From Records to Entities:
Open Metadata Infrastructure for Consortial E-Book Resource Sharing

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Metadata as Infrastructure

Metadata is no longer merely descriptive—it is operational infrastructure, enabling discovery, interoperability, rights management, and fulfillment across open knowledge ecosystems.

Discovery: Aggregating complex holdings.

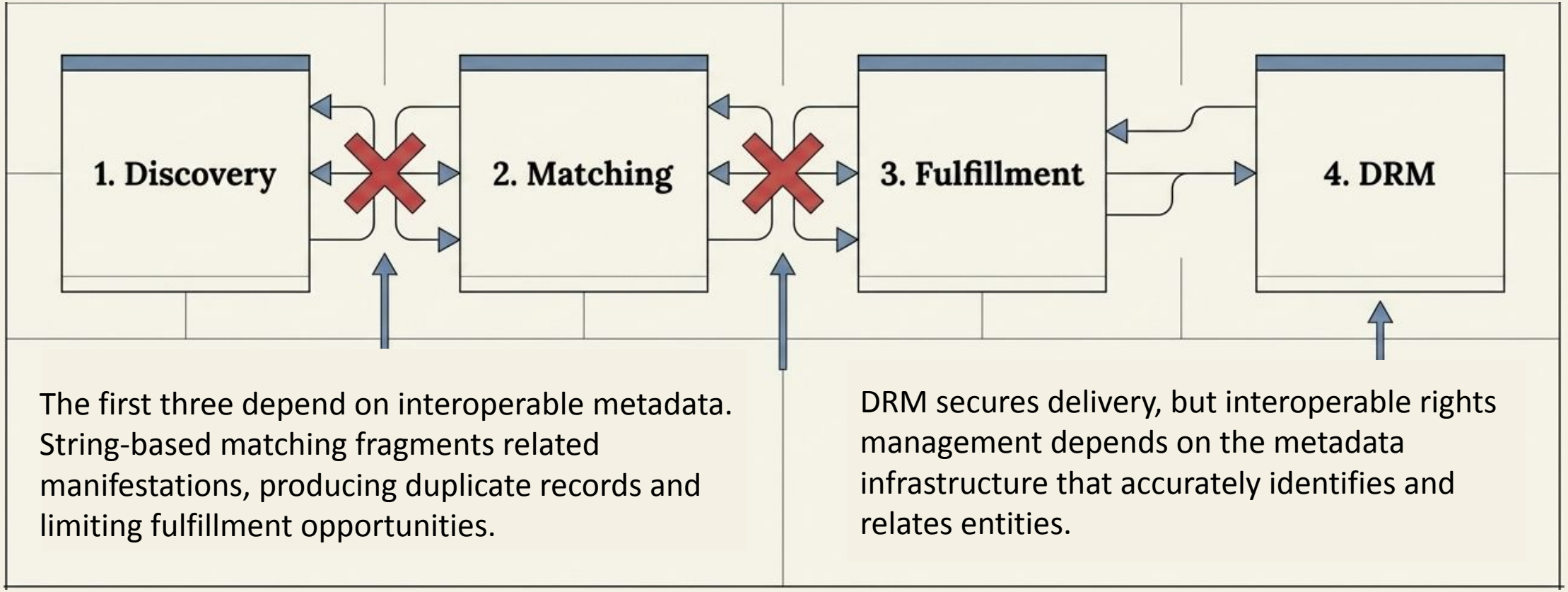
Routing: Directing requests efficiently across consortia.

Rights Evaluation: Standardizing digital lendability.

Fulfillment: Enabling secure, format-agnostic delivery.

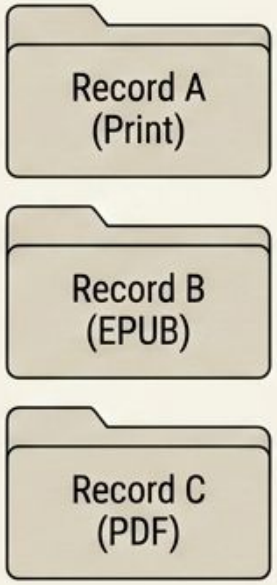
Open, entity-based metadata is the foundational requirement for scalable resource sharing.

