



Business challenge

URMC aims to provide world-class healthcare around the clock. With acquisitions and new technologies creating an explosion of data, it needed reliable storage to underpin core applications.

Transformation

In the emergency room and the lab, fast access to medical data is vital to support patient care and to develop breakthrough treatments. With IBM® Storage systems, University of Rochester Medical Center (URMC) is accelerating time to insight for its clinicians and researchers.

Business benefits

>10X faster

system response times cut time-to-insight for clinicians and researchers

70%

data compression and 97 percent reduction in time taken for system integrity checks

Cut

space requirements from six full floor tiles to just 2U of rack space with flash

University of Rochester Medical Center

Delivering rapid insights to support excellent patient care

University of Rochester Medical Center (URMC) is one of the United States' leading academic medical centers, delivering healthcare services to communities in the state of New York. URMC operates several hospitals, a school of medicine and dentistry, a specialist cancer center and a school of nursing. In total, over 3000 people are involved in pioneering research at URMC, which was among the first twelve medical centers in the United States to receive a USD40 million Clinical Science Translational Award from the National Institutes of Health.

“With the IBM solutions, we can integrate data and infrastructure from new acquisitions quickly and easily—helping us to sharpen our competitiveness.”

—Marty Bush, Manager, Enterprise Systems, URMC

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Supporting world-class patient care

Clinicians at University of Rochester Medical Center (URMC) operate on the front-line of community health-care, delivering high-quality patient services at a network of hospitals across the state of New York. Furthermore, URMC's research teams have contributed to major medical breakthroughs, including revolutionary treatments for heart disease, child meningitis, AIDS, and cancer.

Marty Bush, Manager of Enterprise Systems at URMC, comments: "We aim to provide the highest level of medical care at all times, and to help medical professionals lead the fight against disease with world-class research. To achieve this, it is vital that our clinicians and academic staff have fast, continuous access to patient records, medical data and all the systems they use on a daily basis."

In recent years, the increased digitization of healthcare records and URMC's acquisition of several hospitals has significantly increased the amount of data that the organization must securely store and manage.

Bush explains: "Some years back, we implemented electronic health record [EHR] software from Epic across our hospitals, turning paper records on each patient's medical history into digital form. As our network of clinics has grown, so has the amount of patient data, ramping up the pressure on our storage infrastructure."

Modern medical technologies, such as MRI and CT scans, together with major research projects, add huge quantities of data that URMC must retain and make available to clinicians and researchers both rapidly and securely.

Rick Haverty, Director of IT Infrastructure at URMC, explains the challenges: "In healthcare, where our storage supports mission-critical applications, and our emergency room (ER) could urgently need to pull patient data at any time, day or night,

we must keep our systems available and downtime to a minimum. With data volumes and user expectations for performance both rising rapidly, we wanted to take advantage of all-flash storage."

Enabling fast access to medical data

To support fast data access for its clinicians and researchers, URMC chose to add IBM FlashSystem® 900 to its existing storage infrastructure, which consisted mostly of IBM solutions such as IBM XIV® Storage System and IBM Storwize® V7000 arrays, managed using IBM Spectrum Virtualize™ to form a single virtual pool across all physical storage resources.

Rodney Wicks, Systems Administrator at UMRC, explains the decision process: "We looked at all-flash solutions from the leading vendors, before opting to implement IBM FlashSystem. We assessed each solution in terms of performance,

price-point, and the local support available – IBM was comfortably the stand-out option.

"We have a long-standing relationship with IBM, and have used their hardware in our data center for many years and it's never once let us down. We knew we had found the perfect solution to support user access to our mission-critical applications."

URMC is using FlashSystem to support six of its most critical systems, including hosting the large Caché database that underpins its Epic EHR software. The solution's IBM MicroLatency® technology has greatly improved response times, producing tangible benefits for both administrative and clinical staff.

Wicks comments: "Before we deployed IBM FlashSystem, we were seeing average response times of between five and seven milliseconds during the day, and around 15 milliseconds at night. Our users could notice performance dragging whenever response times hit ten milliseconds – especially when using our Epic EHR.

“Today, we are achieving sub-millisecond response times around the clock, which eliminates user frustration and cuts time-to-insight for our clinicians and researchers. We understand that we were the first Epic customer to migrate to all-flash storage, which we were able to do live in the production environment thanks to IBM Spectrum Virtualize.”

