cloudticity

Public Cloud: RX for EHR

Eight things that healthcare executives need to know

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To Cloud Or Not To Cloud

Electronic health records (EHRs) are the lifeblood of hospitals and other health-care providers, affecting everything from diagnoses and treatments to billing and research initiatives. EHR systems are complex and expensive, with implementations in some cases costing over $1 Billion.

Therefore, healthcare executives can be forgiven for questioning something as potentially disruptive as moving their EHR system to the cloud. To make an informed decision, they need as much information as possible about the pros and cons of the move.

This eBook focuses on the inherent advantages of the cloud over on-premises data centers. Some of the topics are specific to EHR, while others are more general. However, understanding the general characteristics of the public cloud is an important first step in making major decisions in the healthcare setting.

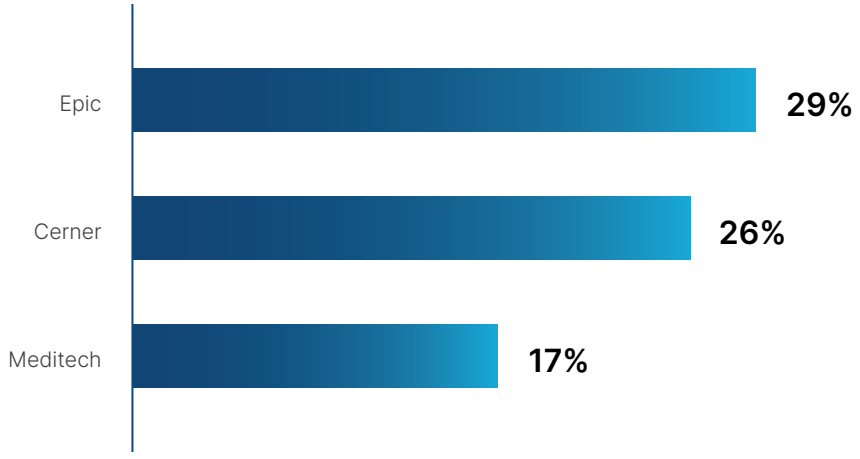

Figure 1. Top EHR Vendors by Market Share[1]

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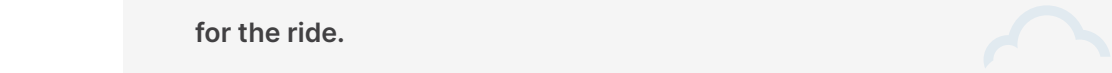
The Case for Public Cloud

When your organization is considering a move to the cloud, that decision must involve stakeholders both within and outside the IT organization. Knowledge of cloud can vary greatly around the executive table, from excellent (CIOs and CISOs) to rudimentary (e.g., many CFOs). This section provides a non-technical introduction to key concepts and benefits of the public cloud using the analogy of transportation:

Imagine that you live in San Francisco and have two primary options for your daily commute: your Smart car and Muni, the local public transportation authority. Each method does the job but they vary greatly in terms of cost, control, security, and scalability in ways that are conceptually similar to the cloud.

1. Pay As You Go

Today, you commute to work on Muni, the local transit authority. Your out-of-pocket expense is just the price of the ticket. Muni bears the one-time investment expense of purchasing the buses and trains and ongoing expenses for salaries, utilities, and maintenance. But that doesn't impact your pocket book — you're just along for the ride.



Public cloud has analogous economics. When you use the public cloud, you only pay for the resources (rides) that you actually use — usually by the hour. The cloud provider (Muni) invests in their own data center equipment such as servers, storage units, and routers (buses, trains, and tracks) and also pays the ongoing costs of staffing, utilities, and maintenance.

Tomorrow, you decide to drive. In this case, you don't have to pay a fare because you own the means of transportation. However, like Muni, you have to put out money: capital investment to buy the car and ongoing expenses such as insurance, fuel, repair, and more. It takes a lot of traveling to get to the point where the cost per kilometer of driving is less than riding the bus.

