

PACS / EMR

Archive, Retrieve, Analyze Visualize

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- Accountable care organizations (ACOs)
- The specter of bundled payments
- Paradigm shift to value-based purchasing.
- Declining reimbursements
- Centers for Medicare & Medicaid Services (CMS) is pushing radiology to become more outcomes-based
- As the field continues to change, there's a worry that radiology will shift from being a revenue-center to a cost-center

Created a need for the practice/field to demonstrate its quality, efficacy, and efficiency.

To do that, many radiology practices are turning to analytics as a way to use factual data to show the benefits they offer

Analytics on aggregated radiology data helps in analyzing and measuring a number of key metrics across the imaging value chain.

- ✓ Identify issues and bottlenecks in workflow and minimize inefficiencies
- ✓ Monitor performance against benchmarks and making improvements in the quality of care
- ✓ Draw insights and correlations from vast amounts of radiological data (For example, by analyzing tumor data in oncology, physicians can assess the impact of certain drugs for a specified population.)
- ✓ Ordering of studies
- ✓ Protocoling
- ✓ Acquiring the images
- ✓ Reading
- ✓ Report distribution
- ✓ Tracking outcomes and satisfaction
- ✓ Patient's history of radiation dosage, covering the type of scan, body part, machine, location, date, etc
- ✓ Avoid repeat scans or reduce the number of needed scans.
- ✓ Identify ordering patterns and equipment utilization: identify the degree of usage
- ✓ Especially in multisite practices, this allows appointment schedulers to direct patients to facilities with lower utilization, thus reducing patient wait times

Meta Data Analysis

1. Based on Metadata (time stamps)
2. Information on turnaround times
3. Imaging volume
4. Types/frequency

Radiology report analysis

1. Text analysis via natural language processing technology (NLP)
2. Quality metrics,
3. Outcomes analysis,
4. Medicolegal risk evaluation
5. BI data that can be used to optimize revenue.
6. Patient's gender can be incorrectly identified in radiology reports. AI NLP can help.
7. Large percentage of patients who do not receive the follow-up imaging studies recommended by radiologists in their reports.
8. Find all of the cases where follow-up was recommended, and then find all the cases that are overdue

Access to Archive over web / mobile

Facilities have the obligation to maintain copies of all images for the purpose of

1. Comparison studies
2. As evidence in malpractice suits
3. And to comply with statutory requirements for record retention.
4. Medicare and most states require that all medical records be maintained for at least five years
5. Some states impose fine for failure to retain images
6. Extended period storage for
 - Mammography
 - Cases related to toxic exposure
 - Minor patients

Compression (ACR)

1. Under the direction of a qualified physician' with radiologists
2. Ratio & Technique configurable by radiologist
3. Lossless and irreversible(long term) compression
4. Irreversible compression will be noted when images are displayed
5. No reduction in clinically diagnostic image quality
6. The benefits of compression are not being realized fully in the PACS community.
7. No lossy compression for Mammography

