ADL/DAU
Innovation Sandbox Briefing

Agenda

- Introduction

- TLA Sandbox Program

- DAU Modernization Overview

- DAU's Innovation Sandbox System Design

- Open Discussion / Q&A

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- Building the Infrastructure for DoD Digital Learning Modernization:
  https://www.adlnet.gov/news/2020/07/30/Building-the-Infrastructure-for-DoD-Digital-Learning-Modernization/

- 2019 Total Learning Architecture (TLA) Report:
  https://www.adlnet.gov/resources/publications/2020/04/2019-Total-Learning-Architecture-Report/

- 2020 Institute for Defense Analysis report on TLA:
  https://www.adlnet.gov/resources/publications/2020/07/ADLs-Total-Learning-Architecture-IDA-Report-2020/

- ADL Report on Competency Based Learning:
  https://www.adlnet.gov/resources/publications/2019/08/Competency-Based-Learning/

- ADL GitHub: https://github.com/adlnet

The Total Learning Architecture is a R&D project to design a **business enterprise architecture** for learning (training/education) systems.

TLA Business Enterprise Architecture includes:

- Digital learning data strategy
- Data and software interoperability standards
- Specifications for microservices
- Specifications for technology architecture implementations
- Recommendations for business rules and governance

TLA R&D project also includes:

- "Reference implementations" (i.e., exemplars like model homes)
- "Sandboxes" for DoD Stakeholder Testing and Evaluation

* Some of the TLA Reference Implementation components and Data/Software Standards can also standalone as unique deliverables


PowerTrain Improving Performance
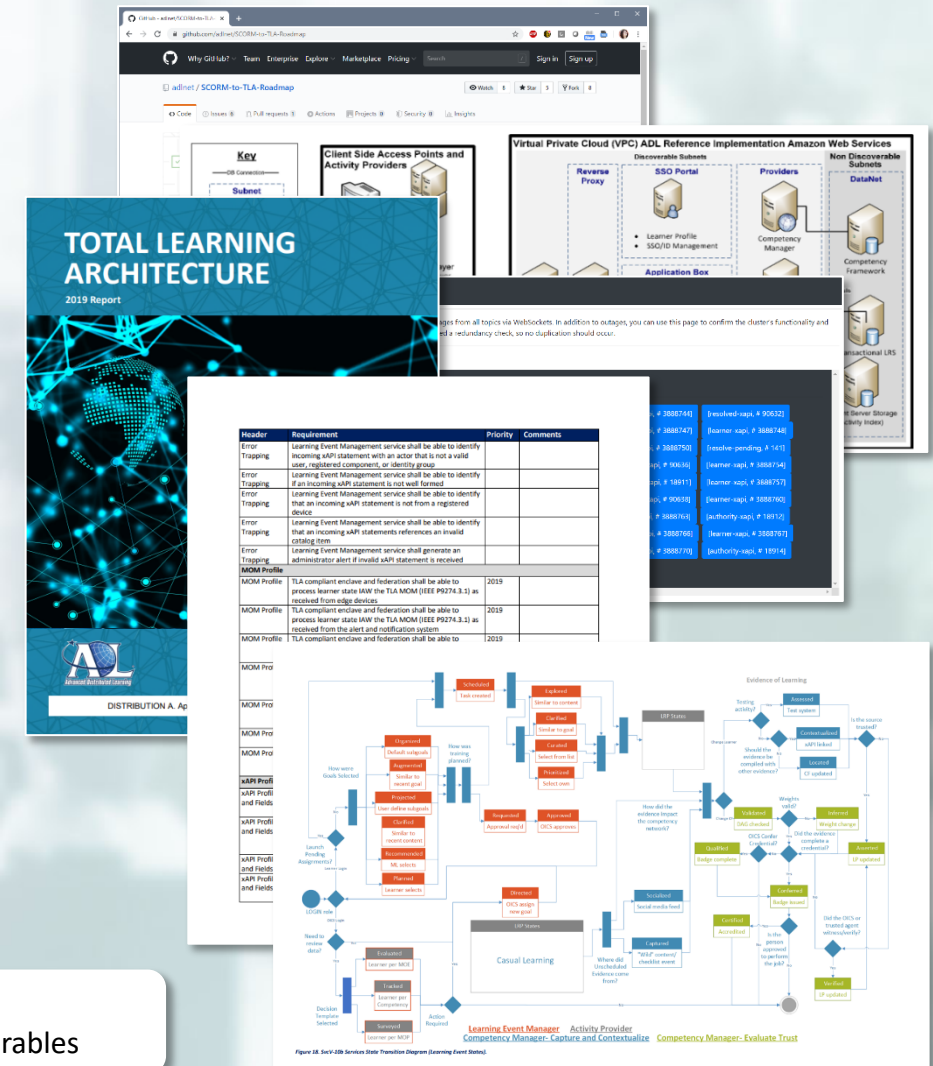
The DODI 1322.26 Policy Framework:

- Federated Data Strategy for all training and education related data.

