

Case Study

Sultan Qaboos University Hospital revamps doctors' toolkit and revitalizes patient care

»With Fujitsu's solution, instead of spending a whole day dealing with a single request, now it can be closed within few minutes, all from one central console. The headaches we used to suffer are a thing of the past.«

Mr. Bader Al Kiyumi Deputy Director, Technical Support and Networks, Sultan Qaboos University Hospital.



Tools of the Trade

The medical toolkit has come a long way since the days of the leather doctor's bag. Just as a surgeon cannot work without his scalpel, no clinician can perform their daily role now without access to electronic data and digital tools such as MRI scans and X-rays. This is true of every department – from the emergency room to the pharmacy.

For Sultan Qaboos University Hospital, one of Oman's leading healthcare facilities, this was really brought home when the online software it used for managing patient data, TrakCare, began to slow down. The hospital's more than 420 physicians and nurses use the software to check, update and share information on every aspect of every patient's treatment. Often this needs to be done in real-time, where getting the right detail on the best medication to administer, for example, can be life-saving. Patience is not a luxury they can afford.

Mr. Bader Al Kiyumi is Deputy Director, Technical Support and Networks for the hospital, and his phone was soon ringing off-the-hook with complaints from colleagues on the wards. "They found that searching for data was taking longer, so they couldn't treat patients as efficiently as they wanted to," he explains. With the existing IT platform that supported Hospital Health Information System obviously struggling, slow response times were by no means Mr. Al Kiyumi team's only concern. "What if the servers failed completely?" he continues. "We didn't have any back-up options, so if the main system went down, we ran the risk of the whole hospital's information assets going offline. That could prevent essential treatment being delivered to patients and so, of course, was not an option."

IT's in the Diagnosis

The problem was the fragmented set-up of the hospital's datacenter, where a vast fleet of servers was used to support various applications and databases. Managing them all was a hefty and time-consuming task. The IT team struggled to respond to any ad hoc requests in less than a day. "What we needed," says Mr. Al-Kiyumi, "was a way of getting complete visibility of and control over our IT environment from one central point. We had to make sure that any downtime was kept to an absolute minimum while staying flexible enough to accommodate the constant changes and upgrades affecting hospital processes and systems. On top of all this, we had to ensure we had additional computing resource in place to support the TrakCare application even if the main server broke or lost power."

The Customer

Sultan Qaboos University Hospital is committed to provide teaching, research and patient-centred care in an environment that supports continuous improvements. It employs approximately 2,258 medical professionals and treated more than 380,000 patients in 2011. www.squ.edu.om



The Challenge

Transformation of the platform running core medical software and services, using virtualization to enhance management, performance and efficiency of the hospital datacenter. This ultimately led to a measurable improvement in doctor efficiency and patient satisfaction.

The Solution

The existing fragmented IT environment was replaced with new hardware and a 50-strong virtual server fleet. The environment is managed centrally, enabling administrators to respond faster to user requests and ensure system downtime is kept to a minimum.

Customer benefits

- Requests for capacity from doctors and departments can now be dealt with in 15 minutes instead of taking days
- Patient data security is ensured through automatic encryption across all servers
- Uptime of core healthcare application is now at 95.6%, meaning patient data is always available to clinicians when they need it
- Twice as many patients (81%) rated satisfaction with hospital services as good, very good or excellent in recent survey, compared to 40% previously

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Mr. Bader Al Kiyumi Deputy Director, Technical Support and Networks, Sultan Qaboos University Hospital.

The Virtual Treatment

Careful research highlighted an approach that delivered on all these requirements. "We decided to consolidate all our servers by introducing virtualization," says Mr. Al Kiyumi. "We could better shift capacity around when needed, while ensuring Healthcare application was always supported." A new platform was developed that had two new PRIMERGY BX900 Chasis for the healthcare application and one for the rest of the IT environment. On both Chasis, 70 virtual servers were created.

Sultan Qaboos University Hospital based this virtual server environment on hardware, software and support services from Fujitsu (see box out for solution details). This decision tacitly acknowledged the platform's reliability, cost efficiency, high performance and low power consumption when compared to other options.

Rapid Recovery

"We didn't expect the results to be as good as they were," remarks Mr Al Kiyumi. "Instead of spending a day responding to that request from any department, we can now do it in just a few minutes, all from one central console. The headaches we used to suffer are now thankfully a thing of the past." The IT team is also now better able to ensure the security of data kept on the Healthcare application, by automatically encrypting all new virtual servers created. But what of those anxious doctors? Feedback from staff on the wards shows the application's responsiveness is much improved, enabling them to deliver the highest standard of patient care. The application's uptime improved to 95.6% in 2011, thanks to the mechanisms for automated server provisioning and failover provided by Fujitsu ServerView Resource Coordinator.

Products and services

Fujitsu Hardware

- 12 Fujitsu PRIMERGY BX960 Quad-Socket Server Blades
- 6 Fujitsu PRIMERGY BX920 Dual-Socket Server Blades
- 2 Fujitsu BX900 Dynamic Cube Chassis

Fujitsu Virtualization Software

- Fujitsu PRIMERGY ServerView® Resource Coordinator VE (SV RCVE)
- Fujitsu PRIMERGY ServerView® Virtual I-O Manager (SV VIOM)

Fujitsu Services

- Solution design and development
- Implementation and migration support
- Ongoing fast-response support and consultancy

Additional Elements

- Storage: 2 x Fujitsu FiberCAT CX4-120C Storage
- Virtualization: 16 x VMware vSphere 4.x Enterprise Plus
- Clusters: 2 x RedHatLinux Clusters on Hospital Core SystemLinux Tape
- Library: Scalar i80 50x Cartridges
- Backup Software: EMC Networker Backup SoftwareEMC Networker Backup Software

The virtualized infrastructure also means the hospital is confident that patient data will always be available to those authorised users who need it, at any time.

Perfect for Patients

Of course the most important person is the patient, so the hospital was eager to ensure they benefitted. As part of its strategy of continuous improvement, it regularly seeks patients' views and feedback around a number aspects of the hospital's performance. Before the new system was introduced, satisfaction with hospital services was lower than staff would have liked, with just 40% of patients rating its performance as good, very good or excellent. Afterwards, however, this doubled to 81%.

Getting Stronger

"I'm so happy with both the technology and the support that Fujitsu has given us," concludes Mr. Al Kiyumi. "Having an immediate response to any of our queries or requests is invaluable – and if the local Fujitsu team in Oman can't help us, we can be confident that the main team in Germany will resolve any issues for us straight away. Knowing everything is running smoothly, from the datacenter to an individual nurse's PC, means I can sleep better at night and that my phone doesn't ring quite as often."

Eager to keep improving its IT environment in line with new developments and opportunities, Sultan Qaboos University Hospital plans to work with Fujitsu on more innovations. This begins with considering the implementation of zero client PCs to medical staff for more efficient management. And so the doctor's bag continues to evolve.

Contact

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