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CLOUD-SMART SOLUTIONS FOR TODAY'S HEALTHCARE ENVIRONMENTS

INTRODUCTION

The healthcare industry is in the process of transforming its digital infrastructure to support a range of clinical and business applications and workloads with increasing volumes of data.

Without a comprehensive strategy to manage the growing amounts of data coming from multiple sources, both on- and off-premise, healthcare organizations face the likelihood of adding further complexity to an already sprawling IT landscape as well as unnecessary expense. However, with a defined strategic multi-cloud approach, healthcare providers can simplify their digital environments, reduce costs, and maintain the flexibility needed to support both existing and emerging technologies moving forward.

THE CURRENT STATE OF CLOUD IN HEALTHCARE

Healthcare cloud adoption shows few signs of abating. Nearly 80 percent of respondents to a 2019 HIMSS Technology Outlook Survey identified the cloud as a strategic priority, especially among healthcare organizations further along with their digital transformation efforts. Similar research shows an increasing willingness to adopt a cloud-first approach to health IT infrastructure—54 percent in 2019 compared to 23 percent in 2018.

While interest in the cloud continues to grow, healthcare organizations are facing challenges similar to other industries when adopting cloud services. In 2019, IDC's Cloud Pulse survey of service providers found that 85 percent of all cloud customers were undertaking repatriation of data and applications from public clouds to on-premise or hosted private clouds, primarily driven by concerns over security, cost, and performance. The findings also indicated that half of current public cloud applications were likely to be repatriated over the next 24 months.

The rush to adopt the cloud has therefore resulted in additional costs tied to data migration for many organizations, emphasizing the need for a comprehensive strategy to reap the benefits of cloud and avoid the pitfalls stemming from a rush to cloud services.

"Many healthcare organizations were jumping into the cloud and moving the majority of their workloads to the cloud-only to then realize the importance of the data and applications. Where the data moves is very pertinent and salient to whether the solutions can be supported in the cloud," according to David Sarson, Global Alliances Manager, Healthcare Multi-Cloud at Dell Technologies.

Many of the "off the shelf" applications in healthcare are unable to take advantage of the full public cloud offerings because they have not undergone modernization for many years. Instead, these organizations are using the public cloud as an off-premise infrastructure as a service (Iaas) model, leading to increased cost.

Challenges coming from the current healthcare environment have increased the urgency among organizations to make their digital infrastructure more flexible and responsive to both traditional as well as remote workforces. This new normal has been especially pertinent in the areas of virtual health and remote radiology and cardiology, and digital pathology.

"Your IT operations require flexibility because you can't predict what's happening next. You don't know where the workload is going to be needed," says Clark Lefavour, Senior Director of Systems Engineering at Dell Technologies.

To take full advantage of cloud offerings, healthcare IT must first assess their workloads and applications to determine the best cloud model for each while developing a greater understanding of where data is coming from and going to—in order to achieve flexibility and deliver a seamless experience to providers and patients.

RETOOLING INFRASTRUCTURE FOR THE VARIED DEMANDS OF TOMORROW

Transforming IT infrastructure is critical to the rapid digital transformation underway across the healthcare industry. To deliver high-quality care while meeting growing data requirements, healthcare organizations need to embrace a new philosophy regarding the physical location of data and applications across the various public, private, and on-premise cloud offerings—in short, one that is cloud-smart.

"Being on- or off-premise is immaterial," explains Steven Lazer, Global Healthcare CTO at Dell Technologies. "Healthcare organizations must strive to put the application in the right place at the right time with the right level of risk tolerance. We work with a robust partner ecosystem to develop the correct landing zone for each workload. We recommend our customers evaluate workloads, focus on the end-user experience, explore the possibilities, and develop a multi-cloud approach that fits their organization."

In tandem, the security and privacy of sensitive information and systems are top priorities for healthcare organizations choosing the right environment for applications and workloads. When compared to other industries, healthcare is still in the early stages of cloud readiness due to legacy applications in use. There are many areas that need to be addressed, including compliance with HIPAA, GDPR, and

PCI regulations. Healthcare customers are learning that they need to be able to overlay their existing security posture on top of any cloud environment, which requires some forethought.

Another area that should be addressed in the planning process is determining which applications are best able to function in cloud environments and maximize the potential of cloud services. Many existing applications are not easily adapted to cloud environments, requiring application and workload mapping before migrating to the cloud.

Certain workloads tend to do quite well in a cloud-type environment. For example, research workloads perform well in the cloud where large shared datasets require high levels of computational power, rather than relocating the data sets due to data gravity challenges. Conversely, EMR recordkeeping for patients requires low latency and fast retrieval solutions requiring some on-premise component to maximize performance.

By adopting a multi-cloud strategy, healthcare organizations can bring these mixed-use data environments under a single operating model to simplify IT operations with the use of a common toolset.

> **"Our converged technology and cloud offerings provide agility and portability to healthcare workloads."**

The ability to create a single operating model regardless of location will enable healthcare organizations to support both traditional and cloud-native applications that stretch from the core, to the edge, to the cloud, to wherever the data resides.

