
Hybrid Cloud Strategy to Support AI Initiatives in Healthcare



Healthcare organisations are increasingly turning to artificial intelligence (AI) to improve operational efficiency, clinical workflows, and patient care. AI has the potential to revolutionise healthcare by automating repetitive tasks, uncovering actionable data insights, and supporting decision-making. However, these organisations need powerful computing resources and flexible infrastructure to use AI's potential. A modern hybrid cloud strategy offers a solution, combining the benefits of cloud scalability with the security and control of on-premises systems.

Current State of Cloud Adoption in Healthcare

Healthcare organisations are at varying stages of their cloud adoption journey, with most either operating on a hybrid cloud model or moving toward it. While some larger organisations have begun adopting heavily cloud-focused strategies, complete migration to the cloud remains challenging due to the technical debt from legacy applications. These legacy systems, built on outdated technology, are not easily adaptable to modern cloud-based architectures, which limits the feasibility of a full-scale move to the cloud.

Most healthcare organisations find themselves in the early stages of cloud adoption. They often start with cloud migration for specific purposes, such as enhancing backup and disaster recovery capabilities or creating a dedicated environment for research and testing. In these early phases, IT teams often focus on building a disaster recovery strategy that includes an isolated recovery zone for incident response and testing. As experience with cloud platforms grows, organisations begin moving workloads to various cloud models, such as Software as a Service (SaaS), Infrastructure as a Service (IaaS), or Platform as a Service (PaaS). Smaller healthcare entities gradually embrace cloud-based backup and recovery solutions, investing in new resources to expand their cloud knowledge base.

Cloud-Based Platforms and Secure AI Integration

As AI gains traction in healthcare, cloud-based platforms are emerging as preferred environments for hosting AI initiatives. These platforms offer scalability and cost-effective infrastructure support as AI use cases grow. In addition, cloud-based platforms can enhance security, especially for organisations less experienced with AI technologies. One significant risk in using AI tools is the potential exposure of sensitive organisational data. For example, generative AI tools might inadvertently ingest data such as HR information or salary details, exposing it to employees who should not have access.

Many healthcare organisations start their AI journey with secure SaaS platforms offering pre-configured security features to lessen this risk. Even with the move toward cloud-based AI, the most sensitive data, like patient records, typically remains in-house to safeguard it against external threats. AI platforms such as Artisight integrate securely with electronic health records and in-house systems, adding AI functionalities without exposing critical data to vulnerabilities beyond what is being actively managed by the healthcare organisation.

How a Hybrid Cloud Strategy Supports AI Initiatives

The integration of AI into healthcare relies on large language models (LLMs) and other algorithms that require robust computing power and data storage. For healthcare organisations, choosing between on-premises infrastructure and cloud computing depends on their AI use cases and associated workloads. Smaller data sets or computationally lighter tasks are often suitable for cloud processing due to scalability and reduced overhead costs. However, if a use case demands extensive compute power or exceeds the cost-benefit threshold of the cloud, an on-premises approach might be more appropriate.

Organisations need to weigh the risk of going entirely cloud-based against the ability to effectively manage their AI tools within their staff's expertise. AI applications like security automation and compliance checks are often well-suited for the cloud, offering efficiency benefits without

overwhelming internal IT resources. In hybrid models, organisations can leverage the cloud for flexible AI processing while maintaining control over core data and operations through on-premises systems.

Best Practices for Implementing a Hybrid Cloud and AI Strategy

Before embarking on a cloud journey, healthcare organisations should comprehensively review their existing on-premises environment to identify gaps and ensure robust security measures are in place. Cloud security is an extension of on-premises security, and a strong foundation is crucial to maintaining a secure and compliant cloud posture. Cyber resiliency should be prioritised to protect sensitive data during and after migration.

Application rationalisation and dependency mapping are critical steps for efficient migration. This practice allows organisations to identify which workloads are appropriate for the cloud and to rightsize resources effectively, avoiding unnecessary cost increases. Without this rationalisation, organisations risk over-provisioning in the cloud, leading to inflated costs that negate the financial benefits of cloud adoption.

When beginning cloud migration, aligning with a knowledgeable partner can significantly enhance an organisation's ability to validate configurations and maintain a secure environment. An experienced partner can guide the transition from planning to execution, offering assessments for security, application readiness, and dependency mapping. For example, CDW provides end-to-end services, including security assessments, application categorisation, and infrastructure evaluations, to assist healthcare organisations through their cloud migration process. With clear goals and guidance, healthcare IT leaders can confidently implement a hybrid cloud strategy that supports their AI ambitions.

A modern hybrid cloud strategy is vital for healthcare organisations looking to integrate AI into their operations. By offering scalability, flexibility, and security, hybrid cloud models support diverse AI use cases, from clinical decision-making to operational efficiency. As healthcare organisations continue their cloud journeys, understanding their existing environment, validating security measures, and rationalising applications are key steps towards successful hybrid cloud adoption. With the right strategy and support, healthcare can fully leverage AI's potential to transform patient care and streamline workflows.

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