

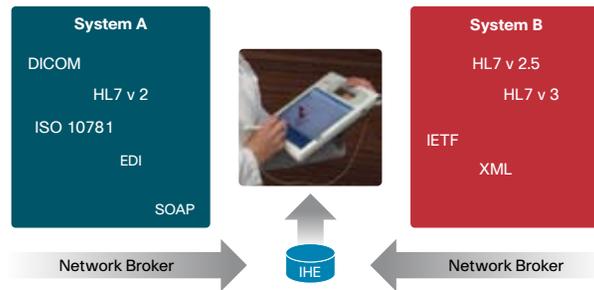
Enabling Patient-Centric Records

Patients today often receive care at multiple facilities, resulting in individual medical records at multiple locations. Often, patient records are stored at the clinic where they were acquired, for instance medication records at a local pharmacy and lab results with a primary care provider. As a result, exchanging medical data between healthcare providers has become increasingly challenging, poorly coordinated, and expensive. Worst of all, the quality of care patients receive can be put at risk.

Cisco, together with Tiani-Spirit, has created the Cisco® Medical Data Exchange Solution (MDES), an integrated end-to-end, standards-based solution that enables patient-centric access to medical records. It enables interoperability and access of patient data among multiple healthcare providers and locations utilizing the Integrating the Healthcare Enterprise (IHE) frameworks. Now providers can quickly and easily access and review a patient's medical data gathered by different applications and stored in separate locations (Figure 1). Cisco MDES helps address several key healthcare issues such as:

- Limited access to clinical patient information
- Increasing costs and inefficiencies of healthcare services
- Improving quality of patient care and experience

Figure 1. MDES Enables Patient Centric Access



Cisco Medical Data Exchange Solution

Cisco MDES allows publishing, discovery, and retrieval of patient information, including lab reports, imaging documents, physicians' notes, and other data. In addition to making medical information patient-centric, it pulls data from multiple sources so Electronic Health Records (EHR) are available at the point of care.

Figure 2. MDES Solution Components



Cisco MDES is based on open standards from the global IHE medical data exchange and is powered by Cisco components that improve network performance and overall security (Figure 2). The Tiani-Spirit application runs on the Cisco Application Extension Platform (AXP) inside Cisco Integrated Services Routers.

The solution is the interoperability component of the Cisco Medical-Grade Network (MGN). Using a federated data distribution architecture (Figure 3), patient data is accessed using local systems and not copied to central systems. Cisco MDES connects general practitioners' systems, pharmacy software systems, and hospital information systems. Now patient data can be stored and accessed without having to make or manually transport copies to multiple locations.

Unlike other solutions, Cisco MDES does not need a centralized data center or database for the information, making it much easier to deploy, scale across large environments, and incrementally integrate systems. MDES aligns with the Patient Identifier Cross Reference (PIX)

Leading global software solution for IHE based medical data exchange



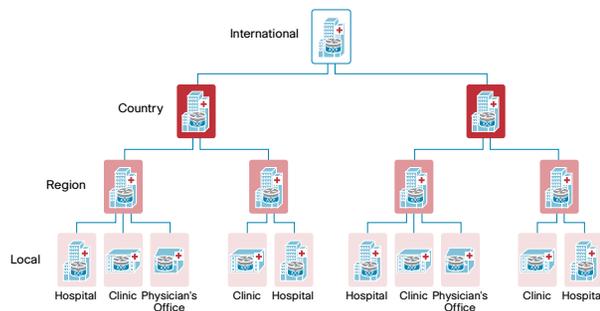
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Improving Patient Care with the Cisco Medical Data Exchange Solution

profile to enable indexing of a patient's records across multiple sites. The capability to access records using the Cross Document Sharing (XDS) framework enables access to records without the need to copy records to each site. With both PIX and XDS support, the MDES architecture is a virtual environment for patient records that improves care while reducing costs. The MDES architecture, as depicted in Figure 3, provides a highly redundant and scalable environment.

Figure 3: Federated Data Distribution and Scaling



For sites without an electronic medical record or system, the MDES provides a viewer for accessing records. This capability, in a thin-client applet, expands the range of record access to sites not on an organization's native system.

The Cisco MDES solution allows providers to limit access to records to only those providers with the appropriate authorization. It implements confidentiality policies through the Audit Trail and Node Authentication (ATNA) framework that outlines authentication into systems and transmission of highly secure Protected Health Information (PHI).

Cisco Medical Data Exchange Solution Benefits

Better patient care and treatment:

- Faster access to records reduces patient waiting.
- Improved collaboration between healthcare providers results in better and faster diagnosis and treatment.
- Ability to review remote results or medical history prior to the patient's appointment means more efficient use of clinician time.
- More complete view of patient records reduces the incidence of duplicate and unnecessary tests.

Patient-centric collaboration and communication:

- Automated, streamlined workflows improve access to information with fewer errors and give healthcare providers fewer interruptions.
- User-friendly interface reduces training time and speeds time-to-use.

Efficient IT infrastructure:

- Cisco MDES uses existing infrastructure instead of a separate server for lower total cost of ownership and higher return on investment.
- Cisco's integrated load balancing and virtualization helps ensure fast storage and retrieval of records and enables a highly scalable environment.
- The need for costly, proprietary interfaces is reduced as the solution is tested in the global IHE "Connectathon" twice annually against all possible integration profiles with the leading 100 healthcare IT vendors.
- All data is in the router with built-in security, where it becomes an IHE "secure node"; data is only accessible with a certificate and is encrypted.

Why Cisco

Cisco's mission is to improve data safety, access, productivity, and affordability through the deployment and adoption of interoperable networks, as well as developing solutions that help to transform the healthcare industry and patient care.

Cisco MDES operates over the Cisco Medical-Grade Network, a highly secure and scalable framework that meets the unique needs of the healthcare industry. The standards-based architecture supports the secure management of patient data, giving healthcare providers patient-centric access to data, results, and reports as well as improving workflow and operations for increased productivity and cost-effectiveness.

In addition, Cisco works with leading healthcare and technology partners to deliver innovative healthcare solutions including Cisco Connected Imaging, Cisco Care-at-a-Distance, Cisco Clinical Workflow, Cisco Healthcare Technology Foundations, and Cisco Smart Healthcare Facility.