

Raritan Bay Medical Center

Case Study

Raritan Bay Medical Center cost effectively improves patient care and staff efficiency with Wyse technology

Challenge: Streamlining a complex environment

For Raritan Bay Medical Center (www.rbmc.org), meeting the healthcare needs of the central New Jersey residents it serves while remaining cost-competitive with other hospitals is a balancing act. The non-profit healthcare provider operates two hospitals. Licensed for 501 hospital beds with 2,200 physicians, nurses and support staff, Raritan Bay Medical Center (RBMC) treated more than 90,000 patients in 2008. In 2009, U.S. News & World Report ranked it among the best U.S. hospitals.



Like other medical institutions, RBMC must control costs while maintaining the highest levels of patient care, safety, and privacy as required by HIPAA.

RBMC relies on technology to help it meet these high standards. Its technology environment is as complex as its staff is busy. Various departments use multiple specialized applications, such as several from Siemens Healthcare including, Med Administration Check™ used heavily by nursing staff, and a patient management and clinical records system, called INVISION®, that is used throughout the facilities; and multiple third party applications including a Picture Archiving Communication System (PACS) and scheduling systems. Staff accesses the applications via RBMC's secure intranet using fixed workstation and mobile units.

Since 2001, RBMC has used a combination of thin client devices from Wyse Technology and standard PC desktops running Microsoft Windows CE. Citrix Presentation Server provided virtualized applications to thin client users and enabled IT staff to customize and control access levels.

Viewpoint

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NETWORK ANALYST
SIEMENS HEALTHCARE





Enhanced patient care

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As medical staff's need for more devices and rapid access to applications increased, RBMC began to outgrow its technology solution. It needed a highly secure environment, better performance, and space-efficient hardware. “RBMC wanted to be sure that as its infrastructure grew, it had a secure environment in which patient data could be accessed efficiently and only by the appropriate medical staff,” asserts Eric Brown, a network analyst based at RBMC and an employee of Siemens Healthcare, the managed services provider that handles the medical center's IT environment. “Lack of space had also been a problem because nurses' stations were overly crowded with desktops. The Wyse thin clients we had were also nearing end-of-life, and we needed to look at migrating to the next level.”

Among the most significant challenges were inefficiencies resulting from configurability issues with Windows CE on the PCs. When physicians zoomed in on images, such as x-rays, at PACS workstations, they were blurry because those units couldn't deliver high enough resolution. Doctors had to share a single system at each nurse workstation that was able to display sharp images.

Another major concern with the PC desktops was the easily corrupted user profiles that impacted medical staff productivity. “When one device went bad, it affected three or four others,” explains Brown. If this happened in the lab, for example, some employees wouldn't have to access the applications they needed to process samples. “That translated into lower productivity for medical and support staff,” says Brown. “It also resulted in numerous help desk complaints. Every week, we spent several hours fixing corrupted user profiles.”

When RBMC decided to upgrade its solution, its main goals were simplification, consistency among systems, and improved security. Although the medical center considered a competing thin client solution, it ultimately selected Wyse Technology again because of its positive track record working with Wyse, the compact footprint of the thin clients, and the space savings afforded by being able to affix the devices onto walls.

RBMC also liked the ease with which it could add wireless capacity to its mobile devices and the number and variety of ports available. “RBMC has a lot of devices with different connection requirements,” explains Brown. “With Wyse, we can customize the units to fit nearly any kind of environment here.”

Solution: Wyse offers simplicity and efficiency

RBMC has deployed approximately 300 Wyse V90LE thin clients running Microsoft XP Embedded (XPe) across its environment. The Wyse thin clients are mounted to the back of monitors, some of which are attached to walls at nurses' stations. Others are used as mobile workstations or with handheld devices. In all, RBMC has replaced about 30 PCs and rolled out 70 new devices, in addition to switching out 200 older thin client devices. And, it expects to add many more. “Whenever we have a request for a new device, our first question is always, ‘Can it be a thin client?’” says Susan Landow, Siemens Site Executive, Siemens Healthcare.

Certain applications, including PACS, INVISION, and employee training modules, are Web-based and available via a link to a SharePoint portal. Larger applications that require frequent updates—including lab, radiology management, and patient tracking systems, as well as office productivity tools—reside on a Citrix XenApp 4.5 server farm, which delivers the applications virtually and instantly to the thin clients. RBMC uses thin clients with terminal emulator software provided by Wyse to provide access to DOS-style interfaces for employees who are more comfortable with that format.





