



HHS 2020

**Person-Centered
Health and Human Services**

Enterprise IA Strategy

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Enterprise Architect

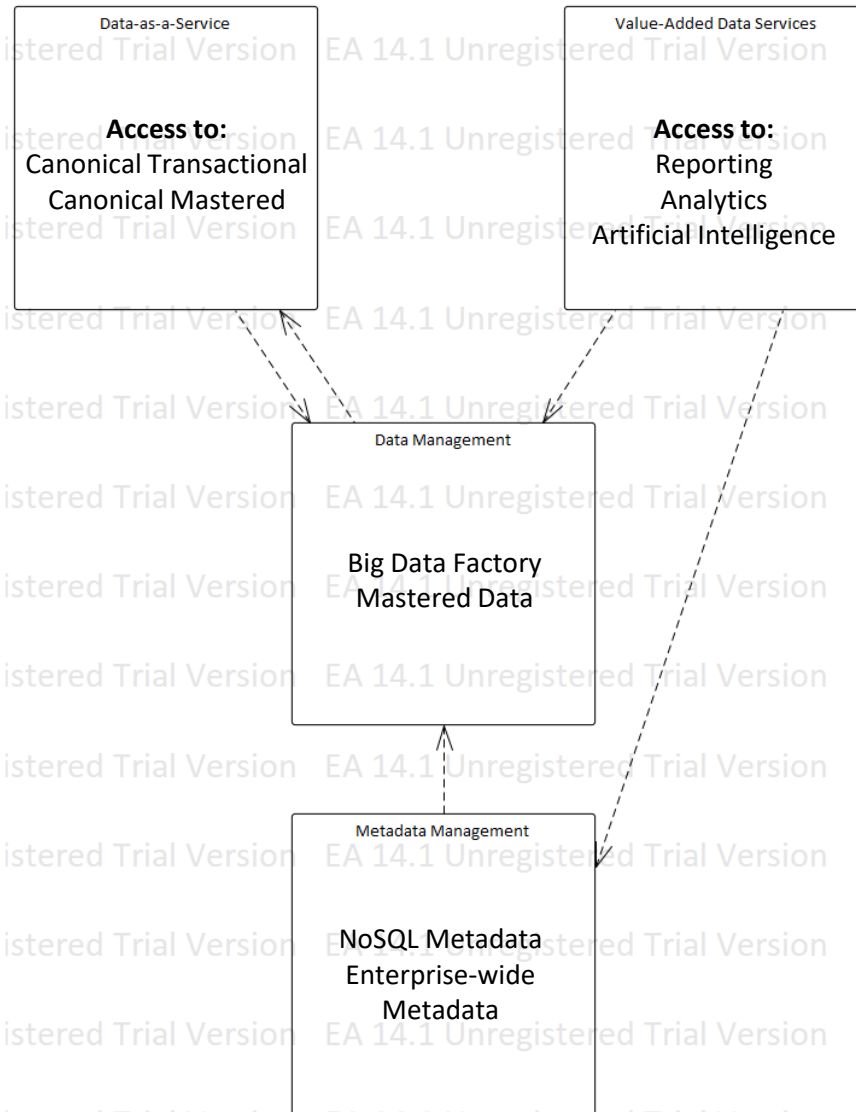
05/09/2019

What is HHS 2020 IA trying to accomplish?

