



FLORIDA HOSPITAL ENHANCES IT PERFORMANCE AND PATIENT CARE WITH RED HAT SOLUTIONS

FAST FACTS

Industry	Healthcare
Geography	Orlando, Florida
Opportunity	Design a new disaster-recovery system that would ensure seamless business continuity for the hospital
Migration Path	IBM AIX to Red Hat Enterprise Linux
Software	Red Hat Enterprise Linux; Red Hat Global File System and Cluster Suite; Red Hat Network; JBoss Enterprise Application Platform; MySQL, Oracle, Caché, FoxPro, and Postgres databases; proprietary applications for reporting and management of patient data and for mail, security, and virus protection
Hardware	HP and IBM servers
Benefits	Streamlined disaster recovery and gained higher system availability and resource efficiencies that translate into better patient care



BACKGROUND

With seven facilities totaling over 2,300 beds throughout Central Florida, Florida Hospital is the largest hospital in the state. Established in 1908, the hospital provides care to more than one million patients each year and is part of the Adventist Healthcare System—the largest not-for-profit healthcare provider in the nation. Florida Hospital's MIS Department, which includes approximately 100 developers, manages one centralized datacenter for all of its facilities, making it one of the busiest centers in Central Florida. The hospital is also known for its excellent quality of healthcare. US News and World Report magazine has ranked Florida Hospital as one of "America's Best Hospitals" consecutively for the past six years.

OPPORTUNITY

To deliver the best patient care, Florida Hospital is constantly evaluating and improving its IT systems—ensuring the most reliable, high-performance infrastructure is always in place. In the mid 1990's, the hospital decided to undergo a new Web initiative to publish its internal applications to the Internet, but the project soon became cost-prohibitive. "As our environment grew, we couldn't afford to use an expensive proprietary operating systems anymore," said Jack Velazquez, Sr. Systems Engineer for the Open Systems Team at Florida Hospital. In addition, the hospital began reevaluating its disaster recovery system. "Because of the way our disaster recovery system was designed, it could have taken up to two days to restore our file systems and data if anything went wrong. We knew we needed to deploy a smarter system that would provide seamless business continuity for the hospital," said Velazquez.

SOLUTION

Initially, Florida Hospital turned to Red Hat because it provided cost efficiencies for its Web initiative, but then found many more advantages for its disaster recovery project. "We realized that using Red Hat in our data warehouse would help us resolve hardware-software compatibility issues that can cause unnecessary system downtime. Red Hat's large network of certified vendors ensures that most drivers are built into the operating system kernel, resulting in smoother operations," said Velazquez. Florida Hospital also chose to use the Red Hat Network, Red Hat Cluster Suite, and Red Hat Global File System (GFS) to re-structure the way its disaster recovery system was designed and managed.

Today, 70 HP and IBM servers run Red Hat Enterprise Linux, which runs a number of databases, including the hospital's two-terabyte Oracle data warehouse. Red Hat Enterprise Linux also runs JBoss Application Server and the hospital's proprietary applications, which include patient care, financial, and data management solutions. A group of servers is also dedicated to communication and system protection applications, such as authentication, user ID management, mail, and virus scanning.

To protect all of this critical information, the Open Systems Team created a unique disaster-recovery system by offloading all applications and data to the Red Hat Global File System running on the SAN. Using Red Hat Cluster Suite, the team created a six node cluster. Each of the clusters shares two volumes on the GFS: one for the applications and the other for data. "With Red Hat GFS, we no longer need to replicate data or applications if a server goes down," said Velazquez. "The servers simply provide CPU and power. Everything else runs from GFS." To upgrade or restore a machine in the cluster, the team simply installs Red Hat Enterprise Linux and attaches the computer to the SAN. Within minutes, it's ready to go.

The Open Systems Team also implemented Red Hat Network to facilitate infrastructure management, security compliance, and new system deployment. "Red Hat Network makes system management easy, enabling us to deploy new applications and security patches to all servers at once," said Velazquez. Florida Hospital's data security office continually conducts security audits, and Red Hat Network tracks all system activities, making it possible for the Open Systems Team to provide detailed reports for HIPAA compliance.



BENEFITS

As a result of deploying Red Hat, Florida Hospital streamlined its disaster recovery processes and gained higher system availability that translates into better patient care.

"Red Hat solutions enabled us to create a highly efficient disaster-recovery system that expedited restoration time from days to seconds. This means we make patient data readily available and provide the highest level of care at all times."

**—Jack Velazquez,
Sr. Systems Engineer,
Florida Hospital**

Average recovery time now takes between 30 seconds and five minutes to sync the data and 1 hour to recover.

Florida Hospital also experienced significant efficiency gains from its Red Hat deployment. "Red Hat Network makes it possible for us to manage 70 servers with only two engineers. Provisioning systems only takes minutes when it used to take us hours or even days," said Velazquez. With the new Red Hat disaster recovery system, the hospital continues to save on resources. "Red Hat GFS enabled us to create an innovative design that saves on storage costs, network bandwidth, and processing power," he said. In addition, Red Hat Professional Services helped the Open Services Team to implement the Linux disaster-recovery system, helping them build and break clusters during on-site training. "Thanks to Red Hat Professional Services we were able to deploy the system within a couple of weeks," said Velazquez.

Red Hat also helps Florida Hospital maintain a technological and competitive edge. As the largest hospital systems within the Adventist Healthcare System, the hospital strives to stay ahead of the curve. "With 100 developers on our team, we rely on Red Hat to save us time on everyday management issues so we can focus on creating new solutions. Our parent company has been impressed by our efficiency, ROI, and performance gains from using Red Hat," said Velazquez.

Florida Hospital is looking forward to expanding Red Hat usage. In the near future, the Open Systems Team will be implementing Red Hat virtualization capabilities for some of their projects. According to Velazquez, "When it comes time to upgrade again, we intend to move more of our mid-range systems to Linux. We'd love to experience Red Hat performance and reliability throughout the entire hospital."

