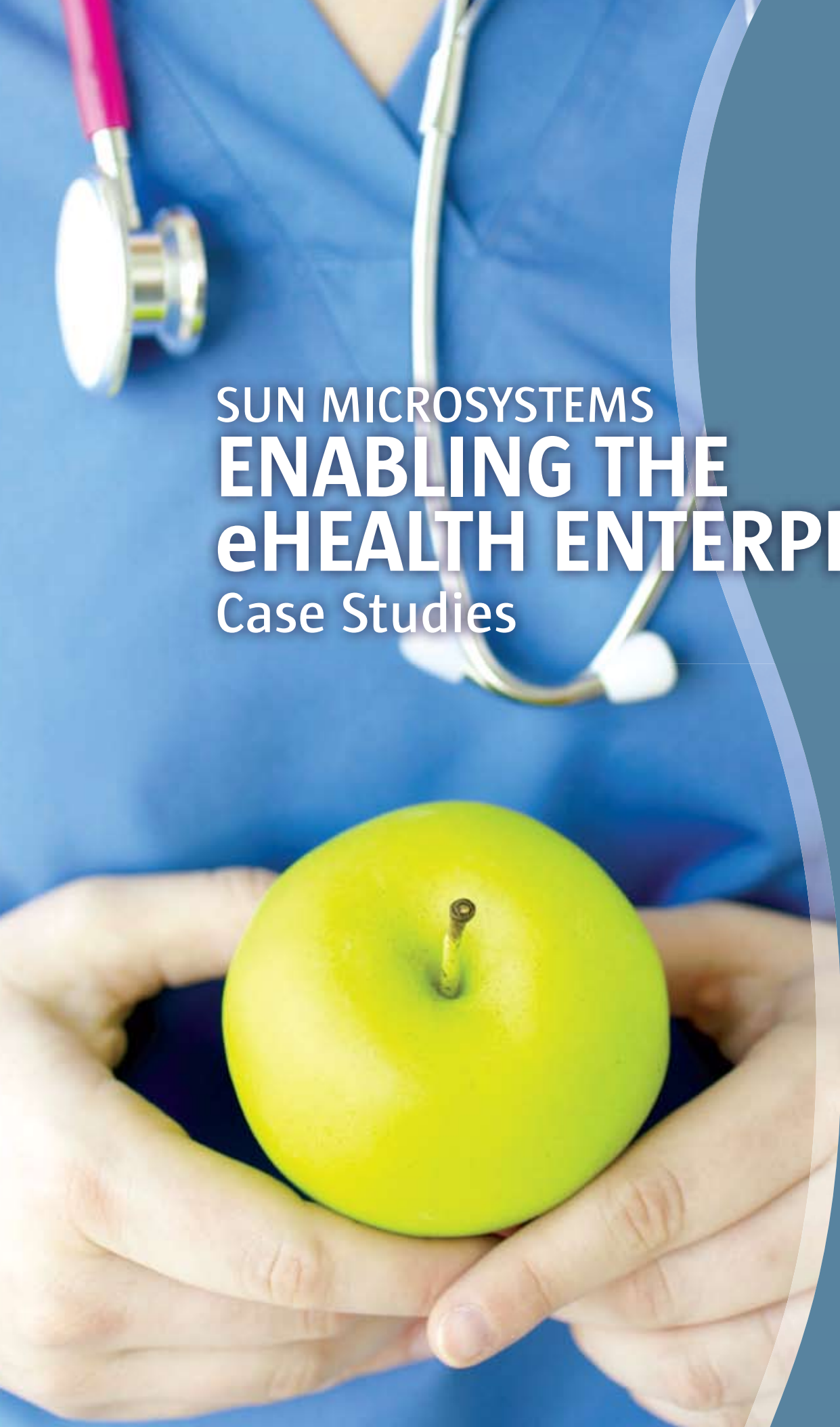

SUN MICROSYSTEMS

ENABLING THE eHEALTH ENTERPRISE

Case Studies

Table of Contents

Business Issues

- Provide faster, easier access for staff to applications and tools
- Increase security and ability to achieve compliance
- Enhance scalability and reduce application deployment time
- Reduce IT overhead

Business Results

- Fast, secure, pervasive portal access for 24,500 employees
- Fifty applications consolidated into a single user interface, increasing ease of use
- HIPAA compliance and high rating for security
- Application deployment time reduced from weeks to days
- 72 percent reduction in required email staff, from seven to two
- Ability to easily scale from 5,300 to 17,000 email users without adding email servers
- Increased consolidation and lower total cost of ownership

Products/Services/Solutions

- Sun Java™ System Portal Server
- Sun Java System Messaging Server

ADVOCATE HEALTH CARE

Sun Portal Speeds and Simplifies Access to Information That Can Heal and Reduces Deployment Time at Major Healthcare System

Overview

Advocate Health Care, based in Oak Brook, Illinois, is the largest fully integrated not-for-profit healthcare delivery system in metropolitan Chicago and is recognized as one of the top 10 systems in the country. Advocate has eight hospitals with 3,500 beds, more than 200 locations, and more than 24,500 employees, including 4,600 affiliated physicians.

Solution

Portal-based access to more than 50 key applications, as well as email and calendaring with single sign-on and user authentication.

Success at a Glance

In healthcare, getting the right information faster can make all the difference. That's what Advocate Health Care was after. Its staff needed faster, more secure, and user-friendly access to core decision-making applications, patient and administrative data, and communication tools.

Previously, the organization had offered dialup access via a modem or VPN. But establishing connectivity often required several help desk calls—running up administrative costs and slowing access.

Using Sun portal and communication products, Advocate developed a Web portal that provides remote, high-speed Internet access to a wide range of hospital applications. The portal includes a full suite of communication tools, including email and calendaring, and it consolidates more than 50 applications into a single user interface, greatly unifying the user experience for the hospital's staff.

The portal keeps growing. Leveraging the flexibility of the Sun Java System Portal Server family, Advocate easily added Care Connection software to the portal. Care Connection is Advocate's private branding of the Cerner Millennium hospital management software. The new application gives Advocate's healthcare providers a powerful, full-featured tool for managing the entire spectrum of patient care, from admitting to discharge, and includes electronic medical records for consolidating and coordinating all aspects of a patient's treatment.

It once took an average of about two weeks to deploy a new application at Advocate, the staff reports. Care Connection was added in less than three days—thanks to the standard interfaces and uniform coding processes of Sun Java System Portal Server.

The scalability of the Sun Java System Messaging Server enabled Advocate to easily grow its email service from 5,300 users in 1999 to more than 17,000 users in 2005—without adding servers or compromising email performance.

Security is critical at Advocate, and the latest Health Insurance Portability and Accountability Act (HIPAA) audit gave the organization a high rating in physical security, citing the Sun Java System Messaging Server's Web-based email and calendar services as a key factor.

To offer access to its community of more than 9,000 remote users, Advocate relies on Sun Java System Portal Server Secure Remote Access, an open-standards solution that provides authorized access to resources behind the corporate firewall from any Java™ technology-enabled browser. The solution is integrated into Sun Java System Portal Server and is not a "black box" bolt-on, so it is simple to deploy and manage.

Advocate once relied on a mix of email packages. Now it has standardized email on Sun Java System Messaging Server, gaining higher reliability and a single point of maintenance. As a result, Advocate has been able to reduce email support from a staff of seven to just two.

Overall, Advocate Health Care reports that its Sun solutions have improved internal communications and boosted productivity. Its Sun solution is also helping Advocate consolidate and reduce the total cost of ownership of its IT infrastructure.

"Now that our new portal is out there and people have discovered its ease of use and portability, everybody wants their applications published on it. The Sun solution has freed up a substantial amount of IT time, and we're now adding about four applications a month."

Gary Horn
Director of Enterprise Architecture and Network Security, Advocate Health Care

Business Issues

- Replace mainframe-based applications with an open architecture and SAP software
- Ensure more flexible and cost-effective datacenter operation

Business Results

- Improved information flows and workflows
- Streamlined the system environment
- Completed the transition from mainframe to open systems in four months

Products/Services/Solutions

- Sun Fire™ E20K server
- Sun Fire E6900 server
- Sun Fire V490 server
- Sun StorageTek™ 9900 Software Suite
- Sun StorageTek L700e Tape Library
- Sun StorageTek LTO Tape Drives
- Solaris™ 10 Operating System
- Sun N1™ Advanced Architecture for SAP Solutions
- Sun Professional Services

BARMER ERSATZKASSE

Barmer Changes to Open Platform in Record Time

Overview

Barmer has had the highest membership of any health insurance fund in Germany since 1931, with 7 million customers, 1,000 offices, and 17,000 employees. The three key pillars of Barmer's philosophy are: providing good care cost-effectively, reducing administration and providing expert advice. Barmer considers itself an innovative care specialist in the health sector.

Solution

A new architecture is based on open systems that include Sun servers, Sun storage solutions in a storage area network, Sun SAP service provisioning software, and Sun virtualization technology.

Success at a Glance

For almost 25 years, Barmer has used mainframe applications to perform processing operations. These applications recently approached their capacity limits, and were also extremely expensive to maintain and adapt to changing needs. Considering these factors, it became clear that a change was required beginning with a transition of applications for the open systems environment. In addition, the datacenter staff was striving to reduce the time required to administer the environment.

The health insurance fund selected standard SAP modules for areas such as accounting, material management, inventory management, payroll, project management, funds management, and treasury in the new environment. Barmer also chose a health insurance industry solution called OSCARE as its new insurance premium system.

The challenging aspects of the project were its complexity and a requirement to implement the new environment in just four months. In addition to several midrange servers, the project team selected the Sun Fire E6900 server with UltraSPARC® IV+ processors and the Sun Fire E20K server with UltraSPARC IV processors as enterprise servers. Both the Solaris 10 Operating System and the Solaris 9 OS run in this environment.

In addition, the Sun N1 Advanced Architecture for SAP Solutions software automates the distribution, installation, and administration of the SAP applications. Its standardized graphical Web interface enables virtualized applications to be controlled from every workstation. The cloning function allows rapid duplication of entire systems, a feature that dramatically improves flexibility and scalability, and speeds the work of system administrators. Without this powerful functionality, significantly more hardware resources would have been required to complete the implementation.

A 50-terabyte Sun StorageTek 9980 system with the Sun StorageTek 9900 Software Suite and the Sun StorageTek L700e Tape Library with Sun StorageTek LTO 2 Tape Drives are the foundation of a storage area network (SAN). The Sun StorageTek 9900 ShadowImage In-System Replication, HiCommand Device Manager, Sun StorageTek 9900 TrueCopy Replication and Resource Manager simplify the management of the entire storage environment.

With Sun Professional Services,℠ including SAP migration services, data management services for the SAN and onsite engineering support for Solaris OS and SAP, the transition was completed in just four months. This included developing the overall architecture, specifying the new SAN infrastructure, provisioning components, incorporating Barmer's existing core systems, implementing a backup and recovery solution, and migrating approximately 40 SAP systems to the new platform. Sun also drafted all of the documentation and trained Barmer employees on using the new systems. The project team, consisting of as many as 40 members during the peak time, was comprised of employees from both Barmer and Sun.

As a result of the new open systems architecture, this insurer has improved information workflows to serve customers more efficiently. The company has streamlined the system environment so that tasks are completed much more quickly. For example, implementing changes takes significantly less time, and repetitive tasks in the datacenter are now automated.

"Tasks that used to take several days are now completed in around half an hour, and it takes us even less time to move an SAP system from one machine to another, as required."

Volker Haak
Head of the Account Management Department, gkv informatik , the IT subsidiary of Barmer

Business Issues

- Move from paper-based records to digitally captured and shared patient data
- Provide a highly available and highly secure solution at the point of need
- Improve patient care

Business Results

- Achieved high system availability at the point of need
- Ensured faster, more secure access to patient records than PC-based solutions
- Gained positive feedback from staff, and interest from other health organizations

Products/Services/Solutions

- Sun Ray™ clients
- Sun Ray Software
- Sun Java Card technology
- Solaris 10 Operating System
- Sun Java System Directory Server, Enterprise Edition
- Sun Fire V210 Server
- Sun Fire X4100 M2 Server

BARWON HEALTH

Hospital Uses Sun Ray Technology to Deliver Critical Bedside Care

Overview

Barwon Health is the largest regional health service in the state of Victoria, Australia, providing care to more than 450,000 people. Health services available through Barwon Health cover the full spectrum — from emergency and acute care to mental health, primary care, community services, aged care, and subacute care and rehabilitation. Barwon Health serves a geographically dispersed population and has an annual operating budget in excess of $275 million. The organization provides high-quality care, employing more than 5,000 staff members.

Solution

To digitally capture and share patient data within its intensive care unit (ICU), Barwon Health deployed Sun Ray virtual display clients, running Sun Ray Software on the Solaris 10 Operating System on Sun servers. Hospital staff access the thin-client terminals located at each bed using Sun Java Card technology, and they record and update patient data at the point of care.

Success at a Glance

Barwon Health wanted to replace paper-based patient records within its ICU with electronic records, which could be stored and captured easily. As Paul Cohen, executive director of information services at Barwon Health, explains, the hospital had preconditions for any proposed solution. “Our hospital staff members have to check patient information and make notes on the spot as they move from bed to bed and ward to ward. Having a traditional PC at each bedside is impractical. In addition to the expense, it would take hospital staff too long to boot up and log in to each machine. We looked at portable solutions, but wireless networks present their own problems,” he says.

Systems integrator Incarta IT, a Sun Microsystems partner, is a specialist in systems for the healthcare industry. Based on Barwon Health’s requirements for a technology solution that could capture and share patient data at the point of need, Incarta IT proposed the Advanced Clinical Computing system based on Sun Ray virtual display clients. The Sun Ray virtual display client is ideal for environments where space is limited. The Sun Ray clients comprise a 17 in. flat-panel display, a keyboard, and a mouse, which connect to the existing network. The fact that staff moving about the ward could have quick and secure access to patient data and applications persuaded Barwon Health to select the Advanced Clinical Computing system based on Sun technology.

