Three Ways the Cloud Can Help Manage Healthcare's Digital Data Tsunami

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Dale C. Wiggins
General Manager of Philips' HealthSuite Digital Platform

Today's healthcare providers are dealing with a digital data tsunami. Increasing electronic health record (EHR) adoption, the proliferation of connected healthcare devices and advances in imaging technology are increasing the volume of digital imaging data. With the increase in the volume and diversity of healthcare data, healthcare organizations are struggling to capture, curate, analyze, secure and archive all the data being generated.

Philips, a healthcare technology solutions provider, has experienced the impact of the digital data tsunami first-hand: Philips currently manages more than 22 petabytes of imaging study data for healthcare providers. To put that in context, a single petabyte (PB) is the equivalent of 1000 terabytes (TB) or 10^{15} bytes.

That's a lot of data.

To manage that data, Philips turned to the cloud. Philips needed a cost-effective, secure and flexible technology infrastructure that would support not only imaging services, but also the broader services that make up Philips' HealthSuite Digital Platform. Philips found what they were looking for in Amazon Web Services (AWS). AWS offers a secure cloud services platform that includes computing power, storage and other functionality. Philips' HealthSuite Digital Platform is built on top of AWS.

"The cloud is a great way to handle the technical challenge of having all of that data," said Dale C. Wiggins, general manager of Philips' HealthSuite Digital Platform. "The cloud offers on-demand delivery of IT resources, delivered via the internet, with pay-as-you-go pricing. That is why it made sense for Philips to partner with AWS." Wiggins cited three reasons why Philips chose to use the cloud in general – and AWS in particular – to support Philips' HealthSuite Digital Pwlatform.

1. Cost-effectiveness

Placing an organization's technology infrastructure in the cloud can reduce the total cost of ownership. For example, an IDC study found that moving just one part of an organization's IT infrastructure – the data warehouse – to the AWS Cloud resulted in average benefits of $758,845 per 100TB per year over five years.[1] That equals an average five-year ROI of 469 percent.[2]

"When you have to procure, manage and maintain the hardware, pay for electricity, set up data centers and hire staff with the right skills to manage it all, it is a very expensive proposition," said Wiggins. "Furthermore, failure rates can introduce a lot of surprises that make it unpredictable. The advantage of going with AWS Cloud is that you have the best professionals in the world managing

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that infrastructure. It's managed seamlessly, so ultimately you don't even know when a disk fails and needs to be swapped out. That's all handled in a totally virtualized environment."

2. Security

Security is a key focus within Philips' HealthSuite. Data security is a responsibility shared across all of the entities who handle protected health information (PHI). This includes everyone from the direct care provider (typically a HIPAA-covered entity), to the solution providers – HIPAA business associates such as Philips – that help providers manage, analyze and use PHI.

Wiggins sees AWS as a trusted partner in the security continuum. Vendors like AWS are able to do a lot of the undifferentiated heavy lifting on security, such as ensuring the physical security of the data centers. "We tend to fool ourselves into thinking that on-premises compute and storage solutions are more secure than something that is in the cloud," he said. "But my view is that it will prove out over time that the cloud infrastructure, on top of a company like AWS, is a lot more secure than having it on premises."

3. Scalability and flexibility

Cloud services are both scalable and flexible. Storage and computing power can be scaled up or down as soon as the need arises. This is unlike on-premise solutions, which require procuring and provisioning additional hardware to meet peak storage and computing demands.

As more data becomes available, analytics capabilities have become a higher priority for all healthcare organizations. Big data analytics can facilitate clinical decision support and help organizations optimize care delivery. "When you are doing big data analytics, it typically requires temporary, but very high loads of both storage and compute. One of the real benefits of a cloud-based environment for analytics is that you can capitalize on that elasticity," said Wiggins.

Although today's healthcare data tsunami can seem unmanageable, Wiggins is certain that this abundance of data is a blessing, not a curse. "When you think about a tsunami, it's something that's overwhelming you," he said. "Right now the healthcare industry is a little bit overwhelmed with the amount of data we have. But I think that also presents a tremendous opportunity for us to make sense of that data in a way that will ultimately improve patient outcomes as well as financial outcomes for healthcare systems."

1 Olofson, C.W., Marden, M., & Arora, U. (November 2016). *Business Value of Amazon Redshift*.
2 Ibid.