

Evaluating health clouds: a primer



Several large tech firms have launched health clouds to tap into the burgeoning digital health ecosystem. However, understanding and leveraging the health cloud value proposition requires an understanding of various cloud service models and a careful assessment of the choices in the marketplace.

The term cloud computing usually brings up a handful of names; Microsoft, Amazon, and Google, who are currently seen as the market share leaders among cloud service providers. However, these market shares refer mostly to cloud computing as a service, or more precisely infrastructure as a service (IaaS). By and large, IaaS providers are looking to shift enterprise computing workloads from traditional data centers to the cloud (their cloud). They facilitate the shift with pay-as-you-go models, similar to

how a power utility would charge for power consumption with an electricity meter in our homes.

At the other end of the spectrum, an entire generation of “born in the cloud” and “only in the cloud” startups is leading the charge for innovation in healthcare, with billions in venture capital (VC) chasing potential winners. These startups, especially the ones from Silicon Valley, are focused on developing “last mile solutions” that reimagine patient and caregiver experiences or address an existing problem in a new way. From a cloud perspective, these startups are mostly offering their solutions in a software as a service (SaaS) model, leveraging the IaaS models of the major cloud providers as a backbone for their applications.

Understanding health clouds: what they are, and what they are not

Health cloud offerings are integrated solution stacks provided as a platform as a service (PaaS) with a fully integrated set of tools and technologies that are customized for digital health application development. The stack includes back-end computing infrastructure, front-end development environments, and a set of middleware services. Health cloud platforms are specifically set up to comply with healthcare's data privacy, security and related compliance needs including HIPAA. Many health cloud providers also offer advanced analytics capabilities in their clouds and a set of APIs for developers looking to take advantage of all the components of the health cloud stack.

In choosing to go with a health cloud platform, health system CIOs need to address a few key questions:

What are we actually buying?

Health cloud providers may be packaging standard software (such as CRM) in a cloud-enabled version, calling it a health cloud, and requiring health systems to sign standard agreements based on seat licenses. At the other extreme, health clouds are loose collections of tools and services in a pay-as-you-go model that leaves it up to enterprises

to determine how to combine the toolsets into meaningful applications. Both models negate the promise of out-of-the-box plug and play as well as pricing transparency that is core to cloud computing.

How will this integrate with EHR systems?

Health clouds sit between systems of record, such as Epic and Cerner, and digital health applications that are redefining patient and caregiver experiences. Health cloud providers have to rely on EHR vendors to connect to patient records, and on the digital health innovation ecosystem to build last-mile experiences. This raises fundamental questions for CIOs; Why do we even need a health cloud? Why not just buy the individual components separately and assemble them into our own health cloud and find innovative startups that will work directly with us?

What happens to all my data?

Some health clouds come bundled with advanced analytic tools, especially with firms such as Google and Microsoft. Health systems can benefit from the use of these advanced capabilities that may not be available otherwise to them. However, these advanced tools run primarily on the vendor cloud environments as an integral feature of the health cloud platforms. For health systems, the implication is that their patient data sets will need to be replicated in a third-party cloud environment.

The table below provides a high-level set of criteria for assessing health cloud providers:

Criteria	Considerations
Healthcare focus	Healthcare is seen as a huge opportunity, and almost every major tech firm has a declared interest in healthcare. However, only some firms understand healthcare well, while others merely look at healthcare as another segment to sell their standard offerings. Even within the firms that understand healthcare, their focus and approach depend on their heritage. For e.g. Salesforce brings a CRM-oriented approach while GE Healthcare brings its deep domain knowledge in medical images.
Features	The features of cloud platforms reflect the firm's core capabilities and areas of focus. While core platform features such as data security standards, middleware and integration are part of every platform, some features are unique to some firms. As an example, Microsoft and Google provide advanced analytics tools and machine learning algorithms for which they are seen as best-in-class.
Pricing models	No two firms are the same when it comes to pricing, and this is potentially one of the big challenges in evaluating health clouds. Pricing models vary widely not just among the health cloud providers, but also within an individual platform. A health cloud platform may comprise of hundreds of individual tools, and features and metering may be per-second, per-minute, per-hour, per-device, per-seat, and more. Estimating usage levels can be a challenge, especially if it is not clear what tools will be required for a specific application.
Customer base	While many of the big tech firms have a large customer base of healthcare enterprises, health cloud clients may be a small number. The few that have implemented health cloud platforms would be important reference points for the value proposition of implementing a health cloud.
Partner network	Health cloud providers have to work closely with leading EHR vendors such as Epic and Cerner to be able to access patient data. At the same time, they also have to onboard digital health startups by encouraging and motivating the startups to build solutions on their platforms. Systems integrators may also be required to put the pieces together. In the absence of a robust partner network, health cloud providers may end up transferring many of these responsibilities to health systems who must bear the additional costs of integration, vendor management, and governance.

Criteria	Considerations
Leadership	The healthcare practices of many vendors are often in name only. A strong indicator of their commitment to healthcare is their organizational structure and dedicated team sizes, and whether healthcare is treated as a strategic, standalone business. The size and experience of the leadership matters as well, and whether the leadership includes senior executives with clinical backgrounds.

Somewhere in the spectrum of cloud-only and on-premise only, health systems need to find ways to move forward with a strategy that addresses all these questions and more. Health systems are already on the path of digital transformation. However, they are not quite prepared for a large-scale shift to the cloud in the short term. The reality is that one may not be possible without the other.

There are many factors that go into deciding to go with health cloud vendors, starting with having a cloud strategy in the first place. Health clouds are not an instant solution to developing and deploying digital health

solutions at scale, and there are significant differences among various players that have implications for the effort, costs, and timelines of an enterprise digital transformation platform.

If you would like to learn about how we can help you with a cloud strategy and a digital transformation roadmap, visit us at www.damoconsulting.net and write to us at info@damoconsulting.net.

For more insights on digital transformation in healthcare, visit us at <https://medium.com/the-big-unlock>



About Damo Consulting

Damo Consulting is a growth strategy and digital transformation advisory firm that works with healthcare enterprises and global technology companies. We help develop and implement digital transformation strategies and enable market growth strategies. We specialize in thought leadership led brand transformation and actionable healthcare market intelligence.

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