Sun and Incarta IT partnered closely with Barwon Health to develop the Advanced Clinical Computing system, including performing application integration as well as change management and staff training. Once the solution and the staff were ready, a trial system was set up, which was then quickly extended to 60 Sun Ray clients installed at the foot of beds in the ICU. The solution was not only quick to deploy but also highly secure. “The Sun Ray clients are easy to install and need no configuration — they just plug into our network. The system is very fast and easy to operate, and the high levels of authentication as well as the absence of a local operating system make our Sun Ray clients virtually immune from unauthorized access and virus attacks,” says Cohen.

Each staff member uses Sun Java Card technology to quickly activate the Sun Ray virtual display client terminals. Each session is automatically saved when the card is removed and can be reactivated at any terminal. This ensures seamless, consistent access to patient information and saves critical time. “We plan to deploy at least 200 thin clients. As the technology expands and rolls out to other locations within Barwon Health, we find more and more clinicians are asking when their area will be online,” says Cohen. “This proves just how well the system works,” he adds.

In addition to providing patient data, the Advanced Clinical Computing system offers hospital staff access to email and other software applications such as word processing. Staff roster information is accessible from the Sun Ray clients as are specific hospital clinical systems for data such as pathology and radiology results.

“The staff have realized the benefit of capturing patient information at the point of care and being able to share it immediately with other clinicians. It’s not just about simplifying processes; it’s about improving patient care through the use of technology,” confirms Cohen.

Dr. Charlie Corke, director of the ICU agrees: “We are absolutely delighted with the way that Sun Ray clients have enabled us to apply mobile computing technology to an ICU environment. It’s a very powerful tool, and the response from our staff has been overwhelmingly positive. In fact, I think there would be a riot if we suggested moving back to PCs.”

> “As far as we are aware, the Advanced Clinical Computing environment that we are rolling out is unique to Barwon Health, and proof of this is the steady stream of visiting healthcare professionals and government ministers who want to see this system in action.”
>
> **Dr. Charlie Corke**
> Director, ICU, Barwon Health

Business Issues

- Implement identity management solution quickly to replace nonworking system
- Meet HIPAA regulations
- Demonstrate compliance through an audit trail

Business Results

- Deployed complete identity management solution in four months
- Achieved faster time to value with rapid implementation
- Demonstrated compliance with HIPAA and other regulations with minimum amount of staff time
- Gained greater flexibility in making changes to role definitions
- Automated tracking of workflow for approvals and changes
- Improved control of software licensing fees by limiting role proliferation
- Reduced administration time to manage identities and assets
- Decreased contractor technical support and IT staff costs
- Improved ability to meet internal service-level agreements (SLAs)

Products/Services/Solutions

- Sun Java System Identity Manager
- Identity Management Professional Services
- Sun Professional Services
- Sun Learning Services

BLUE CROSS AND BLUE SHIELD OF KANSAS CITY (BCBSKC)

Large Health Insurer Simplifies Processes and HIPAA Compliance with Sun Identity Management Service

Overview

Blue Cross and Blue Shield of Kansas City is the area's largest provider of health benefits, serving members in 32 counties in northwest Missouri and Kansas. The organization has approximately 1,000 employees.

Solution

Sun Professional Services used best practices and proven methodologies to deliver an identity management solution and related services to BCBSKC, allowing it to rapidly deploy an automated solution to satisfy HIPAA regulations and establish an audit trail.

Success at a Glance

From a small group hospitalization plan run by two employees in 1938, what is now BCBSKC has grown into a complex organization offering multiple services to nearly 900,000 people. To support its employees, satisfy regulatory requirements of HIPAA, and demonstrate compliance through an audit trail, BCBSKC decided to replace its manual processes for managing identities and IT assets with an automated identity management system.

After looking at competing technologies from IBM and CA, the health insurer chose a solution from Waveset Technologies, Inc. (later acquired by Sun) to ensure that it provided the minimum necessary access to systems and applications in accordance with HIPAA constraints. After implementation with a third-party system integrator proved unsuccessful, BCBSKC was forced to temporarily return to the cumbersome manual processes.

Sun was able to provide a much-needed way out by offering Sun Java System Identity Manager 7.0 with the Sun℠ Velocity Identity Deployment Tool (formerly Neogent VIP), which is a suite of services that enables rapid deployment of Sun identity management solutions. Combined with Sun's experience, best practices and proven methodologies, the tool provides implementation services based on the most common cases within enterprise environments. BCBSKC selected Sun Java System Identity Manager because of its integration capability with ORACLE® PeopleSoft applications, the workflow engine, and the solution's many easy-to-install adapters.

Engineers from Sun Professional Services and Neogent worked closely with BCBSKC's IT staff and managers to frame the organization's needs, review its business processes, and implement the solution in two phases. In phase one, lasting 10 weeks, Sun implemented Identity Manager for ORACLE PeopleSoft, Microsoft Active Directory, and Microsoft Exchange, enabling BCBSKC to automate identity management, and asset provisioning and deprovisioning for new hires and employee terminations. In phase two, lasting six weeks, Sun implemented bi-level, roles-based access control (RBAC), which gave the health insurer the ability to efficiently manage its nearly 700 business and functional roles.

Once completed, BCBSKC could easily manage identities and assets related to employment transfer and non-employee/contract positions. Key BCBSKC personnel participated in a week long "boot camp" from Sun Learning Services to learn how to manage the system. BCBSKC also has a SunSpectrum Support contract to assist with maintenance and troubleshooting.

With the Sun Identity Manager solution deployed in just four months, BCBSKC has realized a fast time to value. Integration with the PeopleSoft platform ensures that the organization's human resources system remains the authoritative source of employee and assets data. Department managers can easily provision and deprovision assets, and manage employee identities, as well as request additional assets or access. Identity Manager automatically tracks the approval process and sends out email notifications of the next steps involved in the workflow, helping BCBSKC to maintain HIPAA compliance while minimizing the administrative burden.

Identity Manager is delivering hard savings, too. Use of the Sun Bi Level RBAC service helps the organization keep a lid on software licensing fees by limiting the "laundry list" of assets that a department can provision. Contracted technical support and IT staff costs have decreased. With automated provisioning, the health insurer expects to meet its internal, three-day, service-level agreement for provisioning and deprovisioning assets, thereby improving employee productivity.

BCBSKC will streamline some of its ticketing and notification processes and plans to install adapters for IBM AIX, Microsoft SQL Server, and Sybase Adaptive Server to simplify identity and asset management for users of those systems. In the long term, BCBSKC may broaden access to Identity Manager in line with its self-service mantra. Now and in the future, the health insurer has a flexible and efficient system that will keep it HIPAA-healthy and business-efficient.

"Sun Java System Identity Manager is an elegant solution. It's a very intuitive product. The integration with Sun Velocity Identity Deployment Tool, the expertise of Sun Professional Services, and their deep involvement in our development process have created a high level of trust."

Norma McKelvy
Corporate Privacy and Security Officer, Blue Cross and Blue Shield of Kansas City

Business Issues

- Increase efficiency by consolidating systems
- Simplify IT administration and management
- Reduce downtime and enhance security
- Lower TCO and maintenance costs

Business Results

- Reduced management costs by 50%
- Reduced electricity use by up to 90%
- Simplified IT administration
- Consolidated medical records, information, and picture archiving system
- Reduced noise level

Products/Services/Solutions

- Sun Ray 170 Ultra Thin Client
- Sun Fire V20z Server
- Sun Fire 4800 Server
- Sun Fire V40z Server
- Sun StorageTek 3510 FC Array
- Sun StorageTek 5210 NAS Appliance

"It was very expensive to buy the software for each PC and to change it every other year. Introducing the Sun Ray 170 Ultra Thin Client has meant advantages such as managing efficiently and reducing expenses."

BAH System Administrator

BUSAN ADVENTIST HOSPITAL (BAH)

BAH Replaces Costly PCs with Highly Efficient Thin Clients

Overview

Busan Adventist Hospital is the general hospital of affiliated Sahmyook, South Korea, with more than 280 beds. BAH is part of the health ministry of the Adventist Church, which includes a healthcare delivery system of church-operated clinics and hospitals throughout the world. "Introducing the Sun Ray™ 170 Ultra Thin Client has meant advantages such as managing efficiently and reducing expenses," says the BAH System Administrator.

Solution

To consolidate and increase administrative efficiency, Sun built the hospital information system to include not only picture archiving and communications, but also an electronic medical records system.

Success at a Glance

BAH needed to upgrade its general office file system, and PCs for medical and research personnel. Doctors had experienced serious virus problems with files downloaded from the Internet, and the hospital needed to reduce its enterprise-sized TCO by reducing the need for constant individual hardware and software upgrades.

To match increasing workloads, improve efficiency, and deliver higher-quality medical service, the hospital introduced a comprehensive information system based on Sun Ray Ultra Thin Clients, Sun Fire servers, and Sun StorageTek Systems. The Sun infrastructure enabled the hospital to reduce management costs, electricity use, and noise. In addition, the solution helped simplify IT administration and consolidate medical records, information, and picture archiving systems.

The server-based environment improved security, enabling staff to add applications without difficulty. It also proved cost-effective by increasing resource availability and decreasing the time needed for system management. By installing 100 Sun client terminals, the hospital reduced management costs by 50 percent, experienced less downtime, and eliminated the reset time needed to maintain individual PCs.

CANARY ISLANDS HEALTH SERVICE

Government Health Service Commits to Eco Responsibility with Sun's CoolThreads™ Technology and Sun Ray Virtual Display Clients

Overview

The Canary Islands Health Service is an organization belonging to the Department of Health of the Government of the Canary Islands. It is responsible for delivering healthcare services to citizens of the seven islands comprising the region, which is an autonomous community of Spain. In 2006, it provided more than 16 million consultations for primary healthcare, and more than 2 million consultations for specialty care.

Solution

Canary Islands Health Service installed 250 Sun Ray Virtual Display Clients with the Solaris 10 Operating System and centralized its data in servers based on UltraSPARC T1 processors, the first ecologically responsible processor in the world.

Success at a Glance

Seeking to help preserve the paradisiacal environment of the seven islands that comprise the archipelago of the Canary Islands, the Canary Islands Health Service has chosen ecologically responsible technology from Sun to optimize its 11 training classrooms. The health service has installed 250 Sun Ray Virtual Display Clients over the Solaris 10 Operating System. Also participating in the project is Informática El Corte Inglés, a strategic partner of Sun, which has been in charge of the installation of new technology in the Canary Islands Health Service.

Sun Ray Virtual Display Clients have an energy consumption of just 18 watts—or 5 percent of the energy consumption of a traditional PC. In addition, the clients are connected in a network to a platform of Sun Fire T2000 servers, which are based on the Sun UltraSPARC T1 processor, the industry's most energy-efficient CPU. The acquisition of this Sun technology represents an important advance in ecological responsibility for the regional organization. After an investigation of the different programs and services used previously, the Canary Islands Health Service decided to implement the virtual display clients connected via a network, eliminating the high costs of the previous PC-based platform as well as the limitations it imposes on security and the mobility of users. The initiative has just entered development after completing a testing phase in a one-year pilot program.

With the acquisition of the Sun Ray technology from Sun, the Canary Islands Health Service has improved the management of the work environment in its training classrooms with a new, flexible model that centralizes data and applications, minimizing the risk of virus attacks. Classroom users, who are

Business Issues

- Establish an economical, flexible, virus-free, and ecologically responsible work environment for training classrooms
- Eliminate the high costs of the previous PC-based platform as well as its limitations to security and mobility on the part of the users
- Achieve energy efficiency, ratifying the principles of the Canary Islands Energy Plan

Business Results

- Streamlined management of work environment in training classrooms
- Implemented flexible model for desktop computing, easy to use and immune to the attack of computer viruses
- Improved mobility by enabling employees to stop work at one location and pick up from where they left off at another workplace
- Lowered cost of purchasing and maintaining client hardware

Products/Services/Solutions

- Sun Ray Virtual Display Client
- Sun Fire T2000 System
- Solaris 10 Operating System
- Java Card Technology

"For us, the low energy consumption of the Sun Ray Virtual Display Clients and the Sun servers based on the UltraSPARC T1 processor ratify one of the basic principles of the Canary Islands Energy Plan (PECAN 2006): the saving of energy."

Wenceslao Berriel
Corporate Privacy and Security Officer, Blue Cross, and Head of the Computer Programming Service, Canary Islands Health Service

dispersed among the seven islands of the archipelago, use an intelligent card to access their data and applications, independent of the physical location of the Sun Ray virtual display client.

Users can access the system at any place where there is a Sun Ray client, restarting their work exactly where they left off by simply introducing their personal Java Card into the terminal's card reader. This offers employees tremendous flexibility, fulfilling the promise of the "plug-and-play" workplace, and enhancing business operations.

CLEVELAND CLINIC

World-renowned Clinic Extends Electronic Prescription Capabilities with the Sun Integration Platform

Overview

Founded in 1921, the not-for-profit Cleveland Clinic is a leading academic medical center serving the Cleveland, Ohio, metropolitan region, and one of the world's largest and most renowned healthcare facilities. More than 2,000 healthcare personnel provide care to some 2.6 million patients annually, and the clinic is regularly recognized as one of the top four hospitals in the country by U.S. News & World Report.

Solution

The Cleveland Clinic sought to extend its ability to fulfill patient prescriptions online at retail pharmacies. Using Sun integration software, the medical center was able to sync up communications between its internal prescription system and those existing at retail pharmacies.

Success at a Glance

Cleveland Clinic is one of the best known and most respected healthcare facilities in the United States, thanks in part to the clinic's enthusiastic and early adoption of technology to improve the quality of patient care.

For example, Cleveland was one of the first medical centers in the country to deploy an e-prescription initiative that automated the entire prescription process—ensuring the capture of important patient information, as well as substantially decreasing the potential for errors resulting from misreading a physician's handwriting.

But on the road to becoming a "paperless" healthcare facility, Cleveland Clinic hit a bump. While its internal e-prescription applications worked well within the hospital's walls, successful transmission of this information to surrounding retail pharmacies proved more challenging.

Internally, physicians wrote prescription orders to the clinic's EpicCare healthcare information system. However, that application wasn't uniformly compatible with the e-prescription applications at major retail pharmacies.

The challenge lay in creating standards that meshed on both sides. For example, pharmacy standards call for all prescriptions to be written in numbers only, whereas the hospital standards allow clinicians to enter additional information, such as the size of the package.

