

Bassett Healthcare

EMC tiered information infrastructure supports healthcare network's new EMR system



Founded in 1918 as a living memorial to a prominent Cooperstown, N.Y. physician who practiced medicine in the late 1800s and early 1900s, the Mary Imogene Bassett Hospital today is at the core of a network of 25 health centers, 13 school-based care facilities, and a research institute—all located in rural New York State.

To more effectively manage and share growing volumes of data between Bassett Healthcare sites serving communities within a 5,000 square mile region, the organization began a strategic three-year initiative to implement an enterprise-wide electronic medical record (EMR) system. Based on Informatics Corporation of America (ICA) technologies, Bassett Healthcare's EMR system provides caregivers fast and easy access to a patient's composite medical record covering the history of all care provided within the network. This is particularly important when seeing patients with chronic or serious conditions who often work with more than one doctor or specialist and travel between regional clinics and the hospital in Cooperstown for care.

The first step in carrying out this comprehensive EMR initiative necessitated the consolidation of patient- and business-critical information residing in both direct-attached storage and in individual data repositories across the enterprise. Fully meeting Bassett Healthcare's requirements for high performance, reliability, manageability, scalability, and security, a state-of-the-art, tiered EMC® information infrastructure was chosen to replace the organization's disparate storage environment and provide a centralized, highly effective storage foundation for the new EMR system. The EMC information infrastructure, along with time- and cost-saving EMC storage management and backup and recovery software solutions, are also being used to protect and preserve patient records over both the short- and long-term.

"We work within a very large rural geography and we frequently see patients from different sites," says Dr. Steven Heneghan, chief of Surgery. "The best thing about the EMC-supported EMR system is that it really improves patient care. If you have immediate access to all of a patient's medical records in the system at the time the patient is seen, you can make the most-informed decisions about care."

The cornerstone of EMR and the conduit for operational efficiency

An EMC CLARiiON® CX series-based system and a recently deployed EMC CLARiiON CX3 series system currently support Bassett Healthcare's tier-one MEDITECH clinical suite of applications, McKesson PACS and document imaging software, and a Phillips Xcelera Cardiology system, all of which feed into the EMR system. File shares, personal directories, and the healthcare network's Microsoft Exchange application are also supported by EMC CLARiiON storage technology.

"Our PACS system, along with the performance and reliability of online EMC storage, has revolutionized how we are able to deliver radiology services at Bassett," says Dr. James C. Peters, chief of Radiology. "We're spread out over a several-county network, and instead of waiting to have films physically transported to us, we can now, with the click of a switch, bring up all of a patient's studies originating from any point of care within our system. We also have our dictation system tied in which means reports can be generated and sent to providers quickly—and there are no more lost films."

Well suited for effectively and consistently handling large data files across long distances around the clock, Bassett Healthcare's new EMC CLARiiON CX3 system, with 4 Gb/s performance and five-nines availability will also be supporting new McKesson Clinical and Radiology Information Systems as well as Bassett Healthcare's Surgical Information Systems applications.

Built-in tiering within the EMC CLARiiON CX700 and CX3-80 systems allows Bassett's IT staff to leverage the advantages of information lifecycle management (ILM) strategies by using high-speed Fibre Channel drives for the most critical, frequently accessed medical data, and migrating less critical, infrequently accessed information to more economical, easily scaled SATA drives.

Taking ILM a step further, Bassett Healthcare uses an EMC Centera® content-addressed storage system supported by EMC DiskXtender® software to provide a secure, automated, and economical archive solution with petabyte scalability for long-term retention of historical records. The capability to offload older, seldom-retrieved records from EMC CLARiiON CX series storage, based on clinical policies set by Bassett Healthcare, frees up space to accommodate growing stores of current information in the production environment and enables Bassett Healthcare to extend its investment in its tier-one storage resources.

“The lifeblood of Bassett Healthcare flows through our EMC infrastructure. Our patients rely on Bassett to take care of their healthcare needs, and we rely on EMC to take care of our data needs.”

Bill Greco, Manager of the Systems Engineering Group

EMC Centera also makes it easy to comply with strict Protected Health Information (PHI) requirements for HIPAA and Joint Commission standards by providing a secure, yet easily accessible online repository for older records that are preserved in an unalterable format.

