Smart Strategies For Moving Healthcare Workloads to the Cloud

Healthcare IT is moving—and changing—at breakneck speed, and cloud computing is a central element of that change. Payers and providers alike need to understand their best opportunities for leveraging the cloud for key workloads.

The global cloud computing market for healthcare is expected to grow to $9.5 billion in 2020.

As healthcare IT is transformed by a variety of clinical, financial, regulatory and competitive factors, business and technical leaders are seeking new ways to meet the rapidly evolving needs of their many constituent groups. Increasingly, cloud computing has become a core component in the way technologies and services are applied to every aspect of the healthcare continuum. Whether it's how patients are treated while at and away from the medical facility or how claims processing and cash flow are improved, cloud is a big part of healthcare IT strategy.

Cloud computing, in its many different forms, offers the healthcare industry such widely acknowledged benefits as business agility, improved in-house staff utilization, cost predictability, regulatory competency, proven multi-layer security and scalable access to infrastructure and services on an as-needed basis. As a result, cloud computing adoption in healthcare has surged. The global cloud computing market for healthcare is expected to grow from $3.7 billion in 2015 to $9.5 billion in 2020, a compound annual growth rate of greater than 20%[1].

Although cloud computing isn't necessarily the answer for each and every healthcare workload for providers and payers, cloud services for application software, infrastructure, platforms, security, storage and even desktops are increasingly driving the migration of key workloads away from legacy on-premises systems to third-party managed services and colocation options.

This paper looks at some of the key issues affecting how providers and payers look at the adoption and implementation of IT services, particularly as they relate to key workloads and their deployment as a cloud-based solution. It also examines some of the important issues healthcare industry decision makers should consider when evaluating potential partnerships with service providers for cloud-based solutions.

Embracing the Various "IT as a Service" Models

It's important for healthcare IT professionals who are helping their organizations take the journey to the cloud—or extend their existing use of that architecture—that "cloud" is a very broad, umbrella term that embodies a number of different types of services. In fact, healthcare IT leaders need to understand which types of cloud-based services are most relevant for their current and future needs, and plot their course accordingly.

Here's a short overview of some of the most popular and relevant "IT-as-a-service" formats that are under the cloud imprimatur:

- **Software as a Service (SaaS):** Applications are hosted in the cloud by a service provider, rather than being run internally by IT.. SaaS has gained widespread popularity not only for productivity applications like business suites and email, but also for more strategic, business-critical applications like ERP, CRM EMR, EHR and HIPAA-Compliant Messaging applications.

Cloud-based services are important because they often free up IT employees from handling mundane, "keep the lights on" activities.

- **Infrastructure as a Service (IaaS):** A Cloud Service Provider hosts the hardware, operating system and other infrastructure components that will an IT staff will consume to run their workloads. In the IaaS model, the Cloud Service Provider is responsible for fully operating and managing the delivery of infrastructure compute, network and storage capacity, as well as providing infrastructure availability in accordance with their Service Level Agreement (SLA). Keep in mind that SLAs can and often do wary widely among providers.

- **Platform as a Service (PaaS):** In cloud-based PaaS environments, service providers host the various hardware as well as a layer of software platform above the operating systems that drives the delivery of the Cloud-hosted workload. Similar to IaaS, the Cloud Service Provider owns delivery of the SLA up to the level of software that is being provided including all hardware, network and facility services.

- **Storage as a Service:** Although enterprise storage costs have continued to drop in price for years, storage management and administration has more than eaten up those savings as data volume and complexity have increased. Also, Storage as a Service often obviates the need for organizations to handle secondary and offline/near-line storage requirements as these are part of the solution delivered by the Cloud Storage Service Provider. Capabilities like backup, archiving and data recovery, which are essential for business continuity, compliance and e-discovery workloads, now become part of the subscription and note a separately built and maintained IT effort

- **Security as a Service (SECaaS):** For a long time, some organizations were hesitant to embrace cloud services because of concerns that a service external to their staff or infrastructure was inherently unsecure. That's rapidly changing, however, as cloud-hosted security services harness and scale up and out access to security expertise and real-time monitoring and management that addresses threats that in-house teams and solutions can't address. Some SECaaS solutions are standalone subscription services and others are simply cloud-hosted modules utilized by traditional products and providers to ensure that malware, ransomware and exploits are filtered using the most up-to-date technology and insight.