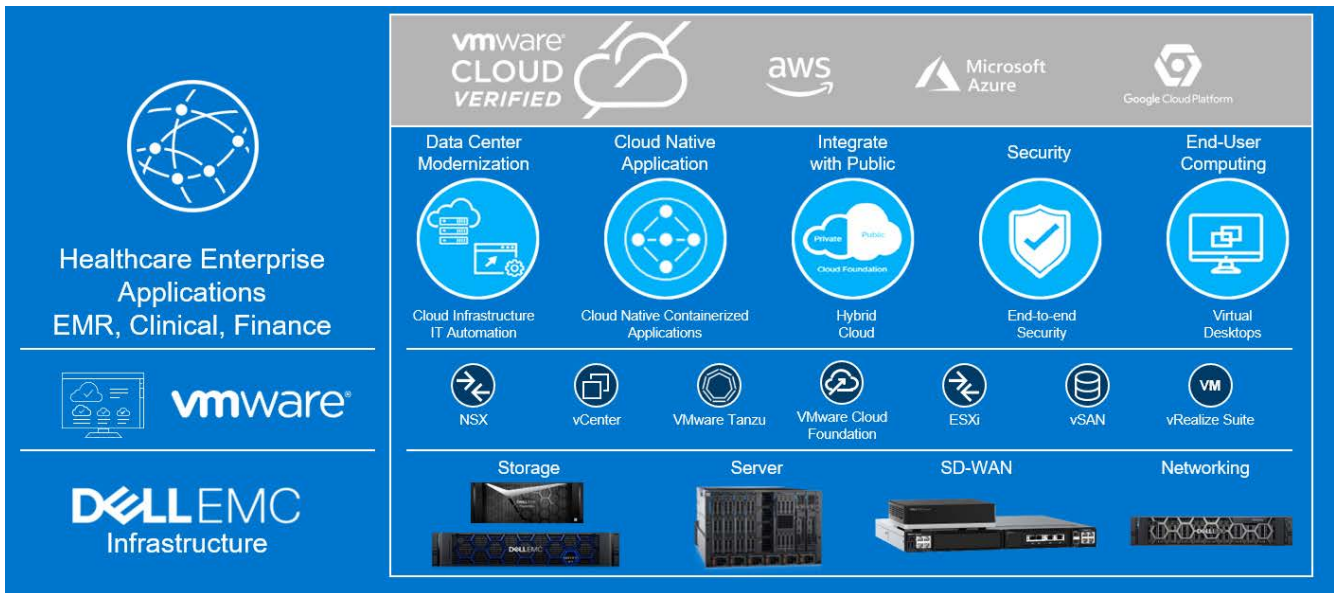## PARTNERING WITH DELL TECHNOLOGIES ENABLES MULTI-CLOUD SUCCESS

Embracing a multi-cloud strategy is one half of the puzzle. The other half is running applications and workloads on a platform that delivers a unified experience. Choosing the right partner to help achieve this goal is essential for organizations across industries to meet with success in a multi-cloud world.

The Dell Technologies Cloud powered by VMware is uniquely suited to provide healthcare organizations with the simplicity necessary to adapt to changing times.

"Our converged technology and cloud offerings provide agility and portability for healthcare workloads," says Lazer. "Our team is dedicated to bringing the right healthcare solutions to the market to enable care delivery in the most efficient manner across the health IT ecosystem."

Dell Technologies offers a single integrated strategy that allows a healthcare organization to conduct proper application portfolio analysis, complete dependency mapping to develop appropriate patterns for application service level agreements, and promote automation by adopting Infrastructure as Code (IaC). By partnering with Dell Technologies, healthcare organizations can ensure a seamless multi-cloud experience by:

- delivering on the modernized infrastructure needed to support a digital transformation strategy

- accelerating new and rapidly evolving capabilities not available in current on-premise/private cloud solutions

- enabling a comprehensive health IT ecosystem through a single operating model

"VMware provides all of the technology solutions required to reach the goal of a software-defined data center," Lefavour continues. "VMware has been assembling the solutions into a comprehensive strategy for years. Using software tools that are available today, you can simply click to create, start, stop, and re-provision—you can do everything you need from a single dashboard."

> "Imagine what an AI tool can do when applied to an archive of medical images—identifying trends across millions of images to provide actionable insight at the point of care."

Even more exciting is the prospect of quickly implementing new and emerging capabilities, such as breakthroughs in artificial intelligence and resource-heavy analytics. "Imagine what an AI tool can do when applied to an archive of medical images—identifying trends across millions of images to provide actionable insight at the point of care," says Lefavour.

CONCLUSION

Today's business mandate requires every healthcare organization to be a digital one powered by data optimized through a multi-cloud environment. By shifting to a cloud-smart strategy, healthcare organizations can map applications and workloads to the appropriate landing zone. And by implementing Dell Technologies Cloud, they can establish a consistent operating experience as well as the flexibility and autonomy to react confidently to ever-changing dynamics.

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Dell Technologies provides solutions to help healthcare organizations realize their digital transformation - from the point of care to the data center to the cloud. From the world's leading healthcare systems to rural health clinics, we have transformative and essential infrastructure solutions to help you achieve business and clinical agility.

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