

Using OpenEHR platform and HL7/IHE interoperability

Think!EHR Platform – open health data platform

Better Data Better Care

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MARAND

Benefits

- Integration profiles
- Strong industry support
- Focused on document sharing
- Aids integration

Shortcomings

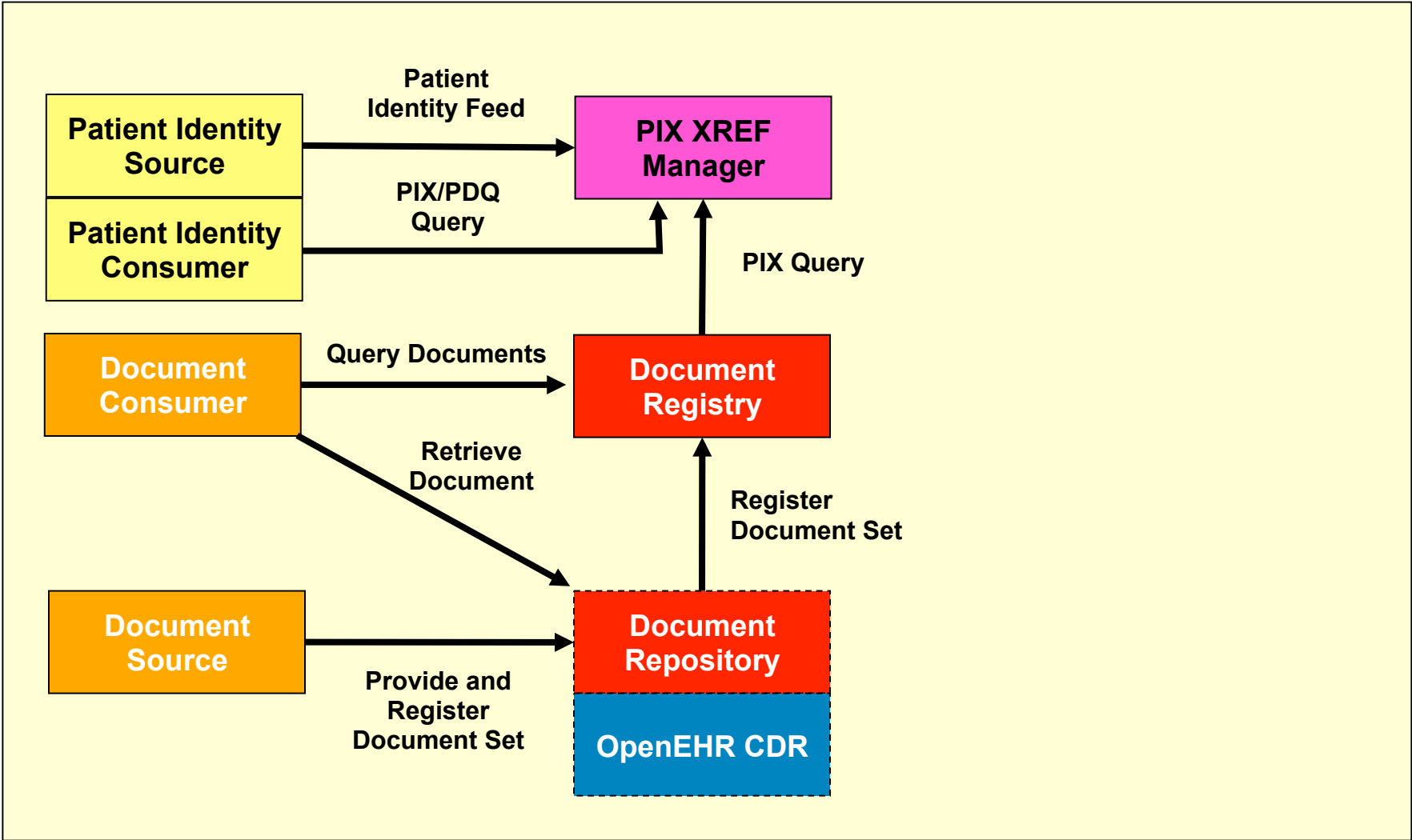
- Querying limited to document metadata
- Minimal data-set content Profiles / coarse grained data
- Mostly CDA L1/L2
- Non-computable health data

