The COAR Notify Initiative

Patrick Hochstenbach & Paul Walk

COAR Notify Initiative

- Accelerating community adoption of standards and protocols for a **decentralized** approach to scholarly communication
- Current focus
  - Linking **research outputs** from a network of (data) **repositories** a with resources from external **service providers**
    - **Overlay journals**
    - **Peer review services**

Who is involved

- Principal investigators
  - Kathleen Shearer (COAR)
  - Paul Walk (Antleaf)
  - Martin Klein (LANL)
  - Eloy Rodrigues (University of Minho)
- Technical Advisors
  - Herbert Van de Sompel
  - Patrick Hochstenbach
- External funding
  - 4-year , $4 million grant from Arcadia Foundation began July 1, 2022
- Implementing Partners
  - CSIC - Spanish National Research Council
  - Episcience
  - HAL
  - Harvard Library
  - Humanities Commons
  - LA Referencia
  - Open Scholar
  - Peer Community In
  - PREreview
  - RCAAP & Pub In
  - Redalyc
  - Sciety

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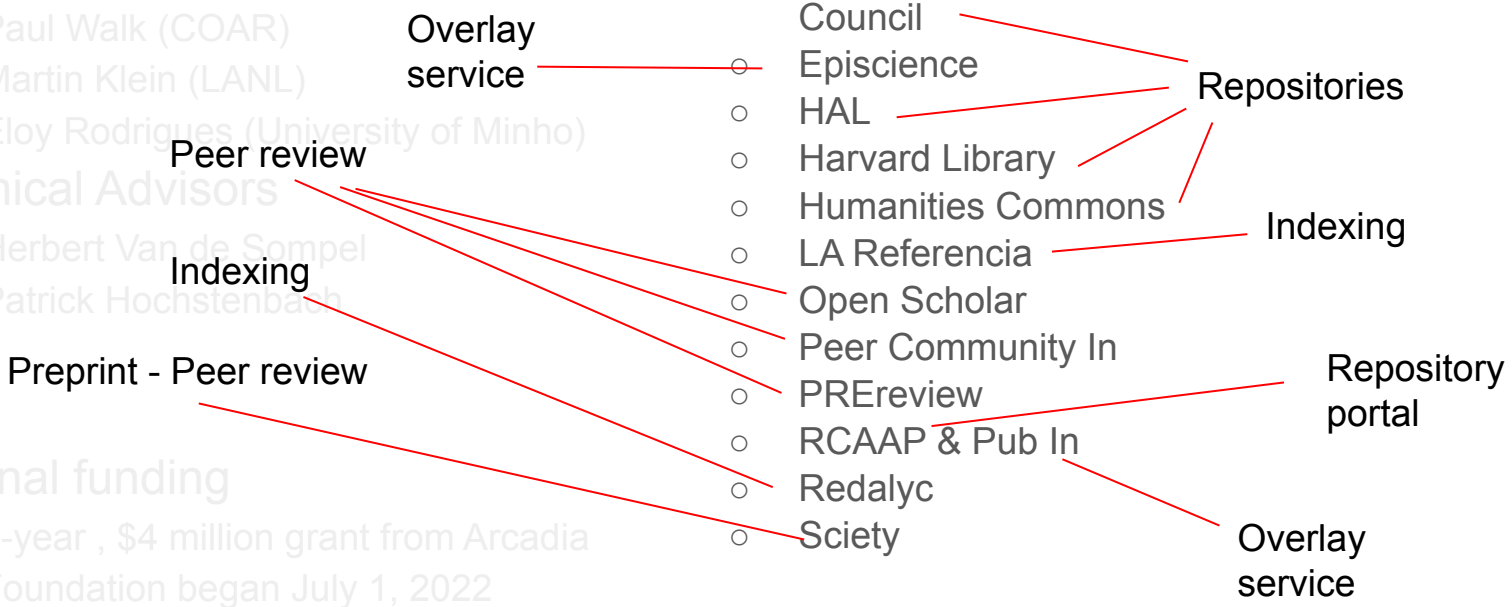
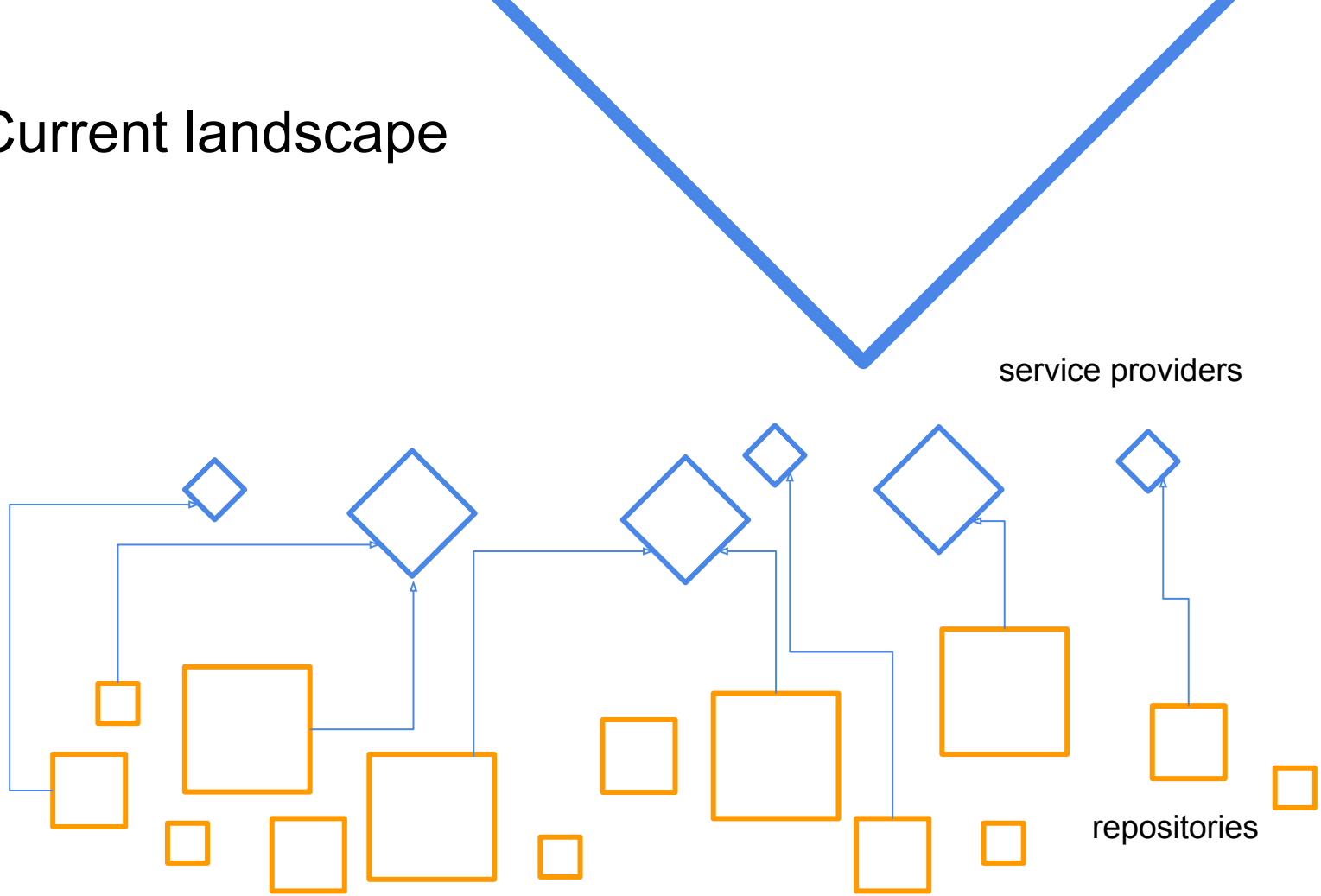
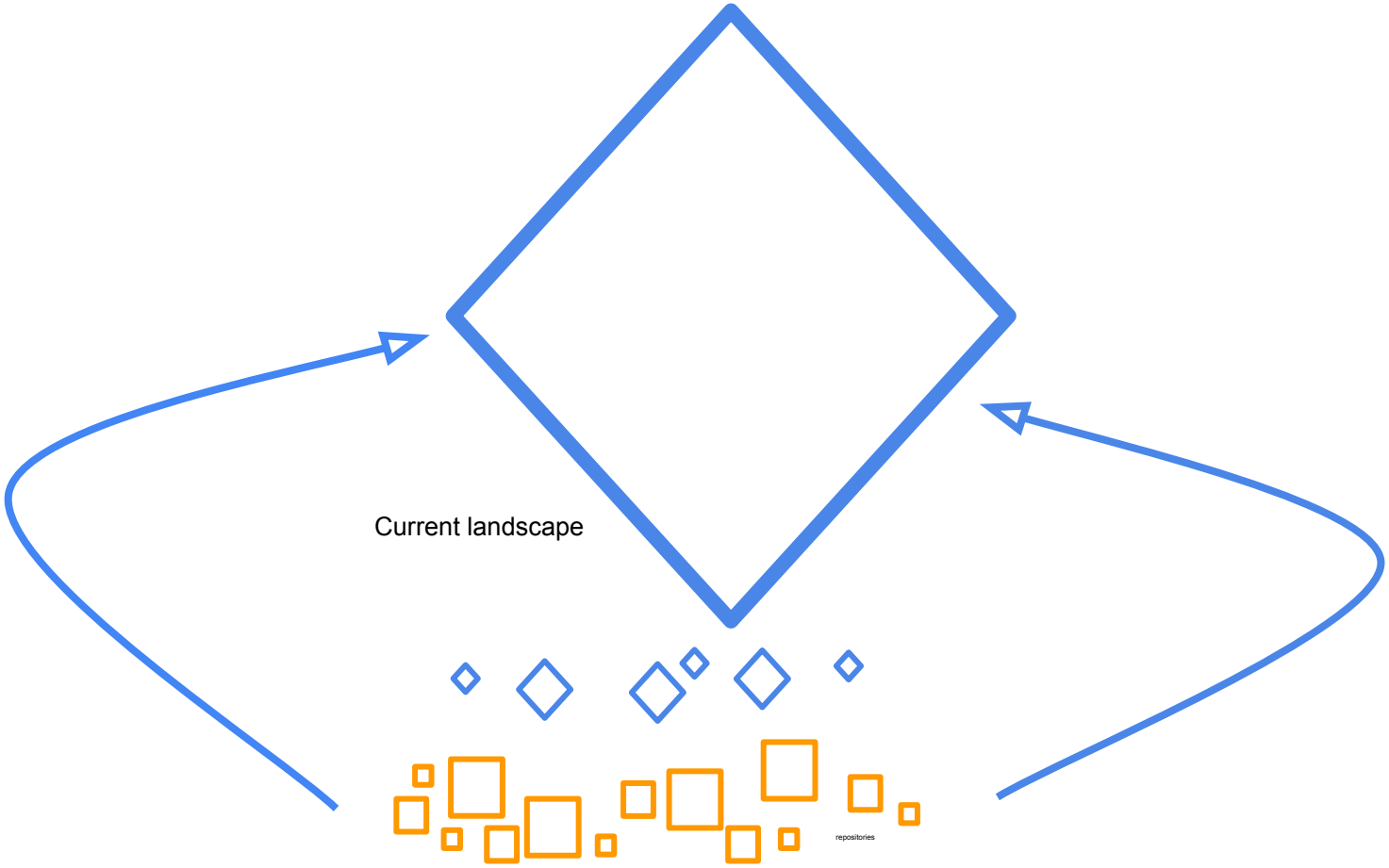