- Derived from internationally accepted technical specifications and standards

- Ensures portability of learning data between enclaves

- Provides auditability and Non-Repudiation of Competencies and Credentials

- Facilitates enterprise Analytics, Artificial Intelligence, and Automation

Activity and Resource Metadata

- Experience Index
  - Inventory of Courses, Activities, and Content
  - Stores Metadata
- Metadata Strategy
  - IEEE P2881
  - Descriptions of Available Learning Resources
  - Cognitive Alignments and Relationships
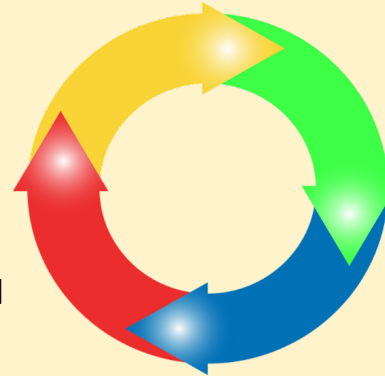
Learner Records

- Unique User ID (UUID) mapping
- Learner Attributes
  - C & C Ledger
  - Learning Activity Ledger
  - Preferences
- Interface with HR / Talent Management

Learning Event Tracking

- xAPI Profiles
  - Controlled Vocabularies
  - Domain Specific Context
  - Cmi5 Specification
  - Master Object Model (MOM)
- Federated Learner Record Stores
- Evidence of Learner Performance

Competency Framework

- Competency Description
  - IEEE 1484.20.1
  - Knowledge, Skills, Abilities, and Other Attributes
  - Required Credentials
  - Tasks, Conditions, and Standards
  - Levels of Mastery
- Occupational Alignment

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DAU Sandbox

Enterprise Course Catalog

ADVANA?

Schema.mil

Linked Data Database

ADL's TLA Sandbox

Enterprise Data Usage Aggregation

Linked Data for Metadata definitions, Competencies, Credentials…

Authoritative Data Source for Identity (FICAM)

DAU Sandbox

Organization 1 Learner Data (e.g., DAU)

Organization 2 Learner Data (e.g., DHA)

Organization 3 Learner Data (e.g., Army STEEL-R)

Authoritative data stores hold validated (signed) evidence of conferred credentials and competencies

Transactional LRS

Competency Management

Local Course Catalog

Transactional LRS

Transactional LRS

Transactional LRS

Transactional Learning Record Stores hold evidence of learners' performance, e.g., within a program of instruction

