all from a single location.”

Prior to deploying VMware View and HP Client Virtualization, the IT team had been using a session virtualization solution, delivering some applications as centrally hosted, on-demand services. “We will retire as many use cases as we can of our prior solution, and replace them with VMware View use cases,” Hudson notes. “VMware View is easier to manage. Users can remotely connect from a number of devices, yet use the exact same virtual desktop, whether they’re working from home or the hospital.”

When Kettering was using the session virtualization solution, one user could disrupt multiple sessions easily, Hudson points out. “We need to be careful what applications we add to the mix because of the way they affect multiple users. Whereas with VMware View, we can deploy new features, functions, and use cases quickly to the global pool, in a way that doesn’t disrupt users.”

Kettering projects 100 percent payback on the client virtualization project in year three, with significant cost avoidance projected in hardware acquisition, maintenance, and power in years four and five.

Already, help desk calls for the HP thin clients are lower than standard desktop calls. “And an application upgrade can be done in a day instead of weeks. That saves us thousands of hours that it would take to go out and update every single workstation,” Hudson says.

In addition, clinicians and patients gain several benefits.

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Reclaiming an anticipated 62,500 hours a year to enhance care

“There is a lot of excitement among clinicians because sessions can follow them on their rounds, saving them sign-on time,” Hudson explains. “Using HP Client Virtualization and VMware View, our 3,000 clinical users can easily save five minutes a day. That adds up to as much as 62,500 hours a year reclaimed for patient care.”²

A key element is that clinicians need only enter a password once, when the day starts, and then their session and all its applications open wherever they next tap their RFID badges, Hudson explains. “We’ve scripted code to act as the glue between the virtual desktop, the tap-badge reader, and Sentillion Vergence and Epic solutions for a single sign-on and for clinical context. If a clinician needs to order meds, the badge must be re-tapped and password entered again for added security.”

² 3,000 clinical users x 5 minutes saved/day x 250 working days a year = 3,750,000 minutes saved a year/60 minutes per hour = 62,500 hours per year.

Enhancing security by centralizing data

Security is enhanced because all applications and data are stored in Kettering's data center rather than on the endpoints. "If someone steals a thin client, it's unusable outside the network," Hudson observes. "What's more, when clinicians are done with a session and click an exit button, the session is shut down, and no data or applications remain on the device."

All user data can be more easily backed up because it's stored centrally. In addition, if a thin client fails in the field, or a server fails in the data center, user sessions can be failed over to alternative systems, and users can keep on working.

Flexibility that everyone likes

"Another benefit is that we're piloting VMware View on the iPad," Hudson points out. "This was something that wasn't even in our initial plans, but physicians are very excited about it and we think it is going to be a huge advantage. An iPad gets locked down appropriately when used in our environment, and it enables a clinician to take steps like reviewing status and placing orders when offsite."

It's much easier in an HP Client Virtualization environment to stage a change like this, Hudson notes. "It took us only about 80 staff hours to plan this and roll out a test," he says. "In a traditional stack, it would have taken three times longer."

The person who ultimately benefits is the patient, Hudson points out. "Epic, HP Client Virtualization, and VMware View together are accelerators," he observes, "enabling clinicians to take a roaming session with them and focus on patients instead of keystrokes."

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