



SUCCESS STORY
Healthcare



TUCSON MEDICAL CENTER | PROBLEM SOLVED

To keep pace with its growing electronic health record data and to maximize the availability of data, Tucson Medical Center uses NetApp® ONTAP® data management software running on FAS systems.

Superior Performance, “Always-On” Access Critical for Digital Hospitals

In 2011, Tucson Medical Center (TMC) invested in data storage technology that was completely filled in a mere three months. Faced with rapidly growing data volumes from its core Epic software and retention of data per HIPAA guidelines, TMC turned to NetApp storage at the urging of cStor, its IT partner. TMC now benefits from NetApp's superior performance, as well as its ONTAP and FlexPod® technologies.

Another NetApp solution delivered by:



LATENCY
REDUCED FROM
15ms ▶ 4ms

VIRTUALIZED
98%
OF ALL
HEALTHCARE APPS

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“Everything that we have, systems-wise, runs—and runs more resiliently because of NetApp storage.”

Drew Burnett
Systems and Network Manager, Tucson Medical Center

When your hospital is 100% digital, you can't afford to have patient monitoring systems fail in the middle of dispensing medicine, or to have operating room monitors freeze during a surgery. Nor can a facility suspend the coordination and delivery of care for hours while IT upgrades software. At Tucson Medical Center, named one of the nation's "Most Wired" for five consecutive years, the IT team's goals are to operate unnoticed and to make sure that unplanned downtime never happens. Fast, highly reliable, 24/7/365 connectivity to Epic electronic health records and TMC's other 700 applications is mission critical for serving nearly 120,000 patients every year.

Relying on electronic health records reduces human error, one of the industry's largest concerns. Barcodes on medications, for example, are used by TMC's pharmacy and physicians to help make sure that the right patient gets the right medicine at the right time.

Paul Lemmons, who leads the Open Systems Group and the storage team for Southern Arizona's only independent community

hospital says, "Going to completely electronic medical records aids in greatly reducing errors. It also helps with post-analysis, where we convert data into information. Everything we collect through electronic charts is now searchable. It is reportable. It is researchable. And through that, we can improve medicine."

As a result, the 640-bed, HIMSS Stage 7 facility faces increasing storage demand relating to database, VDI, and remote support. Additionally, patient data—growth in the number of patients served, new hospital partnerships, and retention of data per HIPAA guidelines—means increasing data and storage requirements, according to Drew Burnett, TMC's manager of systems and network.

The organization's previous data storage platform, EMC Corp.'s CLARiiON SAN disk array, couldn't keep up with the workload despite extensive data reorganization. "It got to the point where we had completely filled it up," says Lemmons. "Hardware-wise, we couldn't add more drives to it; software-wise, we couldn't afford to do an upgrade because it was

BUSINESS BENEFITS

- Supports growing data related to patient data and HIPAA requirements
- Enables fast access to data by physicians
- Gives ability to spin up dev environments in 20 minutes instead of two days
- IT can reorganize storage structures without downtime and application latency improving the patient experience and quality outcomes

TUSCON MEDICAL CENTER AT-A-GLANCE



NAMED ONE OF THE NATION'S
“MOST WIRED”
FOR 5 YEARS
BY THE AMERICAN HOSPITAL
ASSOCIATION

LOCALLY GOVERNED
& NONPROFIT FOR
>65 YEARS

running so busy that we couldn't do a failover.”

AN EASY CHOICE

Partner cStor, which understands TMC's business and goals, was key to selecting NetApp. TMC was initially hesitant to make the switch because at the time NetApp was new to Epic—“the heart and soul of this operation,” Burnett says. But cStor's guidance and support, and NetApp's superior storage management and technologies, simplified the choice, according to Lemmons.

The move reduced many headaches and freed up time. Before switching to NetApp, two people spent 1.5 years writing their

own performance software to fix CLARiiON issues. But now, storage management happens in minutes, Burnett says.

IT INVISIBILITY CLOAK SUPPORTS STAFF

TMC's IT mission is to operate in the background, maintaining the system and growing it as needed without users knowing, which ONTAP delivers. As a result, the team has achieved faster access to data, with improved IOPS, and has decreased latency from 15ms to 4ms, even after five years. [🐦](#)

“Our latency improved greatly moving from CLARiiON onto NetApp,” Lemmons says. “It's almost like

comparing a Volkswagen to a Maserati.”

NetApp technology has been an instrumental tool in the virtualization of 98% of the healthcare organization's more than 700 apps. In addition, it allows TMC to support its 1,300 users concurrently. “There's no way we could do that five years ago when we had only 400 to 500 users,” says Burnett.

NetApp technologies, specifically SnapMirror® replication technology and FlexClone® thin-cloning technology, improved TMC's ability to respond to development environment requests and to spin up dev environments in just 20 minutes, rather than two days. [🐦](#)

ONTAP software lets TMC reorganize storage structures with no downtime and no I/O impact on applications.

RESILIENT SYSTEM GIVES IT PEACE OF MIND

Burnett, Lemmons, and their teams have peace of mind because

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Paul Lemmons
Open Systems Group Lead, Tucson Medical Center

NetApp technology supports their robust needs now and will do so as data grows continually. “I now have complete comfort with our recovery strategy for Epic if there were a problem or disaster,” Burnett says, citing SnapMirror, which protects TMC’s backups, and NetApp SnapVault® software, which protects against data loss. A colocation, along with NetApp tools and his staff’s diligence, provides business continuity if a disaster strikes the main data center.

TMC has no time for downtime because clinicians require constant access to life-saving data. “We just don’t see downtimes like we saw six or seven years ago,” Burnett says. “With NetApp, we have not had downtime, which gets overlooked because it’s unheard of. But it’s a phenomenal statistic. It makes my job easier; it keeps my hair from going as gray.”

SUPERIOR SUPPORT KEEPS TMC ON THE LEADING EDGE

Burnett credits its cStor partnership, and NetApp’s and cStor’s superior customer service, as keys to TMC’s storage and IT success. “Support is such a huge aspect for us,” Lemmons says; and while he knows that NetApp is able to help when needed, he has never had to escalate a problem. He also enjoys being on a first-name basis with top NetApp engineering leadership and being kept up to date on NetApp’s product roadmap by cStor.

NetApp and cStor have deep domain expertise in healthcare, which allows TMC to retain its “Most Wired” status and to operate at the forefront of digital hospitals. “Everything that we have, systems-wise, runs—and runs more resiliently because of that storage,” Burnett says.

SOLUTION COMPONENTS

FLEXPOD DATACENTER COMPONENTS

FAS6240, FAS3270, AFF8080

Flash Cache™ intelligent caching

SSD Aggregates

Hybrid Aggregates

ONTAP 8.3

NetApp API (ZAPI)

SnapMirror

SnapVault

Virtual Storage Console for VMware vSphere

OnCommand® Performance Manager software

PARTNER

cStor

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+1 877 263 8277



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