"Learning Record Providers" (e.g., simulators, e-learning courses, digital gradebooks) produce highly granular data and feed a subset of those data to local Transitional Learning Record Stores
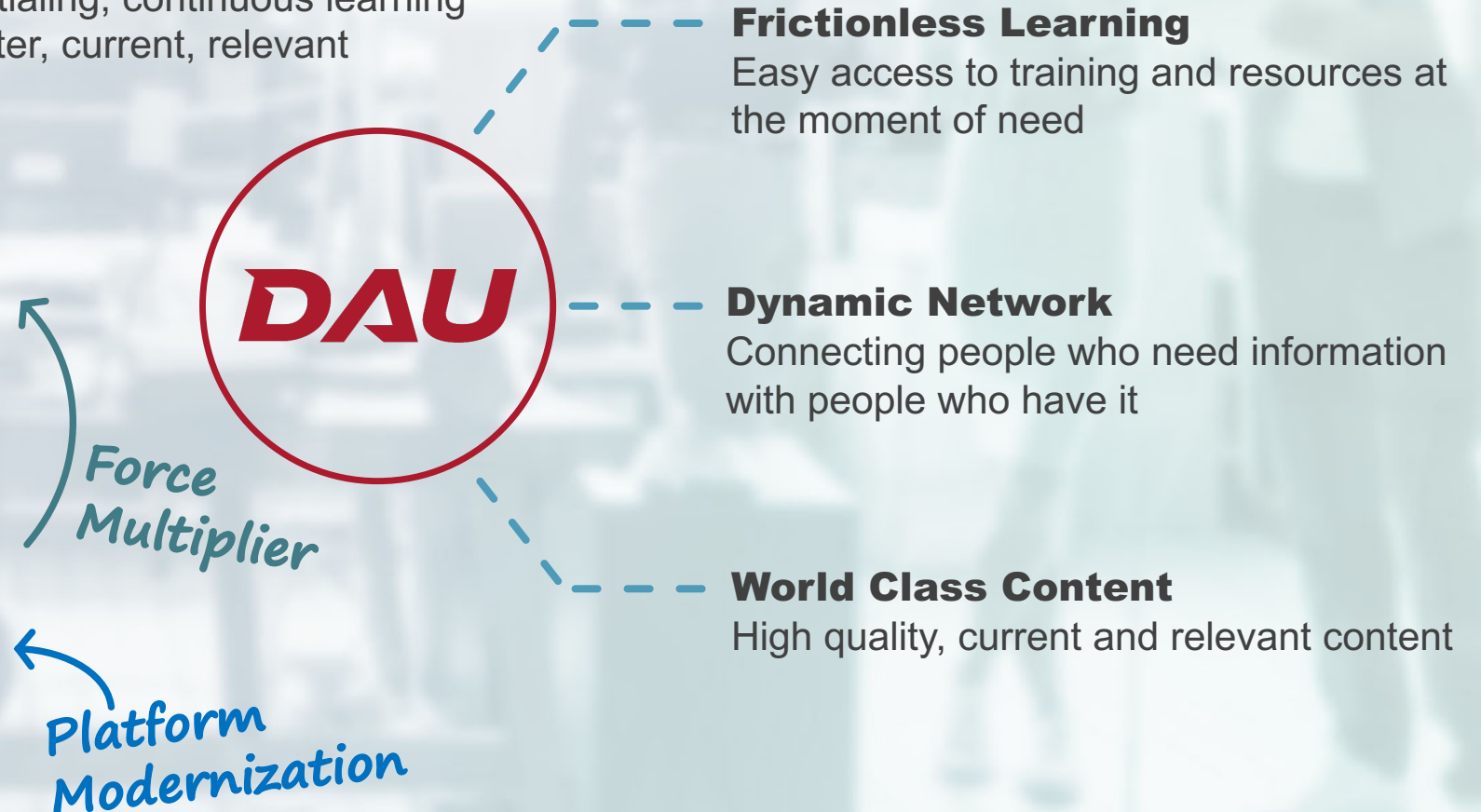
DAU Transformation

Impetus
- Streamlining of DoD acquisition system – enhance critical thinking
- BtB talent framework – credentialing, continuous learning
- Feedback – more, smaller, faster, current, relevant

Transformation Initiatives
- Curriculum redesign
- ILT > VILT & self-paced
- Learning Asset CM Strategy
- Experimentation
- Content Curation
- Credentialing
- Commercial Best Practices
- Faculty & Staff Development
- Environment enhancements
- IT Infrastructure upgrades
- Website upgrades
- New authoring tools

Force Multiplier

Platform Modernization

Frictionless Learning
Easy access to training and resources at the moment of need

Dynamic Network
Connecting people who need information with people who have it

World Class Content
High quality, current and relevant content

DAU Sandbox

Traditional environment

- LMS does it all (course delivery, tracking, reporting)

- Transcript/training records sent to system of record

- Sufficient for certification based on overall course pass/fail tracking

LMS
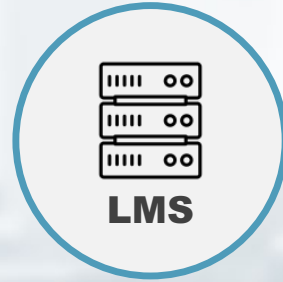
Course Completion Data
(pass/fail)