Discussions with repository platforms

Current landscape



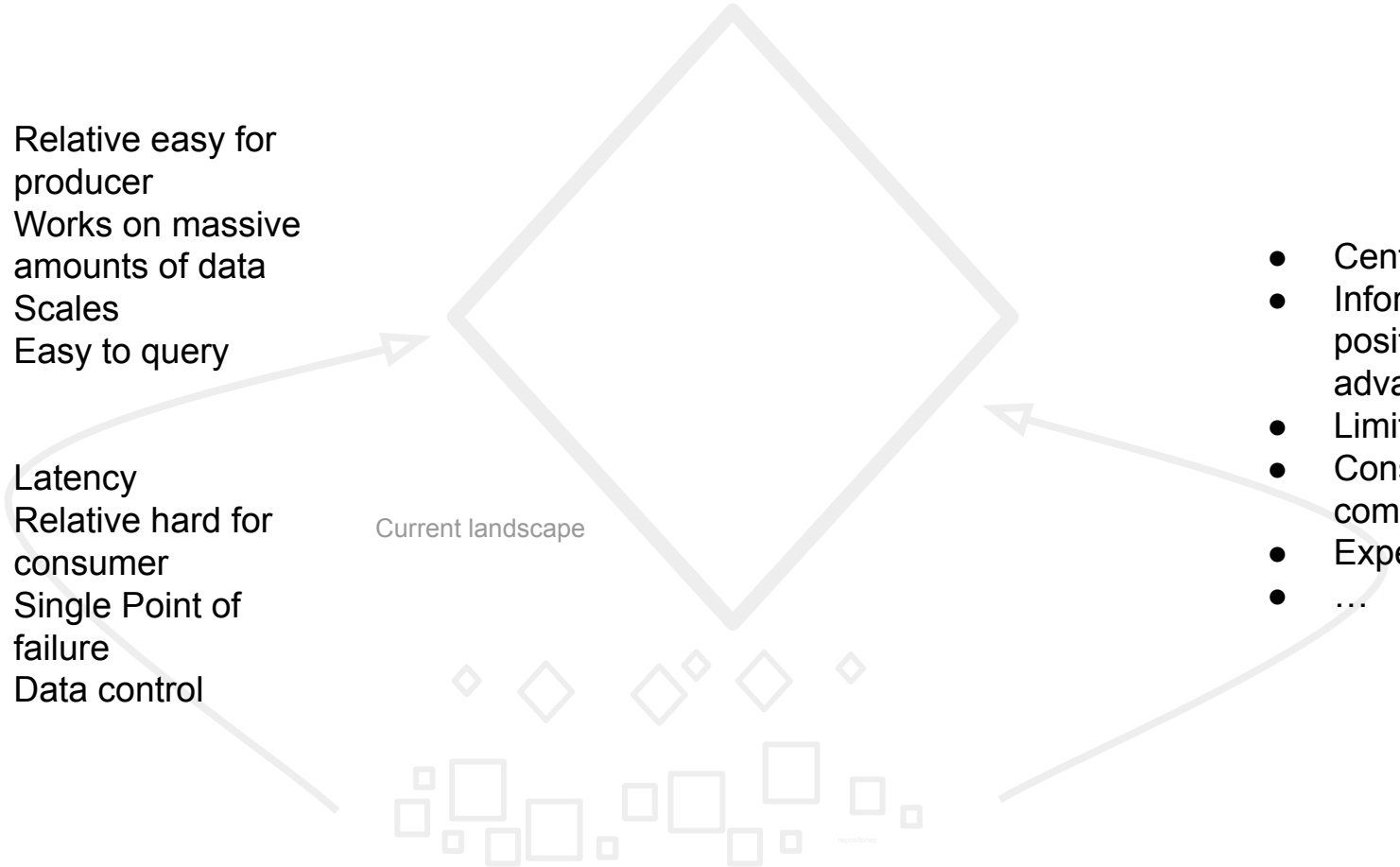

Current landscape
repositories

(+)

- Relative easy for producer
- Works on massive amounts of data
- Scales
- Easy to query

(-)

- Latency
- Relative hard for consumer
- Single Point of failure
- Data control



- Centralization
- Informational and positional advantages
- Limiting innovation
- Constraining competition
- Expensive
- …

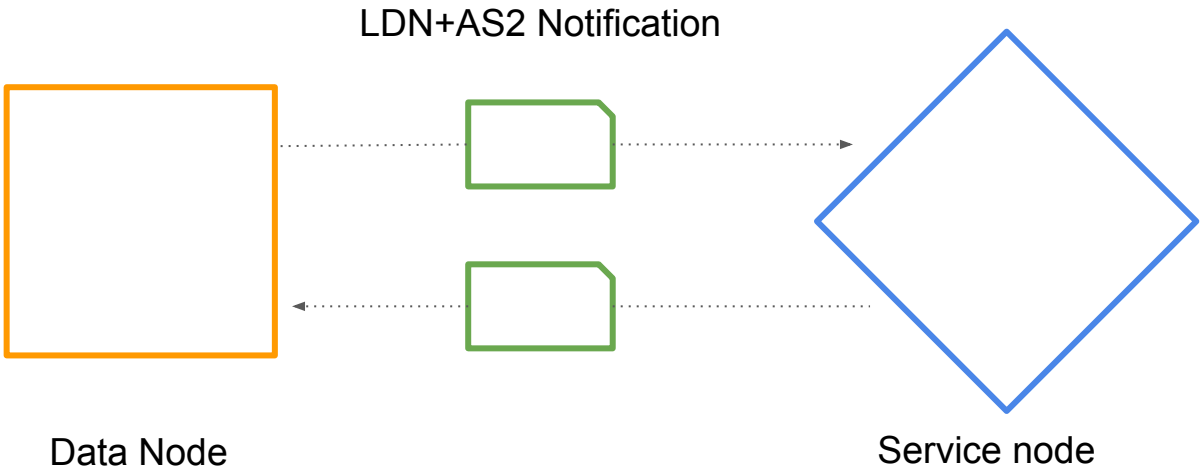
Design principles

- **Linking** resources in repositories to related resources in other Data Nodes and services providers (named *Service Nodes* from now on).
- Service nodes add (scholarly) value to artifacts
  - *Registration* - Allows claims of precedence for a scholarly finding
  - *Certification* - Establishes validity of the claim
  - *Awareness* - Allows actors in the system to remain aware of new claims
  - *Archiving* - Preserves the scholarly record over time
- Resource oriented (named *Artifacts* from now on)
  - Pass information about artifacts by reference
  - Use the Web esp Linked Data Principles
- Decentralized

