An EMR in the Cloud: A Perfectly Plausible and Perhaps Preferable Possibility for Small Medical Practices

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Accelerating Healthcare Revenues

Table of Contents

1. Visions of the Cloud: From Dream to Computing Model

> "Aren't the clouds beautiful? They look like big balls of cotton... I could just lie here all day, and watch them drift by... If you use your imagination, you can see lots of things in the cloud formations... What do you think you see, Linus?"
>
> *Charlie Brown, Peanuts character created by Charles M. Schulz*

Cloud. The word often takes on a dreamy quality, making the puffs in the sky seem more illusory than tangible. So, a few years ago, when the information technology world started to use the word "cloud" to describe a network of remote servers hosted on the Internet and used to store, manage, and process data in place of local servers or personal computers, many thought of the concept in the same unreal terms.

Fast forward to today and it is becoming clear that the cloud is, in fact, a very real computing model that holds significant potential for health care organizations, especially for physician practices.

Indeed, the cloud has become an increasingly common choice in healthcare.

Consider the following facts:

- Nearly seven out of 10 small and solo physician practices have affirmed their confidence in electronic health records in the cloud, according to a recently published survey by Black Book Market Research. In addition, 83% of the 5,700 small and solo medical practices surveyed by Black Book™ in 2015 confirmed that the single biggest trend in physician technology is cloud-based EMRs.[1]
- The adoption rate of cloud-based EHRs in small practices in urban settings has increased from 60% in2013 to 82% in 2015.[1]
- 83% of IT executives reported that they are currently using cloud services, according to the 2014 HIMSS Analytics Cloud Survey. [2]
- Growth of the cloud is strong. While only 4% of healthcare providers adopted the cloud in 2011, use of the vertical cloud is now growing by 20% annually, according to MarketandMarkets. By 2017, the researchers predict, healthcare organizations will spend $5.4 billion on cloud services.

The question for small physician practices, however, is still a very pragmatic one: Is cloud computing the right option for you?

To know if the cloud is the right choice, medical group practice leaders need to understand the cloud and explore the pros and cons of this computing model from a variety of perspectives including technical, security clinical, and cost.

Learn more at:

1. Black Book Market Research
2. 2014 HIMSS Analytics Cloud Survey
3. MarketsandMarkets. Healthcare Cloud Computing Market worth $9.48 Billion by 2020.

2. What Exactly Does 'Cloud' Mean?

What exactly is the cloud? According to the National Institute of Standards and Technology [NIST], "cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

Compared to conventional solutions such as installed software, cloud computing is uniquely defined by the following five characteristics:

- **On-demand self-service:** Any resources, from vital business functions to basic e-mail, are available to all users at practically any time
- **Agility:** Upgrades can be made and applied across the network on one instance of software
- **Broad network access:** Availability is ensured, since access is not dependent on location and can be performed through a standardized device, such as a PC or tablet
- **Resource pooling:** Many users can access the same tools and functions at one time
- **Rapid elasticity:** Compared to a traditional computing infrastructure, a cloud-based network can easily scale, accommodating and responding to a rapid increase in the number of users and spikes in demand [1]

2.1 Various Types of Cloud Computing

1. **Web-based cloud services.** These services enable users to exploit certain web service functionality, rather than using fully developed applications.

2. **Software as a Service (SaaS).** This is the idea of providing a given application to multiple users and providing accessibility through a browser.

3. **Platform as a Service.** A variant of SaaS, users run their own applications but on the cloud provider's infrastructure.

4. **Managed services.** This is perhaps the oldest iteration of cloud solutions. In this scenario, a cloud provider utilizes an application rather than end-users. So, for example, this might include anti-spam services, or even application monitoring services.[2]

Learn more at:

1. NIST. Final Version of NIST Cloud Computing Definition Published.
2. Unitiv. Six Types of Cloud Computing

3. Assess Cloud Advantages

Main Advantage: Small practices simply don't have to deal with the technical end of computing. Listen to that sigh of relief.

Indeed, instead of requiring a team of IT experts to implement the system, all of the heavy lifting is performed by the cloud vendor. Updates also just happen automatically, making it possible to seamlessly run on the most up-to-date software versions, 24/7/365.1

The cloud also means healthcare organizations can operate sans physical servers, which necessitate the installation of hardware, software and expensive maintenance. These servers also have a limited time-span, requiring replacement as they age and/or as technology evolves.

Scalability also is less of a challenge for small practices that use cloud-based EMRs. In fact, with a cloud based system, your practice can pretty much add clinicians and staff members without breaking a sweat – or even expand to new locations. So, your practice can grow without the formerly requisite pains.[1]

Data also is better protected in the cloud. The use of fault-tolerant hardware and sophisticated, redundant data backups ensures that your EMR keeps chugging along – and will enable your clinicians and other staff to constantly assess the information they need.

