



Case Study

Healthcare

Intel® vPro™ technology
Quad-Core Intel® Xeon®
processors


Keeping IT Systems Healthy from the Data Center to the Desktop

To help maintain clinical excellence, Gwinnett Medical Center employs Quad-Core Intel® Xeon® processors for increased server performance and Intel® vPro™ technology for remote PC management.

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- Challenges**
- Increase processing capabilities to keep up with rapid growth while staying within data center space and power limits
 - Reduce PC downtime for doctors, nurses, and other clinicians throughout Gwinnett Medical Center
 - Improve asset management and help ensure a more stable environment for healthcare delivery

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- Solutions**
- **Accelerate performance:** The Quad-Core Intel® Xeon® processor 5300 series delivers more processing power, enabling more applications to run on each server
 - **Save space and energy:** With eight cores per server, the new Intel Xeon processors provide greater density and energy efficiency in the same footprint
 - **Minimize need for desk-side PC repairs:** Intel® vPro™ technology and Intel® Centrino® with vPro™ technology enable remote diagnosis and repair, reducing downtime for repairs by approximately 40 percent
 - **Manage systems during off hours:** Intel® technology enables IT staff to wake up powered-down PCs for inventorying, system updates, and security patches

Located in one of the nation's fastest-growing counties, Gwinnett Medical Center has evolved from a community hospital to the largest healthcare delivery network in the northeast Atlanta area. In the process, it has earned praise for outstanding quality of care. The organization received the HealthGrades Distinguished Hospital award for Clinical Excellence in 2006 and again in 2008, putting it in the top five percent of U.S. hospitals for clinical quality.



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Rick Allen, Senior Director, Information Services, Gwinnett Medical Center

With patient volumes expanding and a new patient care tower under construction, Gwinnett Medical Center is making extensive use of technology to accommodate growth and help doctors and nurses maintain their commitment to clinical excellence. “We have gone from paper to electronic medical records in all our facilities over the past five years, and we have added a variety of clinical applications,” says Rick Allen, senior director of information services for Gwinnett Medical Center. “For example, we’re enabling our in-house practitioners to access any medical record, from any location, through our computerized systems. They can even use a laptop to order tests or view results without having to come in to the hospital.”

Assessing the Situation

To power all of the new applications and services, the medical center IT group has added more processing capability in the data center, jumping from 40 servers five years ago to over 400 servers today. The IT group has enlarged its primary data center several times to accommodate new servers, but physical expansion is no longer an option. “We need to continue adding more server performance to keep up with ongoing growth, but we have to stay within the present footprint and power envelope,” says Allen. “We are landlocked in our primary data center because patient care space is all around us—we can’t enlarge the room any more. What we have to do is work smarter with the room we have.”

Key Technologies

- Quad-Core Intel® Xeon® processor 5300 series
- Intel® vPro™ technology for desktops and Intel® Centrino® with vPro™ technology for laptops
- Intel® Active Management Technology (Intel® AMT)

At the other end of the infrastructure—the PC computing environment—growth has put pressure on the IT group’s help desk capabilities. “Most of our medical information is now digitized and accessible on a PC,” says Allen. “Computers are no longer confined to a few central nursing stations but are available to clinicians throughout the hospital, where systems are both wall-mounted and on mobile carts. They have become more important for delivering quality care, and that means it’s more important than ever to keep them up and running.”



With seven PC technicians responsible for the 2,500 desktops and laptops at Gwinnett Medical Center, resources for maintaining the systems were stretched to the limit. The IT team installed the LANDesk* management application to address the challenge. LANDesk enabled IT staff to remotely control PCs and fix many software problems from the help desk. But operating system and hardware problems still required dispatching a technician to make desk-side repairs. "On-site visits are a big drain on IT resources," says Allen. "They are also a drain on the clinicians' productivity, because time to resolution is much longer when we have to travel."

The team conducted a four-month assessment to address growth issues in the data center and desktop environments. "We had to look really hard at how to better provide our services to the rest of the organization," Allen says. "We also looked at all the operating costs and tried to bring those more in line with revenues."

Delivering the Solution

The IT team decided to address its challenges in the data center and the PC environment by standardizing on Intel® architecture-based solutions in both areas. The organization had a mix of servers in the data center, including RISC-based servers, but the team was impressed by the Intel roadmap and its range of

Spotlight on Gwinnett Medical Center

Gwinnett Medical Center is a not-for-profit healthcare network that serves Gwinnett County, Georgia, and the surrounding area. It has three hospitals, including a flagship facility with 500 beds, plus supporting medical facilities. Its roots go back over 60 years, and it has more than 4,000 employees and 700 affiliated physicians.

technologies. "Intel addressed both of our challenges," Allen says. "They helped us put more server performance in the same space and power envelope with Quad-Core Intel Xeon processors, and they introduced us to Intel vPro technology to reduce our PC downtime."