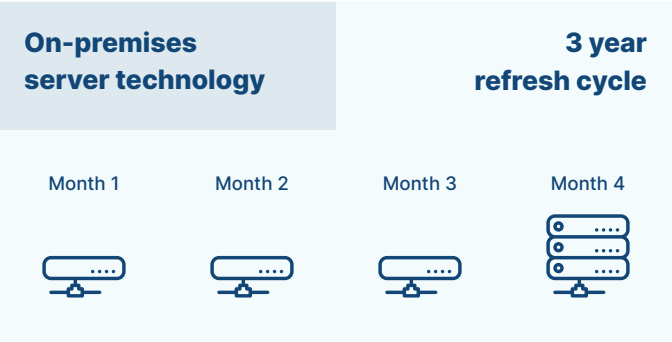
If you opt instead for an on-premises data center (driving), you have to buy the equipment (car) and pay operational cost (insurance, fuel, repair). Strictly in terms of the impact on the budget, public cloud (riding Muni) beats an on-premises data center (driving your own car) hands down.

Bottom line: Public cloud lets you pay by usage and avoids the need to invest in capital equipment.

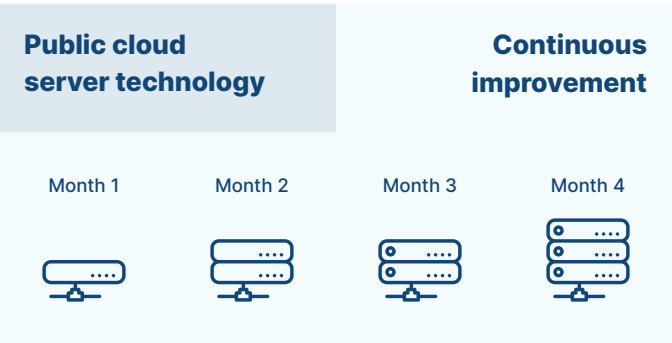
2. Keep Up With Technology

Six months ago, you purchased a new Smart car to minimize your carbon footprint and save on fuel. Smart introduced a new electric car model that is markedly better for your commute and the environment. However, it doesn't make economic sense to sell your almost-new car and buy the new electric Smart. To get a good return on your investment, you need to keep your current car for years.

In an on-premises model, it can be prohibitively costly to keep up with technology advances. Organizations typically replace on-premises servers every three to five years — an eternity in the fast-paced world of computing technology. When you own the technology, you are always playing catch-up.



Cloud providers take the opposite approach. They adopt new technologies as they are introduced and quickly make them available to their customers as a competitive differentiator. Therefore, cloud users can access new technologies soon after they are introduced. For the cloud service provider, keeping up with technology is part of their business model.



Bottom line: Public cloud makes it easy to keep up with computing technology.

