



The Royal Orthopaedic Hospital NHS Foundation Trust is one of the largest musculoskeletal and orthopedic hospitals in Europe. Based in Birmingham, it has one of the highest ratings in the UK for both patient experience and clinical outcomes.

### Industry

Healthcare

### Strategic priorities

- Cloud Infrastructure
- Anywhere Workspace

### VMware footprint

- VMware® Cloud™ on AWS
- VMware Cloud Universal™
- VMware Cloud Disaster Recovery™
- VMware Aria Operations™
- VMware Aria Operations for Networks
- VMware Horizon®
- VMware Workspace ONE®
- VMware vSphere®
- VMware vCenter®
- VMware Success 360™

# The Royal Orthopaedic Hospital Pioneers a Cloud-Smart Journey with VMware

The first NHS hospital to fully embrace public cloud, The Royal Orthopaedic Hospital uses VMware Cloud on AWS to deliver patient care with highly available services at a lower cost, enabling the hospital trust to meet sustainability goals, scale hybrid working, and optimize IT spending. The hospital acquired its cloud infrastructure through VMware Cloud Universal, a cloud-smart subscription and consumption model.

## Europe's largest orthopedic unit

Established in 1817 and based in Birmingham, UK, The Royal Orthopaedic Hospital NHS Foundation Trust (The Royal Orthopaedic Hospital) is one of the largest orthopedic units in Europe. Recognized by [Newsweek](#) in 2022 as one of the world's best-specialized hospitals, the hospital serves a community of 1.2 million and, over the last decade, has provided specialist services to an average of 70,000 patients per year.<sup>1</sup>

Renowned for groundbreaking research and teaching programs, The Royal Orthopaedic Hospital prides itself on shaping the next generation of clinical leaders and delivering on its mission to improve the musculoskeletal health of its local communities across Birmingham and Solihull.

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Liam Maiden, IT Program Manager, The Royal Orthopaedic Hospital

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To deliver quality healthcare, the hospital must run smoothly, maximize resources, and empower providers to center their focus on patients. The hospital also leads nationwide initiatives on sustainability and digitalization—such as those outlined in the [NHS Architecture Principles](#), a comprehensive protocol for designing digital systems and services for the NHS. These principles are designed to reduce operating costs, minimize the healthcare system's carbon footprint, and give clinicians better access to the high-performing IT systems they need to provide quality healthcare. As part of this protocol, The Royal Orthopaedic Hospital has been especially proactive in fulfilling the [NHS public cloud first](#) imperative.

“The Royal Orthopaedic Hospital has always been at the forefront of innovation. We were the first trust in the UK to move our picture archiving and communication system (PACS) to the public cloud,” says Liam Maiden, IT program manager, The Royal Orthopaedic Hospital. “Now, we're doing our part to align with NHS strategies to become cloud-ready to improve resilience and productivity.”

## Removing the constraints of on-premises infrastructure

In an environment awash in sensitive personal information, information technology must be secure and reliable. Clinicians access and transmit vast volumes of data in daily operations and use resource-intensive applications, such as radiological and other image processing systems. When high-performance systems and data are unavailable, staff productivity can plummet, reducing the number of patients the hospital can treat. A crucial consequence of these issues is a diminishment in care quality.

The hospital IT team operates two on-premises data centers, managed in-house. “Modernizing our onsite data centers will free my team to focus on improving the user experience, align with our carbon reduction initiative, and reduce infrastructure, capital and operational costs,” says Maiden. “In short, everybody wins by moving to the cloud.”

When the hospital's on-premises infrastructure was due for renewal, The Royal Orthopaedic Hospital seized the opportunity to modernize its data centers. The hospital chose VMware Cloud on AWS, accelerating adherence to the NHS public cloud first strategy and forging ahead with a new approach to IT infrastructure management.

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## Pioneering the move to the cloud

Like many NHS organizations, The Royal Orthopaedic Hospital enjoys a long association with VMware. Its on-premises data centers run on VMware solutions, including VMware vSphere and VMware vCenter. The compatibility between these solutions and those offered through VMware Cloud on AWS made its first step toward a multi-cloud strategy seamless. Maiden and his team acquired the solution through VMware Cloud Universal, a cloud-smart consumption and subscription program giving the team the flexibility to select the best solutions for the evolving cloud platform. The solution integrates on-premises resources with VMware Cloud on AWS infrastructure while opening possibilities for cloud-agnostic innovation in the future. The team received support and cloud practitioner training through VMware Success 360.

“We've had a great experience with VMware, so implementing VMware Cloud on AWS was a natural choice,” says Maiden. “It's the perfect steppingstone on our journey to the cloud.”



As the first phase of the project launched, the team implemented VMware Cloud on AWS and began migrating critical workloads with guidance from a dedicated VMware Cloud success manager. The move included medical systems, patient data, the radiology solution and administrative functions, including the letter dictation application and appointment management and patient check-in systems.

VMware Cloud Disaster Recovery with Pilot Light secures the environment by taking snapshots replicated to an air-gapped scale-out cloud file system. Snapshots are immutable and can be instantly powered to the VMware Cloud on AWS software-defined data center. This solution protects hospital systems against ransomware, providing additional coverage if a natural or other disaster compromises either of the two on-premises data centers. VMware cloud-smart solutions help the team optimize the environment for availability, ensuring it consumes only the required resources.

“VMware Aria Operations has been instrumental in determining what we need to provision in the cloud so we can allocate resources accurately,” says Maiden. “We’re also using VMware Aria Operations for Networks to make sure the environment is secure and highly available.”

## Improving administrative staff wellbeing with hybrid working

The move to the cloud supports the hospital’s wellbeing initiative, as well as its staff recruitment strategy. During the pandemic, The Royal Orthopaedic Hospital scaled remote working for administrative staff who used Windows 10 laptops, with VMware Horizon increasing the number of virtual desktop infrastructure (VDI) users from 50 to 300. The team is currently migrating from its on-premises instance of VMware Horizon to Microsoft Azure to support flexible working and ensure staff enjoy a seamless experience.

Now, the hospital can attract new talent who expect more flexible working arrangements.

“As part of our wellbeing initiative, we offer remote working to people where possible. We’re improving our environment with VMware Workspace ONE, which will help provide seamless access to role-specific apps,” says Maiden.

And with central device management supplied by VMware Workspace ONE, the team can manage remote devices and applications easily. If ransomware or other risks arise, they can isolate and disable devices rapidly to protect the rest of the network.

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## A new era for the NHS

By moving to the cloud, The Royal Orthopaedic Hospital has embraced a new era of efficiency and scalability, giving clinicians reliable access to tools that help them deliver outstanding patient care. Administrative staff can also work more efficiently from anywhere, promoting greater employee wellbeing.

The migration to VMware Cloud on AWS is just the beginning of the journey to the cloud for The Royal Orthopaedic Hospital. The modern, hybrid cloud environment will facilitate access to more cloud native services and opportunities.

“Being a multi-cloud organization means we can take advantage of the latest innovations and create a more robust environment,” says Maiden. “VMware is a great partner to help us accelerate our multi-cloud future.”

[1] The Royal Orthopaedic Hospital NHS Foundation Trust, “Annual Report and Accounts 2020-2021” (2021), 18, and “Annual Report and Accounts 2019-2020” (2020), 17.