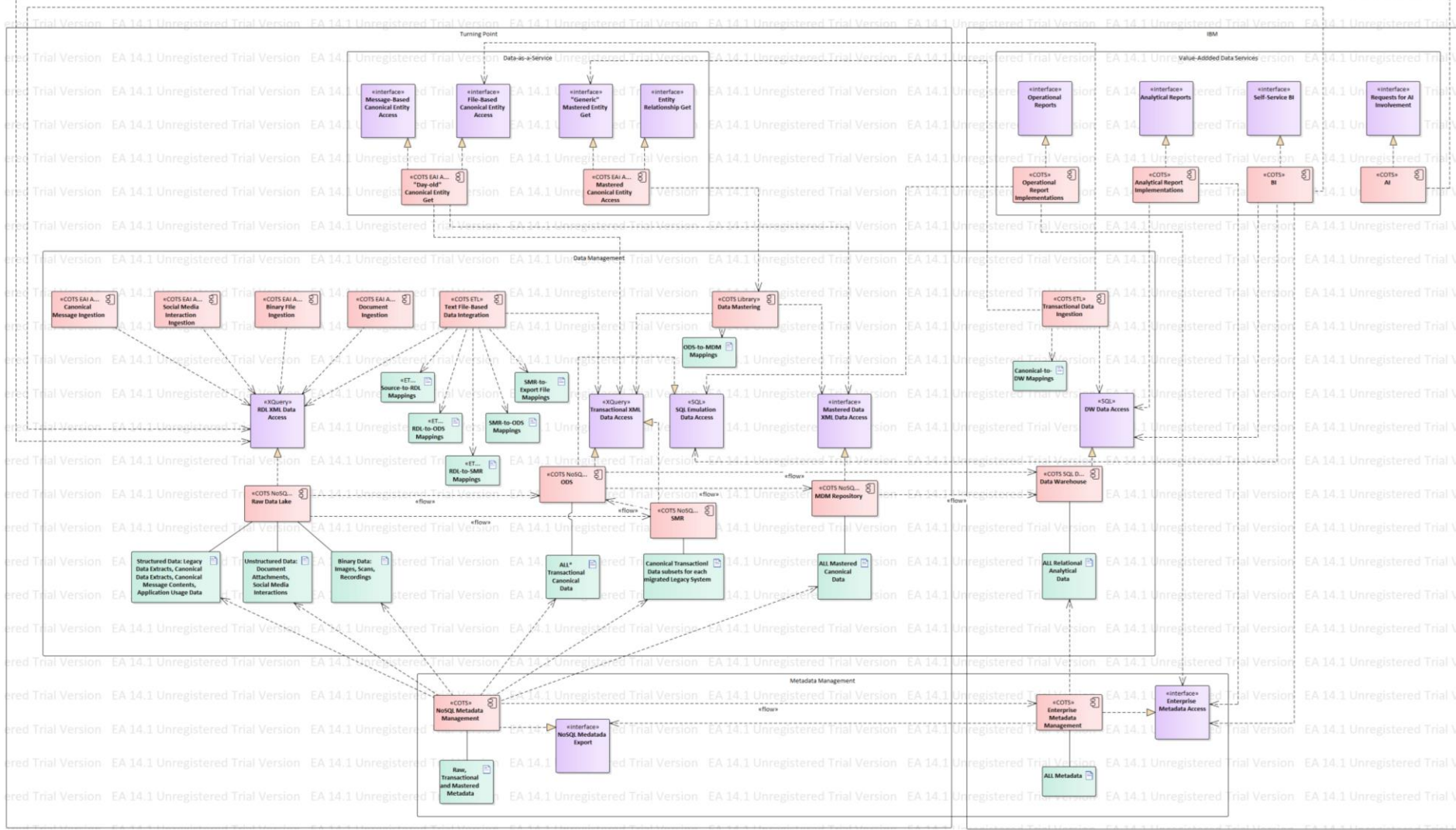
- 360 degree view of all constituent categories (Client, Employee, Provider, MCO, etc.)
- Regulatory, mandated reporting (CMS-64, etc.)
- Pre-canned operational and analytical reporting
- Ad hoc reporting and self-service business analytics
- Predictive analytics and artificial intelligence-based hidden data pattern identification
- Prevention of canonical entity service sprawl
- Enterprise data mastering of “golden” records for non-transactional entities
- Support for legacy system decommissioning and data migration to future systems
- Enterprise-wide Metadata Management, including definitions, provenance, survivalship rules etc.

