



Metro Health Village

Case Study

Challenge:

Harnessing Technical Innovations to Improve Patient Care

Located in the Greater Grand Rapids area, the Metro Health Village is one of the most comprehensive health care providers in west Michigan, providing care to nearly 11,000 inpatients. More than 320,000 visits are recorded each year in the medical center's outpatient centers. Patient visits to the emergency department exceed 45,000 annually.

Metro Health offers a broad range of services, including inpatient and outpatient services, emergency, surgery, intensive care, rehabilitation, wellness and community education. These services provide patients with a more simplified, seamless and personal health care experience.

For decades, Metro Health centered its operations on a hospital in a 15-acre campus in Grand Rapids, Michigan. By 2000, that was no longer enough for the growing population Metro Health served. To continue to provide the highest standard of patient care, Metro Health relocated to a new, larger health care center that could accommodate its vision. "Health care is not just about treating disease," explains Bill Lewkowski, executive VP and CIO for Metro Health. "It's more about wellness and fitness than illness. Our vision was to create a campus that's about lifestyle and community. In addition to the hospital, we have a fitness center, hotels, restaurants, shops, and physician office buildings, so our center meets the needs of physicians, patients, and health workers."

Metro Health Village is a groundbreaking concept and the first of its kind in the nation. The 170-acre state-of-the-art campus is far more than home to the first suburban hospital in the region. It's an entire community of support services, retail, restaurants, and more with the new Metro Health Hospital as its central focal point.

Viewpoint:

"...the thin-client experience is far superior. It's like each user is always right near his or her own computer, no matter where they are in the workflow or where they are in the hospital, on campus, or off campus. For us, the thin-client payoff has been in workflow, productivity, and our efficiency as a health care provider."

Bill Lewkowski
Executive VP and CIO
Metro Health





The Challenge:

- Deliver secure, immediate, anywhere access to patient information
- Maintain confidentiality of patient information
- Support accuracy and timeliness of patient records



Everything in the village shares a coordinated environment of nature, convenience and calm with transitions designed to provide each zone with a distinct look and feel. The village is a small, caring community in and of itself, ideal for serving patients, families and surrounding neighbors.

Lewkowski's mandate was to ensure that patient information was immediately accessible to authorized personnel across this new campus, and even more widely through the Internet.

"Health care is all about information," he says. That information has to move in real-time among team members coordinating care for a patient. It also has to move rapidly to the patient's location—from surgery suites to patient rooms to the front desk to the pharmacy, faster than a patient can be wheeled from one location to another.

"Metro Health is small compared to many others in this industry—we're a \$350 million organization—but we have embraced technology and are probably as innovative, if not more so, than other health systems," says Lewkowski. "If anything, our small size works in our favor. We can make change happen."

Solution: Thin Computing

Lewkowski began by meeting with technology vendors to learn about their innovations, and to determine which were most interested in the challenges and opportunities associated with working with Metro Health. "Beyond just buying products and services, we needed to find a team that was inspired to partner and innovate with Metro Health," comments Lewkowski.

As a result of this search, Metro Health switched from its IBM-based architecture to HP. "We saw tremendous value in HP products and partnership," explains Lewkowski. "But on the thin client side, HP had a few limitations. Wyse's vision and strategy were a better fit with ours. In particular, Wyse's thin client technology solved a number of problems that we had run into, such as difficulties with being able to authenticate users quickly while allowing them to print locally. The more we learned about Wyse solutions, the more we saw a close fit between Wyse's technology direction and our desire to move to the next thin client step—the virtual client."

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Virtualization occurs at two levels at Metro Health. The first is virtual sessions running on VMware servers in Metro Health's data centers. The next level is the organization's use of blade PCs. "Half of our user sessions access blade PCs in the data center," comments Lewkowski, "but the users probably don't know it, because the experience is the same whether they're accessing blade PCs or servers."

At most hospitals, shared PCs are available in multiple locations, but users need to log in and authenticate their access for each application, every time. Going through multiple logins is time-consuming and dangerously slow in urgent situations, when, for example, a nurse or doctor needs fast access to a list of all the medications administered to a patient within the last two hours.

With Metro Health's new system, however, approximately 3,500 employee sessions are always running in Metro Health's data centers. Employees—clinicians, pharmacists, receptionists—simply go up to any of the approximately 1,000 Wyse V90 Windows XP Embedded thin client workstations in the hospital, enter their login information, and immediately see the same screen they had up when they logged out of their last session. It takes fewer than 15 seconds for a doctor to access a patient's information rather than the several minutes it would take to log in to a PC, open up the applications, and call up the data.