Business Issues

- Eliminate errors in filling prescriptions that resulted from misinterpreting handwritten notes
- Enable e-prescription functionality between clinic and retail pharmacies
- Improve physician-practice workflow and patient care
- Increase patient satisfaction

Business Results

- Ensured accurate filling of e-prescriptions
- Enabled communications among disparate e-prescription systems at the clinic and retail pharmacies
- Enhanced patient safety and care

Products/Services/Solutions

- Sun SeeBeyond eGate™ Integrator

"Without the Sun SeeBeyond eGate Integrator, these prescription systems would still exist in isolation. Sun's solution enables the systems to talk to each other and pass messages that adhere to standards, decreasing the potential for misinterpretation on both sides."

Albert T. Edwards
Director of the Office of Clinical Integration and Interfaces, Cleveland Clinic

To ensure a seamless flow of information, the clinic turned to Sun SeeBeyond eGate Integrator—part of the Sun Java Composite Application Platform Suite (CAPS)—to provide the core integration platform, including systems connectivity, messaging, and transformation capabilities, required to enable the clinic's and the pharmacies' e-prescription systems to communicate effectively.

Today, thanks to Sun, Cleveland Clinic physicians can write e-prescriptions for their patients with the confidence that they will be filled quickly, easily, and accurately at hundreds of retail pharmacies in the surrounding area. And patients have greater security knowing that the medications prescribed for them are the ones they receive.

DENVER HEALTH

Denver Health Uses Sun Virtual Desktop Solution to Streamline Workflow

Overview

Denver Health is a comprehensive, integrated healthcare provider serving residents of the Denver area — regardless of their ability to pay. In the last 10 years, this organization has provided more than $2.1 billion in care for the uninsured. Twenty-five percent of all Denver residents receive their healthcare at Denver Health, and one-third of all children in Denver are cared for by a Denver Health physician.

Solution

Denver Health began replacing its PCs with Sun Ray 2 and Sun Ray 270 virtual display clients and worked with Sun to integrate them into existing IT systems and workflow processes. The two companies also developed a protocol for PCs to emulate the Sun Ray systems during the transition period to create a consistent user experience from one work location to another.

Success at a Glance

Denver Health serves as a model for safety-net health institutions across the nation. In order to reach patients who cannot afford health insurance, Denver Health strives to minimize costs and maximize the number of patients examined each day — all without compromising on high-quality care.

At Denver Health, doctors and nurses update patient information by logging in to PCs as they move from one examination area to another. Until recently, the login process could take 30 seconds or more to insert a smart card and enter the proper credentials. Denver Health realized that this procedure wasted thousands of minutes when applied to all patients over the course of a year. Additionally, the cost of repairing, replacing, managing, and supporting PCs across the organization — everything from help-desk calls to electricity — was expensive.

To address these challenges, Denver Health examined a variety of IT technologies such as remote PC management, terminal services, software asset management, certificate management, virtual and blade PCs, and thin clients. The organization determined that a solution emphasizing server-based computing and thin clients would be the most cost effective over time. After evaluating the Sun Ray 2 and Sun Ray 270 clients running the Solaris 10 Operating System, Denver Health chose these as its thin-client devices.

Denver Health worked with Sun to integrate the Sun Ray technology into its IT environment and to have Sun support its existing implementation of smart cards

"Denver Health's implementation of the Sun Ray technology is saving our organization time and money. In addition, doctors and nurses are using it without further training. We install it, and they use it immediately."

Jeff Pelot
Chief Technical Officer, Denver Health

Business Issues

- Streamline healthcare workers' PC login procedures and cut login time during patient visits
- Examine more patients, faster, without increasing staff or compromising on quality
- Cut the time, effort, and cost of PC maintenance and support
- Reduce electricity consumption

Business Results

- Calculated potential electricity savings of up to $130,000, based on a model from Xcel Energy
- Reduced initial login time from 30 seconds or more to 15 seconds or less; subsequent logins require only a password for nearly instant access
- Gained the potential to increase the number of patient sessions by more than 1,000 per year, which would yield $81,000 in additional revenue for the organization's orthopedic clinic
- Cut the average time for desktop setup from approximately one hour to just 10 minutes

Products/Services/Solutions

- Sun Ray 2 Client
- Sun Ray 270 Virtual Display Client
- Sun Ray Software
- Solaris 10 Operating System

and Microsoft Active Directory. The organization also wanted the new solution to offer a feature-rich desktop based on Citrix software. Because Denver Health planned to deploy the solution gradually, it worked with Sun to develop a protocol for existing PCs to emulate the Sun Ray technology during the transition period. This would give employees a consistent user experience on either device.

Key benefits of the Sun Ray devices for Denver Health include their easy and rapid setup. "With Sun Ray devices, little setup time was required," says Jeff Pelot, chief technical officer at Denver Health. "Two of our technicians rolled out 24 units to an inpatient floor in less than an hour. And after six months and 150 units in operation, we've received only one trouble-ticket call."

The Sun Ray devices have also enabled Denver Health to streamline its login procedures and to see more patients potentially. Now an employee's first login of the day takes less than 15 seconds, and subsequent logins require only a password for nearly instant access. As a result, the organization calculates that the time savings might translate into 1,000 more patient sessions per year, yielding a possible increase in annual revenue of up to $81,000 in the organization's orthopedic clinic. And finally, the Sun Ray devices are energy efficient. A potential electricity savings of up to $130,000 has been calculated, based on a model from Xcel Energy.

GEISINGER HEALTH SYSTEM

Healthcare Provider Uses CAPS to Accelerate Access to Patient Information

Overview

Geisinger Health System is one of the largest rural health providers in the nation, delivering services to 2.6 million people that live in a 20,000 square-mile region in central and northeastern Pennsylvania. Founded in 1915, Geisinger comprises three hospitals (including a level 3 trauma center), 878 beds, and 40 community-practice sites — staffed by 12,000 employees and nearly 800 doctors. In 2008, Geisinger had nearly 3 million outpatient encounters and earned $1.9 billion in revenue.

Solution

Geisinger deployed a service-oriented architecture (SOA) that provides for communication between more than 100 applications, and created a single patient index for all of its hospitals and clinics. To further enhance patient care in the area, Geisinger used its flexible and scalable Sun solution to build the nation's first rural regional health information organization (RHIO) that facilitates the exchange of patients' records with hospitals outside of the Geisinger Health System.

"Geisinger could not be the medical center that it is today without CAPS. The fact that you can go anywhere in this hospital system and bring up a patient's entire medical record is a huge help. Our ability to broker, message, and connect to dissimilar systems is absolutely necessary for creating a best-of-breed hospital."

Duane Koble
Systems Integration and Support Team Lead, Geisinger Health System

Success at a Glance

When you're in the business of saving lives, you can't afford delays in accessing patient information. A nationally recognized leader in healthcare, Geisinger was one of the first healthcare organizations to implement an electronic medical record (EMR) system when it did so over ten years ago. Even though the EMR system eliminated many inefficiencies, electronic patient information was not shared easily between disparate clinical, administrative, and third-party insurance systems. As a result, employees manually had to enter or scan data numerous times, which increased the potential for error.

Another challenge facing Geisinger was that its other locations maintained their own patient index and assigned each patient a unique ID number. Because patients were often treated at more than one location, their data could be spread across multiple files and locations, with no easy way for consolidation. Not only was this frustrating for clinicians and patients, but a lack of real-time access to the complete medical record could slow diagnosis and result in unnecessary tests.

Geisinger decided to create an SOA to connect disparate applications and to produce one integrated patient index. After evaluating numerous SOA products, Geisinger chose the Sun Java Composite Application Platform Suite (CAPS). Not only was CAPS already in use at several prestigious hospitals, but it could also communicate using the protocols that Geisinger's applications used — TCP/IP and SNA.

Business Issues

- Boost the level of patient care
- Simplify data sharing between disparate systems, departments, and sites
- Provide a single view of patient data

Business Results

- Increased patient and employee satisfaction
- Provided instant access to a unified patient record
- Created a scalable master index that includes more than 3 million records
- Reduced interface development by approximately 150%
- Sped some lab cycles from days to hours
- Decreased the potential for medical errors and unnecessary tests
- Leveraged existing IT investments
- Gained the ability to share data with regional and national hospitals
- Enabled new levels of research

Products/Services/Solutions

- Sun Java Composite Application Platform Suite
- Sun Learning Services
- Sun Professional Services
- Sun Fire V490 Server
- Sun SPARC Enterprise™ T5240 Server
- Solaris 9 Operating System
- Solaris 10 Operating System
- SunSpectrum℠ Support

To help offset the additional staffing requirements needed to build the SOA, Geisinger engaged Sun Professional Services. "We have used Sun Professional Services a lot over the years to help with our EMR and Web services," notes Duane Koble, systems integration and support team lead at Geisinger. IT personnel worked with Sun consultants to deploy the Sun™ Enterprise Service Bus Suite in CAPS, which serves as a data translator between applications. Next the team used adapters in CAPS for HL7, ORACLE, Batch, and SNA to connect 130 applications to the Sun Enterprise Service Bus Suite. After the SOA architecture was complete, IT personnel used Sun Master Index software in Java CAPS to consolidate the disparate patient indexes into a single index that includes 3.02 million medical records.

As a result of its SOA, Geisinger has only one medical record for each patient, which speeds efficiency, especially in the emergency room. "When you pop into an ER outside of our system, they don't know anything about you," says Koble. "But if one of our patients comes to a Geisinger ER, we immediately know everything about that patient's medical history. Having one medical record for patients has also allowed us to perform data mining to diagnose some diseases that travel along family lines."

Java CAPS easily can be configured to include additional identities, and new system interfaces can be built in less than one month. "We've surprised some application vendors because we say, "How do you want the data? Okay, no problem," notes Koble. Employee productivity and efficiency have increased in other areas too, which boosts patient safety and convenience as well as employee satisfaction. For example, because of faster data submission times and a single patient record, one lab has reduced the time required to obtain results from certain tests from one week to three hours. Duplicate data entry has also decreased, and billing cycles have been shortened dramatically because insurance claims are submitted on the day services are rendered.

By scaling its SOA, Geisinger also has been able to create the first rural RHIO whose participating hospitals share patient data. To help with the ongoing expansion of its SOA, other IT plans include a migration of the SOA from its current architecture — one Sun Fire V490 server and three Sun Fire V880 servers, which all run the Solaris 9 Operating System — to two Sun Fire T5240 servers running the Solaris 10 Operating System. Not only does Geisinger want to take advantage of chip multithreading processors, but Solaris Containers — the built-in virtualization technology in the Solaris 10 OS — can also reduce application licensing costs.

GREAT ORMOND STREET HOSPITAL CHILDREN'S CHARITY (GOSHCC)

Hospital Charity's Bold Fundraising Goal Requires Integrated IT System Based on the Sun Java Composite Application Platform Suite

Overview

Great Ormond Street Hospital Children's Charity raises funds to support the needs of Great Ormond Street Hospital for Children NHS Trust, a national centre of excellence in children's healthcare. GOSHCC delivers the widest range of specialist pediatric care in the U.K. Each year, the charity funds the purchase of equipment, accommodations for staff and patients' families, support services, research and staff training. GOSHCC also contributes toward providing state-of-the-art research facilities for the hospital's research partner, the Institute of Child Health, which is part of University College London. Every year, GOSHCC needs to raise £50 million through charitable donations.

Solution

Because achieving its ambitious five-year fundraising goal would mean processing twice as much in donations than in typical years, GOSHCC deployed Sun Java Composite Application Platform Suite (CAPS) to gain the productivity, flexibility, and systems integration necessary for this important undertaking.

Success at a Glance

GOSHCC has set its sights on rebuilding and refurbishing much of the site that is shared by the hospital and the institute. To achieve this, the charity needs to double the amount of funds it typically raises, to £50 million per year—and revamp its business processes and underlying IT systems to support this enormous effort.

"We needed to widen the scope of our work to be able to support the increase in activities and to improve process efficiency," explains Mark Saldanha, Head of IT for GOSHCC. "We wanted to minimize the size of the development team needed to support our three-year integration strategy and needed to find a solution that would facilitate this."

After evaluating all of the relevant products available, GOSHCC opted to go with CAPS. "We felt that there was no compromise with the solution because it offers both world-class integration and business process management—and no other vendor could provide that," said Saldanha.

Rather than work with a third-party channel partner that would require hundreds of hours of coding time to accomplish the task, Saldanha preferred to work directly with Sun.

Business Issues

- Increase staff productivity and efficiency to enable higher fundraising goal
- Improve the donor experience
- Remove functional silos

Business Results

- Automated time-consuming manual tasks resulting in greater staff productivity
- Ease of use and cost-effectiveness increase IT's ability to support new projects
- Ability to integrate systems incrementally reduces risks associated with large, complex projects
- Integrated Web site, back-office, customer relationship management (CRM) and financial systems

Products/Services/Solutions

- Sun Java Composite Application Platform Suite (CAPS)
- Sun SeeBeyond eGate Integrator
- Sun SeeBeyond eInsight Business Process Manager
- Sun SeeBeyond eVision Studio

"Our three-year strategy is to develop solutions based on a service-oriented architecture, and Sun's Java Composite Application Platform Suite enables us to do that. We've found that we can develop much more complex solutions than was previously possible and at much lower risk. We couldn't be happier with CAPS."

Mark Saldanha
Head of IT, Great Ormond Street Hospital Children's Charity

"Sun had a plan to make us self-sufficient, and able to develop and support our applications without huge increases in development resources," Saldanha said.

Since starting its initiative in July 2005, GOSHCC has launched about half a dozen different parallel projects. The goal of all these projects is to improve the donor experience.

One project involved integrating GOSHCC's Web site with its back-office systems to support online donations, while another entailed integrating its customer relationship management (CRM) system with its finance applications. In both instances, the charity is using the J2EE-compliant Sun SeeBeyond eGate Integrator component of CAPS to integrate the applications together, provide messaging functionality and guarantee that transactions will be completed once they have been initiated.

The charity has also deployed Sun SeeBeyond eInsight Business Process Manager to create process flows, while the Sun SeeBeyond eVision Studio is being used to build Web-based graphical user interfaces (GUIs). Meanwhile, GOSHCC is reworking the underlying business processes now supported by CAPS.

