

WHITEPAPER

Hybrid cloud: Making healthcare more interoperable and optimized



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Hybrid Cloud: Making Healthcare More Interoperable and Optimized

Shamans and healers in ancient times used ritualistic practices with therapeutic methods to treat illnesses. For the treatment of their patients, they relied on prayer, acupuncture, and herbs. Since then, a completely new universe has emerged within the healthcare system.

To treat ailments, doctors in today's digital age rely exclusively on data!

The number of connected systems has multiplied due to healthcare IT development. In addition to the ever-growing number of medical devices used in healthcare settings and the addition of consumer-based gadgets like Fitbits, today's healthcare providers often have more than 100 systems that need to communicate with one another for a diagnosis.

For example, [415 million people](#) worldwide, have diabetes today, and it's expected that by 2040, that number will rise to half a billion. Public health experts are raising alarms about this pandemic and pleading with medical professionals to give preventative care. Fortunately, the development of the internet of healthcare things (IoHT) and medical wearables offers many patients with hope by giving them greater control over their health. The ability to analyze and manage data generated through connected devices in real-time has made it possible to create wearables that automatically monitor blood glucose and deliver the correct insulin dosages.

The interoperability of patient health data and its optimization to facilitate access and sharing whenever needed, along with its security, have now become the three crucial healthcare industry priorities.

However, the healthcare industry faces common challenges regarding data interoperability and storage.

Healthcare Data Interoperability Challenges:



- Lack of centralized data storage: Data storage is not centralized, which results in poor data availability and coordination between regulators, leaders, and other departments within healthcare organizations.
- Legacy infrastructure: In healthcare organizations with legacy systems, modernizing their systems while maintaining interoperability is a dual challenge.
- Unstructured data: Patient data is unstructured, making it challenging to retrieve crucial information quickly and causing patient identification errors.

- Multiple standards to consider: Since organizations must adhere to various norms and regulations based on the type of health care they provide and where they are located, whether it is the public cloud, private cloud, or on-prem, many of them have highly customized data based on regulations. Maintaining interoperability while maintaining these standards is often challenging in the healthcare sector.
- Vendors blocking data accessibility: Information blocking - by some EHR vendors - significantly hinders healthcare interoperability. Some technology companies also charge fees for transferring data outside the system if the information is shared.

Healthcare On -premises Data Storage Challenges:



- Infrastructural requirements: Medical digitization generates daily data from all parts of the healthcare chain. On-premise data centers cannot cope with the load and effectively support data management and industry transformation. Furthermore, the servers must be hosted on-premises and require expensive hardware.
- Costs of maintenance: On-site servers are pricey and require a lot of maintenance effort. Although on-premises data storage gives you complete control over your data, it frequently requires significant initial investments and ongoing operating expenses. Businesses must purchase computer equipment, perform routine maintenance and upgrades, consider the costs associated with energy use, and monitor their disaster recovery plans.

According to the [International Monetary Fund](#), the US economy will probably contract in 2022 and 2023. Still, it will "narrowly avoid a recession" as the Federal Reserve implements its rate-tightening strategy to fight inflation. Healthcare businesses will find it challenging to survive in the ongoing recession because of the CapEx and OpEx costs associated with on-premise data storage.

- Difficulties with data security: On-premises servers are linked to a local network that can be attacked by hackers using phishing and malware. Hospitals may have strong security policies, but on-premise data center security lacks the layered approach of the cloud, which can also lead to data leaks.
- Incapability to scale: On-premise data storage cannot be scaled as needed due to its lack of flexibility. Each upscale entails additional work, such as setting up extra physical space, purchasing gear, deploying software, installing cooling systems, etc. Healthcare firms need to continuously spend on on-premise storage upkeep to stay up with data expansion.
- Inability to share and access data: As more and more patients visit multiple organizations for different issues or specialties, external data sharing has become increasingly

important. PHI data stored on-premises is not always accessible for analysis across departments in time, resulting in additional copies of data that patients must carry to different departments.

Healthcare Enterprises Can Address Data Interoperability and Storage Challenges with HYBRID CLOUD!

The hybrid cloud is expected to be an investment priority for healthcare and life sciences leaders



Source: [IBM](#)

In a recent IBM Global C-suite Study, 82 percent of healthcare and life sciences leaders who were identified as torchbearers—those that predominantly incorporate data into business strategy, operations, and culture—said they anticipate making sizable investments in the hybrid cloud in the coming years. Only 46% of aspirational, who have only recently started integrating enterprise-wide business and data strategies, can make the same assertion.

