

---

## Volume 14, Issue 5, 2012 - Information Technology Special

### How the Cloud will Revolutionise Sharing Medical Image Data

---

#### Improving Cost Effectiveness and Patient Outcomes

As the global healthcare landscape undergoes monumental change, healthcare IT is becoming a primary enabler of collaboration and cost management. Medical imaging, particularly the ability to move imaged data to the cloud, will create an opportunity for integration of existing technology into a new paradigm. Technological advances, such as the move to digital rather than analogue, are changing medical imaging as an infrastructure, with the potential to create cost savings within the organisation. The challenge is how providers can maximise their imaging systems in order to deliver additional services others cannot provide.

#### Providers Face Long-Term Issues with Imaging Technology

The use of imaging technology in medicine has exploded since the 1970s, with the introduction and spread of sophisticated CT and MRI systems. As the technologies have moved to digital formats, they create vast amounts of digital image data. While this has revolutionised diagnostics and treatment, it has brought its own problems—the cost of the latest equipment, the volume of image data to be stored and the proprietary nature of the imaging systems used. Throughout 2010, five billion imaging studies were conducted worldwide and a study can include anything from three to 30 images.

Vendors who create the software and hardware used for imaging equipment do so based on knowing the diagnostic problems that need to be solved. But their use of proprietary tags on the imaging data also makes it difficult and very expensive for practitioners to move to a different vendor's products, even if the capabilities to be gained will provide substantial benefits to patients and doctors alike. The cost of data conversion can be prohibitive all by itself, and practitioners ought to avoid maintaining two or more databases with incompatible formats that would make it impossible to maintain one set of records per patient. For example, administrators at a major university hospital in a European country recently solicited proposals for migrating their information to a centrally managed cloud-service. They had encountered the dilemma of whether to pay their imaging technology vendor a sizable fee to cleanse the data of proprietary tags, so the data could migrate to the new system, or to stay with that vendor's platform even though it would limit their ability to use the data in the future.

In addition, many hospitals today are faced with the growing expense of being required to maintain records for a longer time than they planned. When participating in care studies, for instance, they were paid once for that participation, but now need to maintain the data for 20 years. The problem is even larger for studies using images. The files don't get smaller, they only get bigger, leaving practitioners with terabytes, if not petabytes, of data they have to maintain.

#### Cloud Solutions Provide Answers

Among the many pressures facing the healthcare industry, reducing costs without impacting patient care remains at the top. A major emphasis in some global healthcare reform efforts is to increase the availability of medical data to several constituencies, which requires standardised access and the ability to exchange health data through electronic medical records. Cloud solutions can provide that shared access.

Economies of scale in sharing data are not available to individual hospitals or practices in the current siloed environment. Cloud solutions offer economic survival through a "buy what you use" structure that lowers the cost of accessing and archiving data-intensive images. Separating the data from proprietary imaging systems also allows importing data from, and exporting to, other sources, whether or not the data was generated by the same imaging technology. Practitioners can consider new vendors in the future without being trapped in specific data architecture.

Moving medical imaging to the cloud solves the question of long-term viability for both information and budgets, since the data will remain in place and accessible regardless of the imaging vendor. In fact, by separating the data from the specific applications and platforms, providers will be able to consider new technologies without being concerned that they are backing the wrong horse. This helps create a new, cost-effective clinical infrastructure — an important consideration at a time when costs are becoming one measure included in criteria of the quality of care delivered to patients. Finally, by using data-centric rather than platform-oriented solutions, practitioners can use superior cost performance and streamlined infrastructure to capture a larger share of the healthcare market.

#### Bring on the Revolution

Cloud computing will revolutionise the sharing of patient medical data and improve both health outcomes and providers' bottom lines. Those who move first to capitalise on this potential will find themselves rewarded with greater operating efficiency and larger market share. Those who don't will find themselves unable to serve their patients effectively.

© For personal and private use only. Reproduction must be permitted by the copyright holder. Email to [copyright@mindbyte.eu](mailto:copyright@mindbyte.eu).

**Authors:**

**Derek Danois**

Senior Executive  
Medical Imaging Lead  
Accenture Health

**Frederick Klauschen**

Institute of Pathology Charité  
University Charité Berlin  
Berlin, Germany

Published on : Fri, 22 Mar 2013