Beyond Resource Identification: Metadata for Resource Sharing



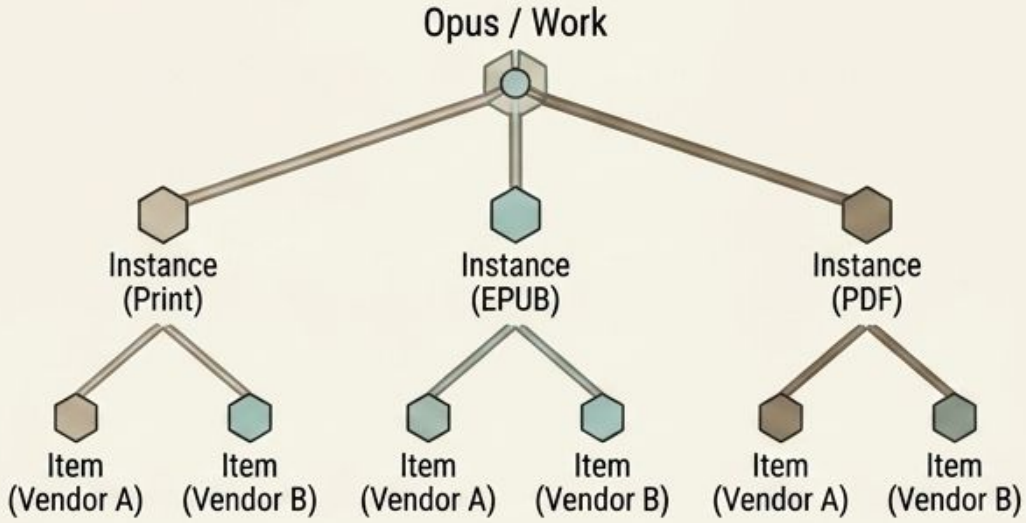
From Records to Entities

Traditional Flat Records



- Fragmented representations of the same work.
- Format silos prevent unified discovery.

BIBFRAME Entity Model



- Aggregates holdings at the Work level.
- Reconciles print and electronic manifestations natively.
- Improves request routing and reduces duplicate results.

PALCI E-ILL Pilot: An Interoperability Framework

A multi-phase, vendor-neutral proof-of-concept exploring Linked Open Data to enable e-first interlibrary loan for licensed digital content.

PALCI™
Partnership for Academic Library Collaboration and Innovation

The Consortium (PALCI)

- 80+ academic & research libraries.
- A production-scale environment operating EZBorrow.

The Data (5.7M Records)

- NYU (2.7M resources; 631k ebooks)
- Lehigh (2M combined resources)
- The New School (182k resources; 24k ebooks)