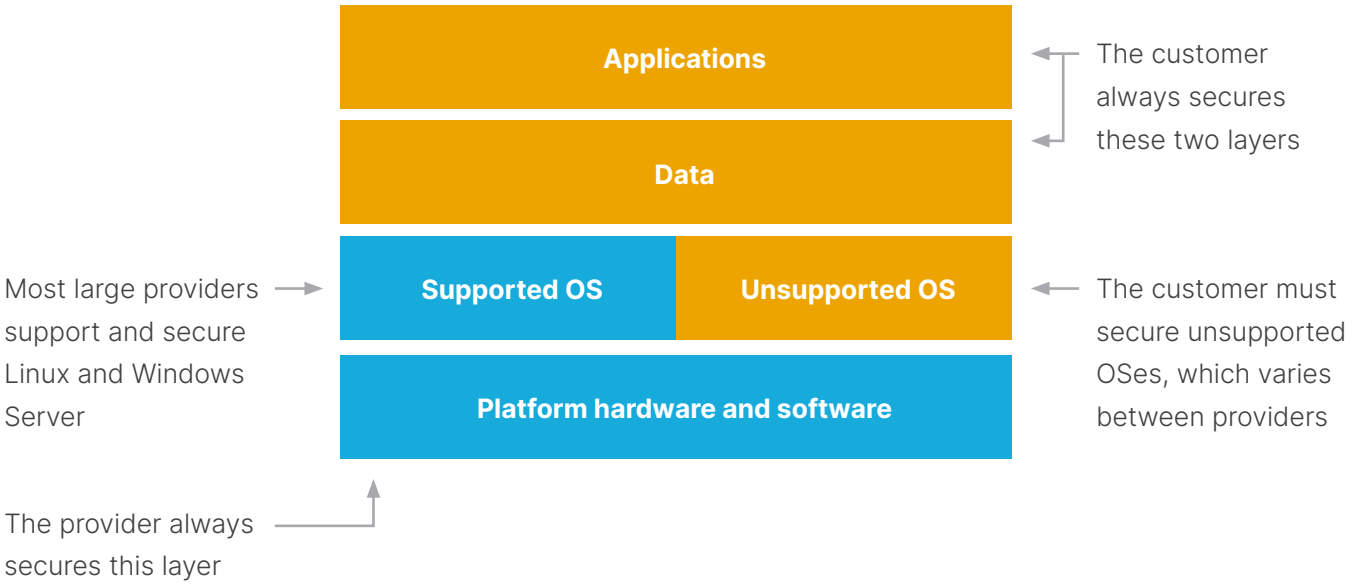
3. Team Up for Security

When you drive your Smart car, it's up to you to protect it from theft and damage. You have options: insurance, car alarms, tire locks, and more. You also have to make sure that valuables such as credit cards and smart devices are hidden. At the end of the day, you, the car owner, are 100% responsible for the security of the vehicle and everything in it.

In contrast, the responsibility for security on a bus or train is shared between you and the transit authority. Muni has physical barriers that discourage unauthorized access, cameras to identify problems, and security staff to maintain a presence on the buses and trains. However, you still have to watch out for your own valuables. A safe ride requires both you and Muni to do your respective parts.

Cloud providers use an analogous shared responsibility model. The provider secures the platform (bus), that is, the hardware and software that power the cloud and, in most cases, the operating system too. Securing applications and data (valuables) falls to the customer. This partitioning makes sense because each party is responsible for securing the part that they own and over which they have control.

Is the public cloud secure? Absolutely, and it's not hard to see why. Cloud providers have the most experience with sophisticated attacks and can attract top security talent. Most importantly, your public cloud provider has a lot at stake — a single high-publicity data breach can cost the provider millions in lost revenue and damages, not to mention the significant reputation hit.

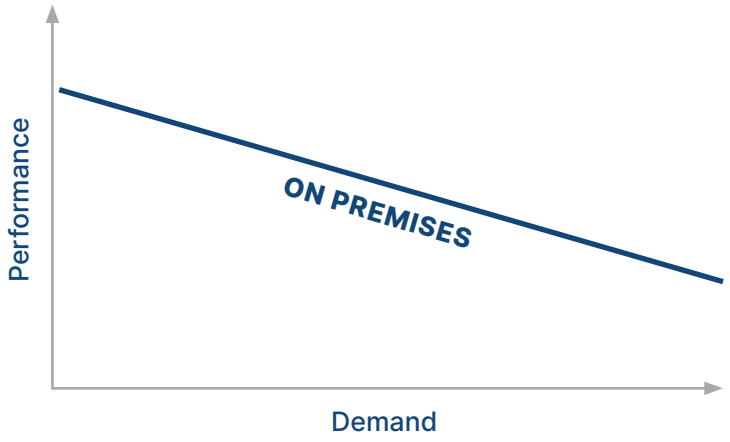


Bottom line: The public cloud platform is more secure than on-premises data centers.

4. Scale With Confidence

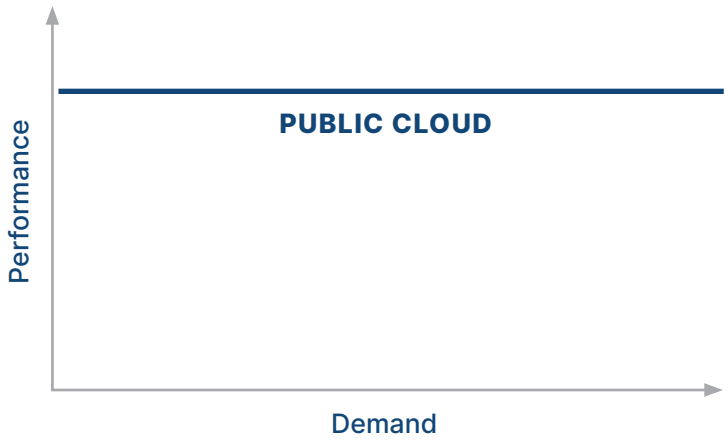
Suppose a relative moves in with you unexpectedly. Your transportation requirements just went up dramatically but your capacity didn't—you still only have one car. Buying another car is expensive and takes too long. So you just ferry them around in your car, which is cost effective but slows down everything else you need to do.