IHE - Interoperability

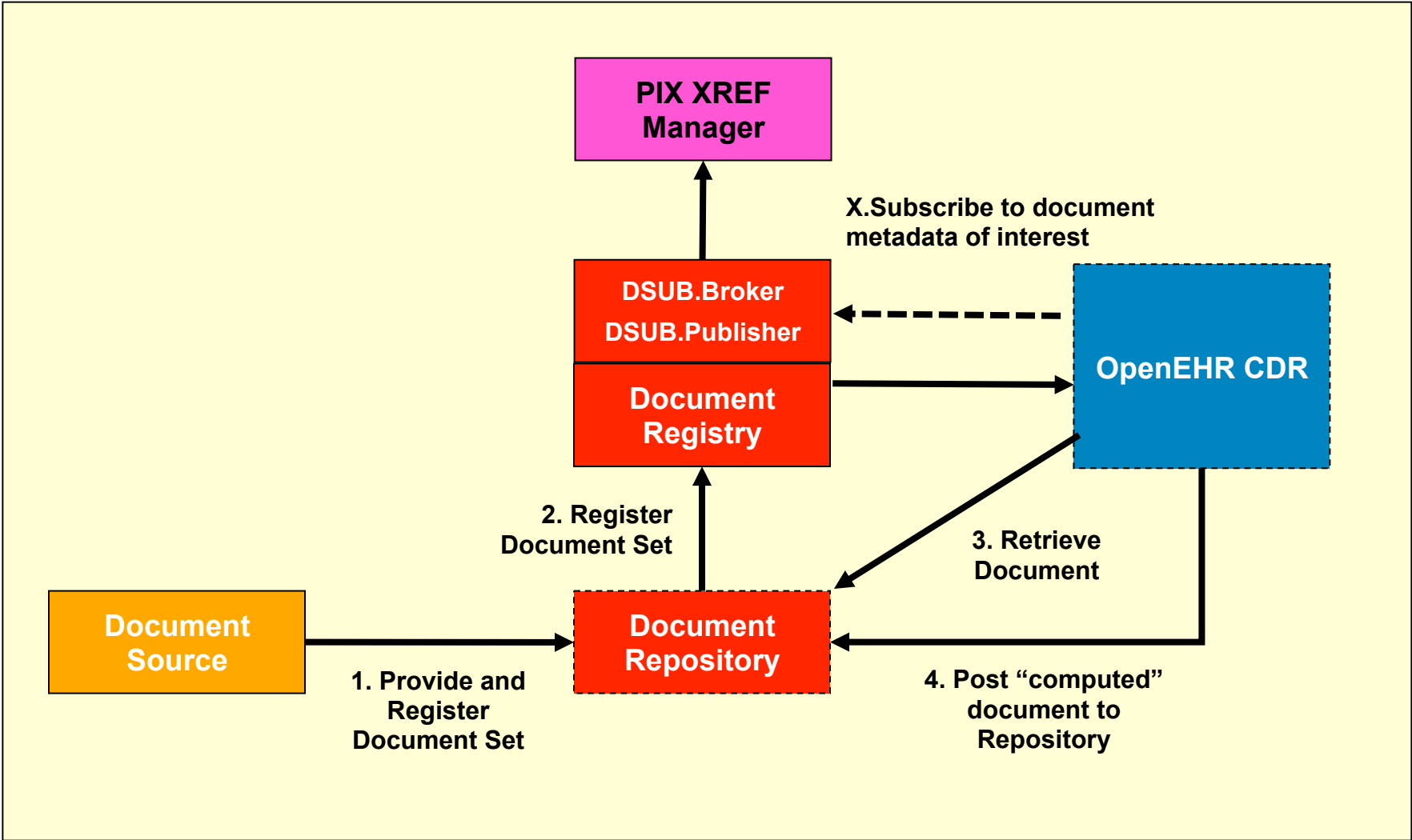
- HIE/eHealth - Document Exchange
- Connectathon / 300 people >150 systems
- Domain / technical frameworks / profiles
- Profile life cycle / release, trial ...