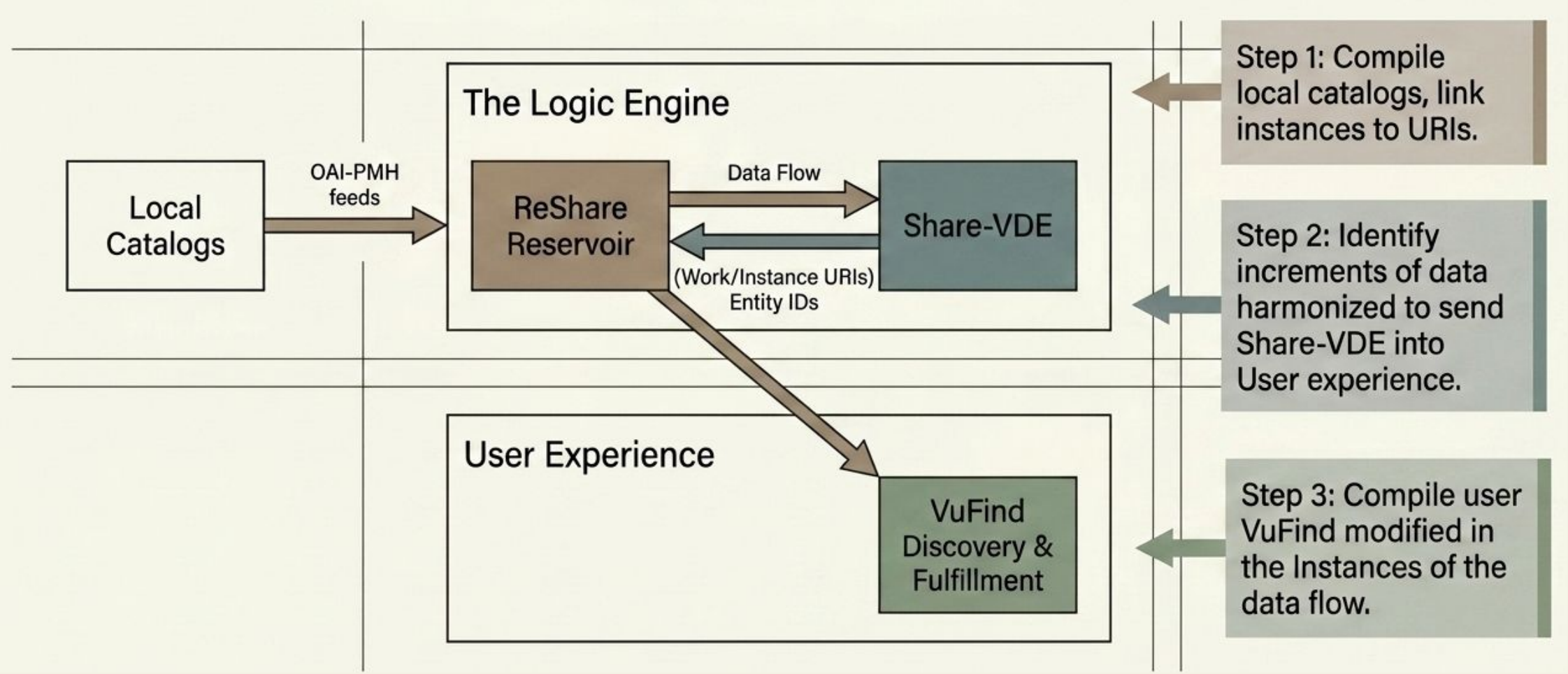
ReShare

Share FAMILY

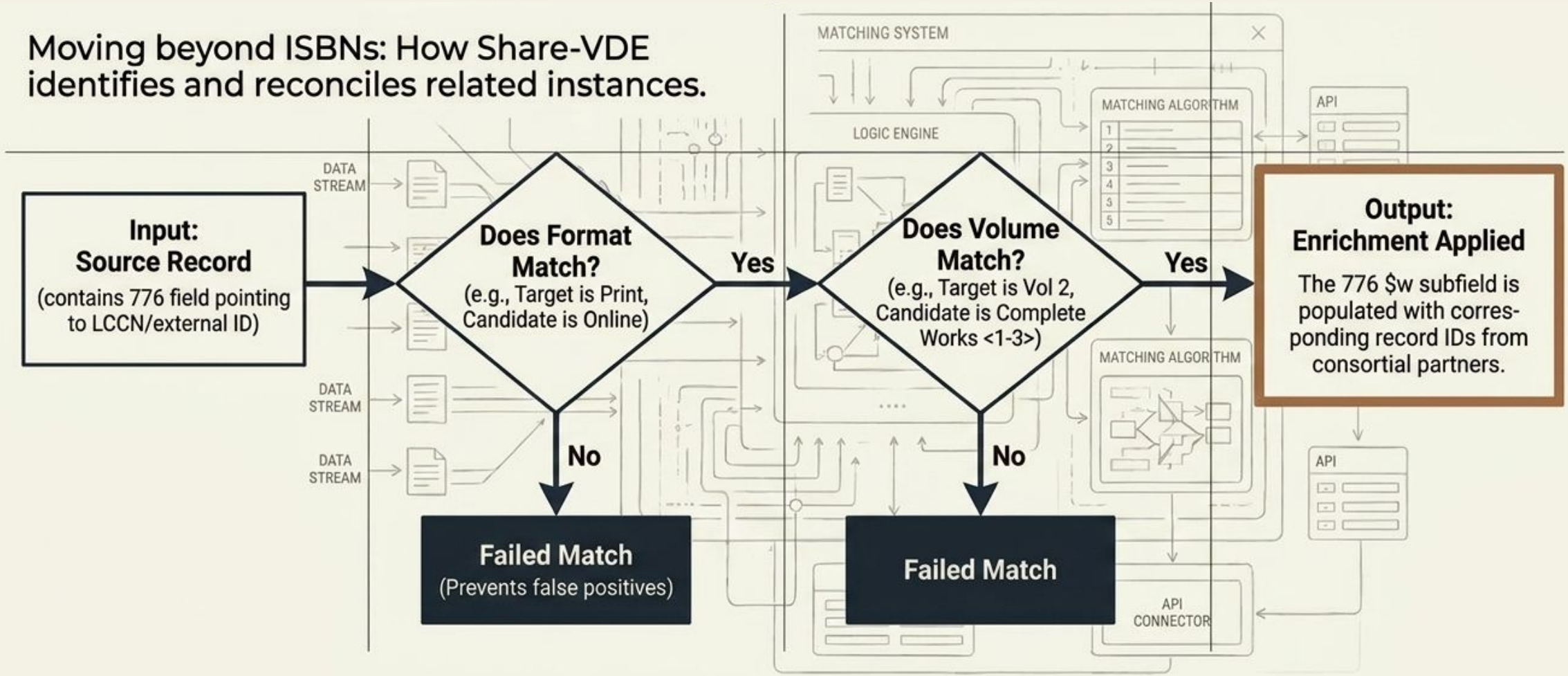
The Infrastructure

Integrating ReShare (open-source resource sharing) and Share-VDE (entity-based metadata infrastructure).