That situation has a close parallel in the data center, as many telemedicine providers and healthcare organizations recently discovered to their dismay. When Covid-19 drove up demand for remote video visits exponentially in just days, companies with on-premises data centers didn't have enough time to buy and install new equipment to meet the increased demand. Unfortunately, performance often worsened to the point where it degraded the patient and provider experiences and damaged the brand.



Imagine a rock concert in the city with 40,000 people in attendance, many of whom rely on public transportation. The scheduled buses and trolleys would be overwhelmed, but Muni always has extra buses and trolleys in the yard and drivers on call. When the concert is over, they simply roll out more stock. Problem solved.

The Covid-19 experience was completely different for those providers who had their applications and data in the public cloud. These forward-looking organizations were able to scale in minutes by taking advantage of the provider's vast reserves of computing power and storage facilities. As a result, these companies suffered little or no degradation in application performance and continued to deliver services as before. The takeaway is that the cloud scales much better than on-premises data centers.



Bottom line: Public cloud scales better with essentially infinite resources

5. Improve the Healthcare Experience

More than ever before, patients and staff expect providers to take advantage of technology to streamline care processes and improve outcomes. Providers are working to improve the patient and staff experience with advanced technologies such as natural language interactions, 5G-based mobile apps, sophisticated analytics, and artificial intelligence and machine learning.

Access to patient information is a key element in creating a positive patient experience. Patients have a right to view their healthcare information, but fulfilling that obligation can be a drain on hospitals and clinics. Self-service portals can greatly streamline the process while ensuring tight security for PHI.

Another way to improve the patient experience is through telemedicine, which allows clinicians and patients to interact without the time and effort required for face-to-face visits. Covid-19 resulted in a step-function increase in demand for remote care, which convinced many telemedicine providers to move their applications to the public cloud to gain virtually unlimited scaling.

TELEHEALTH COVERAGE DURING COVID-19

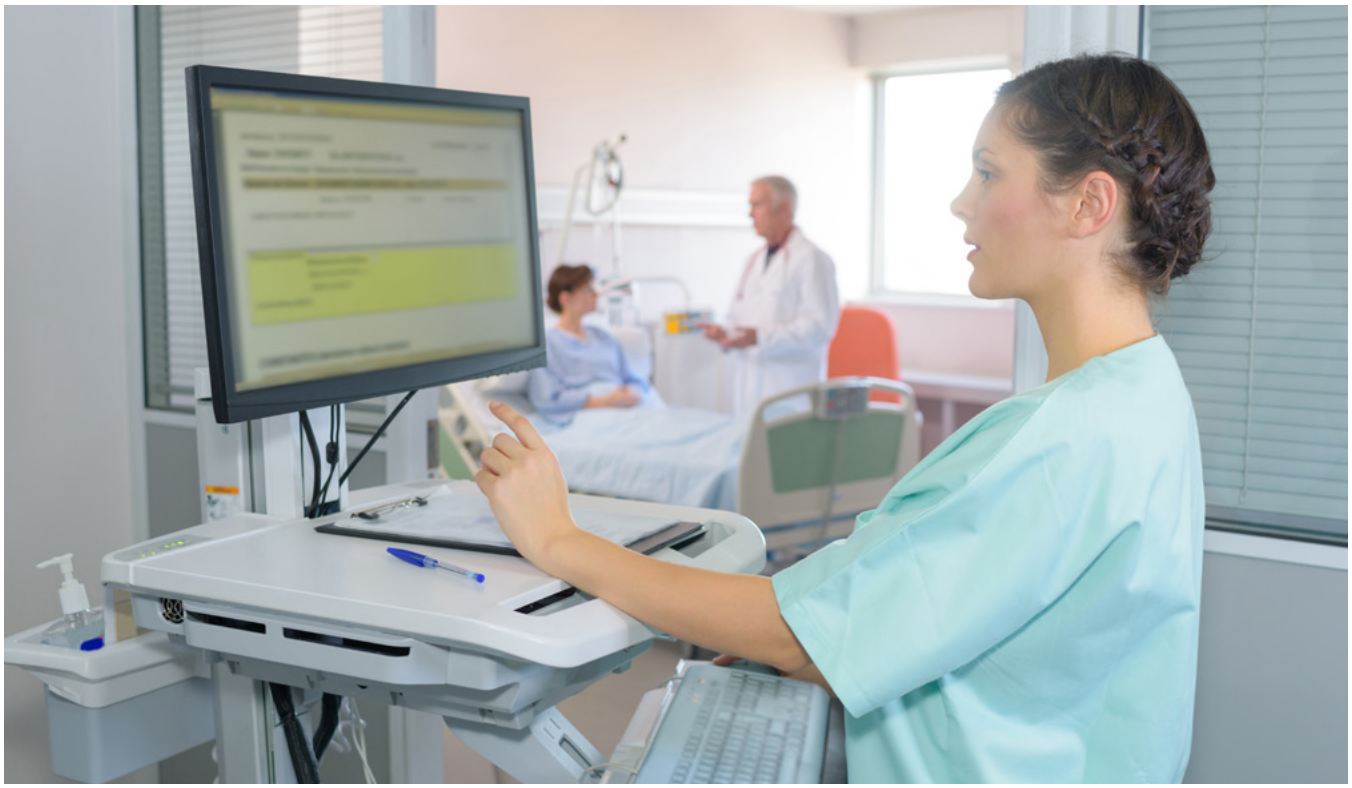
In 2015, Nemours Children's Health system launched an initiative to incorporate telehealth into their EHR system. That investment paid off big in 2020. Demand for remote visits increased 2200% almost overnight. However, the cloud-based system was able to keep up with the demand. The use of video visits surged during Florida's stay-at-home order, when nearly 70% of clinical visits took place via telehealth.