Although the overall project is expected to take three years to complete, Saldanha believes that removing functional silos and automating time-consuming manual tasks will help increase staff productivity and efficiency by preventing duplication of effort.

From an IT point of view, the charity is experiencing several benefits of deploying Java CAPS. The first is that the five-member IT team is able to undertake many more innovative projects than was previously possible.

"We're very ambitious as an organization and can now pretty much support any envisaged activity. In the past, we just had to say no or explain that it was too costly to introduce," Saldanha says.

"Initially, because we knew Sun provides very scalable solutions, we were a bit concerned that CAPS would be too much for us or would end up being overkill. But it's incredibly easy to use and deploy. Implementation is easy, without the complications of separately installing an application server, integration engine, Web services directory, and the like. CAPS also enables us to undertake incremental integration rather than a big-bang approach with all the inherent risks associated with large projects like that. After our experiences, I'd have no problems recommending this solution to another charity," Saldanha says.

GREENVILLE HOSPITAL SYSTEM (GHS)

Nonprofit Hospital System Cures Data Backup Woes with Sun Storage Solution

Overview

With five campuses throughout Greenville County and a hospital bed capacity of 1,100, the not-for-profit Greenville Hospital System is the largest healthcare provider in the state of South Carolina. As an academic health organization, GHS is committed to research and education, as well as providing integrated healthcare to the communities it supports.

Solution

To improve data availability and protection, and enhance datacenter efficiency, Sun StorageTek Datacenter and Implementation Services standardized GHS's UNIX and Windows backup processes and consolidated multiple tape technologies with Sun StorageTek T9940 Tape Drives. Sun StorageTek ACSLS Management software allows IT staff to centrally and efficiently manage its storage operations.

Success at a Glance

GHS specializes in treatments for heart disease, women's and children's health, emergency medicine, and neurological and orthopedic ailments. While GHS is focused on providing the best remedies for its patients and the communities it supports, the healthcare provider found that its data backup system was in critical condition. A proliferation of data, and an aging backup system that relied on multiple backup methods and media, had pushed GHS's backup window to 24 hours. The slow and unreliable backup process left some patient data unprotected. This placed GHS in danger of violating the HIPAA requirements for data protection and availability, which could have resulted in hefty fines. It took one full-time-equivalent, senior network engineer to track and complete backups that involved manually mounting and dismounting tape cartridges. Backups onto old tape technology were also error-prone. Combined with lengthy backups, this meant data and applications were sometimes unavailable, which in turn cut into employee productivity. To add to these ills, it took IT staff hours to restore data accidentally deleted by end users.

To restore its backup processes to good health and reduce escalating media costs, GHS asked Sun to provide the cure. After evaluating several vendor proposals, GHS selected Sun because of its quick timeline for project implementation, ability to help the hospital leverage its existing Sun storage technology, and commitment to minimize reliance on GHS IT staff during the project.

Business Issues

- Comply with HIPAA and improve end-user productivity by ensuring data protection and availability
- Reduce costly and inefficient manual backups
- Ensure data availability and complete restores quickly to promote end-user productivity
- Reduce media costs and improve reliability of tape storage
- Leverage existing storage investments by maximizing utilization

Business Results

- Slashed backup times by 75% to six hours, meeting HIPAA requirements and improving end-user productivity
- 75% reduction in labor hours spent on backups
- Enhanced service-level agreements with improved availability
- Reduced cost per gigabyte through tape consolidation
- Boosted ROI of existing tape library with high-performance drives and high-capacity tape cartridges

Products/Services/Solutions

- Sun StorageTek T9940B Tape Drive
- Sun StorageTek ACSLS Library Manager software
- Datacenter Services
- Implementation and Integration Services

"Sun created an end-to-end solution for us with its technology partner Symantec. Our backup times shrunk 75 percent to help us better meet HIPAA requirements. Sun accomplished this by leveraging our existing Sun tape library and with minimal use of our busy staff."

Tip Jones
Director of Information Operations,
Greenville Hospital System

The Sun solution has brought wellness to GHS, providing positive business, financial, and technology outcomes. A single, standardized, and automated backup procedure using high-capacity tape drives reduced the backup time frame 75 percent, from 24 hours to six hours, allowing GHS to safely and consistently meet HIPAA's mandates. A junior-level administrator spends two hours per day overseeing backups, resulting in a 75 percent reduction in labor hours. The automated process also eliminates backup failures and helps employees remain maximally productive. Data and applications are available when needed, and data restoration requests are consistently met. This has allowed the IT group to enhance service-level agreements, delivering higher availability levels to its internal clients.

By ridding itself of its failure-prone digital linear tape devices and 8 mm drives and consolidating onto reliable, high-capacity media, GHS dramatically reduced its cost per gigabyte. With a 5,000-fold increase in tape capacity and 43 percent faster throughput, GHS can use its existing Sun StorageTek PowderHorn 9310 Tape Library more efficiently, thereby extending the value of its investment.

Evolving regulatory requirements, new imaging technologies, and an increasing number of healthcare applications will continue to feed GHS's data growth. GHS, however, is resting comfortably, assured that its Sun backup solution provides ample room for growth.

JURONG MEDICAL CENTRE (JMC)

Singapore Health Center Streamlines Processes for Practitioners/ Administrators with Sun CoolThreads Technology and Solaris OS

Overview

Jurong Medical Centre is a one-stop health hub providing services ranging from outpatient specialist, diagnostic and day surgery services, to chronic disease management for diabetes, high blood pressure, and other chronic conditions. Located in a residential area of Singapore, JMC brings specialist care into the community and closer to patients' doorsteps, with the aim of offering them value for money as they save on transportation costs and traveling time.

Solution

Sun Servers running the Solaris 10 Operating System and Java Enterprise System to quickly and effectively manage patient visits and financial transactions centrally through an integrated Hospital Information System (iHIS).

Success at a Glance

JMC is a patient-centered health hub providing services that not only meet patients' needs but also empower patients to care for themselves by offering knowledge and support. In addition to its range of services, JMC also complements and strengthens General Practitioners' care for patients to manage major illnesses afflicting Singaporeans.

By congregating various healthcare services under one roof, the task on hand is to implement a system that can archive and share information so that patients' records can be shared safely and securely between different centers. JMC also needed a general office filing system that integrates and streamlines processes in order to support effective decision making and efficient administration.

In order to provide first-class service for its patients, JMC decided to implement an integrated Hospital Information System (iHIS), which not only saves costs but improves data retrieval and sharing as well.

Implemented with the assistance of Sun Advantage Partner Singapore Computer Systems and Sun, the iHIS runs on Sun Fire T2000 servers, the Sun Java Enterprise System, and the Solaris 10 Operating System. As a result, JMC has witnessed improved efficiency and experienced better patient satisfaction. The center also reduced management costs and downtime. In addition, the solution helped simplify IT administration, and consolidated medical records and information of patients from different clinics.

The scalability of Sun's solutions and the fully integrated Java Enterprise System easily accommodates JMC's growth, providing the medical center with long-range investment protection and peace of mind as it evolves into a world-class healthcare provider.

Business Issues

- Simplify IT administration and management
- Consolidate different sources of patient information
- Lower TCO and maintenance costs

Business Results

- Increased patient satisfaction
- Improved patient care
- Simplified IT administration
- Improved productivity
- Lower cost of ownership

Products/Services/Solutions

- Sun Fire T2000 Server
- Solaris 10 Operating System
- Sun Java Enterprise System

"With the help of Singapore Computer Systems and Sun Microsystems, JMC implemented the integrated Hospital Information System, as we believe it will provide information that is relevant and fast to help support decision making and streamline processes."

Ng Kian Swan
Director of Operations,
Alexandra Hospital (parent company of JMC)

Business Issues

- Deal with flood of data from implementation of new PACS solution
- Safely protect statistical data
- Replace existing SAN solution with scalable storage to support growth

Business Results

- Increased scalability for future growth
- Enlargement of the main memory
- Flexibility for building new solutions
- Ability to maintain data with constant number of IT employees, despite a tenfold increase in the amount of data

Products/Services/Solutions

- Sun StorageTek 6140 Array
- Linear Tape Open (LTO) Ultrium Tape Drives
- Sun StorageTek SL500 Modular Library System
- Sun StorageTek Storage Archive Manager Software

KINDERSPITAL ZÜRICH (ZURICH CHILDREN'S HOSPITAL)

Sun StorageTek Archiving Solution Skillfully Manages Data and Keeps Hospital Competitive

Overview

Kinderspital Zürich is a multidisciplinary medical institution devoted to the treatment of illness in children and infants, and to the study of developmental growth of children. The Kinderspital supports a wide range of research facilities.

Solution

Information lifecycle management and archiving solution based on Sun StorageTek technology for quick access to data generated by Picture Archiving and Communication System (PACS).

Success at a Glance

The use of new imaging procedures is creating up to 5 terabytes of additional data per year at the Kinderspital Zürich. While the main source of the data is the hospital's new Picture Archiving and Communication System (PACS), other technical sources and individual physicians in the hospital are also contributing to the data growth with digital images and videos.

With this deluge of data, the hospital's existing SAN infrastructure was overtaxed, and a conversion of this infrastructure would prove to be costly. Furthermore, the challenge of safeguarding statistical data could not be resolved. Therefore, Information Technology Manager Christoph Graf and his team began evaluating a new storage solution. The most important criterion for the new solution was providing an upgrade and migration path for future system growth. After careful evaluation, the Children's Hospital decided upon a scalable solution from Hirt Informatik AG and Sun.

Out of five alternatives, the hospital narrowed its options to two competing solutions. "Both proposals were technically convincing," Graf says, "but solution partners Hirt Informatik and Sun convinced us overall because of their greater depth of experience and their professional approach." The IT manager also took note with satisfaction that the price was somewhat lower, but that was not decisive. "In this project, the price for us was not the highest priority. We were more focused on finding a solution that would be able to grow with us flexibly as the volume of our data expanded," Graf explains. It was also important to him that Sun could produce references to similar successful deployments in medical environments.

The Children's Hospital solution includes Sun StorageTek Storage Archive Manager (SAM) software to classify and manage data throughout its entire lifecycle. Thanks to the flexible manner in which the SAM software can be configured and the structure of the PACS, it was possible to implement a robust, simple configuration.

The PACS first saves the data on a fast disk for short-term storage. The data remains available here until the attending physician has made a diagnosis. The images, along with the physician's report, are then written in a second-tier subsystem based on the Sun StorageTek 6140 Storage Array with good access time. In addition, another level of data security takes place by backing up the data onto Sun StorageTek L180 tape library with LTO 3 tape drives. The team also makes a second copy of the archived data on Sun StorageTek SL500 Tape Library with LTO 3 tape drives. The security concept provides two copies of the data at any time. The data is directly accessible, regardless of where the data is physically stored.

The Sun and Hirt Informatic solution provides the hospital with the flexibility to add new capabilities, and support new systems and services. The solution has required a constant number of IT employees to administer it, in spite of a tenfold increase in the amount of data. In addition, the Sun storage solution scalably manages the volume of data, which is expected to grow from 10 terabytes to 25 terabytes during the next five years.

"The solution from Hirt Informatik and Sun Microsystems convinced us overall because of their greater depth of experience and their professional approach."

Christoph Graph
Information Technology Manager, Zurich Children's Hospital

Business Issues

- Manage 1,100 computers with nine IT professionals
- Keep up to date with Microsoft Windows-based PC software, including antivirus and antispyware programs
- Enhance flexibility and adaptability of client systems and applications software
- Audit employee access to applications to comply with HIPAA requirements
- Deploy new desktop systems in less than 10 days to support the grand opening of a new facility

Business Results

- Reduced administration time 97% in critical diagnostic imaging environments, from eight hours per week to one hour per month
- Enabled rapid deployment to support grand opening of new facility
- Lowered risk of data loss due to device theft or system failure
- Provided computing mobility for physicians and nurses
- Decreased TCO with three-year warranty
- Increased desktop security
- Reduced cost and complexity of audits to support HIPAA compliance

Products/Services/Solutions

- Sun Ray 170 Virtual Display Client
- Sun Fire T2000 Server
- Solaris 10 Operating System

KING'S DAUGHTERS MEDICAL CENTER (KDMC)

Medical Center Improves Access and Management of Imaging and Radiology Information with Sun Ray Virtual Display Clients

Overview

King's Daughters Medical Center is a not-for-profit, 385-bed, regional referral center in Ashland, Kentucky, offering comprehensive cardiac, medical, surgical, pediatric, rehabilitative, psychiatric, cancer, neurological, pain care, wound care, and home care services. In 2005 and 2006, Solucient—a leading information products company serving the healthcare industry—named KDMC one of the nation's 100 top hospitals. KDMC's Radiology Department is one of the busiest areas of the medical center, performing more than 190,000 procedures each year.

Solution

To eliminate complex, costly, and time-consuming administration of PCs, KDMC has deployed more than 30 Sun Ray Virtual Display Clients within its Radiology Department at its newly constructed Outpatient Imaging Center.

Success at a Glance

Medical images—X-rays, MRIs, CT scans, and others—are critical tools for healthcare providers, so fast and secure access to them is vital. As part of a recent expansion within its Radiology Department, KDMC began to look for a better workstation solution to provide doctors and their patients with the clearest, most accurate images.

The new workstations had to run clinical applications such as Picture Archiving and Communication System (PACS), radiology and hospital information systems, as well as business and productivity programs in a Microsoft Windows environment. To have outfitted all the patient care areas with PCs would have been cost-prohibitive (as much as $6,000 per workstation) and would have required a significant time commitment from IT to upgrade and maintain. Managing multiple PCs would also complicate the process of tracking user access and ensuring security for compliance with HIPAA requirements.

KDMC looked at several alternatives before choosing to equip its Radiology Department with more than 30 Sun Ray 170 Virtual Display Client systems. The Sun Ray systems provide KDMC with a smaller footprint, dramatically lower power consumption, and the ability to run both clinical applications and other Microsoft Windows applications from a single desktop—all at significantly lower prices than "fat client" PCs.