***Delivered through a combination of offerings from
Turning Point and IBM***

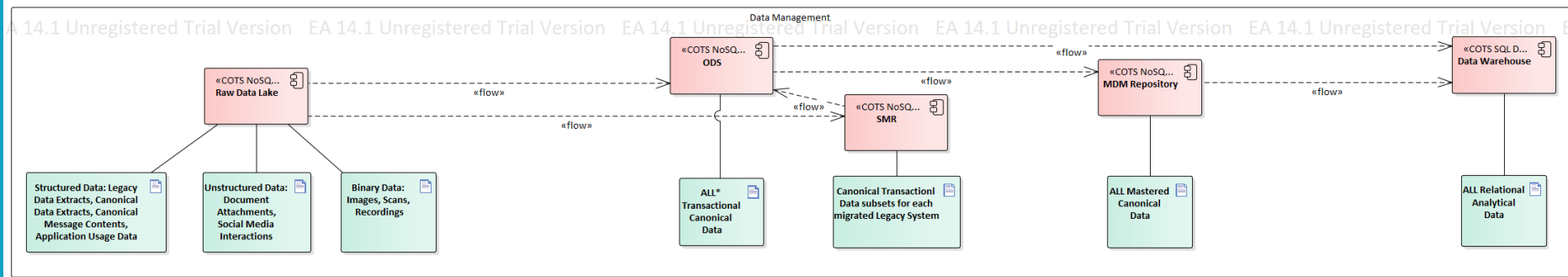
Enterprise IA covers four inter-dependent areas