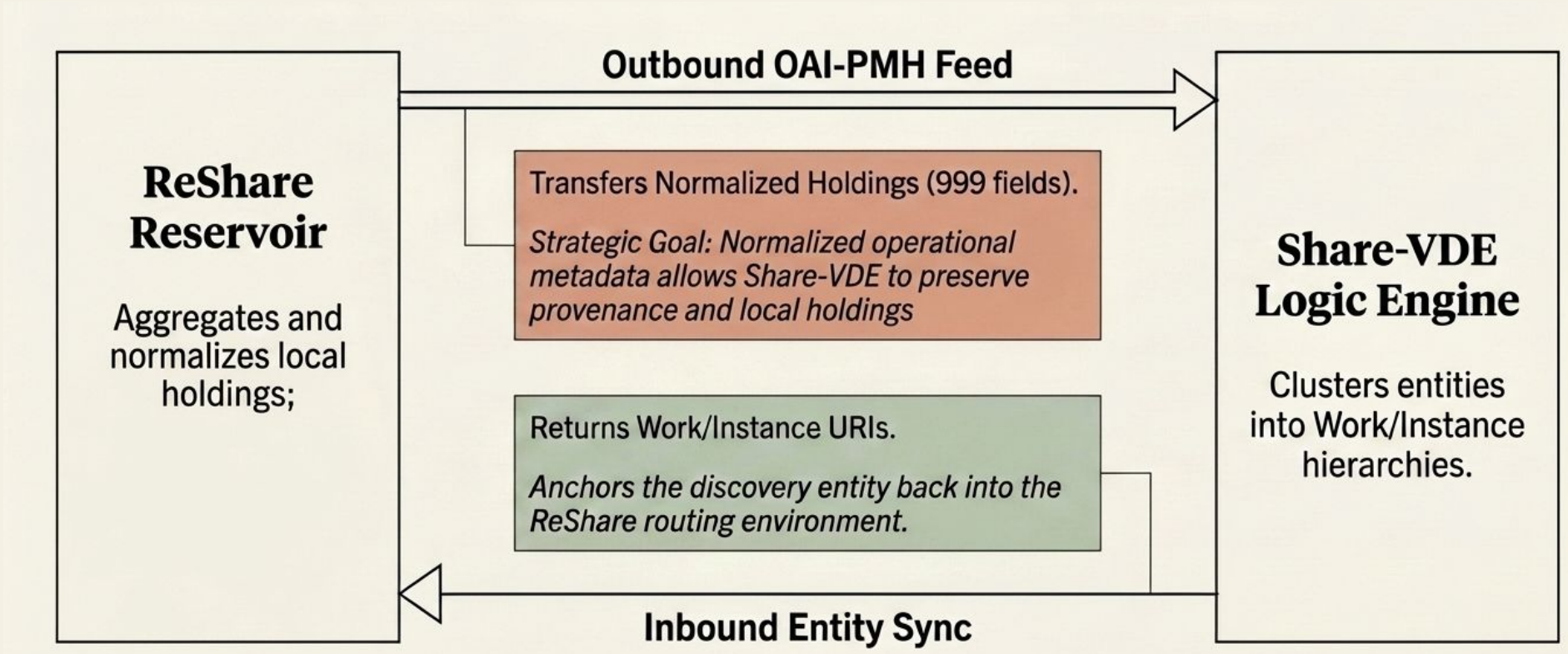
Pilot Architecture



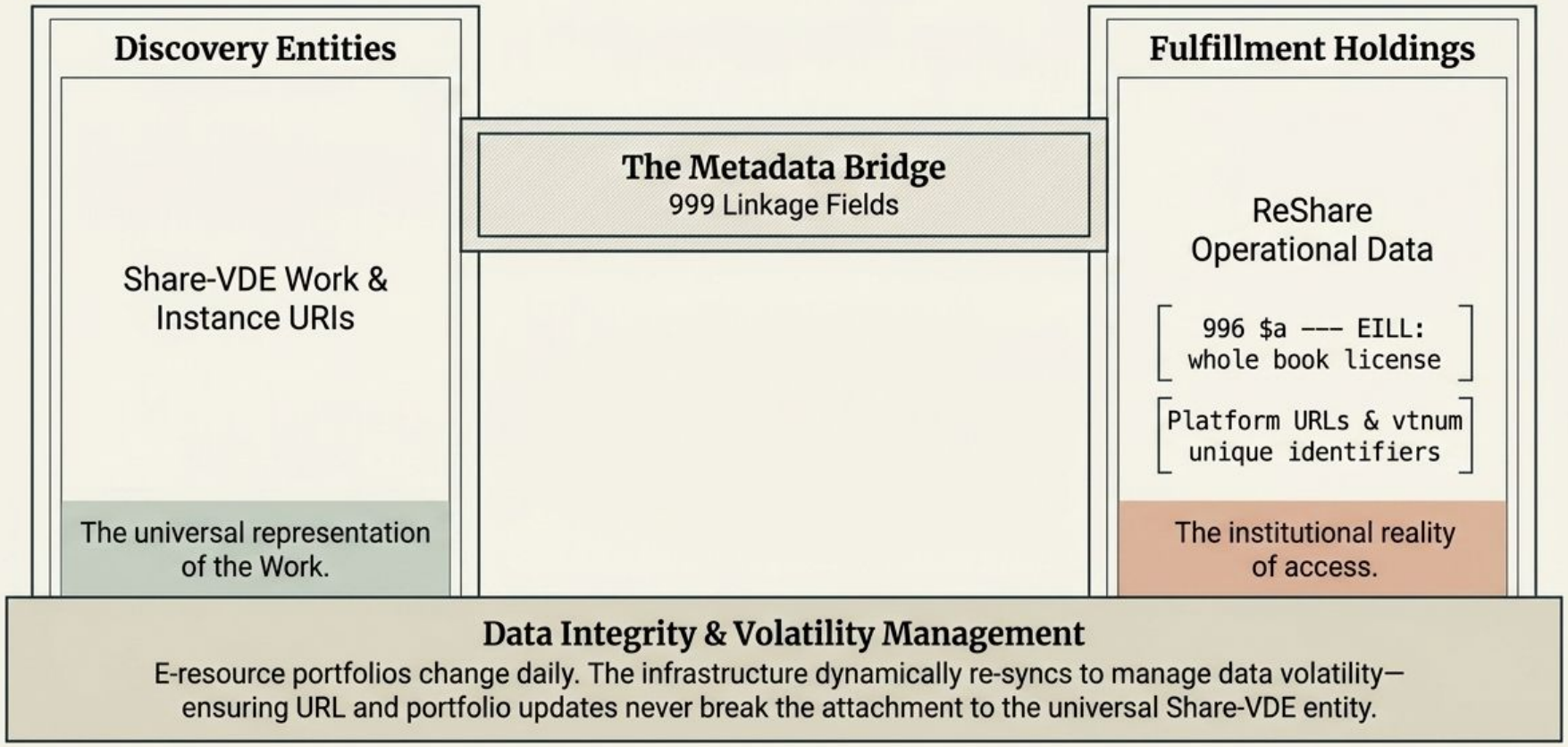
Enriching Entity Relationships



Strategic Metadata Exchange

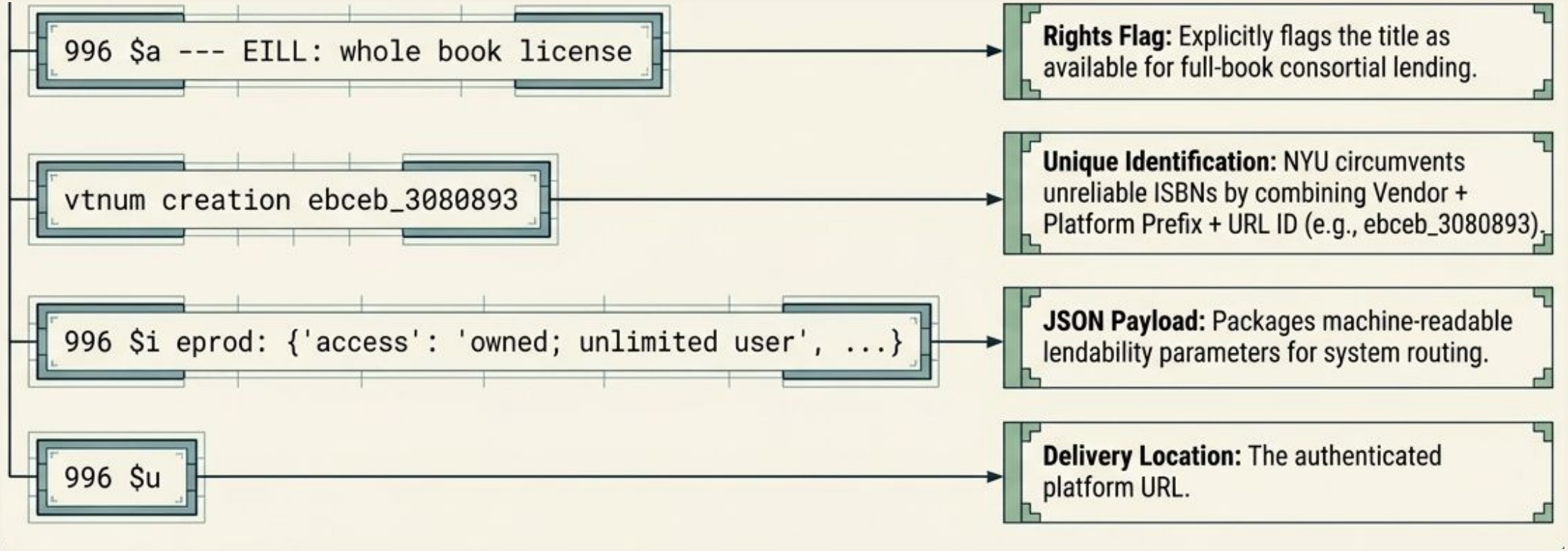


Bridging Discovery and Fulfillment



Beyond Description: Operational Metadata