Worried about Data Protection?

Cloud-based EHRs are deployed using fault-tolerant hardware and sophisticated, redundant data backups which ensures that your EHR keeps chugging along.

3.1 Defeat Discouraging Cloud Thoughts

Perhaps the most discouraging aspect of cloud computing rests in the fact that your practice might deal with performance issues due to slow Internet speeds. As a result, network latency – the delay before a transfer of data begins following an instruction for its transfer – can plague your users.

You can get the performance you need by meet suggested bandwidth requirements (see chart). Remember, though, that estimating bandwidth requirements is complex. In addition to using the suggested parameters as a guide, you should also work with your EMR vendor to determine specific bandwidth requirements.

3.2 Comply with FCC Bandwidth Recommendations

Facing slow connectivity on your Cloud-based EHR? Review your internet bandwidth with your vendor and check out the recommended bandwidth from Federal Communications Commission below.

Size of Organization	Recommended Bandwidth	Capabilities
Single Physician Practice	**4** Megabits per second	• Supports practice management functions, email, and web browsing • Allows simultaneous use of electronic health record (EHR) and high-quality video consultations • Enables non real-time image downloads • Enables remote monitoring
Small Physician Practice (2–4 physicians)	**10** Megabits per second	• Supports practice management functions, email, and web browsing • Allows simultaneous use of EHR and high-quality video consultations • Enables non real-time image downloads • Enables remote monitoring • Makes possible use of HD video consultations

Size of Organization	Recommended Bandwidth	Capabilities
 Rural Health Clinic (approximately 5 physicians)	**10** Megabits per second	• Supports clinic management functions, email, and web browsing • Allows simultaneous use of EHR and high-quality video consultations • Enables non real-time image downloads • Enables remote monitoring • Makes possible use of HD video consultations
 Clinic/Large Physician Practice (5–25 physicians)	**25** Megabits per second	• Supports clinic management functions, email, and web browsing • Allows simultaneous use of EHR and high-quality video consultations • Enables real-time image transfer • Enables remote monitoring • Makes possible use of HD video consultations[2]

Learn more at:

1. RevenueXL. Why is Cloud-Based EMR Better for Small Practices?
2. Federal Communications Commission. "Health Care Broadband in America." [PDF – 701 KB].

4. Stay Safe in the Cloud

When the cloud first appeared as a computing model several years ago, many potential users shied away due to security concerns. Ah, yes, we are often afraid of what we don't know. The fact of the matter is that the cloud can offer several security advantages to group practices (see chart).

	Four Ways the Cloud Makes Your EMR Data Safe
1	Host EMR companies typically have more sophisticated security than what your group practices could cobble tighter on its own.
2	Because technology companies are singularly concerned with providing a viable computing experience, they are well motivated to spend the time and resources required to better meet security requirements such as those promulgated through the Health Insurance Privacy and Accountability Act (HIPAA). Web-based EHR systems achieve HIPAA compliance through data centers with bank-level security and high-level encryption methods that render data unreadable — even if a security breach occurs. Client-server systems are often left unencrypted and only as secure as the room where they are stored.
3	Using cloud-based systems adds an additional layer of protection against any inclement weather or incidents that may occur at the facility that would prevent access and retrieval of the records. Indeed, most EMR hosting companies have multiple layers of security measures in place to protect data and provide high levels of support that are not normally possible for small clinics or solo practitioners.[1]
4	Cloud systems can be updated frequently. As such, their EHR systems protect against data breaches and new emerging security threats.

Did you know that Cloud based EHRs offer several security advantages to group practices and are in fact more secure than EHRs implemented in your premises?

4.1 Dealing with the Downside

While data stored in the cloud is relatively safe, it can be stolen or lost. When data in the cloud disappears, nothing more than vapors is left, and your practice will have no physical back-up of the information. Then what?

To better protect information in the cloud is as simple as 1, 2, 3:

- **Read your user agreement:** and make sure you understand exactly how the storage works. Remember, you are at the mercy of the vendor in terms of how and how often your data is backed up. Make sure you get the data protection terms that you want upfront.
- **Pay attention to passwords:** Don't use simple passwords that are easy to hack. And, please don't let your end-users use the same password for all of their accounts – email, social media, and the cloud-based EMR. And, of course, it's never a good idea to share or reuse passwords.
- **Be advised that there are tools that place virtual padlocks on data in the cloud – and these might be of value to your practice.** These tools are designed to add additional protection – and could be something worthwhile for some practices.[2]

Learn more at:

1. RevenueXL. Why is Cloud-Based EMR Better for Small Practices?
2. Ivey, V. Five tips to keep data secure on the cloud.

5. Reach for the Best in Clinical Care

With a cloud based EMR, it's much easier to access information when and where it is needed. As a result, your clinicians can get at patient information from a variety of locations via any device (computer, tablet, phone, etc.) that connects to the Internet. So, no matter where your physicians and other staff members are – clinic, office, home, coffee shop or even away on vacation – they can make informed patient care decisions around the clock, providing the high level of service to their valued patients.