- **Desktop as a Service (DaaS):** This cloud service is similar in concept to virtual desktop infrastructure (VDI), except the Cloud Service Provider hosts and manages the VDI infrastructure. VDI and DaaS solutions are very personal to each user and acceptance levels vary. Using a scalable "as a service" model a client can move easily from pilot to production on a scale that meets their business needs and prevents over-buying infrastructure to start such a project.

It is increasingly important for healthcare IT organizations to be mindful of how they migrate applications and workloads to the cloud.

Regardless of the cloud service provided, organizations benefit from the ability to consume and provision services on an as-needed basis, thus avoiding overprovisioning of hardware or software licenses. This is particularly important for healthcare organizations, which are looking to keep their IT budget spending as parallel to consumption as possible. At the same time, each of these services can be utilized in concert with existing in-house systems in order to avoid wholesale rip-and-replace approaches to modernization, and to maximize existing investments in hardware, software and staff expertise.

Finally, these cloud-based services are important because they often free up IT employees from handling mundane, "keep the lights on" activities such as rack and stack, software patching, configuration and troubleshooting tactical issues in IT service delivery.

Healthcare Workloads that Make Sense for Cloud
Because cloud-based services come in so many different formats and can leverage several different implementation models, it is increasingly important for healthcare IT organizations to be mindful of how they migrate applications and workloads to the cloud. With the support of an experienced solutions provider, simple and complex pitfalls can be avoided, ensuring project success. One key trend to note is that healthcare organizations are moving beyond first-generation cloud workloads such as email, productivity suites and backup, and are now migrating enterprise-grade and mission-critical workloads to a hybrid cloud environment, where cloud services integrate with or in some cases replace on-premises services. These include:

- **Compliance.** Regulatory mandates such as HIPAA and the Affordable Care Act are constantly shifting and changing, creating big challenges for internal staff to keep up to date on new regulations while also serving day-to-day needs of clinicians, administrators and even users and visitors.

- **Claims processing.** Payers often have very precise and exacting requirements for how and when claims are submitted, and managing those different guidelines and processes often necessitate a mix of process automation, workflow management, content management and interfaces to back-end financial systems.

- **Imaging.** Specialized applications like PACS and DICOM eat up huge chunks of storage, and simply turning on more storage capacity isn't an effective long-term strategy. The images must be managed, backed up, archived, shared and secured, putting big pressure on internal staffs and in-house infrastructure. More and more healthcare organizations are moving these workloads to the cloud as much for easing the storage management burden as for cost savings.

> The stark reality is that just about all healthcare organizations are straining to maintain the pace of IT service delivery.

- **E-Discovery.** It's a fact of life that there is a tremendous amount of litigation in the healthcare industry, and managing it is a full-time job—more, in fact, than internal staffs typically can handle. E-Discovery workloads make a lot of sense in the cloud because they are closely tied to other cloud-centric workloads like backup, archiving, compliance and disaster recovery.

- **Telemedicine.** Taking care of a patient—or enabling the patient to take care of themselves—after they leave the hospital or care facility is becoming a big part of the wellness and convalescence models practiced by many healthcare providers and systems. Telemedicine is marked by such functions as real-time collaboration, user self-service and secure access to patient records, which align well with cloud services such as IaaS, PaaS and Unified Communications as a Service..

- **Analytics.** This is one of the biggest opportunities for healthcare organizations looking for predictive tools to improve healthcare outcomes, spot areas of financial improvement and better align with dynamic changes such as new healthcare service delivery methods, patient demographics, industry regulations and competitive shifts. Analytics requires not only big investments in infrastructure and software tools, but also in data science expertise that usually is better found in an experienced service provider. Cloud storage, IaaS and Security as a Service offerings help deliver the right environment for clients looking to develop a cloud-based analytics model.