Bottom line: Public cloud drives improvements in the healthcare experience

6. Speed Up Innovation

Developers often need to create specialized environments to test their software code. In an on-premises data center, this process involves the IT department, which can take days or weeks. In the public cloud, developers can spin up a new environment in just minutes using the provider's self-service portal, perform their tests, and easily tear down the environment. Public cloud not only speeds up the development process but also enables developers to try lots of alternatives quickly, leading to innovative products.

Major cloud providers offer hundreds of cloud products that can aid software development. Developers can use these off-the-shelf modules instead of coding from scratch, shortening time to value and improving the quality of applications. This service is particularly helpful in adopting new technologies such as artificial intelligence, virtual reality, and robotics



For example, suppose your organization wants to develop a self-service system to allow patients to access their EHR information without human intervention. Such an endeavor can seem daunting to developers who may not be familiar with technologies such as voice recognition, automated conversations, and semantics parsing. However, all of these functions are readily available from major cloud providers, which greatly simplifies the developer's task.

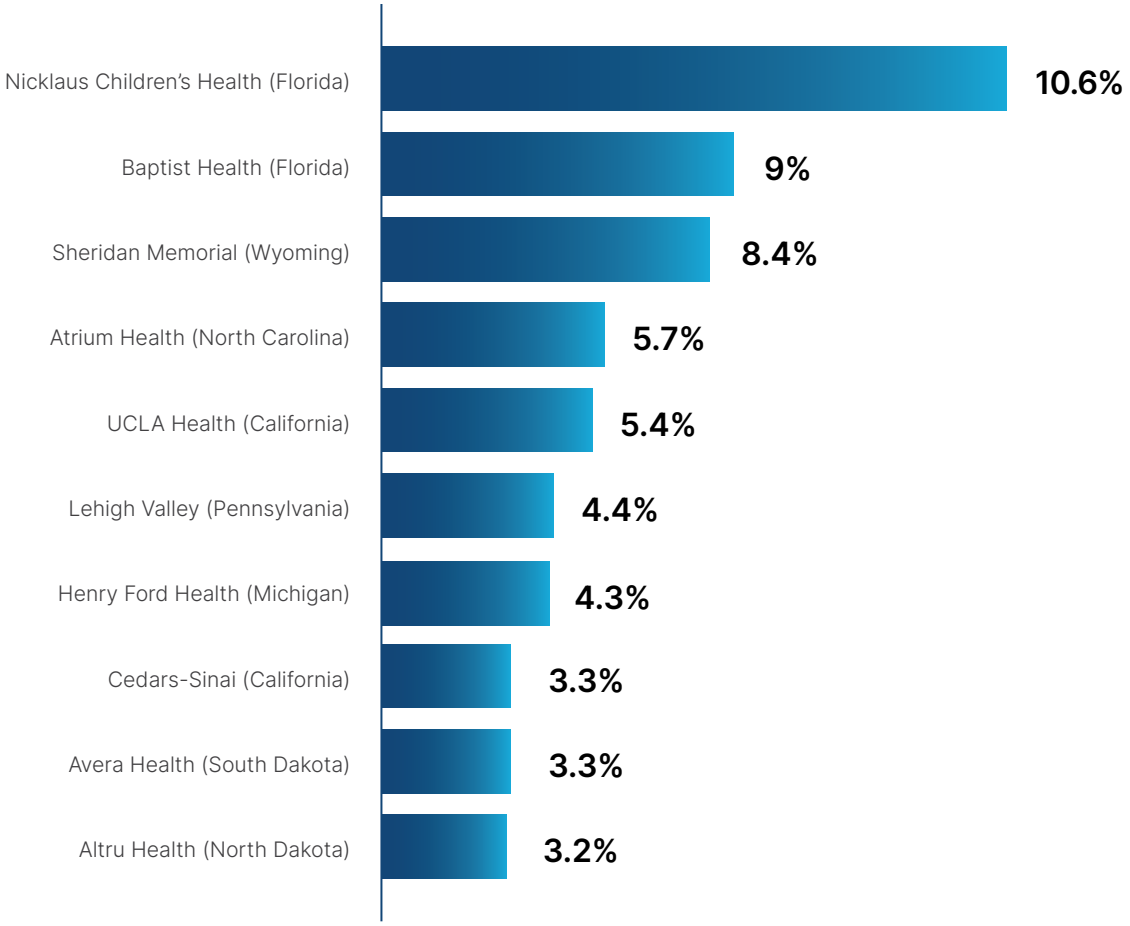


Figure 2. Most technologically innovative U.S. hospitals by percentage of budget dedicated to IT[2]

Bottom line: Public cloud makes developers more productive and accelerates innovation

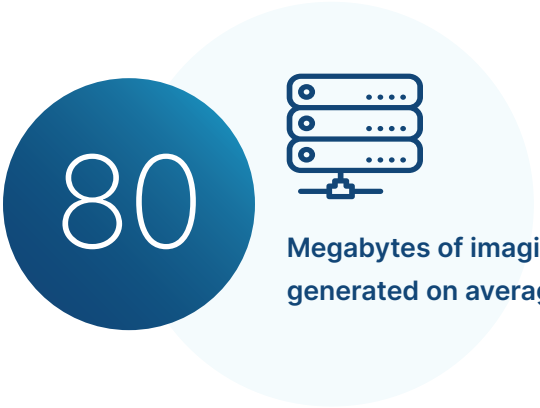
2 Chime Healthcare's Most Wired 2019

7. Know Your Customers Better

Hospitals and other healthcare organizations have mountains of data on their patients, from EHRs and clinical records to billing and appointment histories. In principle, this information can be analyzed to build a comprehensive picture of each patient to improve care delivery and foster loyalty. However, before you can analyze the data, you have to find it. Patient information is often stored in different systems or silos, which makes it hard to work with in a coherent way.