Discovery relies on work/instance relationships. Fulfillment relies on lendability, platform, authentication data.



E-Lending Spectrum: Rights & Fulfillment

Open: DRM-Free

- **Delivery:** Non-returnable PDF / EPUB.
- **Workflow:** File exchange (e.g., via ReShare or Article Exchange).
- **Challenge:** Vulnerable to unmonitored distribution.

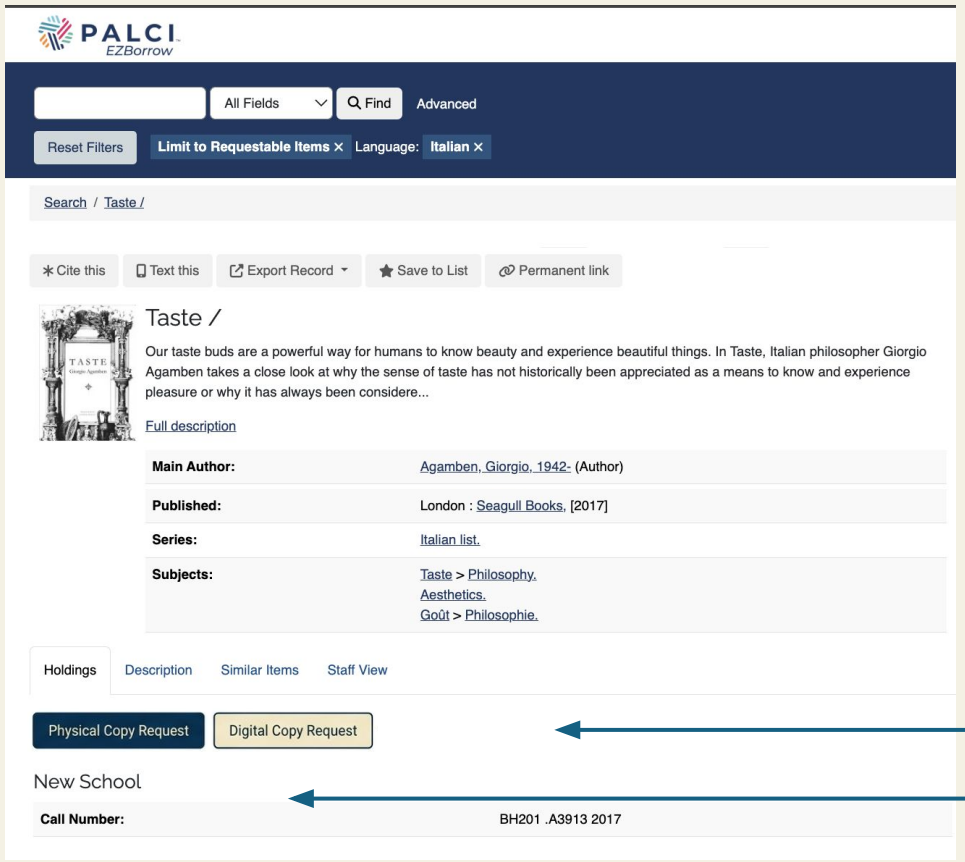
Managed: LCP Ecosystem (Pilot Focus)

- **Delivery:** Readium LCP / Thorium Web Readers.
- **Workflow:** Tokenized, time-bound URLs with passphrases.
- **Challenge:** Balancing persistent User IDs across devices with patron privacy.

