

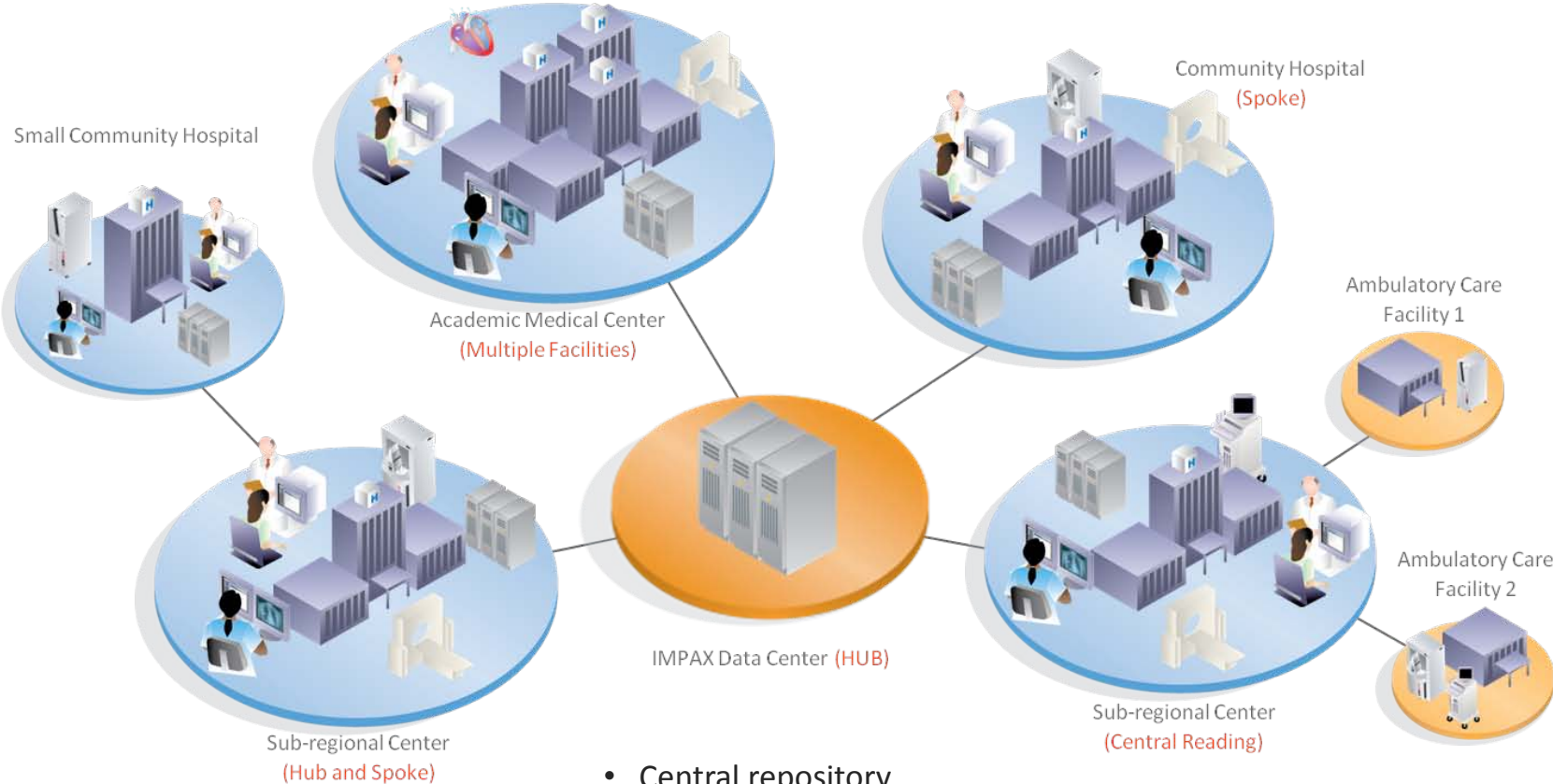
DI-r: The Vendors' Approach, Challenges and Hurdles

Medical Imaging Informatics and Teleradiology
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Disclosure

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- Radiology Solution Manager for **Agfa HealthCare**, a global supplier of imaging & informatics solutions, including 12 DI-R's in Canada

