

## INTEROPERABILITY CASE STUDY

### CROSS ENTERPRISE DOCUMENT SHARING (XDS.B)

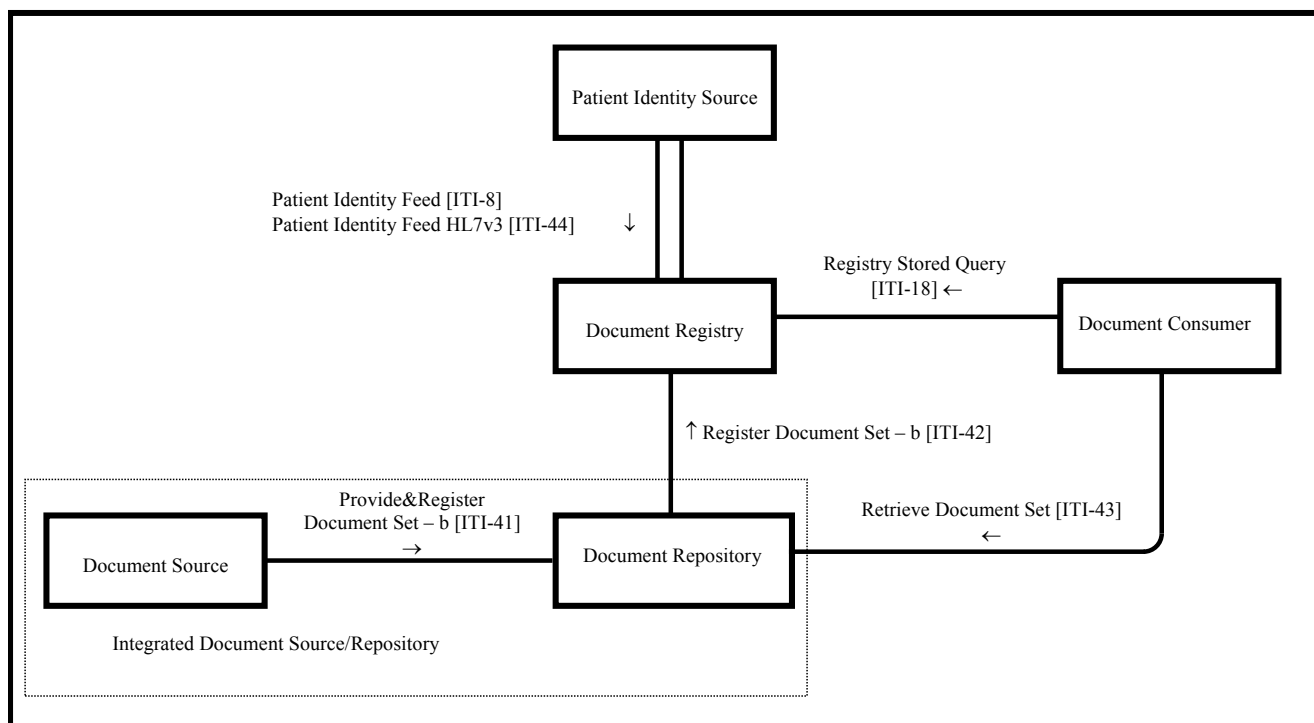
**Scenario:** Our client was having multiple health care provider endpoints that generate patient data in multiple formats (medical interventions and progress notes generating variable amounts of textual data, lab tests generating datasets of information and results, radiology appointments generating countless imaging records, etc). Different applications are required to generate and consume all data synchronously and asynchronously.

**Problem:** The client was facing the common key issues that every health care system faces, ranging from data integrity, security, interoperability, reusability and extensibility, to performance and scalability.

**iLink Solution:** Microsoft Connected Health Framework, along with the Cross-Enterprise Document Sharing-b (XDSb) standard, provide us with the tools, practices and strategies to solve these issues in our health systems portfolio, while maximizing the reuse and life of existing systems.

It also provides us with guidelines on how to:

- Maintain patients' health record's integrity
- Build a lifelong health history for a patient from information stored in multiple diverse systems
- Manage access, identity and authorities
- Identify a patient (or a healthcare professional) uniquely and reliably
- Make different systems on different platforms understand each other
- Interconnect diverse systems and how to make them interoperate
- Communicate with remote systems
- Reuse legacy systems
- Achieve flexibility and agility
- Achieve performance and scalability



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**Solution Architecture:** The architectural guidelines provided by the Connected Health Framework has given us the foundation to achieve a seamless experience to the user.

**Service Orientation:** By having service-oriented, standards-based, decoupled systems we ensure loose coupling between the different modules and subsystems, and guarantee that the SOA best practices for systems integration are followed. Leveraging the advantages of Windows Communication Foundation services for connecting distributed systems, we defined explicit interfaces across boundaries using WSDL, putting together a set of autonomous services that can be deployed, versioned and managed independently. The messages exchanged between transactions are explicitly defined using XSD Schemas, while defining policies and behaviors that govern the exchange of those messages through WS-Policy definitions and WCF behaviors.

**Federated Data:** Regardless of the location for the patient data, which can be spread out across multiple endpoints and repositories, the federation strategies provided by the CHF architecture allows us to access all our patient information. Having a centralized patient identity feed, implementing a common registry for document metadata and location, and accessing documents across dispersed repositories, are some of the strategies outlined by XDS and implemented at our project.

**Federated Security:** Having multiple systems often means having many authentication & security schemes in place. XDS gives us guidelines to have a centralized Patient Identity Feed, which provides clearinghouse services for all our segregated patient identifiers. XDS also allows us to leverage the capabilities defined by the Audit Trail and Node Authentication (ATNA) profile, and have a basic auditing and authentication infrastructure that we can grow on top of.

**Trustworthiness:** By using Microsoft .NET Framework technology, our client systems were able to leverage the reliability, resilience and robustness provided by the Framework library and Windows Communication Foundation stack.

**Summary:** XDS.b defines a technical framework for the implementation of established messaging standards to achieve specific clinical goals for document sharing, allowing us to have specific guidelines for designing connected, collaborative, cost-effective and dependable health systems.

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