Metro Health users work with hundreds of applications, but the most critical applications include EPIC electronic medical record (EMR) and clinical systems, iSite digital radiology, and various McKesson applications that address patient management, billing, and other administrative needs.

Outside the hospital, authorized staff can get the same fast access to their sessions using a PC, and going through a VPN with a token card for authentication. On campus, when users log in through a thin-client workstation on campus, they seamlessly connect over Metro Health's WAN and LAN backbone to a consolidated client infrastructure (CCI) session or a virtual desktop infrastructure (VDI) on a VMware virtual machine. In either case, they're accessing applications running on servers at one of Metro Health's two data centers.

The Metro Health team wrote its own broker that runs on a Windows XP Embedded thin-client device or a PC. This broker, called MetroAnywhere, takes login and password information and then immediately returns a user to his or her previous session.

"The cost of the hardware, on a per-user and per-unit basis, is essentially the same whether we're providing users with PCs or thin clients," says Lewkowski. "But the thin-client experience is far superior. It's like each user is always right near his or her own computer, no matter where they are in the workflow or where they are in the hospital, on campus, or off campus. For us, the thin-client payoff has been in workflow, productivity, and our efficiency as a health care provider."

Wyse: Easiest to Use and Manage

Metro Health selected Wyse after evaluating multiple vendors and products. The Wyse approach to thin computing solved many issues typically associated with thin computing, especially in the areas of desktop virtualization and running multimedia content.

One of the biggest advantages with going with Wyse was its value add TCX Multimedia software which provides users with rich multimedia playback capabilities within an ICA or RDP environment. Metro Health is also planning on using Wyse TCX USB Virtualizer™ so users can seamlessly access their USB-based printers, scanners, storage devices, Palm, BlackBerry, and Pocket PC handhelds over a VDI environment.

The management software deployed with the Wyse thin client solution, Wyse Device Manager, enables technicians to send new software over the network to any thin client rather than physically traveling to the device, as they would with PCs. Staff also benefit from the extensive redundancy and always-on performance designed in to the Metro Health data center. Unlike PC-based computing, there's virtually no chance of having their session go down.



Customer: Metro Health Village

- 1,000 doctors and nurses
- 320,000+ visits to outpatient centers each year
- 11,000 inpatients per year
- 45,000 emergency department visits each year





Solution:

- Centralized thin computing environment with Wyse V90 thin clients and blade PCs running Windows XP Embedded, connected to centralized application servers via a custom connection broker
- Centralized infrastructure management with Wyse Device Manager software



Benefits

Although cost savings was not Metro Health's main goal—better information access is what really mattered—the organization was also able to save money while using thin computing to meet its business objectives: improved employee satisfaction and patient care; reliability, security, ease of management, lower cost of ownership, scalability—and innovation.

ROI Factor	ROI Calculation	Annual Cost Avoidance
2 full-time employees @ \$70,000 each	(fully-loaded costs) \$140,000	Avoiding \$140,000 in additional IT hiring
Reduced electricity consumption	\$60,000 per 1,000 desktops	\$60,000
		Total: \$200,000

Improved Employee Satisfaction and Patient Care

At first, recalls Lewkowski, many users didn't understand the thin-client computing model, so he created a 15-minute video showing what MetroAnywhere is and how to work with it. Still, not everyone was convinced, perceiving it as a step down from a traditional PC.

"Once we implemented it in the hospital and staff started working with the new model, they saw the benefits," says Lewkowski. "Especially our doctors and nurses, who now can access their own sessions from anywhere in seconds, without having to jump through various login hoops each time. They can see this makes it easier for them to do their jobs, and helps them do a better job of caring for patients." According to Lewkowski, almost all those who initially insisted on keeping their PC have changed their minds.

Security

Security—specifically, restricted access to confidential patient information—is critical for any health care provider. HIPAA regulations spell out strict rules for protecting patient privacy and impose severe penalties for health care organizations that breach confidentiality or that cannot demonstrate that their systems protect patient confidentiality. The Wyse solution enhances data security for Metro Health by eliminating the possibility of employees downloading patient information to CD drives using their thin-client devices. Because patient data is not stored locally, it cannot be copied, transmitted, or misappropriated. "Plus, thin clients are much harder to hack than PCs," comments Lewkowski.

To make access even faster and more secure, Metro Health is bringing in special keyboards for its thin-client machines and loading biometric authentication software from Imprivata. "Soon, people will be able to log in just by swiping a fingerprint," says Lewkowski.