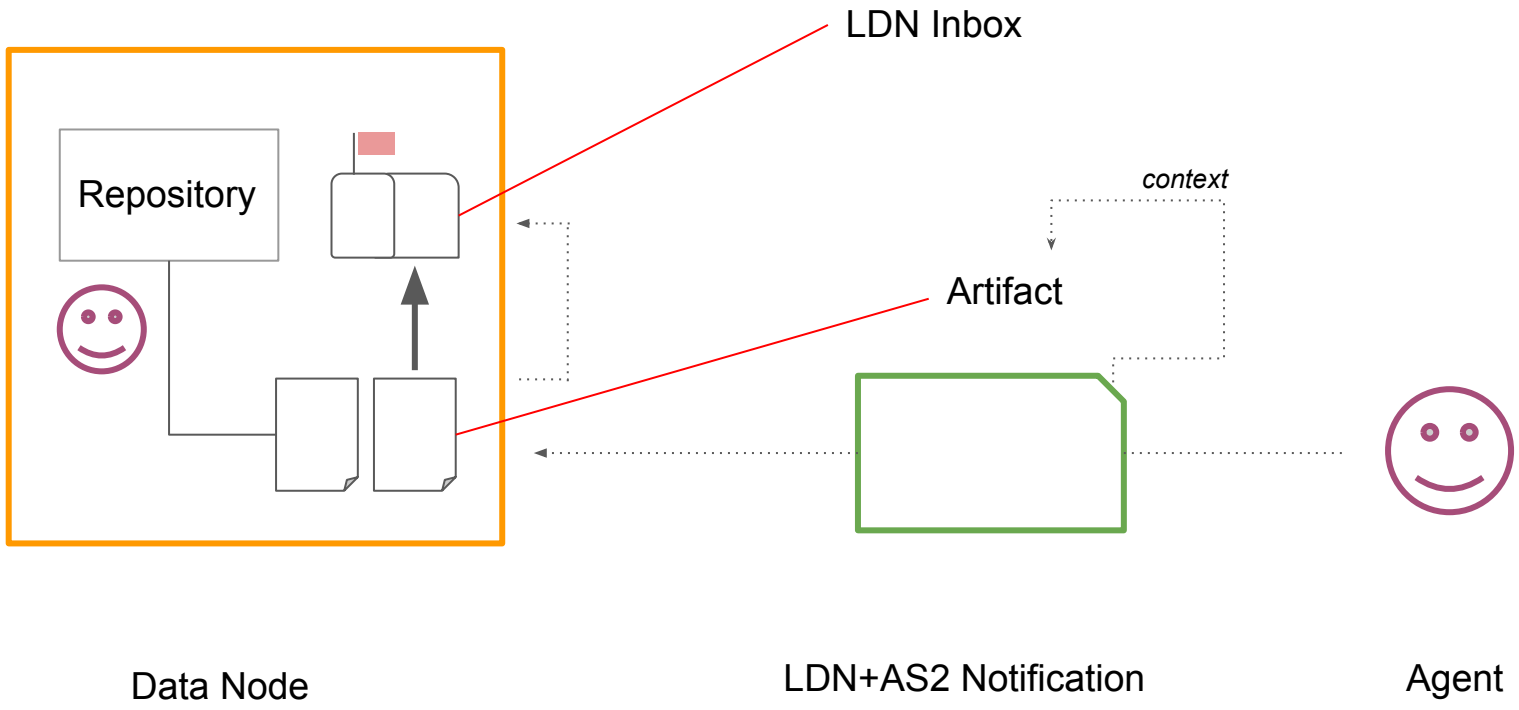
Technologies

- Linked Data Notifications (LDN)
- Activity Streams 2.0 (AS2)
- Related to projects such as:
  - Dokieli (Carven Capadisli)
  - Researcher Pod (Mellon IDLAB Gent)
  - ErfgoedPOD (DANS)
  - DICE DDPS (DANS)
  - ActivityPub (Mastodon, Peertube, …)

