Case Study

Chesterfield Royal Hospital

Chesterfield Royal Hospital is an NHS Foundation Trust with a staff of 3,900 providing acute, A&E (Accident & Emergency) and specialist children's services to a population of over 400,000 in the North Derbyshire region of the UK.

"We originally planned for an active/passive failover implementation, but realised we could get a whole lot more from running active workloads on the secondary cluster and, thanks to the license-free AHV hypervisor, at no extra cost."

David Sawyer, IT Technical Delivery Lead, Chesterfield Royal Hospital NHS Trust

Challenge

Faced with spiralling demand for ever more sophisticated treatments, healthcare providers have become increasingly reliant on technology to meet the needs of both their practitioners and the patients they serve. At Chesterfield Royal Hospital, however, an ageing 3-tier infrastructure (conventional servers plus networked storage) was making it hard to meet those needs, as David Sawyer, IT Technical Delivery Lead at Chesterfield Royal Hospital NHS Trust explains. "We were just about managing, but had reached a point where our 'make do and mend' approach was no longer a workable option. Not only were we running out of storage, we had to implement multiple backup solutions just to meet the existing demands, let alone cope with future workloads."

Budgetary constraints had also led to the hospital making use of VMware's free ESXi hypervisor option which, while able to service basic virtualisation workloads, was severely limited in terms of scalability and management options.

"We had no headroom to cope with growing demand and staff were run ragged having to work with a variety of management interfaces, some remote but many local, to the host systems involved, each requiring different skill sets and experience," commented David.

"In fact, our IT was struggling to cope" he continued, "and the only logical way forward was to re-think the requirements from the ground up."

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T. 01246 454 222 E. hello@coolspirit.co.uk

NUTANIX

Solution

Nutanix Enterprise Cloud Platform

- **VMware and Nutanix AHV hypervisors**
- **Commvault Data Platform for backup and disaster recovery**
- **Windows-based back office and productivity server**

As a part of the publicly funded UK National Health Service, Chesterfield Royal Hospital is obliged to put IT projects out to open tender, although, it can still investigate different approaches and talk with vendors to decide on the best way forward. To this end, the Chesterfield Royal Hospital team investigated both a replacement 3-tier solution and alternative Hyperconverged Infrastructure (HCI) products before drawing up a detailed list of requirements.

Several companies tendered for this project with the Nutanix Enterprise Cloud Platform chosen as the best match for the requirements specified courtesy of a bid supported by COOLSPIRiT, a Nutanix partner with specialist skills and extensive experience of the healthcare sector.

COOLSPIRiT also helped with the migration of workloads from the existing infrastructure to the Nutanix platform. A process that not only delivered the expected performance and availability benefits but a lot more besides, enabling Chesterfield Royal Hospital to deliver enhanced services to both staff and patients and do so on a restricted budget.

"Everything can now be managed remotely from the same console freeing up the IT team to be more proactive and focus on taking advantage of the services the Nutanix Enterprise Cloud OS software has to offer."

David Sawyer, IT Technical Delivery Lead, Chesterfield Royal Hospital NHS Trust

Benefits

- **Immediate compute and storage headroom for future growth**
- **Active/active failover to secondary site without the need for additional software**
- **Licence-free virtualisation using AHV, Nutanix's embedded hypervisor**
- **Enhanced data protection and failover resilience**
- **Centralised management of all compute, virtualisation and storage resources**
- **60% reduction in rack footprint**
- **55% saving in datacentre cooling**

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Result

By moving to the Nutanix Enterprise Cloud Solution, Chesterfield Royal Hospital has been able to immediately virtualise all remaining physical servers and gain additional headroom to cope with growth in demand. The main workload is a hospital-wide Patient Administration System, in addition to which the hospital datacentre also hosts predominantly Windows-based back office, general productivity and specialist healthcare servers.

"We originally planned to have around 280 VMs but that has already mushroomed to 340 plus with no performance issues," said David. "Moreover, even with that growth, we've got a couple of years storage capacity in hand." Adoption of the Nutanix platform has also enabled the hospital to ensure fault tolerance isn't compromised, starting with provision for instant failover to a secondary site in the event of a problem in the main datacentre. Beyond this the IT team has also been able to provide full backup protection using the Commvault Data Platform which includes backup and recovery tools expressly designed to protect virtual workloads hosted on the Nutanix Enterprise Cloud platform.

A reduced footprint was among other clear and immediate benefits, with David able to halve the number of equipment racks in the hospital datacentre and realise significant reductions in power and cooling. In addition, there have been other surprise benefits stemming from the use of the Nutanix embedded hypervisor AHV, which is included license-free as part of the Nutanix Enterprise Cloud OS software.

Next Steps

In terms of cloud integration, the need to protect patient confidentiality has meant no public cloud use to date, however, the hospital is considering providing similar services to the public cloud within its secure datacentre based around the Nutanix Enterprise Cloud OS.

Constraints imposed by a key application obliged Chesterfield Royal to stick with the VMware hypervisor in its main datacentre but, on the failover cluster, it was able to opt for Nutanix AHV as well. As a result, the hospital has realized considerable savings on licensing with Nutanix AHV and has a scalable, enterprisegrade hypervisor platform that benefits from proven open source technology built into the solution. AHV is also fully compatible with the comprehensive Nutanix Prism management capabilities which, through a single console, give administrators consumer-grade simplicity in managing their entire virtual datacenter.

Another advantage of Nutanix AHV is full support for the Acropolis App Mobility Fabric (AMF) which enables workloads to leverage resources across an environment and to move freely between virtualization environments and from the Nutanix platform to the public cloud, without penalty. This has further enabled Chesterfield Royal to take advantage of, otherwise, unused capacity on the failover cluster, as David explains.

"We originally planned an active/passive failover implementation simply replicating data to the secondary cluster. However, when we saw what the Nutanix platform was capable of we realised we could get a greater return by running active workloads on the secondary cluster as well. This active/active approach has given us instant headroom and the ability to balance workload demand plus, thanks to the licence-free AHV hypervisor, do so at no extra cost."

David is equally fulsome in his praise of the single pan of management provided by Nutanix Prism which has significantly reduced the time and effort required to manage the datacentre infrastructure. "We absolutely love what Prism does," he said.

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