Easier to manage

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Wyse Device Manager (WDM) software helps IT staff centrally manage the thin clients and build and manage custom images for the terminals. Brown can easily develop and test an image, for example, to enable wireless connectivity on a mobile workstation, and rapidly deploy it. “Wyse Device Manager is valuable because of its simplicity and the quick turnaround it enables,” he says. “When I get a request for a new device, I can have it ready in less than two hours.”

Wyse Windows XPe-based thin clients also offer major advantages by allowing RBMC to make better use of its Citrix licenses. Any device running an application from the server requires a license, meaning 200 licenses were always in use with the published desktops. With Wyse thin clients, the medical center has been able to deploy more devices while using fewer licenses at a time, leaving 120 licenses available for other systems to be implemented.

Wyse cuts costs, improves productivity and reduces IT management

RBMC has dramatically simplified its technology environment and thereby lowered its costs by using Wyse solutions. Medical staff is more productive, patient care is enhanced, and IT staff has simplified management and troubleshooting, thereby allowing it to focus on providing a highly secure, state-of-the-art infrastructure that satisfies HIPAA requirements and contains costs.

ROI factor	ROI calculation	Cost avoidance
Reduced maintenance/administration costs	Reduce help desk tickets for Citrix based devices. Comparison over similar 12 month period. Old terminals on Citrix 3.0 with published desktops totaled 290 tickets. XP embedded terminals over a 12 month period resulted in 45 tickets.	5 technician hours per week or 200 hours annually. Help Desk Tickets declined 84 percent. Difference annually was 245 tickets, averaging 1 hr per ticket, saving 5 technician hrs per week or 200 hours annually.
Lower provisioning costs	1 hr. per embedded thin client vs. 4 hrs. per PC (30 PCs replaced and 70 new devices deployed as thin clients instead of PCs).	Reduced provisioning time 75%, or 300 hrs.
Reduced hardware costs	\$500 savings per thin client vs. PC.	\$50,000 saved.
Fewer replacements	PCs replaced every 3-4 years vs. 6 yrs. for a thin client	Our goal is to replace 35 PC's annually with Wyse clients. The cost of 35 PC's would be \$42,000 plus the 140 technician hours to deploy. Alternatively, 35 Wyse clients would cost \$24,500 and only require 35 technician hours. To date we have only replaced 30 physical PC's. However, we have deployed 70 new Wyse clients as net-new systems instead of installing Full PC's or Laptops.
Lower electricity consumption	12V 4.5 amp mobile workstations with lithium batteries last 8 hrs with thin clients vs. 2 for PCs.	75% increase in run time on mobile workstations.





Productivity

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Improving staff efficiency and patient care

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Nurses benefit from tidier workstations, especially where wall-mounted monitors increase available workspace. The tangle of cords associated with desktops is also eliminated. “Anytime you can find a solution that saves space, you can add more devices that help staff do their jobs better,” explains Landow. Nurses also rely heavily on the mobile workstations that enable bedside patient assessments and medication tracking. The low energy consumption of these thin client devices extends battery life by 300 percent over the previous mobile PCs, allowing nurses to use a workstation for eight hours, rather than two hours, before recharging it.

Wyse thin client devices enable greater convenience and boost productivity, thanks to the improved utilization of Citrix licenses. Staff can now access applications remotely rather than having to be physically present at the medical center. “The new thin client environment has been terrific for SSL VPN use, which has been growing rapidly,” remarks Brown. “Doctors, nurses, and support staff love being able to do their work remotely from their offices, homes, or literally, anywhere. Some are already asking about retrieving applications from mobile devices such as iPhones, and we’re looking forward to trying the Wyse PocketCloud app for that!”

Simplified IT management and maintenance

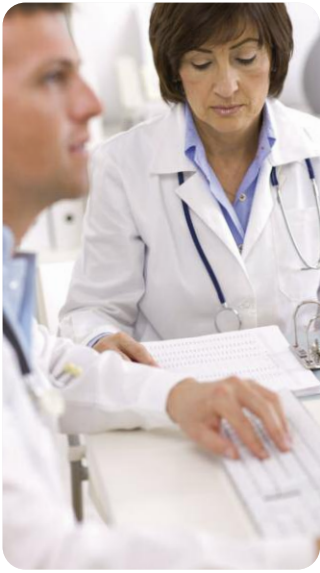
Use of Wyse XPe-based thin clients means less troubleshooting and far easier and faster problem resolution. IT staff receives 50 percent fewer help desk tickets, eliminating several hours weekly spent on break-fix issues. Corrupted user profiles that once accounted for up to a dozen calls per week have been nearly eliminated, saving staff six hours weekly.

