

# A cloud-based revolution in enterprise imaging

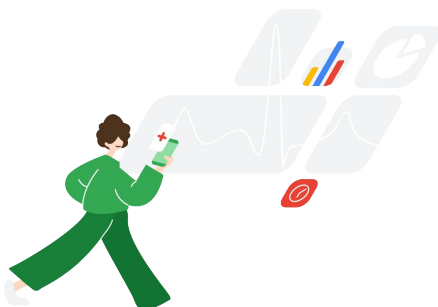
While medical images contain incredibly important patient information, they take up a great deal of space in hospital data centers. Cloud-native solutions for enterprise imaging consolidate this content within a single, system-wide strategy and architecture that's easier to keep current and less expensive to operate.

## Change Healthcare

Is working to inspire a better healthcare system through innovative clinical, financial, and engagement solutions that improve patient outcomes, regulatory compliance, operational efficiency, decision making, and the consumer experience.

Young people eager to listen to their favorite songs on portable players at home, at the beach, or in their car welcomed the invention of CDs with open arms. These days, music lovers are embracing the next revolution: cloud-based streaming services accessible from any device. But while CDs are fading into music's rearview mirror, they're still widely used in healthcare. Even today, providers share medical images with patients by burning them onto CDs, a technology that's almost 40 years old, because they have no way to provide secure access to images stored in their data center.

Companies like Change Healthcare are nurturing a cloud-based revolution in enterprise imaging. "Today, in many cases, we have silos for radiology, cardiology, ophthalmology, visible light solutions, and so on," explains Tomer Levy, Vice President of Engineering for Enterprise Imaging at Change Healthcare. "Enterprise imaging involves consolidating all of them under a single, system-wide strategy and architecture." This approach will not only increase the availability of imaging data for medical professionals and their patients, but also ease the on-premise storage burden for providers who today allocate 80 percent of their datacenter capacity to housing large medical images.



Understanding cloud expectations

To understand what healthcare providers expect from investing in the cloud, Change Healthcare surveyed its customers. Not surprisingly, the first expectation is to reduce both capital and operating expenses. “We know that trends in our industry are pushing revenues down—and therefore pushing cost structures down,” Levy says. Healthcare providers want to redefine the way they spend money on IT, for example, by migrating their electronic health record (EHR) solution to the cloud.

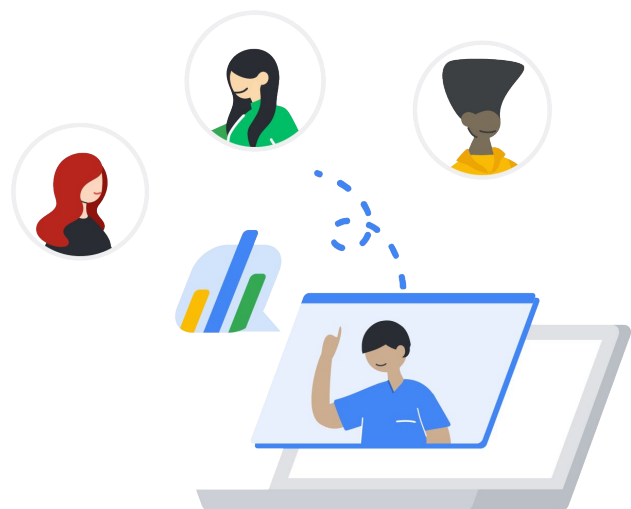
Secondly, providers expect cloud investments to improve clinical outcomes. Today, caregivers can’t collaborate securely and freely with imaging data that’s locked in silos and behind Virtual Private Networks. “Data access is one of the problems that healthcare providers are trying to solve when switching to the cloud,” Levy says. “If data is stored properly in proximity to infinite compute power, we expect artificial intelligence (AI) algorithms to allow providers to collaborate and share the information in much better ways.”

Providers also expect cloud adoption to simplify operations, particularly around system upgrades and maintenance. “Upgrading an EHR system or an enterprise imaging system is a very complicated and risky project,” Levy explains. For example, moving data because an on-premise storage solution is at end of life and no longer supported is a huge project that can take years. Once the solution is in place, then maintenance becomes a potential burden. “Cybersecurity requirements mean frequent updates to operating systems, which becomes a huge challenge for healthcare providers looking to simplify their overall operations,” Levy says.



