



“As with any major enterprise project, the organization must prepare its desktop environment and enterprise infrastructure to support the new application requirements.”



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Case Study

U.S. Health System

Spencer Thomas Group Helps Leading U.S. Health System Create a Better EPIC EMR Experience for Physicians, Providers, and Patients.

In June of 2013, a leading U.S. based health system launched a major enterprise initiative – a multi-year, multi-million dollar investment with electronic medical records leader EPIC Systems. This project would result in a robust, customized technology interface solution for physicians, providers, and patients.





The Challenge

In June 2013, a leading health care provider based in South-eastern U.S. had nearly 6,000 hardware devices running the Windows XP operating system in over 90 multi-state locations, including six hospitals and 87 outpatient clinics and diagnostic sites. The health system had a critical need to more efficiently manage and integrate clinical and operational information across the health system. To meet this need, the health system chose to upgrade its electronic medical record system to EPIC, a robust health care software system that spans clinical, access, and revenue functions and extends into the home and mobile environment.

Hardware and software requirements to successfully run EPIC were stringent; every desktop computer across the health system would need to be upgraded to Windows 7, meet minimum memory requirements, and have increased

processor speed. Further complicating the upgrade was the 125 various software applications and desktop tools currently in use, many of which were designed to run on older versions of the Microsoft operating systems. Although the majority of these applications would eventually be replaced by EPIC, they needed to operate in a production environment while the EPIC upgrade was underway. Additionally there were critical applications not being replaced by EPIC that would continue to operate in the clinical environment.

The health system had in place a multi-year warranty contract with a national hardware vendor. All device warranties would have to be closely tracked to determine which devices were due for an upgrade so that the costs associated with ordering new devices could be managed.



The Solution

The health system contracted with Spencer Thomas Group (STG) to conduct an initial hardware and software review across the organization. Working with client's system IT employees, STG determined the overall project scope, communications plan, desktop software inventory, timeline, budget, and resource requirements.

STG's analysis found that in order to successfully complete the upgrade in the one year time frame while preventing costly overtime, two three-person teams were required to configure, install, and test Windows 7 and memory on 50 devices per day for a total of 1,000 devices per month. The six resources would work closely with a two-person IT team to prepare the infrastructure and complete the upgrade. With a six-month upgrade timeframe, this left six months for a thorough inventory gathering, regression testing, installation scheduling, and critical

organization communication. To avoid disruption to hospital system services, the eight-man team would conduct 70% of its operations at night. A senior STG Project Manager closely managed this process. The on-site PM handled the day to day collaboration between applications teams, testing teams and installation teams, as well as keeping senior leadership abreast of any issues related to timelines, budgets, and technical situations. The on-site PM was also responsible for coordination between all teams for testing and installations.

STG began by employing its proven resource strategy, RightFIT™, to select an experienced team lead for the project. Working closely with the team lead, five other senior IT professionals were thoroughly vetted and sourced by STG, ensuring that the best resources for the job were selected to successfully complete the project.



The Solution

The team began work in June 2013 with feasibility testing and organization communication to clearly outline the project timeline and strategy. Early discussions with the EPIC team determined desktop guidelines based on available versions of EPIC and upgrade schedules. Guidelines were centered on the current operating system, available memory, processing speed, browser versions and requirements, security, and connectivity.

To establish accurate hardware inventory guidelines, the STG team determined general location based on IP address and utilized the health system's implementation of Microsoft's System Center Configuration Manager (SCCM). While this application proved helpful in calculating the total number of devices and their current operating system, challenges remained in assessing the internal configuration of most devices. On-site, hands-on inventory proved to be the best solution for developing an accurate picture of internal hardware configuration.

Application inventory was equally important. Many applications were sharing the same hardware and required simultaneous

upgrading despite being in different locations. A complete list of applications, application owners, applications users, application test scenarios and support, and application vendors was compiled in order to build an accurate regression test schedule.

At the time of the Windows 7 implementation there were thousands of production devices that were operating under the health system image standard that did not meet the new Windows 7 requirements. These devices were identified, checked against the hardware refresh schedule, and either upgraded with additional memory or replaced with newer hardware.

Security guidelines were also taken into consideration. Once requirements for the new image were determined, Windows 7 and the new image were loaded to all devices. Application testing followed in a proper, pre-determined development and test environment. STG worked with multiple vendors to either upgrade applications or identify and test work-arounds that allowed the applications to run with the new operating system and browser.

Upgrades to IT Infrastructure

Spencer Thomas Group provided key technical resources to the health system's IT Infrastructure Team in support of the following upgrade initiatives:

Storage

- The health system purchased 2 x EMC 40K Arrays containing a mix of Flash, FC, and SATA drives with fully automated storage tiering. Data was mirrored between data centers via SRDF (\$3.3M). The LUN and RAID layout was based around EPIC best practice guidelines, hosting all EPIC components. Cache was pinned to SSD, which yielded the highest IO measurements by the EPIC validation team to date in 2013.

Backup and Recovery

- The Team upgraded the Avamar and Data Domain environments to support the additional growth due to EPIC.

Storage Area Network (SAN)

- The Team upgraded the storage area network with 6 x Cisco 9710, 8G FC line rate non-blocking architecture and In Service Software Upgrades (ISSU).

Data Center

- The Team upgraded the BRMC Data Center to support EPIC and also performed minor power and cooling upgrades to the CORP Data Center.

Computers

- The Team upgraded the IBM AIX P595 environment to a mix of P750 for cache and P770 running legacy McK apps, cloverleaf, and shadow/reporting environments. For x86, the health system was in between purchasing cycles and ran the existing Dell servers in a FCOE converged environment with the plan to migrate to Cisco UCS in 24 months.

Network

- The Team upgraded the access layer in the flagship hospitals to the Cisco 4510R Sup8. The health system was the first Cisco customer globally to purchase the new Sup8 platform. As part of the overall medical grade network architecture and design, redundant supervisors and in service software upgrades virtually eliminated any future downtime.

The Outcome

Working closely with the client's system IT team and organization, and hardware and application vendors, the STG-Sourced team seamlessly managed the upgrade process across multiple sites, successfully meeting all project requirements on time and within budget. Throughout the year long project there was minimal to no disruption to the health system's operations and services. EPIC was successfully loaded and tested, and is now being used by the health system to deliver superior integrated health care services.

Spencer Thomas Group continues to support the health system through EPIC upgrades, technical support (on-site and remote), and on-site Management Consulting resources.