Data lakes are one promising answer to this problem. Why lakes? Because a number of information streams flow into this single unified repository. Data lakes aren't new, however, building them in the cloud has advantages such as unlimited storage, global access, reliable performance, and platform security. Data lakes automatically standard incoming data using machine learning techniques, which greatly facilitates analytics.

A data lake helps you combine data from the range of applications in a healthcare environment and open up a new world of insights into your organization. Patient falls can be researched by combining medical histories with building maintenance logs. Supply usage can be optimized using invoices and inventory reports. Patient populations can be studied and combined with organizational and environmental data to inform public health initiatives. The more you know, the more you can accomplish. The cloud can help educate you.



Bottom line: Public cloud helps you unlock the insights hidden in your vast volumes of data.

8. Get Down to (Your) Business

If your hospital hosts an on-premises data center, you're in the information technology (IT) infrastructure business. And you'd better be good at it, because critical aspects of patient care and staff safety depend on the IT infrastructure operating smoothly around the clock, every day of the year. Managing IT infrastructure for healthcare organizations is strictly for experts — don't try this at home.

Hospitals with on-premise data centers are forced to devote scarce resources such as capital investment, technical staff, and executive oversight to decidedly not healthcare-related initiatives such as upgrading servers and maintaining a disaster recovery site. For most healthcare executives, IT is neither their passion nor their training. They want to focus on issues such as improving clinical outcomes and delivering healthcare to populations — not IT infrastructure (see below).