Concerned with sky high costs associated with new or replacement EHR? Cloud-based EHRs cost less and allow practitioners and facilities to transition at a faster pace, even with customization.

With a cloud based system, patients can also access their own medical information. As such, patients become much more engaged in their own care. Cloud based EMRs with patient portals are especially helpful. Through portals, patients are able to review their own electronic health records, lab results, and messages. The portal can also be used for appointment reminders, checkup reminders, procedure dates, billing statements, and lab results. And, that's an important concept in this era of value based care, where everyone needs to work together toward achieving the best outcomes.

5.1 Dismantle the Drawbacks

Customizability is sometimes limited with cloud based EMRs. That's why it is important to choose an EMR that is designed specifically for your medical specialty. As such, the technology will be able to handle all of the intricacies and special needs of your practice.

In addition, when your practice uses a cloud based EMR, you might not be using the same system as the local hospital. As such, you should always make sure that it will be possible to share data with the hospital or other providers in the community.

5.2 Sky High Costs? Not with Cloud Computing

Your medical practice could pocket some serious savings with cloud computing – as the option is touted as a less expensive alternative for small groups. To start, you no longer need to worry about purchasing servers, hardware and software. And, the upfront costs for licensing are much less than typical on-site licensing costs. .

In addition, one of the largest hurdles for small medical practices is the initial cost of EHR installation. Client-server systems can cost $40,000 or more just to get set up.[1] The licensing fees, maintenance costs, updates and patches add in costs down the line.

Implementation of cloud-based systems speeds up the process and allows practitioners and facilities to transition at a faster pace, even with customization.

Learn more at:

1. Mosquera, M. Despite incentives, cost is a barrier to small provider EHR use.

6. Ask All the Right Questions

While cloud-based EMRs are a great alternative for small medical groups, you must remember that they are not all created equal. As such, you should ask the following questions to ensure that you are choosing the best cloud-based EMR

1 What happens when users are in a location that doesn't have Internet access?

While it's great to be able to connect to your EMR from any Internet-enabled device, you should also make sure that clinicians and other staff members can continue to use the EMR when no connection is available. The best solution is using an EMR that enables physicians and others to access templates and input data without an Internet connection. Once the device finds its way back to a connection, though, all the data is automatically updated in the system. As such, physicians have the ability to synchronize their laptops and other devices and create offline patient encounters.

It's best to look for a cloud based system that offers a synching feature that ensures that:

- The database from the cloud-based server is synced to a laptop
- The physician can synchronizes the laptop to set up a patient encounter offline
- When back in the office after a home visit, the laptop can easily re-sync with the server
- Load time is kept short, as the synchronization only looks for data that's different – whether it be new or modified and adds it to the server database

2 How does the patient portal engage patients?

Patients can use the portal to provide basic information, which dramatically reduces the number of forms they must fill out by hand. They may also receive appointment reminders and reminders for tests they need performed. These portals sometimes also allow patients to view test results and other medical information.

Does the system support electronic prescribing? Electronic prescription functionality saves patients and medical personnel a lot of time. Doctors can quickly transmit new prescriptions to patients' pharmacies, reducing redundancy and minimizing the risk of errors. Patients benefit too because their prescriptions are often ready to go by the time they arrive at the pharmacy.

3 Does the system offer usable templates and order sets?

Like most practices, yours probably often treats different patients for the same condition over and over. The right cloud-based EMR software lets you create templates and order sets, saving you time when tracking patient data and their treatments in the system. Much of the information is automatically populated, so less manual entry is required.[1]

4 Is the cloud-based EMR certified?

Practices must use a certified EMR to quality for incentive payments under the government's Meaningful Use program. Certification, however, now covers more than ever before. The 2015 edition of revised criteria for certified EHRs was enhanced to help ensure the technology is moving beyond the basic requirements of Meaningful Use and can support your practice's needs to communicate with other providers, technologies, labs, pharmacies and health information exchanges (HIEs). As such, using a certified EMR can help to assure that you are moving forward and can meet the goals of a value-based world.

Learn more at:

1. Seven Features to Look for in Web-Based EHR Software.

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