IHE XDS/OpenEHR



IHE XDS/DSUB - OpenEHR



IHE/CDA/OpenEHR

QUERY DOCUMENTS FORM BUILDER MODELS eRCO User

My Templates

XDS Document
CDA Discharge Summary
CDA Document

Execute Format TidyUp History Save

```

1 select
2   o#ehr_id/value as ehr_id_value,
3   d#archetype_details as archetype_details,
4   c
5 from EHR e
6 contains COMPOSITION d
7 contains EVALUATION c#CDA_Component
8 where c#Code/defining_code/code_string matches {'11450-4'} -- problem list
9 limit 20
    
```

Results Execution:231ms | Query: 71ms | Rows: 7

Table Metadata Export OFF

template_id	Code	TemplateId	Title	form
CDA Discharge Summary	Problem list	1.3.6.1.4.1.19376.1.5.3.1.3.6	2. Aktivni zdravstveni problemi:	text/html
CDA Discharge Summary	Problem list	1.3.6.1.4.1.19376.1.5.3.1.3.6	2. Aktivni zdravstveni problemi:	text/html
CDA Discharge Summary	Problem list	1.3.6.1.4.1.19376.1.5.3.1.3.6	2. Aktivni zdravstveni problemi:	text/html

Connected to: thinkr1.marand.si | Domain: erco

Ehr Composition

- Composition
 - T name
 - uid
 - T value
 - archetype_details
 - archetype_id
 - T value
 - composer
 - external_ref

CDA Discharge Summary

- CDA Discharge Summary
 - T name
 - uid
 - T value
 - archetype_details
 - XDS Metadata
 - Active Problems
 - T TemplateId
 - Code
 - T Title
 - Text
 - Resolved Problems
 - Discharge Diagnosis
 - Admitting Diagnosis
 - T TemplateId
 - Code
 - T Title
 - Text
 - Selected Meds Administered
 - T TemplateId
 - Code

IHE/OpenEHR ecosystem

- MPI (PIX/PDQ)
 - Ehrld as identifier in the MPI
- OpenEHR CDR with XDS.b Repository I/F
 - Document metadata (XDS.MetaData) / Unstructured content
 - OpenEHR TDS/TDD – Greenfield structured data exchange
 - CDA L1/L2 – simple transform
 - CDA L3/RIM – adHoc doc specific transform

Data bending – read only

- SMART Platform
- FHIR
- OData
- Business Objects (EA)



Data bending - store

- Comm/Transport Protocol
- Pre-defined content / mapping / data granularity
- Generic / semantic data normalization

OpenEHR / FHIR

- Hype Cycle

Gartner

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G00263105

Hype Cycle for Healthcare Provider Technologies and Standards, 2014

Published: 24 July 2014

For now, CIOs and CTOs in most healthcare delivery organizations should avoid purchasing decisions or IT architectures that assume that multiple vendors of clinical systems will implement FHIR consistently or at all. For projects that include highly interactive interfaces where the alternative is to create a whole new specification, they should use FHIR specifications and tools as a starting point for what will essentially be custom specifications and tools.

User Advice:

Self-developers

and vendors should consider using FHIR for new projects or products that have the potential to reach the scales discussed here, or where it is important to engage programmers from organizations that are not deeply versed in the HL7 Reference Information Model (RIM). However, they should not expect the detailed conceptual underpinnings or specifications of FHIR to remain stable. Instead, these organizations should regard current FHIR work as a better way to create project specifications than starting with a blank document.

OpenEHR / FHIR

- Hype Cycle / Is it FHIR or just REST/JSON?
- FHIR Resources / Archetypes
- Multi-Level Modeling / Template & Archetype
- Search/query capability?

OpenEHR / FHIR

- Hype Cycle
- FHIR Resources / Archetypes (?) - granularity
- Multi-Level Modeling / Template/Archetype
- Search/query capability?

```
1 select
2     t#Temperature as Temperature,
3     bp#Systolic as Systolic
4 from EHR e
5 contains COMPOSITION c
6 contains (
7     OBSERVATION t#Body_temperature and
8     OBSERVATION bp#Blood_Pressure)
9 where
10    t#Temperature/magnitude > 37
```

Direct search:

/fhir/Observation?name=8480-6&value-quantity=>=101||mm[Hg]

Related resource:

fhir/Observation?name=8480-6&related-target.value-quantity=>=101||mm[Hg]&_include=Observation.related.target

OpenEHR / Apple HealthKit

- Anyone? ;)