



Healthcare Industry Profile

Industry Overview

Today's healthcare organizations experience constant pressure to manage, transport, store, and process growing and increasingly complex patient data. Much of this data comes from two applications that are bringing healthcare to a digital environment: Picture Archiving Communication Systems (PACS) and Electronic Medical Records (EMR).

PACS is used as the primary application to manage digital images, while EMR is the primary application interface for aggregating patient data from multiple ancillary applications. Both systems remove mass volumes of analog film x-rays and paper medical records. The new digital environment improves patient care with more timely, more secure, and easier access to patient data.

PACS is one of the most demanding applications for a healthcare organization to support. It is a combination of application, database management system, Web services, and storage media. Digital imaging services are expanding exponentially in the areas of:

- Patient encounters
- Specialties that use the imaging technology
- Image size, as well as quantity of images, used in a study

This expansion of imaging services requires PACS and the supporting data center infrastructure to scale beyond the radiology environment and across larger, more diverse and distributed environments. (PACS is a good example of how the Cisco® healthcare data center architecture can support customers' burgeoning requirements. The same approach supports EMR as well.)

The following changes within the healthcare industry have mandated a focus on the data center model:

- Caregivers still need to interact with patients and deliver information in real time although they may be separated by a city, state, country, or continent.
- The elimination of manual paper and analog media requires a highly available digital environment. Business-continuity and disaster-recovery architectures must be integral components of digital imaging.
- More users are involved in the interpretations and patient care processes, requiring more complex image routing and patient data access.

Target Decision Maker

TDM (Primary) CIO, Director of MIS/IT/IS

BDM (Secondary) Director of Technology/Infrastructure, Director of Applications, Director of Radiology, Director of Cardiology, COO

Customer Challenges

The PACS and EMR applications make intensive demands on the infrastructure. Once confined to individual departmental access, imaging services now touch every provider's department and clinical specialty, and extend beyond the hospital or clinic to other organizations, domestically and abroad.

EMRs pull data from all applications and aggregate it into a common view. Clinicians access the data from multiple sites and media. Installing PACS and other advanced digital imaging services and EMRs has become the standard for patient care, creating a set of new challenges:

- Managing higher image volumes and larger/more complex image studies
- Facilitating collaboration via multiple communication tools
- Managing patient data security between separate organizations and environments
- Managing data across multiple applications and data stores

Challenges by Title

TDM:

- Provide resilient infrastructure and secure, large-scale imaging and application operations
- Secure access to patient data by authorized users
- Provision secure and highly available data
- Scale PACS across the WAN
- Manage the growth and complexity of images
- Expand imaging into multiple clinical disciplines

BDM:

- Manage disjointed operations and complex consultations
- Make images accessible for sharing, including with referring physicians
- Reduce operating costs
- Improve team collaboration and communications during image workflow
- Improve quality of care and patient and staff satisfaction

Cisco Healthcare Solutions

Solution Name	Solution Level	Description	Cisco Technology	Benefits
Connected Imaging	3	<p>PACS, imaging, and EMRs are the most infrastructure-intensive applications in healthcare today, each driving investment in core and unified communications.</p> <p>With average deal sizes of \$300,000–500,000 and a \$200 million addressable market for Cisco by 2010, the opportunity for Connected Imaging is outstanding.</p> <p>Cisco Connected Imaging enables secure, scalable imaging services that improve productivity and collaboration while lowering costs across the workflow. The solution includes:</p> <ul style="list-style-type: none"> • Medical Image Infrastructure Architecture • Collaboration and Reporting 	<ul style="list-style-type: none"> • Wide Area Application Services (WAAS) • Cisco MDS 9000 Series switches • Network Admission Control (NAC) • Cisco GSS 4400 Series Global Site Selectors • Cisco ASA 5500 Series Adaptive Security Appliances • Firewall Services Module (FWSM) • Application Control Engine (ACE) 	<ul style="list-style-type: none"> • Improved image management • Shared collaboration between physicians and radiologists • Improved business continuity and disaster recovery • Virtualized storage environment • Enhanced PACS performance • Simplified, centralized network management • DICOM services improvement with intelligent image routing • Reduced costs • Improved security

Solution Level Definition:

Level 1: Cisco Technology with industry value proposition

Level 2: Cisco Technology with partner validated architecture and deployment

Level 3: Cisco Technology with Cisco Validated architecture and deployment

Probing Questions

Below are key questions for guiding a conversation with a healthcare CIO, helping you uncover customer issues that can be addressed by Connected Imaging.

1. Do you have a multi-vendor PACS environment and can you access images from all the systems easily and in the same manner?
2. Are you implementing or expanding your EMR environment?
3. Do ordering physicians have the ability to access images and patient data easily and securely from multiple locations?
4. Do clinicians have to log in separately to multiple applications due to proprietary PACS architectures?
5. How easy is it to share an image with an ordering physician and collaborate on the consultation if the physician is outside of the hospital?
6. How are modalities protected from security threats and have you thought about the costs associated with downtime of modalities due to security threats?
7. Do you have a scalable and cost-effective solution for short-term and long-term PACS storage?

More Information

For more information on Cisco in the healthcare industry, visit www.cisco.com/go/healthcare.

For more information on resources available to Cisco partners in the healthcare industry, visit <http://www.cisco.com/web/partners/sell/industry/healthcare/index.html>.



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