Don't Go It Alone—Evaluating, Selecting and Working with the Right Partner
As this paper has pointed out on numerous occasions, the stark reality is that just about all healthcare organizations are straining to maintain the pace of IT service delivery to their constituents with limitations on staffing and budgets. This means that more and more organizations are looking for experienced partners to provide the necessary planning, implementation skills and management capabilities to help healthcare organizations smartly adopt cloud technologies and migrate workloads to the cloud.

One organization that has a deep and broad set of skills and experiences in helping healthcare organizations leverage the benefits of cloud services is Connection (formerly known as the PC Connection Inc., family of companies including PC Connection, GovConnection, MoreDirect and Softmart). As a national solutions provider, Connection brings a wide range of skills, experience and capabilities to any relationship with healthcare organizations looking to make the best use of cloud-based resources. These include:

- **Vendor-neutral approach** to technologies and supplier brands. Connection's vast experience in all segments of the IT industry has exposed it to hundreds of different suppliers across the full spectrum of technology solutions. This enables Connection to make the best recommendations of different cloud services and supporting technologies without any vendor-centric biases.

Healthcare's journey to the cloud typically ends in some form of hybrid cloud architecture.

- **Business-centric approach** to recommendations, rather than trying to force-feed a specific technology solution to all healthcare customers. Connection's experienced consultants are steeped in healthcare industry knowledge, from workflows and business processes to regulatory requirements. Connection starts with a discussion of the organization's key business goals, such as reducing infection rates, limiting patient readmissions, facilitating point-of-care service or improving payment times.

- Deep expertise in **security and patient privacy,** which is becoming the most important aspect of any healthcare organization's overall mission after the actual delivery of healthcare itself.

- Keen understanding of **which workloads should—or shouldn't—be moved** to the cloud, as well as how, when and why to migrate those workloads. Rather than taking a blanket approach to cloud for the healthcare industry, Connection's approach is customized on an engagement-by-engagement basis.

- How to deploy and manage a broad set of **healthcare technology tools,** such as practitioner-centric mobility, bedside care technology, analytics and Internet of Things-based smart devices.

Add in Connection's Cloud Practice, covering such areas as storage, disaster recovery, desktop as a service, security and other services, and it's clear that Connection offers healthcare organizations a broad and deep set of skills and solutions to help them determine which workloads could—and should—be moved to the cloud.

Conclusion

Healthcare organizations' reliance on information technology has never been greater, and it is highly likely to actually increase due to inexorable trends in compliance, predictive analytics for improved healthcare, the need to deliver new services to patients in and out of the facility and the need to control both capital and operating expenses.

To keep up with these and other demands for IT-driven services, healthcare organizations have accelerated their adoption of a wide variety of cloud services for applications, hardware infrastructure and various other IT functions. Healthcare's journey to the cloud typically ends in some form of hybrid cloud architecture that blends the best of both worlds—agile and cost-efficient cloud services with tried-and-true in-house systems.

The healthcare IT leaders that have done the best job in managing their organization's strategic use of cloud services are those that have done sufficient due diligence in evaluating, selecting and working in lockstep with experienced national solutions providers that have proven expertise in healthcare and all related technologies, including cloud.

The most successful healthcare companies are those that have adequately prepared themselves for engaging with their solutions provider.

In particular, the most successful healthcare companies are those that have adequately prepared themselves for engaging with their solutions provider as part of a highly collaborative, mutually beneficial relationship. In the early discussions between healthcare IT professionals, their business counterparts and solutions providers, all parties can get on the same page in terms of goals, expectations, processes for identifying and overcoming challenges and key success metrics.

Connection has demonstrated its skills in helping healthcare organizations deploy and leverage technology for a host of different applications and workloads, and has helped them make strategic use of cloud services from early-stage planning to ongoing management and process improvement.

For more information on how Connection works with healthcare organizations in their journey to the cloud, please visit **www.connection.com/cloudpractice.**