The Eye Chart

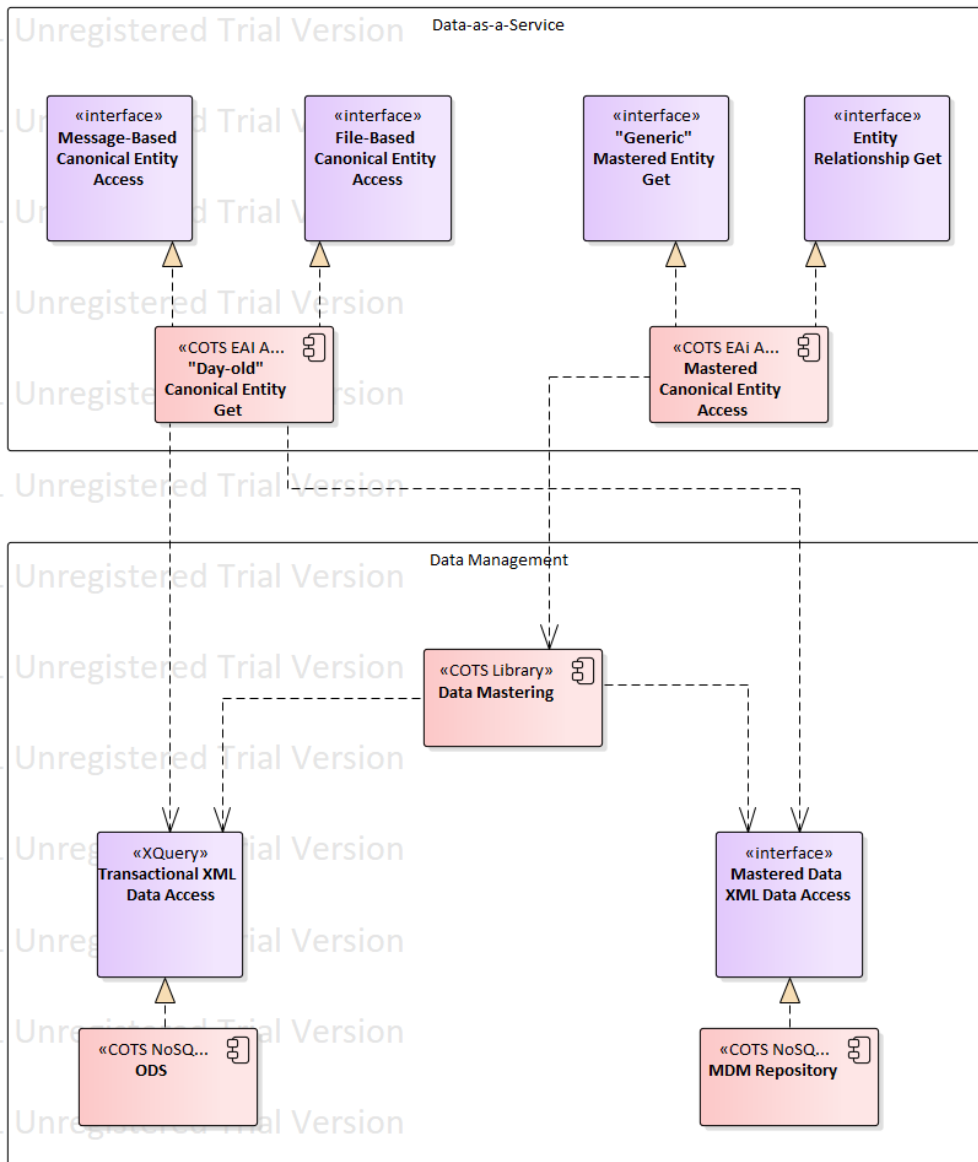


Information flow



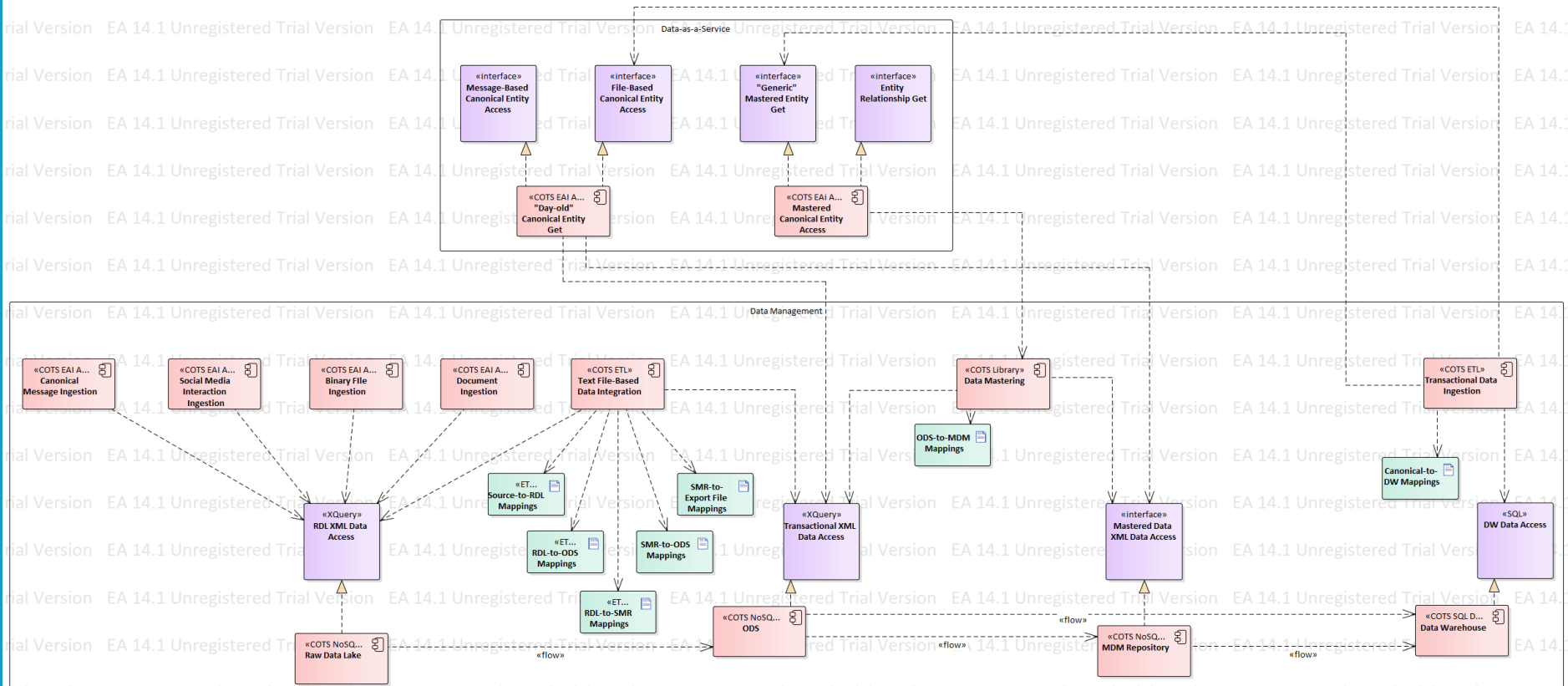
- **Raw Data Lake (MarkLogic NoSQL) contains ALL relevant data**
 - Legacy system extracts in original form
 - New system transactions in canonical form
 - User/UI interaction data
 - Users' social media posts
 - Documents, scans, recordings, etc. to complete 360 degree view
 - Continuously updated
 - Retained indefinitely
- **ODS (MarkLogic NoSQL) contains ALL relevant transactional data**
 - Unified, canonical data
 - Continuously updated
 - Retained as long as needed for reporting and analytics
- **SMR (MarkLogic NoSQL) contains transactional data from legacy systems**
 - Siloed canonical data
 - Updated only during system migration
 - Retained only during migration
- **MDM (MarkLogic Smart Mastering) contains ALL Mastered canonical entities**
 - Continuously updated
 - Retained indefinitely
- **Data Warehouse (Oracle Exadata) contains ALL analytical data**
 - Initially loaded through SMR extracts delivered manually
 - Continuously updated
 - Retained as long as needed for reporting and analytics