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—Rodney Wicks, Systems Administrator, URMC

The IBM solutions combine to form a scalable, highly-available storage environment, enabling users of URMC’s core applications to access data rapidly at all times. IBM Spectrum Virtualize provides a single point of control and common management interface for all of the underlying physical storage systems—IBM FlashSystem 900, XIV, and Storwize.

Haverty comments: “IBM Spectrum Virtualize has helped us with 16 major data migrations over the years, both for deploying new hardware and when upgrading key applications, and we have never suffered downtime in the process. We have 200,000 ER visits each year, so there’s never really a convenient window for downtime.”

Spectrum Virtualize provides URMC’s systems administrators with a user-friendly graphical interface,

simplifying management tasks across multiple physical arrays. Haverty continues: “Spectrum Virtualize makes even highly complex physical landscapes easy to manage. The solution is particularly valuable when we are required to integrate the resources and data of acquisitions into our setup—which is a frequent event.”

URMC is also taking advantage of the data compression and FlashCopy® capabilities of Spectrum Virtualize. “We use the FlashCopy function to make point-in-time copies of our test environment for our EHR applications,” says Wicks. “We then use real-time compression to reduce the space required to store the data. We have achieved 70 percent data compression—helping us to make the best use of our existing capacity, without the need to buy additional infrastructure.”

Bush adds: “Working with IBM is a great experience. The local support team is excellent, and we know we can contact them any time of the day or night and they’ll get to work right away if we face a problem.

“In the real world, there are going to be issues with IT from time to time, and it’s what the vendor does when things go wrong that really counts. IBM always goes the extra mile to minimize the impact. One time, we called our support contact and he was actually on the beach on vacation. Sure enough, he got straight to work coordinating a solution to our issue.”

Wicks comments, “The one major advantage IBM gives us over smaller vendors is the reliability of their solutions, backed by expert support. We run our Epic systems on AIX® on the IBM Power® platform—it’s a real workhorse that keeps running no matter what.”

Supporting excellent patient care

With the IBM solutions, URMC has the storage infrastructure it needs to support its clinicians and researchers, helping them provide first-class patient care.

Wicks comments, “Moving our average response times from around 10 milliseconds to the sub-millisecond level may not sound like such a big deal. But with a system like Epic, where a single user activity may generate hundreds of system transactions, those tiny delays can rapidly add up to have a real impact on the user. With IBM FlashSystem, our Epic systems perform superbly. And that’s even the case when we’re performing system upgrades in the background, thanks to Spectrum Virtualize.”

Deploying IBM FlashSystem has also enabled URMC to significantly increase the speed of its systems

integrity checks. “Previously, running checks on our database landscape and other core applications would take well over a day. With the IBM solutions, we have reduced this to just 45 minutes, enabling us to react to any issues much sooner and to boost our overall operating efficiency,” says Wicks.

Furthermore, the compact footprint and efficiency of the IBM enterprise flash solutions have delivered floor space and power savings. The FlashSystem solutions occupy 2U of rack space but replace systems that occupied six full floor tiles. The resulting cost reductions help URMC control its IT expenditure.

The IBM storage solutions also provide the infrastructure to support further hospital acquisitions, as Bush explains: “The healthcare sector here in the US is highly competitive. Within New York state, we face strong competition from other clinics, providers and hospitals. We need to keep expanding or our competitors

will quickly seize market share. With the IBM solutions, we can integrate data and infrastructure from new acquisitions quickly and easily—helping us to sharpen our competitiveness.”

In future, URMC also plans to start using the HyperSwap® function built into SAN Volume Controller, to boost data availability across its primary and secondary data center sites. Haverty explains: “We currently have underutilized hardware at our secondary data center—HyperSwap will enable us to virtualize those resources across both sites, helping us make the most efficient use of our investments.”

Bush concludes: “Our IBM storage gives us performance, scalability and reliability, helping everyone from our ER doctors who need instant access to patient data, to our professors working on cutting-edge cancer treatments.”

Solution components

- IBM® FlashSystem® 900
- IBM SAN Volume Controller
- IBM Spectrum Virtualize™
- IBM Storwize® V7000
- IBM XIV® Storage System

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Take the next step

To learn more about IBM Storage Systems, please contact your IBM representative or IBM Business Partner, or visit the following website: ibm.com/storage

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