Typical Canadian DI-R deployment



- Central repository for access, exchange
- Designed for BC, DR

Technical Challenges – Data Normalization

- Patient Identity Normalization
 - eCID / MPI Number
 - IHE PIX (Patient Identity Cross-referencing)
 - Localization
- Terminology Normalization
 - Relevancy rules / Procedure Codes / Anatomic Regions
 - Lack of proven standard
 - SNOMED CT

Technical Challenges – Systems Integration

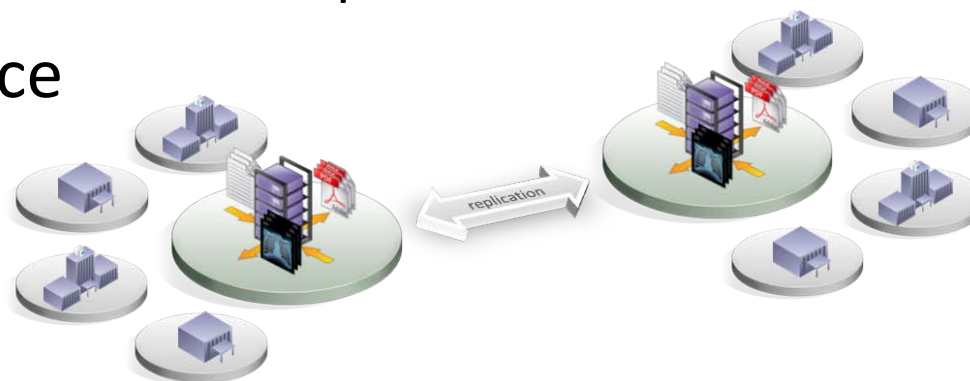
- HL7
 - Reports
 - Orders
- DICOM
 - IHE KIN (key images), CPI (markups) and SINR (reports)
 - Study Instance UID management
 - Synchronization of structural changes of DICOM study
- XDS-I
 - XDS-I Imaging Document Source/Consumer, XDS Document Repository: Local PACS vs. DI-R

Technical Challenges – Local RIS/PACS Workflow

- Timing of publishing of information to DI-R
 - Early: High probability of Q/C events (splits, deletes, segments) to be managed
 - Late: Delayed access to the longitudinal record
- Discovery and Access of the longitudinal imaging record
 - Local PACS vs. DI-R Viewer
- Foreign Data Management
 - Policies to store / purge foreign information
- Pre-fetching
 - Trigger: DI-R vs. Local PACS
- PACS Archiving
 - Routing vs. Store & Remember

Technical Challenges – Infrastructure

- Business Continuity / Disaster Recovery
 - Failover and Recovery
 - Data Integrity
 - Uptime
 - Replication: Storage Level vs. Application
 - Upgrades
 - Physical deployment: Hosted vs. Hospital
- Scalability / Performance
 - Future growth ready
 - Stateless server farms



Technical Challenges – Security

- Provider Identity
 - DICOM Limitations (user context typically missing in DICOM association—*who* is querying?)
 - Orders (string of text in HL7 vs. unique identity)
- Access Control
 - Reliance on local RIS/PACS systems capabilities
- Patient Consent
 - Lack of proven standards (IHE Basic Patient Privacy Consents)
 - Multi-system multi-organizational complexity
 - Legislative differences across Canada (e.g. default opt out vs. opt in)

Technical Challenges – Enterprise Distribution of Imaging Record

- Web 2.0 vs. Traditional PACS Viewer
- Security and Access Control
- IT impact: download vs. browser only
- Speed



No Client Install, Any PC, All Images



Non-Technical Challenges

- Governance
 - Ongoing Joint Operations Committee: Vendor & Project Constituents
 - Single Authority – representing key interests
 - SLA, Acceptance Testing
- Change Management
 - Stakeholder communication
 - Impact on Hospital's staff and workflows
- Project Delivery
 - Stakeholder management
 - Mutual Trust
 - Planning and Proactive monitoring
 - Prepare for and deal with delays

Future

- Cross DI-R Sharing
- Leveraging DI-R Assets for other clinical domains
- Pan-Canadian EHR