Bassett Healthcare also relies on an automated disk backup solution from EMC to help protect all of its critical production data. The solution, which pairs EMC Disk Library with EMC NetWorker® software, provides the benefits of fast and seamless daily backups. In fact, backups can now be performed in under four hours, and recovery can be achieved in minutes if a file needs to be restored. The ability to rapidly recover files avoids potentially dangerous delays in accessing medical information, and plays an essential part in supporting Bassett Healthcare's EMR objectives for universal and continuous information access. In addition, the larger capacity of the EMC Disk Library means that backups with more data can be held for longer periods of time before they are eventually migrated to tape.

Plans are in place to replicate EMC CLARiiON storage via EMC MirrorView™ software to an EMC CLARiiON platform at a remote site to facilitate rapid disaster recovery capabilities in the future. Replication to a remote site is planned for EMC Centera archives as well. Currently, archives are being replicated between EMC Centera systems within the same site.

On the server side, Bassett Healthcare is rolling out a VMware® server virtualization solution initially for its file servers and McKesson applications. Extended use of VMware technology is expected to continue to significantly reduce the number of physical servers needed for operations, allowing for greater resource utilization across the organization's IT infrastructure.

“From a VMware server migration/consolidation standpoint, we've eliminated 50 servers in the data center so far,” says Bill Greco, manager of the Systems Engineering Group. “The combination of EMC and VMware solutions in our infrastructure has freed up a lot of floor space in my data center and has also simplified management. We have a small staff yet we can manage quite a bit of technology as a result of VMware and EMC product lines as a whole.”

The importance of service and support in a rural setting

In addition to the technological edge EMC and VMware solutions provide Bassett Healthcare, another key reason for choosing EMC is its world-class service and support.

Bassett Healthcare has engaged EMC Global Services for implementation, knowledge transfer, and ongoing support, which is especially important given that Bassett Healthcare operates across a rural setting the approximate size of Connecticut. Educational support was facilitated through EMC-led “lunch and learn” sessions as well as hands-on training to help Bassett Healthcare’s IT staff quickly get up to speed in understanding, managing, and maintaining the new solutions.

“We’re quite a distance from larger areas so both the durability of EMC equipment and the support is important to us,” says Greco. “EMC’s call-home feature is especially valued. Often our first notification of a problem is when an EMC field engineer calls us to tell us that they will be out to fix it. They always show up when they say they’re going to and they don’t leave until the job is done.”

Immediate benefits through rapid adoption

Within 90 days of deployment, all practitioners were trained on the basic functional use of systems within the EMR. Today, global adoption is over 70 percent with adoption rates for specific systems, such as PACS, even higher.

“With electronic access to patient information where and when it is needed, patients can be treated regardless of location—in the patient room, at home on call, in the local hospital, etcetera—without worrying about trying to find the right chart among thousands of others,” says Dr. Scott Cohen, a Family Medicine physician at Bassett Healthcare’s Norwich & Edmeston Health Centers. “With the EMR, information is also available as soon as it’s generated, so the very latest results are available on any tests that may have been performed. This also adds a lot to patient confidence.”

By leveraging its advanced information infrastructure to support sophisticated clinical and business applications, Bassett Healthcare has also realized significant financial returns. In radiology alone, Bassett Healthcare has saved nearly \$300,000 as a result of reduced film costs, with an additional \$400,000 in savings projected for the future. Another \$200,000 in savings has been realized by replacing paper medical records with cost-efficiently stored and easily shared digital images, with ongoing savings expected in excess of \$60,000 per year.

Bassett Healthcare’s new centralized tiered storage infrastructure, automated disk-based backup capabilities, cost-efficient easily scaled archives, and consolidated server environment have positively impacted IT operations as well, facilitating streamlined administration and the ability to efficiently and securely handle growing volumes of data while keeping operational costs in check. In addition, with less time spent maintaining multiple dispersed systems, more time can be spent on strategic projects for further improvements in healthcare delivery.

The new EMC information infrastructure was also designed with future goals in mind, giving Bassett Healthcare a strong foundation from which to build out its EMR system. More projects are being planned, such as disease and population management, which will, for example, enable care providers to monitor patients based on certain disease profiles, such as diabetes.

The EMC information infrastructure will soon support a planned patient portal as well. This portal will offer patients with Internet access a secure way to retrieve personal records now stored electronically within Bassett Healthcare’s EMR system. With greater access to their health records, they will be able retrieve information such as test results as soon as they are in, review current and past records, and check on medication dosage and dietetic restrictions.

“The lifeblood of Bassett Healthcare flows through our EMC infrastructure,” says Greco. “Our patients rely on Bassett to take care of their healthcare needs, and we rely on EMC to take care of our data needs.”



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