eBrief:

Achieving Simplified Hybrid IT in Healthcare

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In healthcare, data privacy and security is paramount, but the value of this data can only be realized when it can also be accessed, shared, and utilized by all necessary parties, such as the patient and providers.

Traditionally, healthcare organizations have favored on-premise IT infrastructure and relied on virtualization technologies from companies like VMware to run virtual machines on the same physical server to provide secure access to the data across the organization. However, with the expanding influx of healthcare data, on-premise infrastructure has become complex and expensive to grow to scale in a fast fashion.

To balance the need to protect healthcare data with the desire to innovate quickly, hospitals and insurance payers look to embrace hybrid IT solutions that maintain control over existing network environments while using that same VMware virtualization technology to extend these networks to the cloud. This allows them to take advantage of more advanced technology and the inherent scalability that comes with public cloud capabilities.

HANDLING THE HEALTHCARE DATA TSUNAMI

The healthcare industry, which in many cases still relies on antiquated technologies like fax machines, spends less than 3 percent of its revenue on IT.[1] Minimal investments in IT have led to outdated legacy infrastructure that can't support the ever-expanding influx of healthcare data. A tremendous volume of healthcare data is being generated by numerous sources. From IoT platforms like wearables, patient-generated health data from mobile apps, medical devices and sensors, to clinical data such as electronic health records (EHR), insurance claims, and patient registries, healthcare is having a data explosion.[2] By 2020, it is estimated there will be about 2,300 exabytes of patient data in the United States, and the average 100Mbps internet connection would take over 5.8 million years to download it. This has major implications for healthcare organization to store, manage and share this data.

Additionally, healthcare organizations can face challenges in utilizing the newest software advances to take advantage of modern cloud-based clinical and operational applications and real-time data analytics. This can cause their legacy systems to fail to keep up with demand for personalized, comprehensive healthcare experiences and solutions which both patients and providers are advocating for.

As such, healthcare IT leaders are facing pressure to support their traditional legacy data centers as well as adapt to rapidly changing new technology and provider and patient expectations.

1 Health Data Management (December 2017) "2018 Tech Budgets to Rise About 8.8% for Healthcare Organizations"
2 Tech Emergence (January 2018) "Where Healthcare's Big Data Actually Comes From"

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On-premise, legacy data centers for healthcare organizations can be complex and require a lot of staff and time to operate and maintain. "Complexity equals cost, and it can also mean poorer, less reliable service," says Blane Clark, Senior Healthcare Strategist at VMware.

Conversely, cloud-based infrastructure and storage offers a flexible and highly scalable environment at a lower cost than on-premise deployments. In fact, in response to these pressures, nearly 88 percent of surveyed health CIOs and other IT leaders now use cloud-based software models for services like hosted applications.[3] As healthcare organizations seek more flexibility and scalability, moving to cloud infrastructure is gaining in popularity. [4]

The last several years have seen healthcare organizations gain confidence in cloud infrastructure, with a steady increase in adoption rates. [5] However, hybrid IT architectures have provided a stepping stone in their cloud journey. In fact, roughly 58% of surveyed health CIOs employ a hybrid IT strategy, up from 36% just three years prior. [6]

SECURITY AND COMPLIANCE IN CLOUD ENVIRONMENTS

Even with the clear advantages of the cloud for cost-effective scalability and advanced data analytics, some healthcare IT leaders remain hesitant to fully embrace the cloud, with concerns about the privacy and security of saved personal health information outside of their own private environments.[7]

Despite these reservations, cloud providers, such as Amazon Web Services (AWS), are better equipped to secure data than most on-premise solutions. Cloud environments help companies build a strong foundation for IT infrastructure to ensure the security of health data, reduce the risk of data breaches, and maintain HIPAA compliance.[8]

"Health CIOs and CISOs see the relentless emphasis that major cloud providers have on security," says VMware's Clark. "They can't match the level of expertise, budget, and rigor that major cloud providers offer within their sophisticated security controls." Companies go from having one or two security frameworks on-premise to dozens applied as cloud resources. For example, AWS provides access to cloud environments built for the most security-sensitive organizations, and with HIPAA-eligible services to provide a foundation for regulatory compliance.

"In addition to multilayered security, organizations are moving to a hybrid cloud model because of the agility and ease of operations", says Clark. "The cloud is built to be automated. It's about

3 HIMSS Analytics (2017) "2017 Essentials Brief: Cloud"
4 HIMSS Analytics (2017) "2017 Essentials Brief: Cloud"
5 IDC (April 2018) "Healthcare IT Modernization and the Adoption of Hybrid Cloud"
6 Datica (May 2017) "Hybrid Cloud is Now the Preferred Option within Healthcare"
7 U.S. News & World Report (February 2018) "4 Trends Driving Digital Health Care Transformation"
8 VMware "Healthcare IT Solutions"

automating and providing infrastructure in a smarter, more efficient way," he notes. Therefore, healthcare organizations can spend less time on procuring IT hardware and capital resources. That's because integrated hybrid solutions allow them to harness the innovation of cloud infrastructure and services without having to rewrite applications or operating models – and without traditional expenses of capital, space, and power.

HOW TO MAKE THE HYBRID CLOUD MIGRATION SIMPLE

A hurdle healthcare organizations face is how to integrate legacy on-premise systems with a cloud provider to create a reliable and robust hybrid IT environment. VMware technology is a popular choice for healthcare organizations as the virtualization platform for their on-premise IT infrastructure to meet their unique business needs. For healthcare companies that want to keep some of their computing in-house while capitalizing on the capacity, agility, and continued security offer by the cloud, they can now deploy a hybrid IT environment that seamlessly uses VMware environments on-premise and on the AWS Cloud. This hybrid IT strategy provides the scalability of storage and analytic power necessary to deal with expanding healthcare data volume, without compromising data security or their ability to comply with HIPAA regulations.[9] As Clark explains, companies can leverage the familiar VMware software they're already using with the HIPAA-eligible services available in the AWS Cloud.

"By making the infrastructure easier to operate, healthcare professionals can focus on solving clinical problems," Clark notes. The benefit of the VMware and AWS Cloud partnership is the simplicity it brings when extending private environments into the public cloud without having to change how the healthcare company operates, how its servers are built, and without major up-front investments. This facilitates a quick and seamless integration between what healthcare companies know and do today and providing them with the scalability they need to handle what the future of holds. Moreover, healthcare companies can leverage the experience and expertise of AWS, freeing up the organization to focus valuable resources on what really matters— bringing improvement and innovation to patient care.

9 AWS News Blog (August 2018) "VMware on AWS Cloud – Now Available"

For over 12 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 125 fully featured services for compute, storage, databases, networking, analytics, machine learning and artificial intelligence (AI), Internet of Things(IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 54 Availability Zones (AZs) within 18 geographic regions and one Local Region around the world, spanning the U.S., Australia, Brazil, Canada, China, France, Germany, India, Ireland, Japan, Korea, Singapore, and the UK. AWS services are trusted by millions of active customers around the world—including the fastest-growing startups, largest enterprises, and leading government agencies—to power their infrastructure, make them more agile, and lower costs.

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