Your organization likely chose on-premise because there were no plausible alternatives at the time. Now you have options, so it makes sense to take a second look. Transitioning key parts of your operations from the data center to the cloud not only saves money and improves operations but it does more. It frees healthcare executives to focus on what they're good at — delivering services in the most effective and efficient way possible.

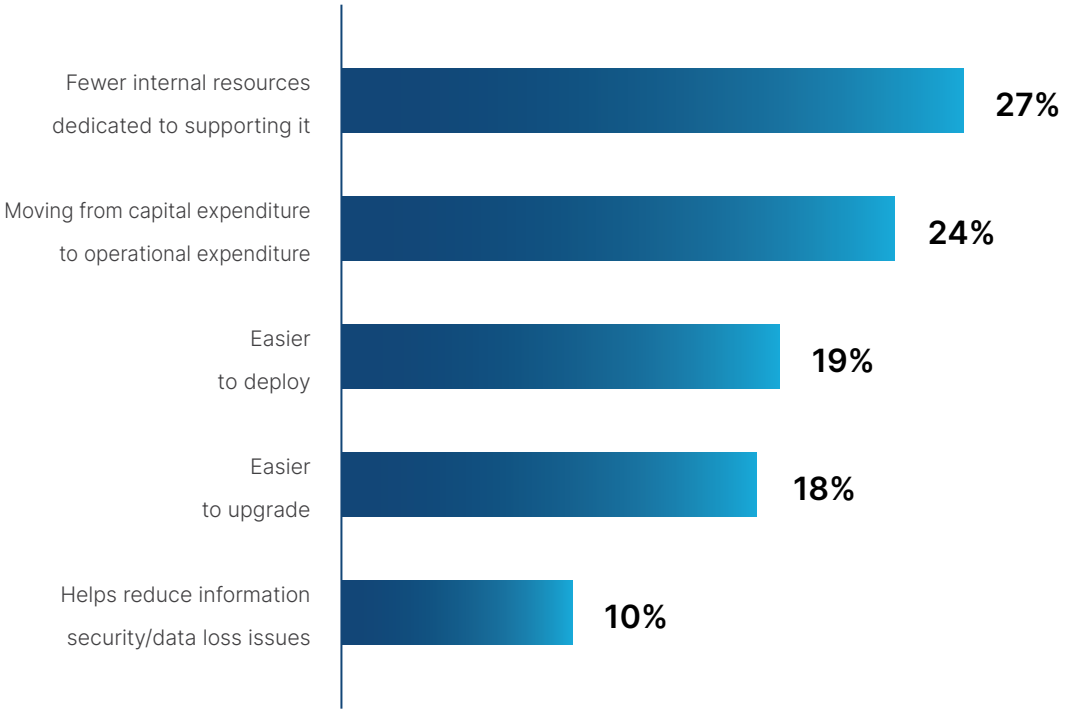


Figure 3. Advantages of cloud over on-premises, survey results[3]

Bottom line: Public cloud takes away the hassle of managing IT infrastructure.

3 Reaction Data

The Bottom Line

When it comes to healthcare organizations, the public cloud has significant advantages over on-premises data centers. To review the key points from this eBook:

1. Public cloud lets you pay by usage and avoids the need to invest in capital equipment.
2. Public cloud makes it easy to keep up with computing technology.
3. Public cloud is more secure than on-premises data centers.
4. Public cloud scales better with essentially infinite resources.
5. Public cloud makes developers more productive.
6. Public cloud drives improvements in the patient experience.
7. Public cloud helps you unlock the insights hidden in your vast volumes of data.
8. Public cloud takes away the hassle of managing IT infrastructure.

About Cloudticity

Cloudticity is a digital enablement partner for the healthcare industry generating measurable business and clinical outcomes by unlocking the full potential of the cloud. Through groundbreaking automation and deep cloud expertise, Cloudticity solutions empower healthcare organizations to create and scale the next generation of healthcare solutions.

Distinguished for having built some of the earliest and largest health systems on the cloud including

- The first patient portal
- The first health information exchange (HIE)
- The first and only FISMA high deployment on AWS GovCloud
- The first Meaningful Use 2 (MU2) compliance attestation for a large hospital system.

Cloudticity transforms healthcare IT into a driver of business and clinical value. For more information about how Cloudticity can help with your public cloud migration, visit us here.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