Making the Most of Limited Data Center Space

In the data center, the IT team standardized on HP ProLiant* DL360 and DL380 servers with the two-socket, Quad-Core Intel® Xeon® processor 5300 series. The Intel processors provide eight cores per server—an average 300 percent increase in compute density compared to Gwinnett Medical Center's previous mix of single-core and dual-core servers. "We can run about the same amount of work on one Intel technology-based quad-core server that we would have run on three or four of our old servers," Allen says. "That many servers would have filled five or six units of rack space, but the quad-core server only takes two rack units."

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More consolidation will occur when the IT team completes a planned virtualization project using virtualization software from VMware* and IBM* blade servers with Quad-Core Intel® Xeon® processors. “We’ve just completed a full data center virtualization assessment, and our expectation is that we will achieve a consolidation ratio of about eight to one,” Allen says. “That will give us even more room for growth in the future.”

The energy efficiency of the Intel Xeon processors is also enabling growth. “We were worried that bringing in powerful new servers would overtax our electrical and cooling resources,” Allen says. “That hasn’t been a problem, because the new Intel processors are very energy-efficient. They also speed up processing time so that we consume less power and generate less heat to perform a given task. We’re staying within the limits of our air conditioning systems even as we increase server density.”

Lowered licensing costs are yet another benefit of using Quad-Core Intel Xeon processors. “Most of our system software is licensed per socket,” Allen explains. “With four single-core processors, we’re paying to license four sockets. But with two quad-core processors, we only have to license two sockets. That’s a 50 percent reduction, which can really add up in an organization of our size.”

Increasing Efficiency and Uptime at the Desktop Level

Intel consultants addressed Gwinnett Medical Center’s goals for the PC environment as well. To help reduce downtime and provide a more stable environment, they recommended Intel® vPro™ technology for desktops and Intel® Centrino® with vPro™ technology for laptops. With the Intel® technology, the IT team could collect information from a PC and provide service remotely even if the OS was not functioning or the computer was turned off. “It was easy to see the potential benefits, and we decided to standardize on the Intel technology for all of our new PCs,” Allen says. “We estimate that Intel vPro technology can help us reduce downtime for software and hardware repairs by approximately 40 percent.”

The Gwinnett IT team has already deployed over 100 new HP Compaq* dc7700p and dc7800p desktop computers designed with Intel vPro technology, and plans to continue adding more as part of the organization’s normal PC replacement cycle. “We expect to have 700 of the new desktops on the hospital floors in the next three months,” Allen says. “We’re also planning to deploy Lenovo Thinkpad* laptop computers using Intel Centrino with vPro technology.”



The Intel technology complements the LANDesk management software used by IT team members, enabling them to boost remote repair capabilities. "LANDesk gives us the ability to deal remotely with high-level software issues, like dropping in new applications," says Allen. "Intel vPro technology enables us to also work on more fundamental issues, such as operating system problems, without having to deploy someone to the site. We can even diagnose hardware failures remotely. That way, when we dispatch a technician, they can bring any needed parts with them and get the system back in operation much more quickly."

Allen's team is able to further reduce downtime for clinical staff by performing PC inventories, system updates, and security patching during nighttime hours when most PCs are powered off and users will not be interrupted. "We simply power up the PCs remotely, run an inventory scan, and then turn the PCs back off," Allen says. "Software updates and security patches can be deployed the same way, which helps us ensure a more stable and secure environment."

Reducing IT Costs through Standardization

Standardizing on Intel technology helped Gwinnett Medical Center simplify its overall IT infrastructure, which provided cost advantages and increased agility. "When you have Intel architecture across the enterprise, training is less costly and time consuming because you don't need two or three groups trained on different technologies," says Allen. "It also makes dealing with change simpler, because you can be more flexible in deploying resources. For example, we've been able to quickly move people from the PC technician role to server administrator because they understand the architecture."

As Gwinnett Medical Center continues to grow, the IT team plans to keep building on Intel technology. "Access to the Intel roadmap has helped us align Intel's future product developments to our goals," says Allen. "We can scale our server performance as Intel scales its multi-core technology, and continue to put more processing power in our finite amount of data center space. To help Gwinnett stay in the top five percent of hospitals for clinical excellence, we know we're going to have to be innovative, and we chose Intel because we consider them the innovation leader."

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