Locked: Strict Publisher DRM

- **Delivery:** Proprietary vendor platforms.
- **Workflow:** Returnable on publisher platform.
- **Challenge:** Siloed user experiences; loss of reader notes upon return.

Unified Discovery



1 **Entity Clustering:**
Print and electronic manifestations are collapsed into a single, comprehensive 'Work' result.

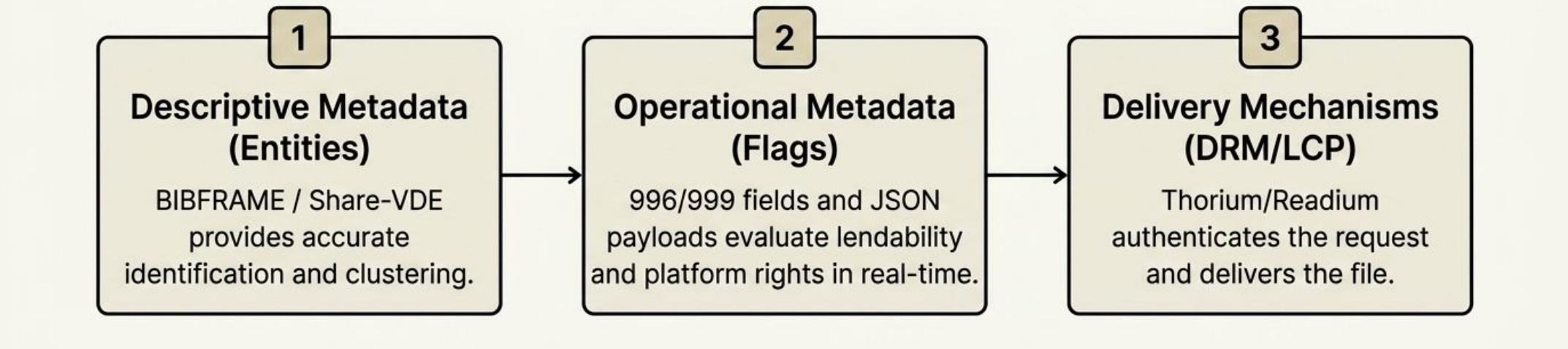
2 **Clear Sourcing:**
The interface displays which PALCI institutions hold which formats.

3 **Meaningful User Choice:**
Presenting side-by-side request options for "Physical Copy" vs. "Digital Request" (based on 996 lendability flags).

The metadata infrastructure absorbs the complexity of entity matching and rights management, enabling a seamless, intuitive user experience.

Interoperable Metadata Infrastructure

Metadata infrastructure is the foundation of interoperability, integrating descriptive metadata, operational metadata and secure delivery into a unified resource-sharing ecosystem.



Best Practices for Consortial Ecosystems

- **Move from Record Matching to Entity Reconciliation:** Adopt entity-based models that reconcile related manifestations, improving discovery, reducing duplication, and enabling interoperable resource sharing.
- **Treat Metadata as Shared Infrastructure:** Develop metadata as a shared operational asset that supports discovery, rights management, routing, and fulfillment across institutional boundaries.
- **Integrate Descriptive and Operational Metadata:** Design metadata models that combine entity identification with machine-actionable rights and fulfillment metadata.
- **Design for Interoperability from the Outset:** Standardize identifiers and machine-actionable metadata to support consistent exchange across systems, institutions, and platforms.

Recommendations

Develop Rights Metadata Profiles:

The community urgently needs standardized, machine-readable schemas to communicate complex digital lendability, concurrent user limits, and DRM requirements beyond simple text strings.

Establish Shared Vocabularies for Digital Lending:

Codify terms for emerging fulfillment models (e.g., chapter-level vs. whole-book delivery, time-bound tokenized access) to ensure cross-system interoperability.

Publish Community Implementation Guidance:

Provide clear frameworks for institutions to transition local electronic resource management (ERM) data into interoperable Linked Linked Open Data infrastructure.

Thank You

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