Tomer Levy, VP of Engineering for Enterprise Imaging, Change Healthcare

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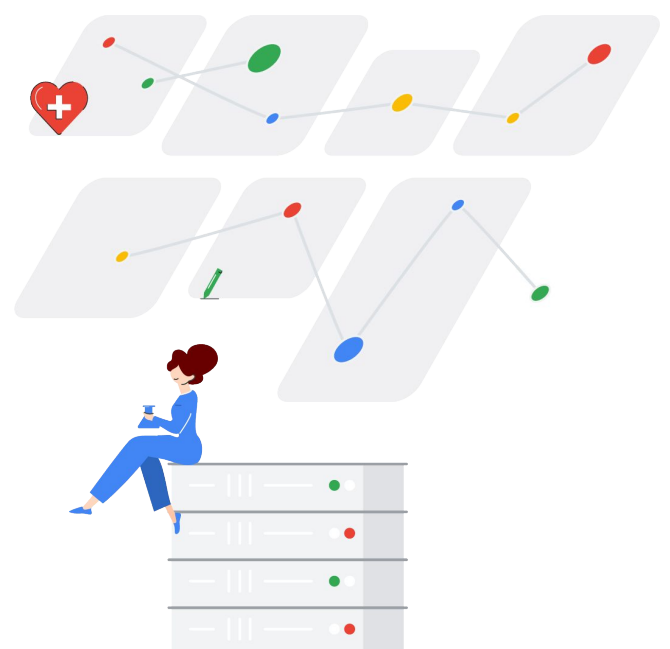
### Choosing a migration approach

Providers migrating enterprise imaging to the cloud have two approaches to choose from, Levy says. “One is the rehosting option, also called lift and shift, which is taking the existing enterprise imaging system—the one that was designed 20 years ago—and simply deploying it in the cloud. The other is to design the system differently—to offer a cloud-native or software as a service (SaaS) solution that’s ready for the cloud.”

The rehosting approach offers some financial benefit, in that “it eliminates CapEx and reduces some of the up-front investment,” says Levy. But he warns that using a system merely ported to the cloud, rather than designed for it, can actually be more expensive long term. “With cloud consumption models, you pay for what you use, but it becomes more challenging to predict your cost.” With a cloud-native solution, Change Healthcare can design resources for smart consumption that keeps costs relatively fixed over time.

The lift-and-shift option offers no data access improvements to help clinicians trying to improve outcomes. “There’s no way to leverage the data for AI, and you cannot really open the data for collaboration,” says Levy. To enable access to the patient EHR, Change Healthcare advocates a cloud-native or SaaS strategy over a rehosting strategy. “When you design the system properly, you can re-architect the way the data is stored and protected to open it up to access for multiple stakeholders, including patients.”

On the operational side, lift and shift offers “some advantages in cybersecurity and the ability to offload some of the management to the cloud provider, but it doesn’t give you the full operational benefits of a cloud-native solution,” Levy says. “When people move to the cloud, they expect the Gmail experience, zero downtime upgrades, and frequent updates, which they don’t get in a lift-and-shift transition because the system wasn’t designed for that purpose.” SaaS solutions that take advantage of cloud architecture naturally benefit from cloud operating models, which transfer many core responsibilities to the cloud vendor.



### Selecting an enterprise imaging vendor

Levy offers a checklist to help healthcare providers, when comparing enterprise imaging vendors, be able to distinguish those employing a native cloud strategy versus a “lift and shift” one:

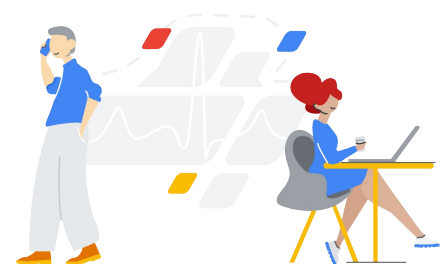
- Do they have HITRUST and SOC 2 certifications? Levy calls these standards “absolutely mandatory” when moving to the cloud.
- How often do they update the service? Updates should be more frequent than every quarter or six months, Levy says, particularly updates to strengthen security or patient safety.
- Is cost predictable? Moving to the cloud should generate operational savings in “less than a year,” Levy asserts. If it doesn’t, then the enterprise imaging vendor likely isn’t taking proper advantage of cloud benefits.

Adopting a cloud-native enterprise imaging solution can help providers reduce costs, improve care, and streamline operations for many years to come. “Cloud adoption is increasing within healthcare,” Levy says. “The combination of enterprise imaging and the maturation of cloud-native technologies represents an opportunity to disrupt the market as much or more than the digitization of medical imaging did 20 years ago.”



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