Using the Sun Ray clients, the KDMC Radiology Department runs all of its applications with the Solaris 10 Operating System on Sun Fire T2000 servers. This has enabled the IT team to reduce administration time in its critical imaging environments from eight hours per week to one hour per month, a 97 percent improvement. Simplified provisioning allowed KDMC to rapidly deploy the new workstations in time for the grand opening of its new radiology facility.

The Sun Fire T2000 server with CoolThreads technology offered KDMC triple the throughput of competing systems with half the power consumption and half the datacenter footprint. Running software on servers has also helped ensure the protection of data through tightly controlled user access and reduced risk of device or system failures. In addition, the Sun solution has strengthened security and auditing for compliance with HIPAA requirements.

The Sun Ray systems also provide KDMC staff with complete device mobility. The server-based software authenticates users through the use of smart cards for login. Now a nurse can put her smart card into the Sun Ray in an examination room to do a patient history, and later put her card into a Sun Ray at a nurse's station, and come right back to the same spot where she left off.

Forsythe Technology, Inc., a Sun Advantage business partner, provided integration and deployment services. The KDMC Radiology Department also uses Sun StorageTek disc arrays to store and manage its imaging information.

Healthcare is ultimately about people, not technology, and that's exactly where the Sun Ray 170 client solution is paying off for KDMC. Care providers can access medical images quickly and reliably, contributing to more accurate diagnoses and more successful outcomes. IT staff spends less time on routine administration and more time on forward-looking projects that benefit the hospital's patients as well as its bottom line.

"What really sold us on Sun Ray was the smart card authentication combined with mobile sessions for our healthcare professionals. As an administrator, I don't have to worry about what applications are loaded on which PCs, or about people logging on, logging off, or losing their work. Session mobility is the number one benefit that everybody wants."

Chad Phipps
PACS Administrator, KDMC

Business Issues

- Manage rapid growth in digital image storage
- Offer fast access to radiological and other information via the Web
- Provide secure and reliable backup across a variety of media
- Comply with legislation governing availability of medical data
- Provide a flexible, scalable platform to match growing dependency on digital information

Business Results

- Provided access to radiological and other images in less than half a second
- Dramatically accelerated treatment of patients
- Secured backup that complies with a regulation that stipulates safe storage of medical data for 30 years
- Offered highly scalable storage that already has grown three times beyond original capacity

Products/Services/Solutions

- Sun SPARC Enterprise T5220 Server
- Sun StorageTek 2540 Array
- Sun StorageTek Common Array Manager Software
- Sun StorageTek Storage Archive Manager
- Solaris 10 Operating System
- Sun Storage Services

KLINIKUM ALTENBURGER LAND GMBH

Sun Tiered Storage Solution Delivers Split-Second Image Access to Medical Professionals

Overview

Klinikum Altenburger Land GmbH, headquartered in Altenburg, Germany, is a teaching hospital affiliated with the University Hospital of the University of Jena and Leipzig. It comprises 13 specialized hospitals and is home to a team of about 750 people that care for approximately 18,000 inpatients and 16,000 outpatients each year.

Solution

With the support of Sun and IT services provider Bechtle, Klinikum Altenburger Land implemented a tiered storage solution based on Sun StorageTek Storage Archive Manager (SAM) software. The new solution manages copies of current images and information that are stored on two Sun servers. Additional copies are stored on different storage media, depending on workflow requirements. These include hard drive systems and a tape library for long-term archiving.

Success at a Glance

The growth in electronic patient records and clinical storage systems has been a boon for citizens and healthcare professionals alike. But the sheer volume of data that requires secure but accessible storage has put additional strains on the information systems of hospitals. Add to that the need to align data with the workflows of the institution, and it's little wonder that many healthcare organizations are updating their storage systems.

Klinikum Altenburger Land has deployed a tiered storage solution based on the Sun StorageTek Storage Archive Manager (SAM) software alongside its new picture archiving and communications system (PACS) from Visus, a German company specializing in medical imaging systems.

Using Web technology, the PACS and StorageTek SAM-based tiered storage solution delivers images to doctors' workstations and operating rooms throughout the hospital in a fraction of a second. Replacing traditional X-rays, the images are available in PACS immediately after they are generated and can be interpreted the same day, greatly accelerating the treatment process. These images, which also can be preselected by a department, form the basis for the medical history service. In emergencies, healthcare professionals are able to interpret X-ray images from home.

Sun and Bechtle worked with the hospital to implement the StorageTek SAM software. The deployment team focused on the main challenge of the project, which was to map the hospital's complex processes to IT-based storage workflows running under the new system. This was achieved by establishing preset criteria: the time the data was created, the source, and the legally required retention period, among others. Based on these, the StorageTek SAM software automatically distributes information from various applications to media, including hard disks, SAN, and tapes. This includes a Sun SPARC Enterprise T5220 server and a standby Sun Fire V210 server, both running the Solaris 10 Operating System, and a SAN based on a 12 TB SATA Sun StorageTek 2540 array, a StorageTek D240 Media Tray, and a StorageTek FLX210 enterprise storage system supported by StorageTek Common Array Manager and SANtricity software.

Above all, the StorageTek SAM software offers secure, automated storage and archiving of PACS data, and supports an increasing number of other clinical applications. For instance, digitized medical records, ultrasound images, endoscopy images, CT scans, and EEG and sleep lab data can all be kept secure on the tiered storage solution. This approach is highly effective. "With the StorageTek SAM software, we can use our full capacities to their best advantage, migrate to new hardware without major expense, and automatically recover all data in the event of a failure," says Reiner Selent, IT director, Klinikum Altenburger Land GmbH.

There were other convincing arguments for selecting Sun, according to Selent: "We looked at hospitals that have used the StorageTek SAM software for some time, and they confirmed that the system was highly robust and reliable. Another crucial factor was the possibility of seamlessly integrating our PACS system with this technology."

For revision-proof, long-term archiving, the hospital uses once-writable media, which are then kept in a strong room. This helps ensure compliance with the legal requirements stipulating that digital medical records must be archived for 30 years and radiology and ultrasound images for 10 years.

Because PACS costs considerably less and requires much less manpower than analog film technology, the number of radiological examinations has grown rapidly. The system was originally designed for 20 million files, but its capacity has grown to store 60 million. In the radiology department alone, 30,000 new files are added every day.

"With Sun StorageTek Storage Archive Manager, we can provide medical staff with patient information and ensure compliance with legally required retention periods. Tiered storage management with the Sun StorageTek SAM software also simplifies regular migration to new storage systems and the recovery of lost data in the event of a catastrophe."

Reiner Selent
IT Director, Klinikum Altenburger Land GmbH

Unlike other solutions, the StorageTek SAM software does not use a middleware layer, proprietary formats, or protocols. Data is stored as standardized UNIX files and can be read and processed using common system tools. Moreover, the IT department can optimize the StorageTek SAM software rules and integrate new applications without expensive external help. In fact, it took just two months to launch the system. “Bechtle and Sun are familiar with the requirements in the medical environment, so it was possible to complete the project quickly,” says Selent.

Selent is now looking ahead to a future when hospitals will be even more dependent on IT than before: “With the StorageTek SAM software, we have created a sustainable basis for rapid data growth that is difficult to foresee.” Video sequences, cardiac catheterization studies, and planned video towers for minimally invasive surgery are a few examples of new medical technologies that will require even more storage memory. But thanks to the reliability and scalability of its Sun technology, Klinikum Altenburger Land GmbH can confidently connect additional systems with digital data that require archiving to the StorageTek SAM software, as necessary.

LEGNANO HOSPITAL

Hospital Uses Sun Software Technologies to Give Employees Fast, Secure Access to EMR, Healthcare Applications, and Services

Overview

Based in Milan, Italy, Legnano Hospital operates four hospitals and twelve other healthcare facilities. The hospital provides 1,500 patient beds and employs approximately 4,500 people.

Solution

In order to provide fast, secure access to online services and to increase employee efficiency and overall system security, Legnano Hospital implemented Sun Java System Portal Server, the Sun Java Composite Application Platform Suite (CAPS), and other Sun products and technologies.

Success at a Glance

Legnano Hospital consists of four main sites and a dozen annexes. All of these locations are interconnected via a data network, with each site containing its own local network that connects administrative, technical, and clinical-medical departments. There are 1,200 desktop clients on the overall network, used by about 4,500 hospital staff members. Based on the administrative and diagnostic information produced in all of the hospital’s clinics, there is a vast amount of data that needs to be managed, organized, and stored.

Because it needed to improve its overall IT security and create an online services portal for employees and the general public alike, Legnano Hospital turned to Sun. In early 2007, the hospital worked with Sun on a wide-ranging solution implementation that impacted all of the hospital’s sites. The initiative, which took about five months to complete, encompassed four technological areas: virtualization and consolidation of servers and desktops; development of an online services portal; centralized access control through single sign-on (SSO); and testing the use of a caregiver mobility solution, via radio frequency identification (RFID) technology, to support clinical risk management as well as administration of patient logistics.

“The project is the culmination of a five-year development-and-review process of the information system,” explains Claudio Caccia, chief information officer of Legnano Hospital. “In particular, by deploying this new technology, we’re enhancing the overall performance and security of the system. At the same time, the Sun portal has given employees and the general public 24x7 access to online services.”

Business Issues

- Improve performance and security of IT infrastructure
- Experiment with effectiveness of RFID technology
- Provide secure online services portal to employees and the general public around the clock
- Improve compliance with government healthcare regulations
- Enable profiling of 4,500 user systems directly on the portal, giving the company SSO capabilities
- Improve disaster-recovery capabilities

Business Results

- Improved datacenter efficiency
- Reduced waiting times for availability of reports and diagnostic information
- Increased speed and security of operations
- Provided centrally managed system security
- Connected 1,200 workplaces
- Greatly improved disaster-recovery plan

Products/Services/Solutions

- Sun Java Composite Application Platform
- Sun Java System Portal Server
- Sun Java System Portal Server Secure Remote Access
- Sun Java System Directory Server, Enterprise Edition
- Sun Fire V490 server
- Sun™ Modular Datacenter S20
- Solaris 10 Operating System
- Solaris™ Cluster 3.1
- Sun™ Virtual Desktop Infrastructure Software

"The project is the culmination of a five-year development-and-review process of the information system. In particular, by using a new technological architecture, we sought to improve the overall performance and security of the system while gaining the ability to offer a range of online services that are always available to workers and the general public via a portal developed by Sun."

Claudio Caccia
Chief Information Officer, Legnano Hospital

New Portal Provides Flexibility and Security for Online Services

The project began with a complete rearchitecture of the hospital's datacenters, with the goal of installing an IT infrastructure capable of delivering the new services with maximal efficiency. This rearchitecture occurred at two physically separate datacenters, so the hospital could maintain effective disaster-recovery and business-continuity policies.

During this phase, the hospital's servers were grouped into clusters, using the features in the new Sun Fire V490 servers. The new servers, based on the Solaris 10 Operating System, were configured to host all of the hospital's applications. The hospital also is testing Sun Virtual Desktop Infrastructure Software, Sun Ray virtual display clients, and VMware technology for its desktop virtualization needs.

The hospital's online services were then made accessible through a newly developed portal system based on the Sun Java System Portal Server. This solution provides a portal through which employees can collaborate and access medical information. Using identity-based access and management, the portal server personalizes content for employees. Legnano Hospital professionals can authenticate and log onto the portal using a smart card created by the regional project Charter Regional Services — Information System Social and Health (CRS SISS). Once authenticated through SSO, each hospital employee's portal experience is customized to their resource access on the database.

Using CAPS, Legnano Hospital was also able to integrate its Sun products with the existing electronic medical record (EMR) system. CAPS provides a common development, management, and monitoring environment for all integration components within the suite. The solution's integrated application and infrastructure products are supported by a set of graphical tools that support standards-based collaboration and business process execution.

Through the integration of Sun products and the hospital's EMR system, tested and proven international standard technologies can communicate between different applications associated with emergency, reception, laboratory work, pathology, radiology, and the operating rooms. As a result, the hospital's medical and nursing staff members can access the EMR via the new services portal to check diagnostic services, consult reports, and record any information about a patient while making that information immediately available to every department in the hospital.

Secure Single Sign-on Through Smart Cards

In order to improve security, comply with privacy laws, and simplify access to information, the hospital also implemented an SSO system using Java Card-enabled smart cards.

The solution provides centralized management of hospital user access and profiles directly through the hospital's online services portal.

Java Card technology, which is compatible with existing smart card standards, enables small Java-based applications to be run securely on smart cards.

The SSO system allows for centralized management and profiling of hospital employees through the new portal. User authentication takes place through an ActivIdentity solution, which consists of three software elements: the agent client, the central Microsoft Active Directory or LDAP archive services, and the IT administrator's console. Using their smart cards, hospital employees can consult their own clinical data, such as reports, laboratory tests, and images. In addition, the hospital's smart cards can be used to access online services via the Internet through a virtual private network (VPN) and a series of authentication codes. External users can access three areas: an information area, an online services area for the general public, and a restricted area for healthcare professionals.

"For the smart card, we used a special regional version of the smart card from CRS SISS that is intended for healthcare professionals," says Caccia. "The card was configured with differentiated access policies and was given to our medical and paramedical staff as well as to our external consultants." The hospital-issued smart cards are used for secure sign-on and also as tools to help the hospital identify staff access and attendance.

Through this project, now in its final stages of development, Legnano Hospital will be issuing more than 4,500 smart cards.

RFID technology to Support Clinical Risk Management

Additionally, the hospital has started to deploy an innovative caregiver mobility solution that addresses clinical risk management processes through the use of passive RFID technology, which identifies patients during all stages of treatment. Legnano Hospital patients wear an RFID-enabled bracelet, which holds detailed information about drug prescription and administration.

The caregiver mobility project aims to concretely assess the potential economic, organizational, and financial advantages and disadvantages of investing in RFID technology. The project also seeks to determine whether RFID might help reduce errors made through written prescriptions and diagnoses, as well as through mistaken patient identification.

"The RFID project is evolving toward two uses," explains Caccia. "The first concerns the patient cycle, where we aim to use this technology to track all patient activity.

The second area of use concerns the supply cycle, to areas such as management of blood, drugs, clothing, and medical personnel. These applications have different requirements, for which we are evaluating different technologies in order to minimize the technological impact the implementation will have on medical and nursing activities."