Data-as-a-Service



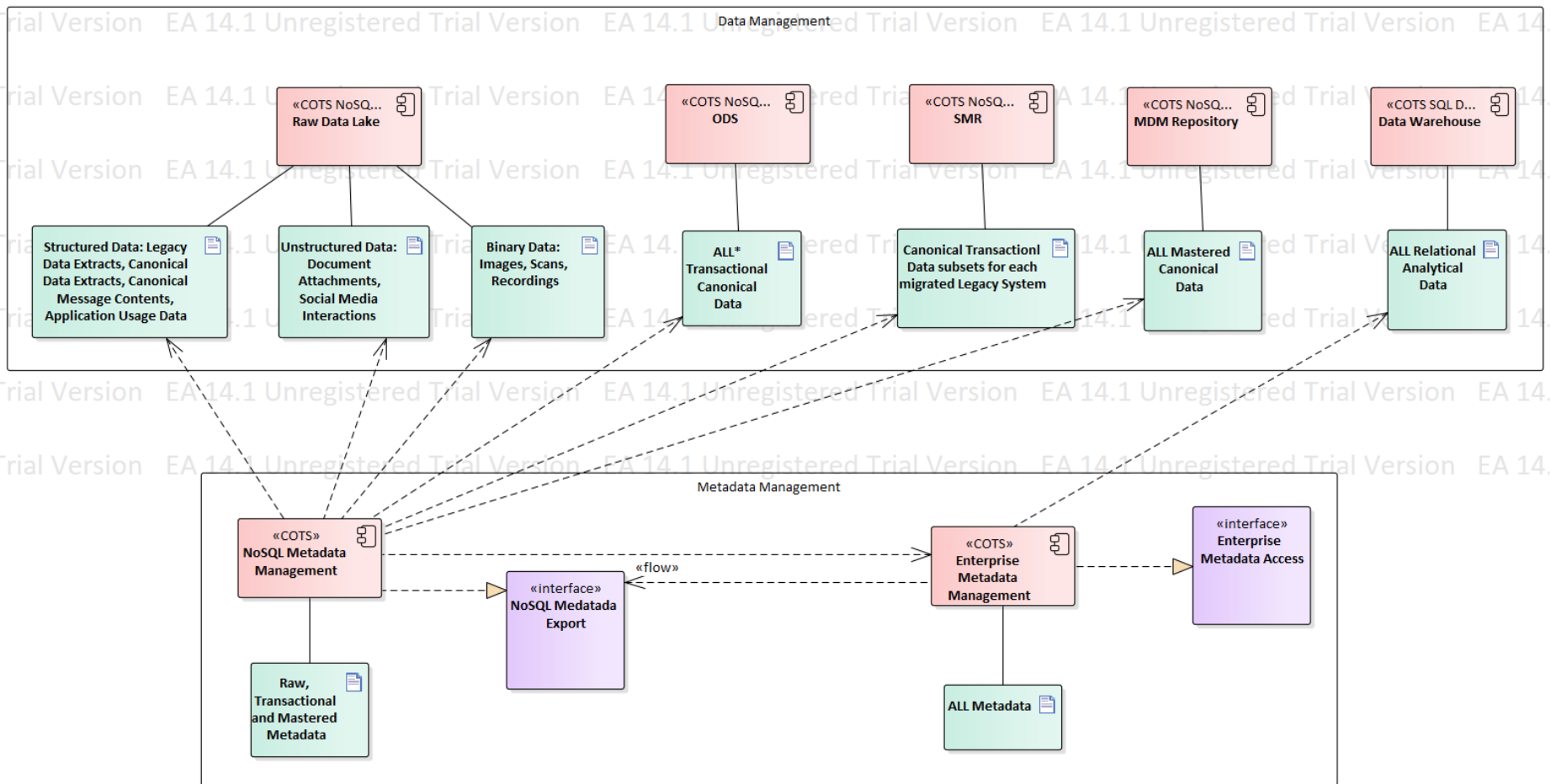
- Canonical data access services
 - Prevent service sprawl
 - Provide message and file-based data access
 - Used for Data Warehouse loading with incremental updates
- Mastered data access services have two flavors:
 - "Generic" data access for a golden record of an entity (e.g. best address for Client)
 - Entity relationship services (e.g. Q: How is the Employee requesting information about a Claim related to the Member on the Claim? A: Spouse. Although an Employee may be eligible to view Claims because of his application role membership, he will be denied access to this specific Claim because of the conflict of interest vis-à-vis relationship to the Member)