SIS/HRIS

Where DAU is headed

Smaller
Shorter classes and online learning modules

Virtual
Synchronous instructor-led and collaborative learning

Informal
More informal online learning resources and tools

Engaging
More modern and engaging experiences - games/sims

Competency Aligned

Bringing it together

ICAM
Instrument immutable ID for learner

xAPI
Implement LRS(s) and outfit learning record providers with xAPI
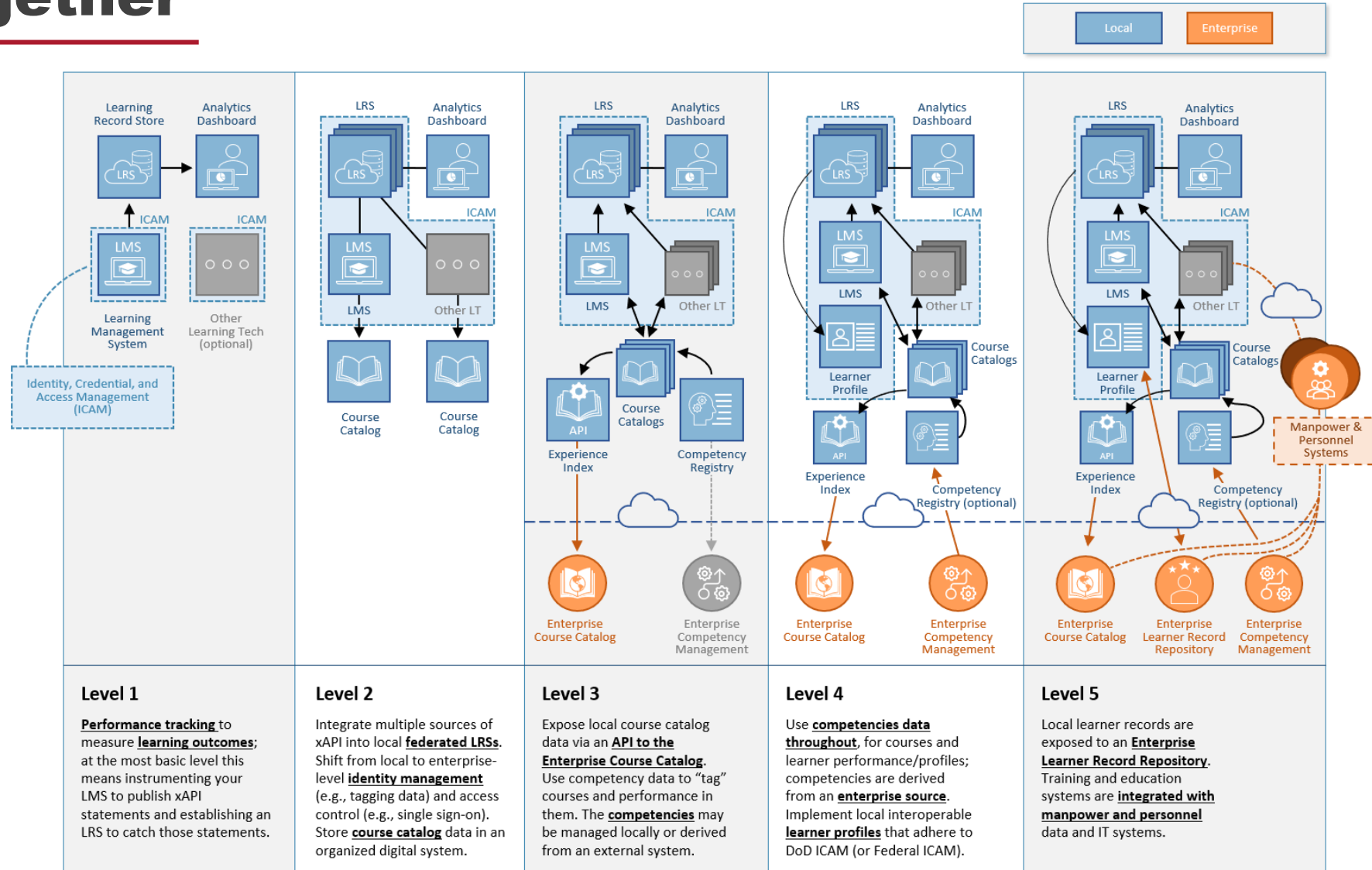
Dashboards
Align dashboards to LRS data and automate triggers to respond to pertinent activities

Competencies
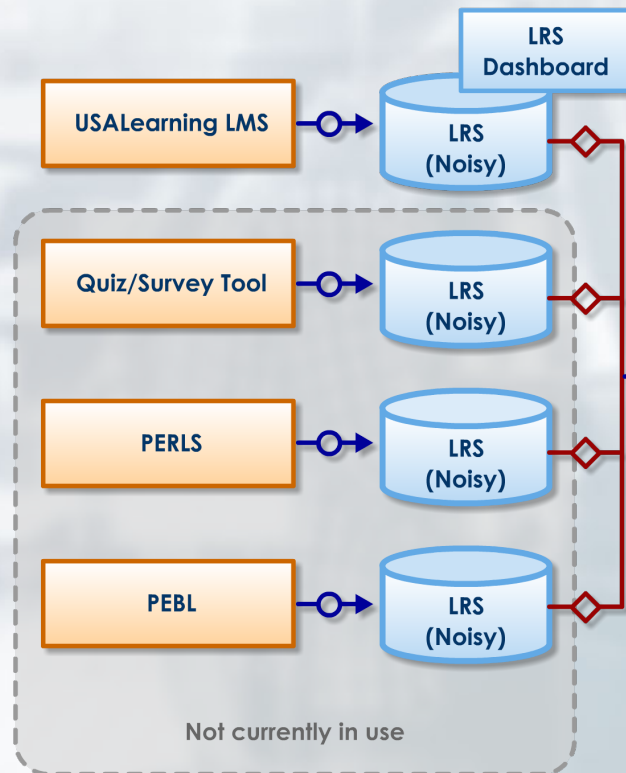Align competencies to learning activities in the Experience Index (XI)