In particular, the need for remote control in the management of certain patient activities will involve the deployment of UHF transmission technology, which enables a user to take readings remotely and easily from a distance of a few meters.

By mid-2008, the new project was expected to begin in pilot form. It is expected to go into production in the second half of the year.

Disaster Recovery for a New Way of Working

In collaboration with Sun, the hospital improved its disaster-recovery capabilities by implementing the Solaris Cluster 3.1, a multisystem server cluster solution that manages the availability of applications, services, and data across the hospital's separate datacenters. The hospital is also creating a backup system based on Sun StorageTek technology, as well as database encryption through dedicated hardware systems.

Legnano Hospital is also considering adopting the Sun Modular Datacenter S20 (originally known as Project Blackbox), which involves housing an entire datacenter inside a standard container. Implementing this technology would optimize the hospital's investment and free up physical space that could be devoted to patient needs.

In the future, the hospital also plans to bring its EMR system directly to the patient's bedside. By doing so, the medical staff would be able to view X-rays and other medical information in digital format, with the patient nearby. Within 12–18 months, staff members operating inside the 105 wards of Legnano Hospital gradually will be able to abandon paper documents in favor of a paperless and wireless environment.

"The Hospital of Legnano is initiating an innovative process that envisions changing the way we work in order to be more efficient and effective," concludes Caccia. The realization of these projects and goals is made possible by research and the ability to protect these variables: technology, the review process, and organization and awareness of all the people involved. In all of this, a close collaboration with Sun was very important, as was the establishment of a partnership with all suppliers that have shared the objectives of the project and the phases of this achievement.

NHS TAYSIDE

NHS Tayside Consolidates Datacenter with Help from Sun

Overview

NHS Tayside provides primary care and secondary healthcare services to a population of approximately 400,000 in the Tayside region of Scotland.

Solution

Sun and business partner Access Computing helped NHS Tayside consolidate and upgrade its data storage and server infrastructure using Sun StorEdge™ storage hardware and Sun Fire servers. Sun StorEdge software provides reliable data protection, while Sun Java Enterprise System software is used for access control and communication and collaboration. Tayside receives service under its SunSpectrum Platinum Service Plan.

Success at a Glance

With rising demand for services and pressure to minimize expenditures, the United Kingdom's Nation Health Service (NHS) stresses efficiency in IT to its agencies. NHS Tayside has taken that directive to heart, earning a reputation for excellence in IT through hard work, foresight—and choosing the right vendors. Sun and partner Access Computing have designed and installed the bulk of the healthcare provider's IT server and storage resources since 1994, including a move from a mainframe environment to Sun SPARC® technology-based servers. Tayside has since upgraded to a range of Sun Fire servers.

In 2004, continued growth in data and the need to reduce operating expenses drove Tayside to consolidate and upgrade its data storage and server infrastructure. Based on Sun's reputation for reliability and scalability, and a long history of successful collaboration, the agency again turned to Sun. On Sun's recommendation, Tayside centralized its storage using the Sun StorEdge 5310 NAS Appliance. The StorEdge 5310 NAS Appliance helps Tayside deliver business continuity with full redundancy, important for its business-critical applications that must be available at all times.

To safeguard its important patient and enterprise information, Tayside deployed a robust data protection system. Routine backups are written to a Sun StorEdge 6130 Array. For business continuity, Sun StorEdge Availability Suite software mirrors data to a disaster recovery site, where it is archived using a Sun StorEdge L180 Tape Library. Sun StorEdge Enterprise Backup software hosted on a Solaris OS/Sun Fire V250 server-based platform manages all backup and restore operations. Support for both the main datacenter and the disaster recovery site is provided by Sun and Access Computing under a SunSpectrum Platinum Service Plan.

Business Issues

- Accommodate rapid growth of information
- Minimize risks of catastrophic data loss
- Support heterogeneous hardware and software environment
- Reduce cost and complexity of IT infrastructure

Business Results

- 100% ROI in 24 months
- 30% lower TCO
- 40% higher productivity
- 50% faster access to data
- 30% smaller datacenter footprint

Products/Services/Solutions

- Sun StorageTek 6130 Array
- Sun StorageTek 5310 NAS Appliance
- Sun StorageTek L180 Tape Library
- Sun StorageTek Enterprise Backup Software
- Sun StorageTek Availability Suite
- Sun Fire V250 server
- Solaris Operating System
- Java Enterprise System

"When we began the process of replacing all of our locally attached storage, we wanted a centralized storage capability that could deliver faster, more reliable data protection, along with a lower total cost of ownership. Based on our experience, Sun was our best choice for providing a comprehensive, integrated solution."

Paul Tovey
IT Manager, NHS Tayside

Tayside has realized substantial benefits from the datacenter project. Consolidation has shaved 30 percent off the footprint for servers and storage, and cut in half the time needed to access data. Thanks to streamlined and centralized administration, IT staff productivity has increased by 40 percent. In all, Tayside has reduced the TCO for its storage and server infrastructure by 30 percent and expects a full payback on its investment in 24 months. Best of all, Tayside will continue to serve as a model for U.K. agencies, showing how partnering with Sun can reduce the costs of delivering healthcare services without compromising quality.

NORTH HAMPSHIRE HOSPITALS NHS TRUST

Successful Sun SeeBeyond eGate SRE Migration to Sun Java Composite Application Platform Suite

Overview

North Hampshire Hospitals NHS Trust manages North Hampshire Hospital, a 480-bed acute facility located in Basingstoke, U.K. The trust was established in 1994 and now serves a population of approximately 280,000. Through the hospital, it provides a wide range of acute and specialist services on an inpatient, day-case, and outpatient basis, and also manages a multimillion-pound education and research center.

Solution

North Hampshire Hospital has been working to streamline and optimize patient care by setting up a patient master index that can be used across different systems. In the past, different departments tended to maintain their own data, and most clinical systems were standalone systems that were indexed independently. This not only made it difficult to ensure consistency but also involved hospital staff in a great deal of unnecessary data entry.

Success at a Glance

The Trust decided to use its patient management system as a basis for the patient master index. With 98 percent of the 350,000 patient records in this system accompanied by a validated National Health Service (NHS) number, the data was known to be accurate and reliable. The first step in the process was to achieve integration between the patient and theater management systems. This would be followed by other integration projects.

North Hampshire NHS Trust sought an integration engine that would support fast, flexible integration between its iSOFT i.Patient Manager system and other systems, starting with the Sapphire Theatre system. It chose a component of CAPS, Sun SeeBeyond eGate Integrator, and consultants were engaged to perform the first integration on the Trust's behalf. The implementation was carried out smoothly and successfully within the planned time frame of four months. The solution has proved to be very reliable, with no unplanned downtime.

Although Sun SeeBeyond eGate Integrator was an ideal fit for the basic integration capabilities required at the time, the trust has since upgraded to Sun SeeBeyond eGate SRE, which supports migration to CAPS. CAPS offers enhanced functionality in areas such as workflow, portals, data management, and business activity monitoring.

Business Issues

- Honor commitment to provide patients with the highest standards of care and treatment
- Establish a patient master index that can be used to achieve consistency across previously independent systems
- Achieve integration between patient and theater management systems

Business Results

- By automating the transfer of data between systems, hospital staff save time and effort, and administrative processes are completed more quickly
- Reliable solution with no unplanned downtime
- Implementation carried out within planned time frame of four months

Products/Services/Solutions

- Sun Java Composite Application Platform Suite (CAPS)
- Sun SeeBeyond eGate Schema Runtime Environment
- Sun SeeBeyond eGate Integrator

"We wanted to work with a supplier who could help us with the implementation, as well as supplying us with a powerful technology solution. Java Composite Application Platform Suite, with its strong track record in other hospitals, was easily the best choice. The main benefit of the Java Composite Application Platform Suite solution is the saving in time for hospital staff, who would otherwise have to enter the same data manually into several different systems. This means that administrative processes, such as booking patients into theater slots, can be completed more quickly."

Helen Reading
IS Program Manager, North Hampshire Hospitals NHS Trust

At the moment, North Hampshire Hospitals NHS Trust is working on the integration of its i.Patient Manager application with its JAC Pharmacy system. This will enable information to be transferred automatically between systems when drugs need to be administered to a patient. Reading estimates that some 8,000 patient records per month will be involved initially, a somewhat higher total than the 6,000 or so records transferred to the Newgate Technology's Sapphire Theatre system each month. Now that the CAPS solution is live at North Hampshire Hospitals NHS Trust, patient demographic data is transferred automatically from i.Patient Manager to the theater system whenever a patient requires a theater visit. This means that theater staff are able to access a new patient's data immediately.

Also, the accuracy and consistency of patient data has improved because information in the theater management system is now derived from a single central database. This helps to improve the efficiency of the service provided. Similar benefits will accrue from the forthcoming integration of the patient management and pharmacy systems.

Under the U.K. government's National Programme for IT, North Hampshire Hospital and other hospitals in the south of England will soon begin to implement a revolutionary new approach to patient records, based on the concept of a single patient view. The new NHS Care Records Service (CRS) is being implemented by the Fujitsu Alliance, using Java Composite Application Platform Suite as the integration engine. Thanks to its use of Sun SeeBeyond eGate Integrator SRE, North Hampshire Hospitals NHS Trust will be prepared beforehand to link into the new system.

NYU MEDICAL CENTER

Sun Solution Helps Healthcare Center Expertly Manage Data

Overview

New York University (NYU) Medical Center, comprised of Tisch Hospital, the Rusk Institute of Rehabilitative Medicine, the NYU Hospital for Joint Diseases, and the NYU School of Medicine, is one of the premier centers of excellence in healthcare, research, and medical education in the world. A robust data storage solution from Sun StorageTek helped the Center improve network performance, enhance data access and recovery capabilities, and take full advantage of advanced digital diagnostic tools, all leading to improved performance and patient care.

Solution

The Sun StorageTek information lifecycle management (ILM) storage infrastructure solution allowed NYU to improve the performance of a critical digital diagnostic tool and helped the Center consolidate disparate networks, thus significantly enhancing network performance. Sun also helped the Center safeguard data by creating a tier 3 storage system and moving tier 3 data offsite to provide disaster recovery capabilities.

Success at a Glance

NYU Medical Center constantly strives to improve patient care and patient outcomes. To this end, administrators regularly review new technology opportunities with a view toward better serving patients.

In early 2003, the Center deployed a picture archiving communications system (PACS) to store and provide access to medical images from a variety of modalities and departments. But the Center's discrete departmental networks complicated the process of image retrieval, and compromised NYU's data storage and recovery systems.

To improve its network performance and enhance both data access and recovery capabilities, NYU turned to Sun StorageTek Technology. Sun developed an information lifecycle management (ILM) storage infrastructure solution that allowed the Center to take full advantage of its PACS application.

Previously, each department would buy, install, maintain, and manage its own equipment, which resulted in increased administrative expense and network complexity, as well as reduced access to critical patient data. Sun helped the Center consolidate its existing networks into a single, enterprise-wide PACS support infrastructure that incorporates four facilities and multiple departments—from radiology to cardiology.

Business Issues

- Enhance patient care delivery
- Meet HIPAA data protection requirements
- Centralize data storage
- Reduce network expense and complexity

Business Results

- Current or archived patient records retrievable in seconds, rather than hours
- Improved collaboration among healthcare providers, who can now simultaneously access patient records
- Comprehensive ILM strategy provides automated data retention
- Centralized data pool improves data integrity and accessibility
- Flexible, high-speed system capable of scaling as needs evolve

Products/Services/Solutions

- Sun StorageTek Information Lifecycle Management (ILM) Assessment Services
- Sun StorageTek L700E Tape Library
- Linear Tape Open (LTO) Ultrium Tape Drives
- Sun StorageTek Storage Archive Manager
- Sun StorageTek ACSLS Manager Software
- Sun℠ Managed Operations for Storage

"Sun StorageTek created a tailored, information lifecycle management solution to meet our regulatory, business, and budgetary objectives. Our PACS application performs better and is a key element to delivering better patient care and enhanced practitioner productivity."

Chris Petillo
Director of PACS, NYU Medical Center

The ability to centrally manage the PACS has reduced the Center's acquisition costs, as storage can now be bought in volume. More importantly, the new, unified system allows healthcare practitioners to access patient records anywhere, anytime through a Web-based interface, improving patient care and practitioner collaboration.

The new system has also significantly lowered the time it takes a doctor to access images. Previously, images had to be manually uploaded to the network, which could take hours. Today, thanks to use of cache, doctors can access images in seconds. When medical images are saved to NYU's tier 1, disk-based storage, an additional copy is written to a 60-terabyte capacity cache, which serves as tier 2 storage and can be accessed quickly and at less expense than data stored in main memory. Two more copies are written to the Sun StorageTek LTO Tape Drive, with one copy saved onsite in the Sun StorageTek L700e tape library for up to seven years and the other moved offsite for disaster recovery purposes. Together, these provide the third tier of storage.

NYU's data recovery capabilities have been enhanced through the creation of the multitiered storage system and through Sun Managed Operations for Storage services, which helps ensure recoverability and data integrity.

Overall, the Sun StorageTek technology-powered ILM systems helped NYU to achieve HIPAA compliance six months ahead of schedule, as well as meet business and budgetary objectives. But most important was the system's ability to enhance the PACS, which enables better patient care and enhanced practitioner productivity. Because when you're in the healthcare industry, providing great healthcare is always your primary objective.

SAARLAND-HEILSTÄTTEN GMBH (SHG)

Sun Tiered Storage Solution Helps German Hospital Group Better Manage and Protect Patient Data

Overview

Saarland-Heilstätten GmbH (SHG), headquartered in Saarbrücken, Germany, is one of the leading medical providers in the region. With its hospitals, rehabilitation clinics, nursing services, and other facilities, SHG offers some 2,200 long- and short-stay beds. Apart from delivering healthcare, it also provides training for health professionals.

Solution

SHG installed a new picture archiving and communications system (PACS) using a Sun tiered storage system solution as the technical platform for integration of storage media within a SAN. At the heart of the system is the Sun StorageTek Software Archive Manager (SAM) software, which manages data at every level, ensuring quick access to records and continuous data protection. The solution was implemented in a joint venture between Agfa HealthCare and Sun.