When a device does malfunction, staff can easily determine if other similarly imaged devices are having identical problems or if the issue is isolated. WDM simplifies these efforts by enabling central management of images. Additionally, with print servers now installed on each Wyse device, the connection is straightforward. If a print problem arises, it’s faster for IT to resolve.

Productivity improvements extend to provisioning, too. The time to provision a PC took four hours versus one hour with a Wyse thin client device, a 75 percent reduction. Between the 30 PCs replaced by thin clients and the 70 new devices that would have otherwise been PCs, staff have saved approximately 300 hours.

The Wyse thin client environment also allows IT staff to be proactive. “There are many things we can troubleshoot long before they become issues for RBMC’s end users,” asserts Brown. “With just 300 Wyse thin clients deployed, we’re already better able to focus on improving the environment and making it more stable and secure, rather than being consumed with help desk tickets.”





Streamlined and cost effective

“Wyse Technology has helped RBMC develop streamlined and cost-effective processes across its many hospital departments. It’s a solution that gives RBMC great flexibility as its needs grow and change.”

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Hardware savings

The 100 new Wyse thin client devices have saved RBMC \$50,000. The cost to deploy a fully loaded PC runs about \$1,200 versus \$700 for a thin client device. These savings will increase as the medical center looks to replace approximately 100 PCs annually with Wyse thin clients.

The longer life expectancy of Wyse thin clients over PCs will reduce the medical center’s technology renewal rate between 33 and 50 percent. With far fewer moving parts on the embedded devices, RBMC expects to replace its thin clients every six years, as opposed to the three or four year PC replacement cycle.

Increasing security and eliminating infection

Patient data and patient privacy are protected because IT staff can specify who may access particular applications and data based on the user, not the device. Safeguarding this information is even more critical now that medical and support staff have remote access. Tighter access control helps RBMC meet HIPAA requirements.

Wyse thin clients also provide RBMC with a secure environment that prevents users from downloading onto the Citrix server content that might carry computer viruses that could infect the network.

Conclusion: Less complexity achieves more efficiency, flexibility, and security

RBMC has accomplished its goals: better stability and security, increased end user productivity and satisfaction, and simplified management. “Wyse Technology offers consistency across your technology environment and gives IT staff the system control it needs to promote productivity and security,” explains Brown. “The standardization of every system makes RBMC’s IT staff’s work a lot easier because troubleshooting and management are far more straightforward.”

RBMC will continue replacing PCs wherever feasible, and anticipates that at least 25 percent of its remaining 850 PCs will be switched over to Wyse thin clients.

“I am a big supporter of thin computing, declares Brown. “Having worked to build RBMC’s environment into what it is now, I couldn’t see doing it any other way. Wyse Technology has helped RBMC develop streamlined and cost-effective processes across its many hospital departments. It’s a solution that gives RBMC great flexibility as its needs grow and change.”





Solution

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Summary

Customer

- Raritan Bay Medical Center, central New Jersey
- Non-profit community, acute care and teaching hospital with two locations in Old Bridge and Perth Amboy
- Served approximately 90,000 patients in 2008
- 2,200 physicians, nurses, and support staff

Challenges

- Streamline complex IT environment to be more cost efficient, increase access to information, and simplify IT management and maintenance
- Improve staff productivity
- Ensure security of patient information

Solution

- 300 Wyse V90LE thin client devices with Wyse-enhanced Microsoft XP Embedded
- Wyse Device Manager to develop and centrally manage thin client configuration

Results

- Improved productivity of hospital staff to enhance patient care
- Cut costs while increasing access to information through more devices and remote access
- Strengthened security of patient data
- Reduced help desk tickets by 50%
- Achieved faster IT issue resolution
- Saved \$50,000 in hardware by deploying thin clients, not PCs
- Reduced provisioning time by 75%
- Reduced hardware replacement frequency up to 50%
- Increased battery life of mobile workstations 300% due to low energy usage of thin clients

Solution architecture

- Clients:** Wyse V90LE mounted on flat panel monitors and Planar flat panel monitors
- Management Software:** Wyse Device Manager (WDM)
- OS:** Wyse-enhanced Microsoft Windows XP Embedded
- Applications:** Citrix XenApp 4.5 (for server farm); Citrix Access Gateway (SSL VPN); multiple medical applications from Siemens Healthcare including INVISION, PACS, Med Administration Check; Microsoft Office, Internet Explorer, SharePoint
- Servers:** Dell 1955 Blade Servers

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