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Infrastructure refresh improves patient care

Somerset National Health Services (NHS) Foundation Trust and Musgrove Park Hospital moved applications from aging infrastructure to the Dell EMC PowerEdge MX modular servers to improve clinician efficiency.

NHS
Somerset
NHS Foundation Trust

Healthcare

United Kingdom

Business needs

Somerset NHS wanted to provide healthcare practitioners with modern tools to enable real-time insights and collaboration on patient care. However, the aging infrastructure was making it difficult and costly. They were seeking an on-premises solution that would help them meet their innovation goals with performance, availability, scalability, and a small footprint.

Solutions at a glance

- Dell EMC PowerEdge MX7000 chassis
- Dell EMC MX740c Compute Sled
- Dell EMC MX9116N Fabric Switching Engine
- Dell EMC Integrated Dell Remote Access Controller (iDRAC)
- Dell EMC OpenManage Enterprise
- VMware® vSphere™ Metro Storage Cluster with Dell Storage Live Volume
- Microsoft SQL Server

Business results

- Takes up 1/3 less space than other solutions: one 47U rack compared to one and a half racks.
- 36 seconds to replicate a server from the main data center to another site 20 miles away.

- 5-10 minutes to enter data into the system from a mobile device instead of 20 minutes spent taking notes and manually entering the data.
- No downtime to perform patches and upgrades, eliminating the month-long lead time required for planned downtime.

33.3% less space
than other solutions

36 seconds
to replicate a server over 20 miles

~50% time savings
5-10 minutes instead of 20 minutes to enter data into the system

0
downtime

The Somerset NHS Foundation Trust, together with Musgrove Park Hospital, provides inpatient, outpatient, emergency care, and children's and maternity services to around 340,000 people local to Somerset, England. It also provides specialist services to a larger population of around 544,000 people and emergency vascular services for around 800,000 people.

The trust's IT team wanted to simplify and augment services to enable better, more efficient patient care, but were constrained by their aging infrastructure. According to Mike Isaac, IT Operations Manager of the Trust, "anything that needed to be updated was at a cost. And there were restrictions around what we could do because it was part of a bigger contract." Somerset NHS decided on the PowerEdge MX modular infrastructure for their 100% on-premises solution, improving their agility and responsiveness—and ultimately, patient care.

Simplified IT with expanded capabilities to improve patient care

Musgrove Park Hospital has a high dependency and intensive care unit, 16 operating theatres and numerous medical and surgical inpatient wards. It also has a fully equipped diagnostic imaging department that operates seven days per week, and a purpose-built cancer treatment center. According to Mike, "We support basically everything that assists with patient care and has a plug on it. That ranges from electronic patient records (EPR), heart rate monitors, and infusion pumps to Internet of things (IoT) connected devices to PCs, laptops, and printers.

Before implementing the on-premises PowerEdge MX solution, critical systems, such as X-ray, blood testing, and radiology, were siloed and required separate logins. For example, practitioners were required to read data off of heart monitors and

"It's more of a complete solution than buying servers and storage and trying to bolt it all together. It's got networking and fiber cards built in. We're not spending time racking servers. You just slide in the server sled and turn it on. From placing the order and getting it up and running was quite quick."

Mike Isaac,
IT Operations Manager
Somerset National Health Services
Foundation Trust

manually type it into a separate system. The IT team was seeking a solution capable of keeping all patient information in a single location with a single login to streamline caregiving and create a more open flow of information for better continuity of care.

To that end, the top goals for a solution were system performance and availability of critical patient records. As a medium-sized hospital, the team also had to take ease of management and space constraints into consideration, while planning for future growth. The PowerEdge MX system ticked all the boxes for the trust's IT team.

Ticking the boxes

"In a healthcare setting, we can't afford downtime," says Mike, "And that's the biggest thing for us. Trying to get five minutes downtime takes at least a month to arrange." That makes the extra capacity of the PowerEdge MX based solution one of the key benefits for Mike and his team, enabling them to perform patches and upgrades without interrupting service.

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Another key benefit is the agility of an on-premises system. Mike says that "What we like best is the fact that we control it, it's ours. If we want to integrate the heart rate monitors, or the electronic drug prescribing, or the observations, or the radiology system, that's all now within our control. We've gone from using a lot of manual records to now, everything's automated, everything's connected, and practitioners have real-time access."

That agility has translated into benefits that have a direct bearing on the quality of patient care. "The biggest impact is on the clinicians, because they can access the information they need from across the entire healthcare organization in one place with one login and without unnecessary manual paperwork."

In addition to the clinical benefits, the team was pleased with the streamlined simplicity of the PowerEdge MX. According to Mike, "It's more

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of a complete solution than buying servers and storage and trying to bolt it all together. It's got networking and fiber cards built in. We're not spending time racking servers. You just slide in the server sled and turn it on. From placing the order and getting it up and running was quite quick." He added, "Configuration and firmware updates are easy through Dell EMC Open Manage Enterprise Modular, helping us keep everything up to date."

Mike primarily selected the solution for its availability. "I think the main thing is availability. There is more resilience naturally built into the MX chassis than if you have to buy five or six servers to support redundancy." Availability is bolstered by using VMware vSphere Metro Storage Cluster with Dell Storage Live Volume. This enables the team to live replicate their volumes across a 20-mile link. Mike said that "The fact that you can move a server across 20 miles in about 36 seconds is pretty amazing." The team also uses the database availability groups in Microsoft SQL Server to maintain high availability for their virtual data warehouse across the PowerEdge MX.

The 33% smaller footprint of the PowerEdge MX is also a plus. According to Mike, "The solution takes up a full 47U rack, but if we'd tried to do it with individual components and switches, we'd probably have been looking at one and a half racks."

As the organization's needs grow, they can continue to expand the solution within the same footprint. Mike explains, "We've architected this so there is room for growth. Each chassis has room for five sleds, and we have two chassis at each site—so four chassis in total—which leaves us six slots free per site to expand without installing anything else. From a growth perspective, that's really useful because if we decide we need some more compute, we don't have to plug anything in. We just have to configure some fiber switches."

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Preparing for rapid change

When COVID-19 became more widespread, the PowerEdge MX solution put the IT team in a great position to prepare the hospital system and staff to support patients remotely .

It was important for the trust to take proactive steps to help ensure they could handle any added capacity and treat COVID-19 patients as well as the increased demand for telehealth appointments.

The foundation of the plan was converting existing buildings into field hospitals to care for a possible increase in the number of patients. Mike and his team worked to include the field hospitals in the network so that they could share information between the traditional hospitals and clinics, telehealth practitioners, and the COVID-19 centers. Because of this, the field hospital staff and remote practitioners can access and share patient records over the network in real time, just as if they were at the main hospital.

For example, prior to implementing the PowerEdge MX solution, it used to take half a day or more to move a patient from one facility to another, because staff would have to spend time calling and emailing around to ask if a bed was available and then wait for a response. Now, remote staff can simply log into the system and see bed availability at a glance. This ability to quickly and easily see how many beds are available in each location is just one example of how real-time access to data insights can streamline caregiving during a national healthcare crisis.

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