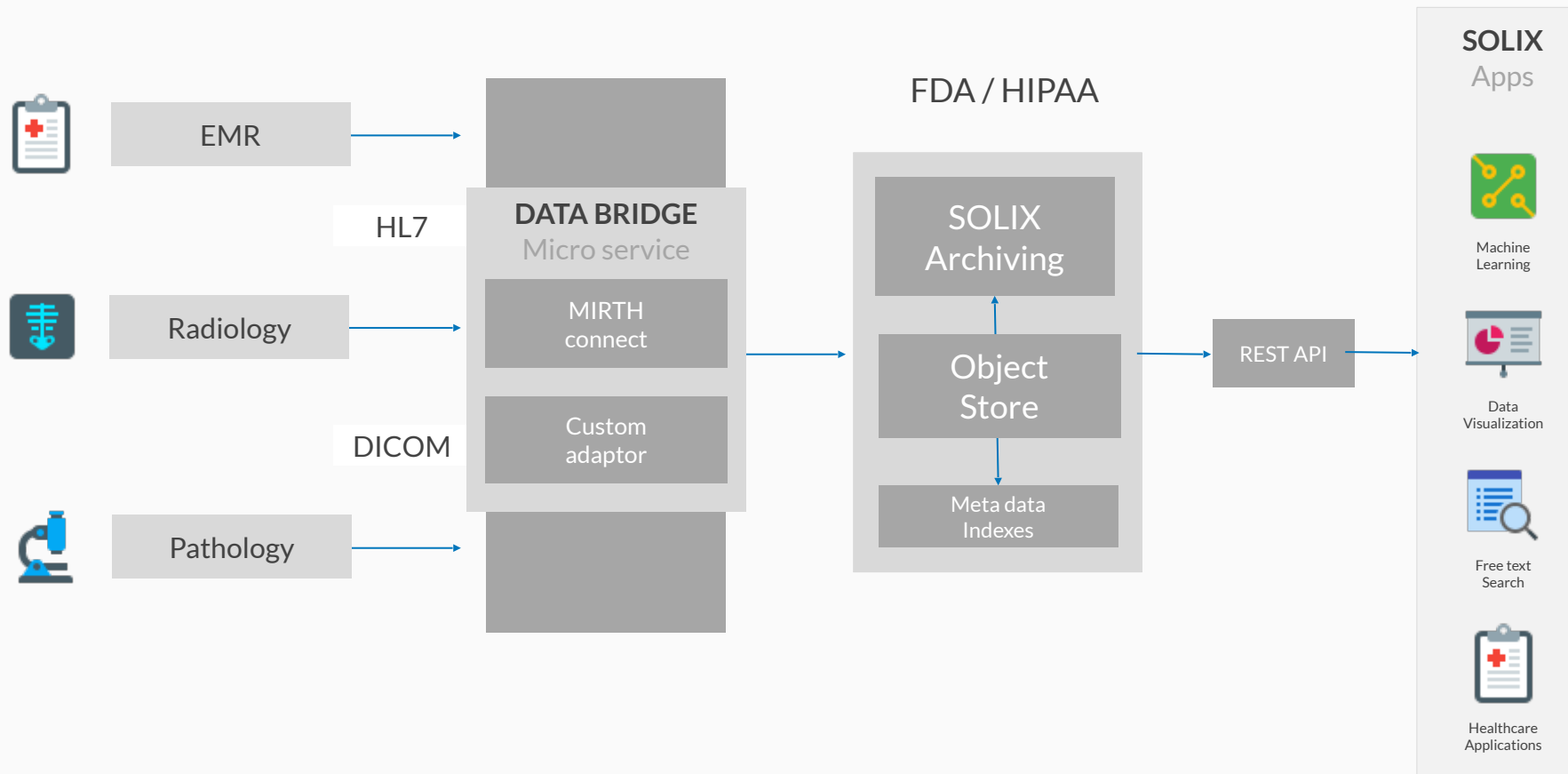
Clinical analysis

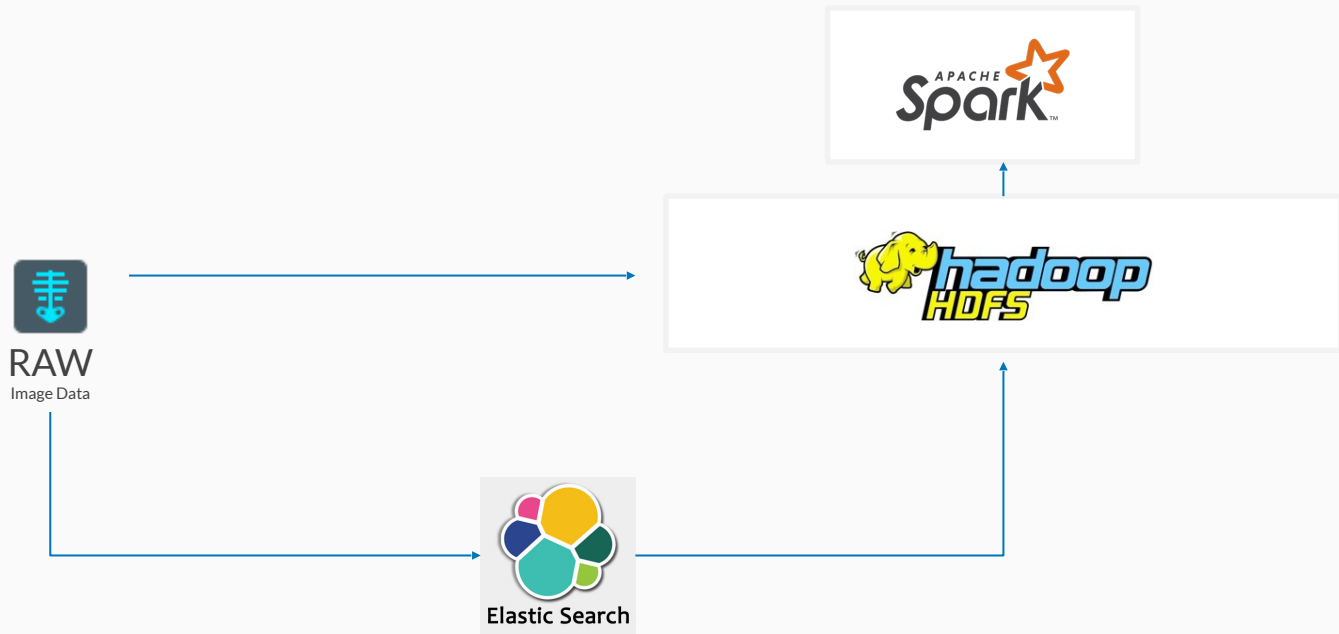
1. Radiation dose monitoring (ACR recommends using analytics)
2. Types of scans and body parts
3. Connecting dots -- radiologists to referring physicians to see how services contributed to patient care
4. Integrated view of clinical and imaging data to increase the effectiveness of clinical decisions at the point of care

Business Insights

1. Patient turnaround times
2. American College of Radiology (ACR) suggests analyzing patient wait times from registration through exam completion to identify whether there are any opportunities for improvement.
3. Equipment types
4. Equipment usage volumes
5. Use of analytics in Staffing and scheduling, quality initiatives, revenue cycles, and any governance initiatives
6. Proactive partner in meeting any federal government push for improved patient care

PACS ARCHIVING





1. Image data gets extracted and indexed in elastic search
2. The native image format is saved in HDFS system along with the index
3. Elastic search is used to find image and data.
4. The raw image location is retrieved from the elastic search and the image will be rendered from HDFS



API First Approach

Enables increased agility and reduces development time, leverage data and grow ecosystem



Interoperable Data

Solix solution provides a accelerated path to data interoperability across care teams



Smart Apps

Unlock and leverage health data to enable smart and adaptive apps for multiple devices and form factors



Security

Stringent file and data transfer security standards using SSL and access control list



Compliance

The infrastructure if fully HIPAA and FDA compliant without compromising on performance



Availability

All the data / API / image objects will be available 24 / 7 via CDN over zones

Global summary dashboard

Ability to analyze and visualize data at a global summary level

Individual patient history

View a complete history of a patient medical data. This visualization uses time lines to render data in a specific time order

PACS Image Viewer for mobile and web

Solix health app can render the medical images on a web or a mobile device.