Success at a Glance

Computer technology is delivering some major advances in medical treatment. The digitization of patient data is key among them, giving healthcare workers a person's medical history on a computer screen in seconds. Saarland-Heilstätten wanted personnel to have instant access to X-rays and CT scans from desktops across all its sites.

The X-rays and CT scans had to be available quickly through a WebViewer desktop application, regardless of the size of the file. In addition, the data storage infrastructure behind the system needed to improve workflow, be easy to manage, and be highly secure. It also had to ensure that SGH comply with regulations for patient data to be stored unchanged and available for at least 30 years. Finally, it was important that the underlying technology was easy to integrate with future technology.

Marc Lux, IT director of Saarland-Heilstätten, says, "We looked at a number of applications to make the best choice for a complex environment. The right solution for us proved to be the PACS from Agfa HealthCare with the Sun StorageTek Software Archive Manager software."

The group had a long history with Sun and Agfa HealthCare. SHG clinics already used a hospital information system from Agfa called ORBIS, whose Oracle databases were supported by a SAN with a cluster of Sun Fire V490 servers running the

Business Issues

- Support new picture archiving system with simplified data storage
- Ensure rapid access to X-rays and CT scans
- Ensure availability of data for at least 30 years
- Find an interoperable technology that will support growth

Business Results

- Delivered tiered storage solution for records system that is largely automated
- Made access to images quick and easy using Web interface
- Implemented rules-based storage system that ensures designated files are retained
- Established architecture that is easy to scale

Products/Services/Solutions

- Sun Fire X4200 M2 Server
- Sun StorageTek 6140 Disk Array
- Sun StorageTek SL500 Modular Tape Library
- Sun StorageTek LTO 3 Tape Drive
- Sun StorageTek Storage Archive Manager
- Solaris 10 Operating System
- Sun Service Plans for Software

"Using the Sun StorageTek Storage Archive Manager (SAM) file system for our PACS, we are achieving high availability and flexibility of the IT infrastructure and, as a result, high user satisfaction. The picture archiving and communications system improves workflows and increases our competitiveness."

Marc Lux
IT Director, Saarland-Heilstätten GmbH

Solaris Operating System. Sun StorageTek SAM 4.6 software was also the backup solution for SHG's hospital information system and digital record archive.

StorageTek SAM software provided a single view of data stored on disk or archived on tape. It also made managing large quantities of data easy, using rule-based storage procedures. These rules automated the retention times for each file and selected the storage media. Says Lux, "For us, one big advantage of the StorageTek Storage Archive Manager is the flexible adaptation to our workflows. In addition, it is easy to manage, as adjustments to storage rules can be made just as quickly as changes in the storage architecture."

SHG created a tiered storage solution where patient data is first saved locally to a Solaris 10 OS-based Sun Fire X4200 M2 server for immediate availability. A copy of this data goes to a 2 TB Sun StorageTek 6140 Disk Array, equipped with very fast drives, in the central archive. StorageTek SAM software then distributes this data to a 10 TB Sun StorageTek 6140 Disk Array and simultaneously to two 500-slot Sun StorageTek SL500 Modular Tape Libraries with six Sun StorageTek LT03 Tape Drives each, which can only be written once (WORM tapes) to satisfy legal requirements. Finally, to achieve the highest level of data protection, the servers and disk arrays in the SAN are configured redundantly in separate locations.

The storage solution is making vital patient data easily accessible and secure. It is also saving the group money, which can be redirected to other services. Lux says, "We store our digital patient records via StorageTek SAM software, achieving a degree of security that would otherwise only be possible at a significantly higher cost."

He adds, "The operation of the system under StorageTek SAM software is absolutely stable. We have experienced nearly 100% availability so far. We have been delighted by the impressive cost/performance ratio and the very good cooperation between the involved partners. For this reason, we are already planning to integrate film sequences from departments such as sonography and endoscopy into the PACS system."

UNIVERSITY OF ALABAMA AT BIRMINGHAM (UAB) HEALTH SYSTEM

Enabling Physicians to Provide Faster, Better Care

Overview

The University of Alabama at Birmingham Health System manages the healthcare needs of Alabama's diverse population, including inpatient and outpatient services, rural clinics, a research facility ranked 16th in National Institutes of Health (NIH) Funds, and a health plan with more than 65,000 members and 5,000 physicians. UAB is one of the largest transplant centers in the world and is ranked number two in overall kidney transplants in the United States.

Solution

UAB deployed Sun Ray Ultra Thin Clients, Sun Fire servers, the Solaris OS, and Sun Java technologies to aggregate patient information and deliver it across all points of care.

Success at a Glance

Pressure in the healthcare industry to cut costs has never been greater, but the need to securely deliver the right information to the right person at the right time is critical to delivering safe, effective patient care. "In order to make good healthcare decisions and take care of patients better, you have to have the right information at the point of care, in order to provide the highest quality of care you can," says Dr. Michael Waldrum, COO of UAB Health System.

UAB is an integrated network of healthcare entities that manages patient medical, financial, and benefit information, as well as hundreds of ancillary systems. UAB Information Services manages the inventory of these systems, enabling them to share information and keep operations flowing. "UAB is a super-charged, high-intensity place," adds Dr. Waldrum. "We're never satisfied with where we are, and we continuously want to improve the way we care for patients and how we use information to improve that care delivery."

Maintaining patient and business information is vital yet challenging, with facilities spread geographically. With the growing demands of electronic medical records and patient lab, radiology, and ancillary systems, UAB required an integrated solution that could meet diverse interoperability requirements, while at the same time help to lower system maintenance and development costs. "What Sun gives us, in one word, is integration—the ability for us to share our clinical information from the outpatient side to the inpatient side," explains Joan Hicks, CIO of UAB Health System. "It makes information available to all the clinicians who are involved in the patient care. And we have definitely achieved

Business Issues

- Deliver patient information at point of care
- Provide secure information access while maintaining privacy
- Aggregate information from disparate systems

Business Results

- Provides faster access to patient records at point of care
- Increases information sharing for improved healthcare
- Lowers maintenance and support costs
- Provides a faster ROI
- Preserves investments in legacy systems

Products/Services/Solutions

- Solaris 10 Operating System
- Sun Java System Portal Server
- Sun Ray Ultra Thin Client
- Sun Java System Identity Manager
- Sun Java Composite Application Platform Suite (Java CAPS)
- Sun SeeBeyond eGate Integrator

"We use Sun technologies and tools to take information in disparate systems, and repackage it so that health providers can have the information they need to improve healthcare delivery."

Michael Waldrum, M.D.
Chief Operating Officer, UAB Health Systems Foundation, P.C.

benefits from our Sun purchases through return on investment, the longevity of the products, and the low maintenance costs."

UAB deployed more than 600 Sun Ray clients for patient information access and plans to add more than 3,000 over two years. UAB uses Sun Java System Identity Manager to integrate with the Sun Java System Portal Server and the Sun Ray clients. Sun Java System Identity Manager and Sun Java System Portal Server are part of the Solaris Enterprise System, which also includes the Solaris 10 Operating System and integration software. To enable integration of legacy systems, UAB uses Java CAPS and Sun SeeBeyond eGate Integrator. "With Java and Sun's Java CAPS integration engine, we can deploy the Web and utilize Web tools that allow us to give information to our providers quicker and at a lower cost," says Dr. Waldrum. "We can also build incrementally without having to rebuild the underlying infrastructure and change legacy systems. Using Sun tools, we've been able to take information in disparate systems and aggregate it at the enterprise level, so it rolls up to the patient level, and it's available across the enterprise for that patient. And with Sun Ray clients, we can decrease the amount of time it takes to get the information and provide it with less maintenance cost. Having the information available improves healthcare because clinicians can make more informed decisions. Additionally, if that information can come to them easier, then it improves their efficiency, so they can do more and be more productive."

UNIVERSITY COLLEGE LONDON HOSPITALS

Sun Integration and Messaging Software Helps Patients Directly Book Appointments at London Hospitals

Overview

Choose and Book is a national service from Connecting for Health (CfH), a program within the U.K. National Health Service (NHS) that provides patients and their general practitioners (GPs) with the ability to directly book appointments over the Internet with their hospitals and consultant specialists of choice.

Solution

The hospitals implemented an enterprise service bus based on Sun software and service-oriented architecture (SOA) to integrate their Patient Scheduling (PAS) Systems with the Choose and Book services.

Success at a Glance

The Choose and Book service from the U.K. NHS allows GPs and their patients to directly book appointments with consultant specialists at hospitals throughout the country. The service provides convenience for patients, advanced visibility into demand for healthcare management, and a reduction in inefficient, paper-based workflow between GP practices and hospitals. The ability to directly book appointments with specialists through the Internet is especially important in major urban centers such as London, where travel may not be an obstacle and where a high concentration of specialists is based.

It was in London, moreover, that two NHS Foundation Trust hospitals—Chelsea and Westminster Hospital (C&WH) and University College London Hospital (UCLH)—worked together to achieve a common strategy for implementing the Choose and Book service. The two hospitals chose to use the same solution in order to reduce costs, and preserve vendor relationships and technology investments for the long term. To participate in the Choose and Book service, both hospitals had to connect their PAS Systems to the NHS Spine network and Electronic Booking System (EBS) using the ebXML HL7 Version 3 communications protocol. The two hospitals used the same PAS vendor, GE, but have independent IT operations and integration services. UCLH integration services are provided by LogicaCMG, and C&WH services were sourced internally. A versatile solution was needed to interoperate with the IT systems at both hospitals.

Responding to an initial approach from C&WH and GE, Sun Microsystems addressed these interoperability challenges with a solution based on the Sun Java Composite Application Platform Suite (Java CAPS) and an industry-specific framework developed by Sun to assure health services organizations of rapid and effec-

Business Issues

- Provide patients and GPs with ability to directly book appointments at London hospitals
- Establish sophisticated security interfaces with the main CfH "Spine" network and NHS Electronic Booking System (EBS)
- Integrate project with local hospital IT systems
- Work with multiple service providers to develop solution encompassing two different hospital trusts

Business Results

- Increased convenience for patients and GPs
- Improved visibility into healthcare demand
- Removed inefficient, paper-based workflows

Products/Services/Solutions

- Sun Java Composite Application Platform Suite (CAPS)

"We are relieved to have Sun working with our service provider, LogicaCMG, as an integrated team to deliver this service. I am impressed with the way Sun was able to work so flexibly with our trusts on this shared project. We are now able to focus on the business challenges presented by direct booking."

James Thomas
IT Director, University College London Hospitals

tive deployments. The CAPS solution provides an SOA, through which hospitals can confidently out-task very fine grained business services, such as those provided by the Connecting for Health (CfH) organization to the NHS.

Working with GE and integration teams from both hospitals, Sun used CAPS to map the national e-booking process across an enterprise service bus. This solution opened up the flow of data, while complying with specific messaging protocols for the Spine and GE systems.

Cooperation between C&WH and UCLH provided strong leadership and structure for the development, testing, and implementation process. This was crucial in gaining authority to proceed from the CfH. The LogicaCMG integration team transformed the UCLH messages into the format required by the GE PAS. C&WH performed the same function for their GE PAS software.

In just six months from inception to go-live, an end-to-end solution had been developed to meet the rigorous operational readiness standards of the C&WH and UCLH Foundation Trusts and the CfH program. Authority to deploy was achieved in December 2006, and both trusts are now receiving direct bookings from patients all over the country through Sun's seamless message handling and integration software.

UNIVERSITY HOSPITAL RECHTS DER ISAR

Distinguished German Hospital Saves 50% in Hardware Costs and 95% in Power Consumption with Sun Ray Virtual Display Clients

Overview

The University Hospital rechts der Isar at Munich Technical University is dedicated to high-quality healthcare, research, and education. With 3,700 employees, the hospital has more than 31 separate clinics as well as 1,100 beds. Every year, approximately 40,000 people benefit from inpatient care and 170,000 receive outpatient care.

Solution

The hospital centralized patient data and replaced its PC-based configuration with a highly-scalable, reliable, and energy-efficient server network connected to virtual display clients.

Success at a Glance

In paving the way for faster, more comprehensive patient care, the University Hospital rechts der Isar plays a major role in pioneering innovation at the Munich Technical University and contributing to its stream of 14 Nobel Laureates.

As such, the hospital is at the forefront of embracing new technologies that enable doctors to compare records and diagnoses, while preserving patient privacy. It not only centralized patient information, but saved 50 percent in hardware acquisition costs by replacing its existing desktop PC configuration with Sun Ray Virtual Display Clients.

In early 2007, the hospital opened a state-of-the-art neurology center, and now neurosurgeons, radiologists, and caregivers can move from any Sun Ray client to another and resume their desktop sessions with instant right-where-they-left-off access to vital patient data via a Sun Ray smart card and password. For example, they can prepare information for a joint council meeting right at their core desktop, then pull out their card, move to the Sun Ray client in the interdisciplinary center, and present the information to colleagues—without losing a single thing.

Physicians have also been using the workstations to access a variety of diagnostic measurements, such as computer tomography images showing the circulation in the blood vessels of the brain. For their patients, this means prompt life-saving care—especially during a stroke, when every second counts.

"There have been several other benefits as well," says Dr. Manfred Haerdtner, Deputy Director of the Computer Center. The introduction of the solution

Business Issues

- Enhance patient care and reduce risk of medical error
- Improve information security
- Reduce energy and maintenance costs
- Streamline workflow and boost efficiency
- Ensure smooth migration to thin clients from PC environment

Business Results

- Provides mobile personnel access to life-saving applications from any location
- Maintains seamless introduction due to Windows interface
- Protects sensitive patient information
- Consumes 95% less power than PCs
- Decreases administrative and maintenance costs
- Saves 50% in hardware acquisition over PC

Products/Services/Solutions

- Sun Ray 2 Virtual Display Client
- Sun Ray Software
- Sun AMD Opteron processor-based server ("Galaxy" servers)

"Now multiple users can share a workstation without hesitation, and the hospital knows that sensitive patient data is well protected behind the thick wall of the computer center."