End-to-end data integration



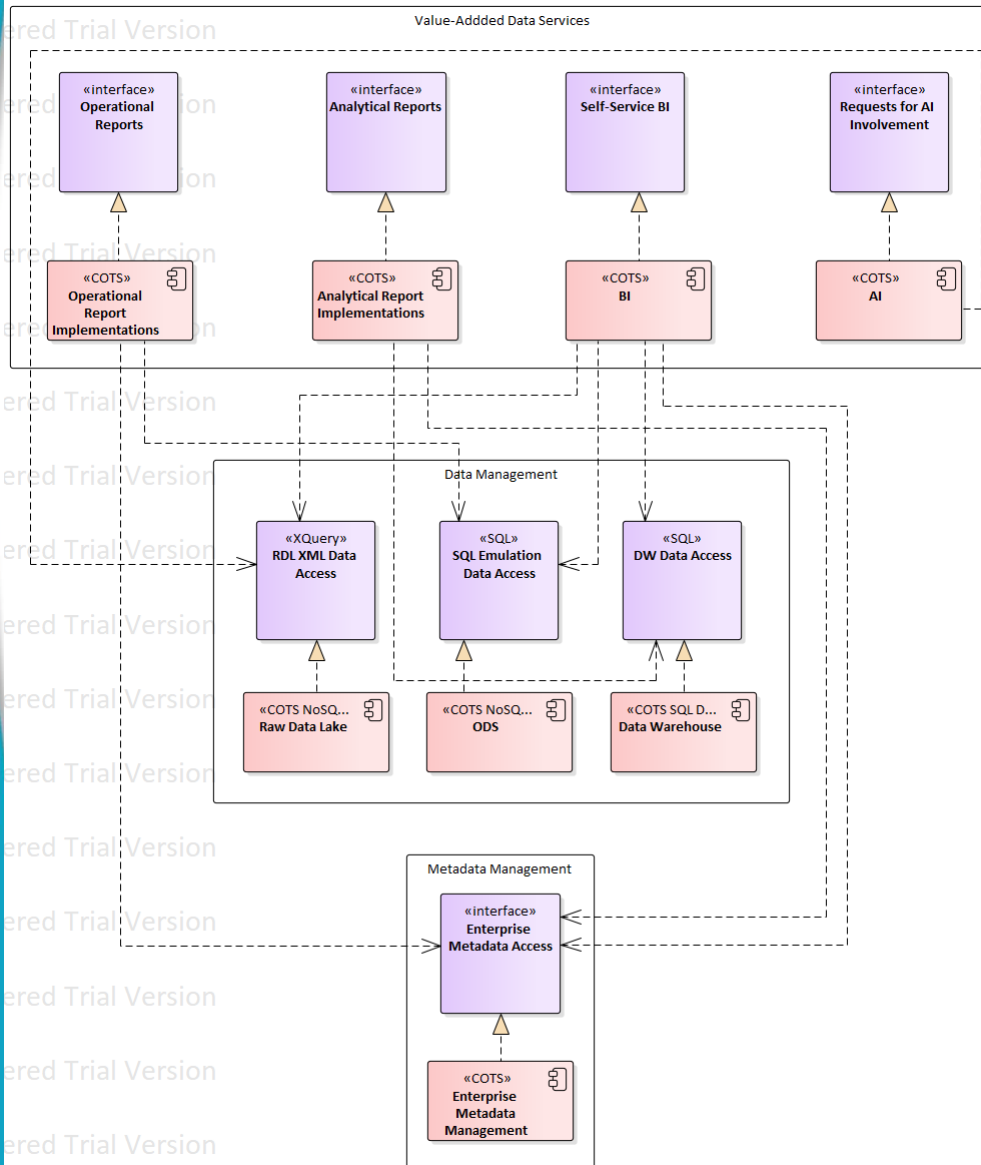
- MarkLogic ETL used for
 - RDL ingestion
 - RDL-to-SMR/ODS migration
 - SMR-to-ODS migration
 - SMR-to-export file extraction
- MarkLogic Smart Mastering used for ODS-to-MDM migration
- IBM InfoSphere DataStage ETL used for Data Warehouse loading
- Incremental updates obtained from file-based canonical data services

Enterprise Metadata Management



- IBM InfoSphere Information Governance Catalog is the enterprise Metadata Management solution
- Maintains Data Warehouse Metadata directly
- Receives upstream Metadata information from MarkLogic Metadata Management solution

Value-added data services



- Pre-canned reporting services deliver report output to users of UPI
 - Data sourced from ODS and Data Warehouse
- Ad hoc reporting and self-service analytics available within IBM Cognos portal
 - Uses enterprise Metadata repository as a catalog of available information items
 - Data primarily sourced from Data Warehouse
- IBM Watson AI engine analyzes raw Data Lake contents for hidden data patterns and insights

A few items to consider

- Can metadata export from MarkLogic work for IBM IGC?
 - How can we demonstrate it?
 - What if it does not work out?
- Does IBM use ODS as a source of operational report data, or does it maintain a copy on its own servers?
 - Will operational reporting performance be impacted by IBM to State WAN?
 - What is the extra cost of maintaining a parallel transactional repository with IBM?
- Does ODS provide unified transactional data repository, or should it stay siloed like a continuously updated SMR?
 - What is the effort and cost to own a unified ODS?
 - What limitations are introduced by siloed ODS?
- Do we have contractual cover to flesh out solution details and carry out implementation?

Thank You!



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