Wyse V Class thin client

Results:

- Reduced time required to access patient information by more than half
- Enabled access to the same computing session from anywhere
- Supported better patient care and staff efficiency



Reliability

In the health care industry, access to information can make a life-or-death difference, so Metro Health designed its IT environment for high availability. While a PC can crash, each thin-client workstation is backed by two data centers running at the same time, with data replicated and sessions clustered across the data centers. “Our system delivers 100 percent uptime,” comments Lewkowski. “The backend doesn’t go down, and with the thin client model, this means access is almost 100 percent, too.”

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Manageability

The Wyse Thin OS–VDI Edition is aware of key VDI-oriented technologies that enable businesses and institutions to manage their desktops from the data center by placing a user’s desktop environment in a virtual machine, where it is hosted on an industry-standard server and accessed by a thin client on the user desktop. VDI helps Metro Health reduce the costs and complexity associated with using PCs to deliver applications, because it virtualizes, optimizes, and manages virtual server resources to host and deliver secure, isolated desktops that are always on and accessible from anywhere.

TCO

Lewkowski has found that the total cost of ownership of this new solution is substantially lower than that of a PC-based solution due to greater ease of management. Six people maintain about 3,500 backend sessions, for a ratio of approximately one staff member per 600 sessions. When Lewkowski compares that to the staff numbers he would expect to need to maintain 3,500 PCs, he believes he would need at least one or two more full-time employees, at a fully loaded cost of \$70,000 each.

Plus, thin client workstations use less electricity than PCs: a savings of about \$60 per year per unit, for a 5 year savings of \$300,000 for the hospital’s 1000 thin-client workstations.

Scalability

One of the great advantages of the thin-client computing model is its scalability. If Metro Health needs to expand its user numbers, it can do so without incurring significant additional cost to support those users. This could prove an important benefit for the fast-growing organization as it continues to open new facilities.

Conclusion:

Delivering World-Class Health Care through Instant Access to Patient Information

According to Lewkowski, adopting thin-client computing requires making a shift to the concept of distributing images from an information core out to devices all around a campus and anywhere over the Internet. “This has freed us to focus on the architecture, refinement, and maintenance of the applications running in our data center,” he says. “We don’t get distracted by the requirements of workstations.” While staff numbers have remained steady at six, staff now includes fewer PC and workstation technology experts and more architects.

This new focus also places a premium on standardization. “We don’t want much variability, because that’s just distracting, without adding value,” comments Lewkowski. “Instead, we work on implementing ITIL (information technology infrastructure library) best practices, to help ensure a systematic approach to the provisioning and management of IT services.”

The scalability of the thin computing model is benefiting Lewkowski’s team now, as Metro Health continues its ambitious building program on its new site. Instead of having to set up and manage hundreds of new PCs, the team can simply deploy new clients as necessary, and continue their focus on a broader roll-out of the EPIC application, which should provide better, more integrated patient management capabilities than the current approach of using multiple applications to address different facets of patient care.

Lewkowski looks forward to the next step in the evolution of his thin-client strategy, which includes Wyse WSM provisioning software in the data center. This will enable Metro Health to move from thin clients with an embedded Windows XP operating system to zero clients, with no operating system—and thus no embedded software management at all. “WSM will enhance our approach of virtualization,” he comments “We’ll be yet another step further from being affected by hardware issues.”

Lewkowski believes that ultimately, the thin computing model will encourage innovation in working practices at the medical center. “For a long time, people have thought of each step of a patient care workflow as having to take place in a specific place,” he explains. “To complete a particular step, you needed to go to a certain place to get the information. Now that’s changing. We’re putting computers on wheels everywhere, including at the bedside, for real-time capture of information. If a nurse administers a drug, she doesn’t have to write it down and transcribe it later—she can put it in the EPIC patient care management system on the spot. In addition to improving efficiency and timeliness and reducing errors, I believe that’s going to result in other innovations that improve patient care and staff effectiveness.”

Thin Computing: a Perfect Fit for Health Care Organizations

Wyse thin computing solutions meet the requirements of security, accuracy, and immediacy for the health care sector to help save lives and provide the highest quality medical care. Metro Health is on a path to eliminate manual updating of paper records and make the switch to electronic medical records (EMRs), safely secured on the server and available only to authorized users. Thin-computing models help keep health care organizations on the cutting edge with the following features:

- HIPAA compliance. Patient data is not stored locally, so it cannot be copied, transmitted, or misappropriated.
- Compatibility with wristband identifiers. Wristband scanners help Metro Health cut the chance of medical errors and ensure more accurate patient records.
- Biometric solutions for user authentication. Soon, Metro Health will be using this leading technology to protect patient identification, keep networks free of security breaches, safeguard records, and provide even faster access through one-touch login.

Call Wyse Toll Free: 800-438-9973 www.wyse.com

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