Interoperability
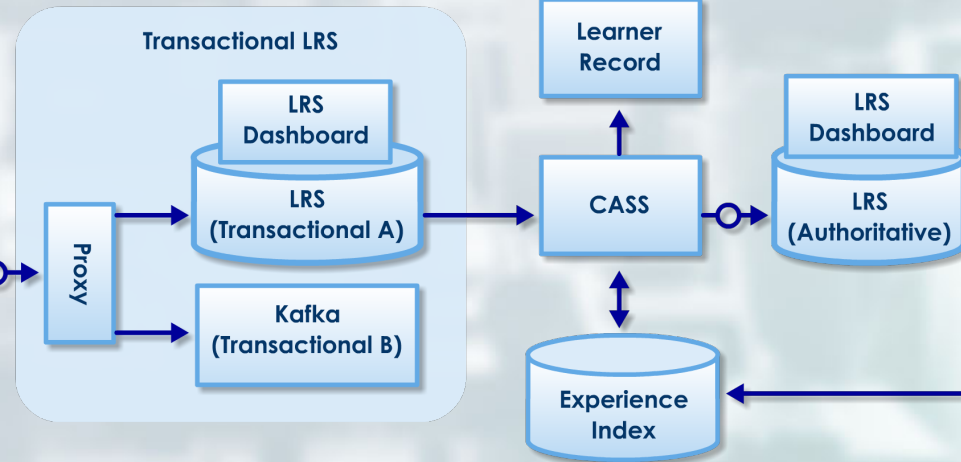Ship catalog data to ECC and relevant learner record data to ELRR

Level 1

Performance tracking to measure **learning outcomes**; at the most basic level this means instrumenting your LMS to publish xAPI statements and establishing an LRS to catch those statements.

Level 2

Integrate multiple sources of xAPI into local **federated LRSs**. Shift from local to enterprise-level **identity management** (e.g., tagging data) and access control (e.g., single sign-on). Store **course catalog** data in an organized digital system.

Level 3

Expose local course catalog data via an **API to the Enterprise Course Catalog**. Use competency data to "tag" courses and performance in them. The **competencies** may be managed locally or derived from an external system.

Level 4

Use **competencies data throughout**, for courses and learner performance/profiles; competencies are derived from an **enterprise source**. Implement local interoperable **learner profiles** that adhere to DoD ICAM (or Federal ICAM).

Level 5

Local learner records are exposed to an **Enterprise Learner Record Repository**. Training and education systems are **integrated with manpower and personnel** data and IT systems.

System Design

Learning Systems

- USALearning LMS
- Quiz/Survey Tool
- PERLS
- PEBL

LRS Dashboard
LRS (Noisy)

Not currently in use

TLA Core Components

Transactional LRS
- Proxy
- LRS Dashboard
- LRS (Transactional A)
- Kafka (Transactional B)

Learner Record

CASS

LRS Dashboard
LRS (Authoritative)

Experience Index

DAU/Custom Systems

- Keycloak
- Portal
- iCatalog
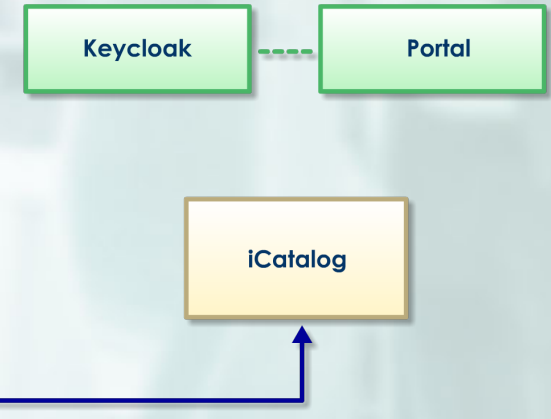
○ xAPI
◇ MOM Interpreter Script

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Questions?