Dr. Manfred Haerdtner
Deputy Director of the Computer Center, University Hospital rechts der Isar

throughout the hospital was seamless to employees due to a Microsoft Windows interface. Security, availability, and backup have improved by centralizing the information as a SAP-based core application running on redundant Sun Galaxy servers. Plus, there has also been a decrease in the hospital's overall administrative effort. Software updates or patches, for instance, can now be deployed on one server instead of 600 clients, and new clients are easily set up by a simple log-on procedure.

The virtualization opened the door to healthy energy savings, too. Each of the eco-friendly workstations only consumes 4 watts of power, less than a conventional light bulb, compared to a PC, which requires 80 watts or more. That represents a 95 percent power reduction.

Today, around 2,100 employees share access to 600 Sun Ray workstations, and the hospital is looking at replacing its laptops as well. Additionally, the hospital is currently testing how the virtual display clients perform under the special conditions of an operating room.

Innovation is the order of the day at this hospital, and the team is continually seeking to expand on its Sun solution—benefiting patients and saving lives.

UNUM

Insurance Provider Reduces Provisioning Time Up to 95% with the Help of Sun Identity Manager

Overview

A Fortune 500 company with more than 10,000 employees, Unum provides insurance benefits to 42% of Fortune 500 companies and 25 million people worldwide. The largest group disability insurance provider in the United States and the United Kingdom, Unum is also a leading provider of other insurance offerings such as group life and long-term care. The company is headquartered in Chattanooga, Tennessee.

Solution

Unum engaged PricewaterhouseCoopers (PwC) and Sun to help design and deploy an identity management solution that automatically provisions and deprovisions employee access to applications that run on mainframes and the IBM AIX and Windows operating systems. Deployed on existing servers in only 12 months, the solution is simple to manage and easy to scale.

Success at a Glance

Knowing who has access to what information can be a challenge — especially in an international organization with more than 10,000 employees. Before 2008, 14 security administration employees at insurance provider Unum used three systems to manually manage access requests received via email: Resource Access Control Facility (RACF) software was used to manage access to mainframes; AIX security administration tools were used to manage access to AIX-based applications; and Microsoft Active Directory was used to manage access to Windows-based applications. Not only did IT personnel lack a single point of control over identities and access privileges, but also a single access request took 5–15 days to be completed, depending on IT workload and the importance of the request. In addition, the manual process increased the risk of error, which could jeopardize compliance with regulations such as Sarbanes-Oxley.

Rather than developing software to automate provisioning, Unum contacted its partner to help establish requirements for an automated identity management solution, and a short list of products from vendors including Sun, IBM, and CA. Even though Unum had never used Sun technologies, Sun Identity Manager topped the list of possible solutions. "We were looking for a long-term partnership with a vendor that was willing to listen to us and be willing to hear the good, the bad, and the ugly when it came to ongoing deployments, maintenance, and support," explains Lynda Fleury, chief information security officer for Unum. "Sun's solution was simple from an architectural perspective, and we could run it on our existing AIX environment. I would have ended up purchasing my own server farm if we went with some of the other solutions." Unum ultimately chose Sun's solution after Sun engineers completed a proof of concept of 14 use cases in just five days.

Business Issues

- Expedite employee provisioning
- Increase efficiency of security administration personnel
- Minimize IT complexity

Business Results

- Reduced time required by up to 95% to provision base access for an employee
- Increased accuracy of and control over access-control processes
- Simplified security administration
- Freed up IT resources to work on more value-added tasks
- Built a technology platform that can scale to support future goals

Products/Services/Solutions

- Sun Identity Manager
- SunSpectrum Platinum Support

"I applaud our team, Sun, and our implementer PwC for helping us get to where we are today. We have automated a majority of our most basic security administration tasks — and to say we did that in a 12-month period is remarkable."

Lynda Fleury
Chief Information Security Officer, Unum

Between June and August 2007, Unum worked with engineers from PwC and Sun Support Services to design a solution that uses Sun Identity Manager 7.1. When an employee's status changes in the HR system, Sun Identity Manager initiates one of the following processes:

- If an employee is hired or changes roles, Sun Identity Manager sends a system access request over email to the appropriate managers. Once the request is approved, the system uses RACF, AIX, and Microsoft Active Directory to automatically make the appropriate changes to the user's access privileges.

- If an employee is terminated, Sun Identity Manager immediately revokes the employee's access privileges without waiting for managers' approvals.

Resource adapters in Sun Identity Manager for AIX, RACF, Microsoft Active Directory, and Microsoft Exchange Server provide for communication between required applications.

In October 2007, Unum launched a pilot of the solution to approximately 100 employees at its Colonial Life subsidiary. By August 2008, the solution went into full production in the United States and Ireland, supporting nearly 10,000 employees. Commenting on the deployment, Fleury notes, "Having a partner like PwC or Sun to help implement a solution like this is absolutely key to recognizing your ROI sooner rather than later."

As a result of its new solution, Unum has reduced the time required to provision access from 5–15 days to less than 24 hours. "We've significantly cut down on our support turnaround time, and now I have a way to measure and ensure that we're constantly meeting our customers' expectations," says Fleury. In addition, managers have a single point of control over identities and access privileges, and the automated process eliminates the potential for data-entry errors. Security administration employees can also focus on value-added initiatives rather than provisioning. "We're only at the tip of the iceberg," Fleury explains. "We're really excited about what we'll be able to do with the solution going forward."

In 2009, the company plans to extend its new Sun solution to replace a custom-built workflow tool that manages customers' access to more than 700 applications. In addition, Unum will streamline the creation of compliance reports — which currently is done through disparate processes — with Java Identity Manager. The company also is evaluating the use of single sign-on (SSO) to boost productivity, and identity federation to provide access to applications outside of the company. Commenting on its future security goals, Fleury notes that Sun will play a key role. "What we have established with Sun and Sun Identity Manager is the foundation for how we're going to be doing security today, tomorrow, and hopefully ten years out."

WAKE FOREST UNIVERSITY BAPTIST MEDICAL CENTER (WFUBMC)

Sun StorageTek Helps Top Academic Medical Center Reduce Backup Time and Improve Patient Care

Overview

Wake Forest University Baptist Medical Center, one of the nation's pre-eminent academic medical centers, operates 1,298 acute care, rehabilitation, and long-term-care beds, and provides outpatient and community health and information services through 20 affiliated hospitals and 87 satellite clinics across two states. The Center's three major institutions—Wake Forest University Health Sciences, North Carolina Baptist Hospital, and Wake Forest University Physicians—rank among the top in the nation.

Solution

The Center replaced its existing storage system with a solution from Sun that provided centralized nightly backup for more than 260 systems, reducing backup time and improving system availability. Sun storage consultants led the installation process, ensuring a smooth and timely migration.

Success at a Glance

As one of the most respected teaching hospital groups in the country, WFUBMC is adept at collecting and disseminating information—both to the Center's patients and to its medical students and staff. But saving, storing, and retrieving that information proved increasingly challenging, and the Center's data storage systems were beginning to adversely affect its ability to provide the best possible healthcare to patients.

The time required for nightly data backup was excessive, made the Center's network largely unavailable to end users, and strained network resources, often resulting in significant media failure and data corruption. The physical space required by existing tape drives and tapes was enormous, and IT staff had to store, maintain and manually mount and manage some 30,000 tapes—both difficult and time-consuming chores. The existing solution had also reached capacity. In short, the Center's data storage needs had surpassed its capabilities.

With the lease on the existing drives set to expire, WFUBMC administrators sought a solution that could address these issues and provide scalability as the Center's needs evolved. Sun recommended a comprehensive solution, and Sun storage consultants handled the implementation and completed the migration in less than six weeks.

Business Issues

- Improve backup speeds for critical data
- Enhance data availability, accuracy, and integrity to comply with federal regulations
- Improve network performance and providers' access to network resources
- Improve IT staff productivity and extend IT resources by reducing system failures

Business Results

- Reduced backup time by 87%, significantly improving network availability
- Reduced media failures by 90%, vastly improving data integrity, required for compliance with federal regulations such as HIPAA
- Enhanced end-user access to business-critical systems and applications
- Significantly reduced IT staff time devoted to fixing system failures, freeing staff to proactively manage the network

Products/Services/Solutions

- Sun StorageTek FlexLine 600 Series Storage System
- Sun StorageTek T9940B Tape Drive
- Sun StorageTek T9840B Tape Drive
- StorageTek Virtual Storage Manager (VSM) System
- Sun StorageTek Storage Archive Manager
- Sun Professional Services

"Sun did a tremendous job of diagnosing our needs and helping us size the new system correctly—both for our current and our future needs. I feel very comfortable with our decision to work with Sun and look forward to a continued relationship."

Bob Massengill
Manager of Technical Services, Wake Forest University Baptist Medical Center

Today, backup times for centralized nightly backups for more than 260 disparate systems across WFUBMC's facilities have been reduced by 87 percent—significantly increasing network availability. Sun StorageTek Virtual Storage Manager (VSM) combined with the Sun StorageTek PowderHorn 9310 Tape Library has reduced media failures by nearly 90 percent by replacing the tape system with an automated disk-to-disk system. A second PowderHorn installed in the primary datacenter provides disaster recovery capabilities. With data integrity protected, WFUBMC is better prepared to comply with federal archival and patient privacy and record portability regulations, such as HIPAA.

Sun StorageTek FlexLine 600 Series storage system has eliminated 98 percent of the tapes required for backup, allowing the Center to reclaim extensive datacenter floor space and freeing IT staff to attend to other, critical IT issues such as proactive network maintenance and troubleshooting.

Finally, end users—healthcare providers, students, educators, and center administrators—now have increased access to the network and systems, improving patient billing and admissions processes, as well as enhancing patient care by making patient data readily accessible 24 hours a day.

As importantly, the Sun solution can scale to meet the Center's data needs well into the future, providing a return on investment not available through the leased equipment. Thanks to Sun, WFUBMC is ideally positioned to efficiently and cost-effectively respond to the exponential increase in patient data anticipated in the future, as well as the increasingly rigorous requirements on data security and privacy. As a result, the Center will be able to focus its resources on its core business—improving the health and well being of its patients.

DR. ZEKAI TAHIR BURAK (ZTB) WOMEN'S HEALTH EDUCATION AND RESEARCH HOSPITAL

Improving Women's Healthcare with a Complete Sun Technology Platform

Overview

The Dr. Zekai Tahir Burak Women's Health Education and Research Hospital is the largest maternity hospital in the eastern Mediterranean, handling more than 26,000 births and 30,000 surgeries a year. It is a leading research center for all aspects of family planning and women's health. It was founded in 1925 as a five-bed maternity home but now employs a staff of 1,150.

Solution

To migrate to a Web-based hospital management package, ZTB refreshed its IT infrastructure with clustered servers, a modular storage array, and powerful workstations—all from Sun.

Success at a Glance

ZTB is proud of its reputation as one of the finest providers of obstetrics and gynecology services in Turkey. But its aging client-server computer platform couldn't keep up with increasing recordkeeping demands, including patient admissions, back-office operations, and reporting outcomes to the Turkish government and researchers.

"Availability of the statistical data and the reports that we need to run regularly are very important to us, because if you can't control hospital operations, especially costs and revenues, there is no possibility of creating an effective revenue model," says Dr. Ilker Sabuncuoglu, who leads IT efforts at ZTB. "And statistical analysis depends on server performance and availability. A system that can't give query results until the next morning has no use at all, because we need data instantly."

In 2006, ZTB decided to replace its old client-server applications with Sarus, a unified, Web-based suite of hospital management and billing software from Sun Solution Partner EES (Entegre Enformasyon Sistemleri), which handled the implementation as well. Sun was on the short list of hardware platform vendors because its devices are widely used in universities and hospitals throughout Turkey, it supports ZTB's chosen Microsoft operating systems and databases, and its products offer a superior cost/performance ratio.

"Sun also had the fastest response times to our questions," he adds. "Technical support is crucial for us, and sometimes it can be hard to get in touch with the right person at a vendor's helpdesk. But this wasn't the case with Sun. Its support team addressed our technical questions immediately."

Business Issues

- Replace outdated client-server applications, which were difficult to update
- Deliver detailed statistical reports more quickly
- Improve server performance
- Reduce TCO for the IT department

Business Results

- 96.7% reduction in query time, from 45 minutes to 90 seconds
- Synchronized application updates reduce IT staff's administrative burden
- Highly reliable, scalable platform for Web-based applications available 24x7
- Easily upgradable Sun servers reduce technology TCO and provide greater flexibility for future growth of services

Products/Services/Solutions

- Sun Fire X4600 Server
- Sun Ultra™ 20 M2 Workstation
- Sun StorageTek 6140 Array
- SunSpectrum Support

"When we evaluated the cost/performance ratios of alternative systems, Sun stood out by a large margin. As a result, we decided to buy Sun systems without any question marks in our minds."

Dr. Ilker Sabuncuoglu
Dr. Zekai Tahir Burak Women's Health Education and Research Hospital

The hospital decided to build its new IT infrastructure on two clustered Sun Fire X4600 servers, each equipped with four dual-core AMD Opteron™ processors, and 80 Sun Ultra 20 M2 workstations. A StorageTek 6140 Storage Array is used to store patient files such as streaming ultrasound videos, ECG images, and sound records. While the StorageTek 6140 Storage Array uses fiber channel hard disks with fast access times, ZTB will be able to use low-cost SATA disks in the same storage unit to archive aged data.

"Our new system runs at incredible speeds," Sabuncuoglu marvels. "It has reduced query times from up to 45 minutes down to just 1.5 minutes. For us, this is an incredible gain in speed and efficiency, particularly when you consider that a query can involve millions of data records." A SunSpectrum support agreement is in place to help ensure system availability.

The Sarus system, which went live in May 2007, provides the hospital staff with the reports it requires, such as patient numbers by department, admission times, monthly supply levels, and price changes.

The hospital also appreciates the Sun platform's flexibility, as it looks ahead to continued growth in patient beds and services. A server normally becomes outmoded within five years, Sabuncuoglu notes. But Sun servers can be expanded by adding or upgrading CPUs. Likewise, the Sun StorageTek array is both vertically and horizontally scalable. "Practically, it's the same as buying a new system, but costs as little as one-third as much," he adds. "We're confident our Sun platform will keep expanding with us, while helping to keep our expenses down."

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