Three Ways Hybrid Cloud Can Improve Data Interoperability in Healthcare



- The centralized location of healthcare data: In the hybrid cloud environment, patient data are gathered and kept in a central repository. A private cloud or an on-premises server is used to store PHI data, while a public cloud is used to store non-sensitive data. The stakeholders like pharmacists, doctors, insurance companies, patients, diagnostic centers, etc., have complete control over the data, including the power to verify, approve, and record access and share details.
- Increased collaboration: Collaboration amongst experts is essential since there are times when medical practitioners need second opinions of their peers on a particular patient health situation. Data must be provided to various peers in such exceptional circumstances on time. In hybrid cloud, patient data is updated in real-time and accessible by anyone on the network with 24x7 security algorithms. The advantages of both public and private clouds are combined in hybrid clouds to guarantee compliance, flexibility, and safe data transfers. Hybrid cloud systems can easily be connected to other systems and applications via the internet, making interoperability and integration easy.
- Guaranteeing API interoperability: To determine a patient's coverage for a particular operation or drug, a healthcare provider organization can enter the patient's information into a system that interfaces with insurance providers. An API makes that possible. In the years to come, APIs will play a significant role in ensuring health IT interoperability, particularly as the 21st Century Cures Act's data exchange regulations promote standardization and spread throughout the healthcare ecosystem. [Fast Healthcare Interoperability Resources](#) (FHIR®) APIs are used by the FHIR service in Azure Health Data Services to enable quick data transmission. This service is supported by a managed Platform-as-a-Service (PaaS) cloud offering. Incorporating, managing, and preserving Protected Health Information (PHI) in the cloud is more straightforward for anyone working with health data with these APIs.

Three Ways Hybrid Cloud Can Improve Data Storage in Healthcare



- Scalability: By enabling the development of servers, the hybrid offers endless scalability and flexibility. They can expand their storage capacity for more giant clinical footprints and remove them as needed. The cloud considers the object storage approach to meet huge file formats and unstructured data needs. Each piece of data is kept in its storehouse, packed with metadata, and assigned a unique identification for quick access and retrieval.
- CapEx and OpEx cost optimization: To take advantage of new capabilities faster without the necessary investments, such as machine learning and AI, hybrid cloud service providers let organizations adopt a "pay as they go" model (OpEx model), which enables companies to engage the resources and expertise of cloud hosting experts, pay for what they use, and allow cost savings all year long.

The essential variables that businesses need to pay attention to are identifying:

- What to Move to the Cloud
- Where to Store What Data
- When is the Right Time for Data Migration

- Storage Optimization: Healthcare organizations can wisely store their data and incur significant cost savings by analyzing unstructured healthcare data and distinguishing sensitive and non-sensitive data. Sensitive or PHI data can be kept on-premise or in a private cloud for security and regulatory reasons. In contrast, non-sensitive, redundant, obsolete, and trivial data can be kept in low-cost object storage on a public cloud for an extended period.

It is possible to significantly reduce expenses using a hybrid cloud by keeping the above three considerations in mind.

Why Does Azure Fit Best into a Healthcare Hybrid Cloud Strategy?



Healthcare customer stories you might find interesting



Modernizing 150 TB of Data for 92 Hospitals in 22 States

[Read more](#)



Top 5 Medical Device Manufacturing Company Analyzes and Modernizes 2 PB of Data With Data Dynamics

[Read more](#)



Data sharing & rationalization in marketplace, and risk mitigation for 100s of billions of data files using AI, ML, and Blockchain

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96% reduction in customer outage time and 100% ROI in data center & storage migration

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Data Dynamics and Microsoft Can Make Your Hybrid Cloud Strategy a Cakewalk

Introducing the Azure File Migration Program - a collaboration between Microsoft and [Data Dynamics](#) that helps customers break free from the traditional lift and shift migrations and embrace a more thoughtful way with data-driven intelligent migrations.

The migrations are 100% free, 100% automated, and 100% scalable.

Through this program, Microsoft and Data Dynamics aim to help organizations address some of their most critical challenges in the cloud migration lifecycle, such as cost, speed, talent, and risk. Here are the benefits:



To know more about FREE migrations into Azure, [click here](#)

[Click here](#) to Read how the Azure File Migration Program facilitated the free migration of 600 TBs of data in 20 days while also enabling millions of dollars in cost savings from the shutdown of data centers.

To know more about Data Dynamics, visit www.datadynamicsinc.com or contact us solutions@datdyn.com / (713)-491-4298.

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