Data/Service Nodes & Linked Data Notifications



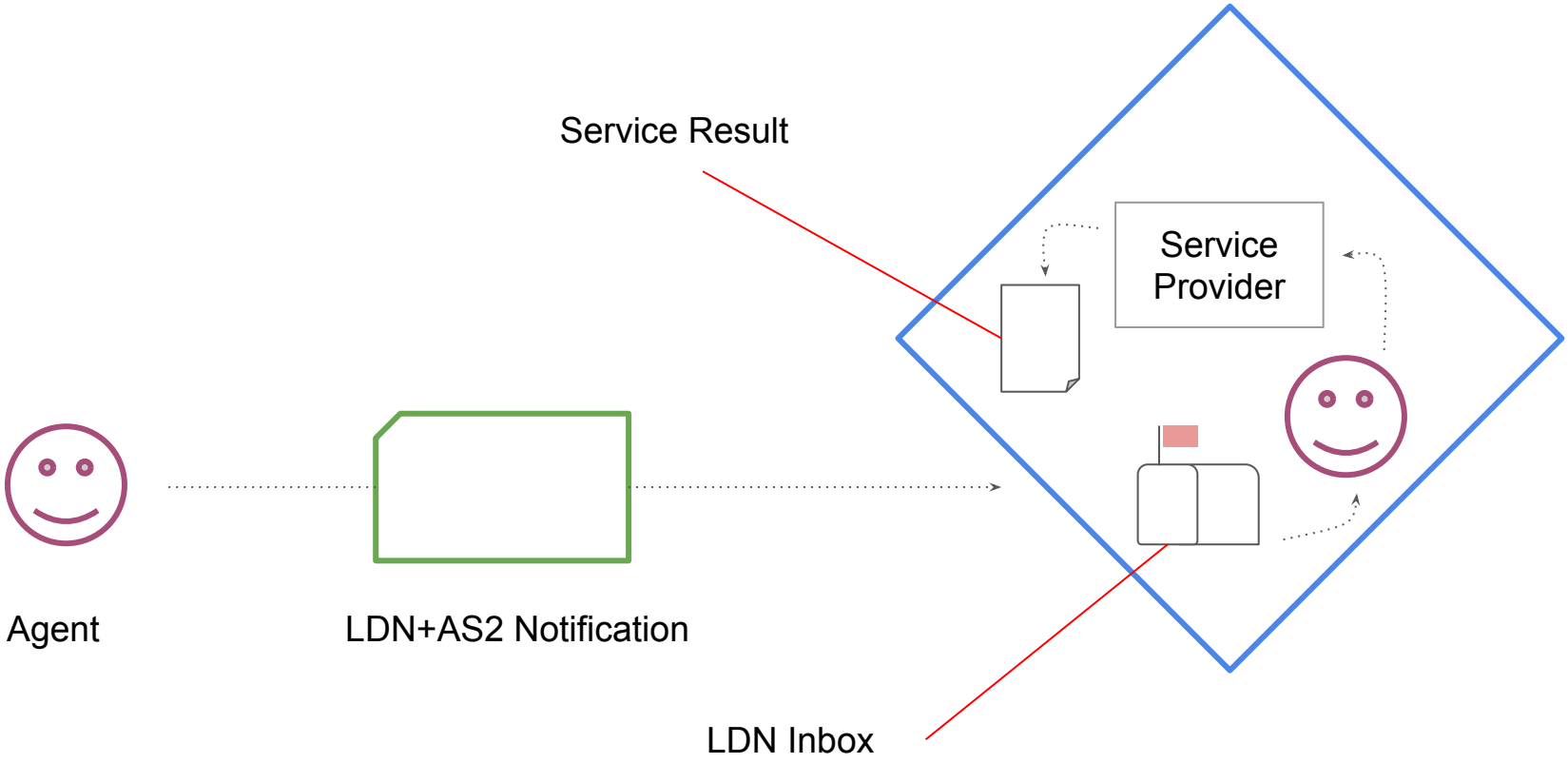
Artifact + Data Node



Artifact + Data Node

- **Artifact** is a *research output* (preprint, dataset, book)
  - Can be a simple object (a PDF)
  - But in general complex of landing page + PDF + metadata + …
  - Identifiable with a URL
  - Visiting this URL one can learn more about the artifact
    - Esp. find the location of an **LDN Inbox** for the artifact
- **Data Node** is a system that hosts **Artifacts** + **LDN Inbox**(es)
- A **Data Node** has one or more **Agents** that send/receive **LDN+AS2 Notifications**

Service Result + Service Node



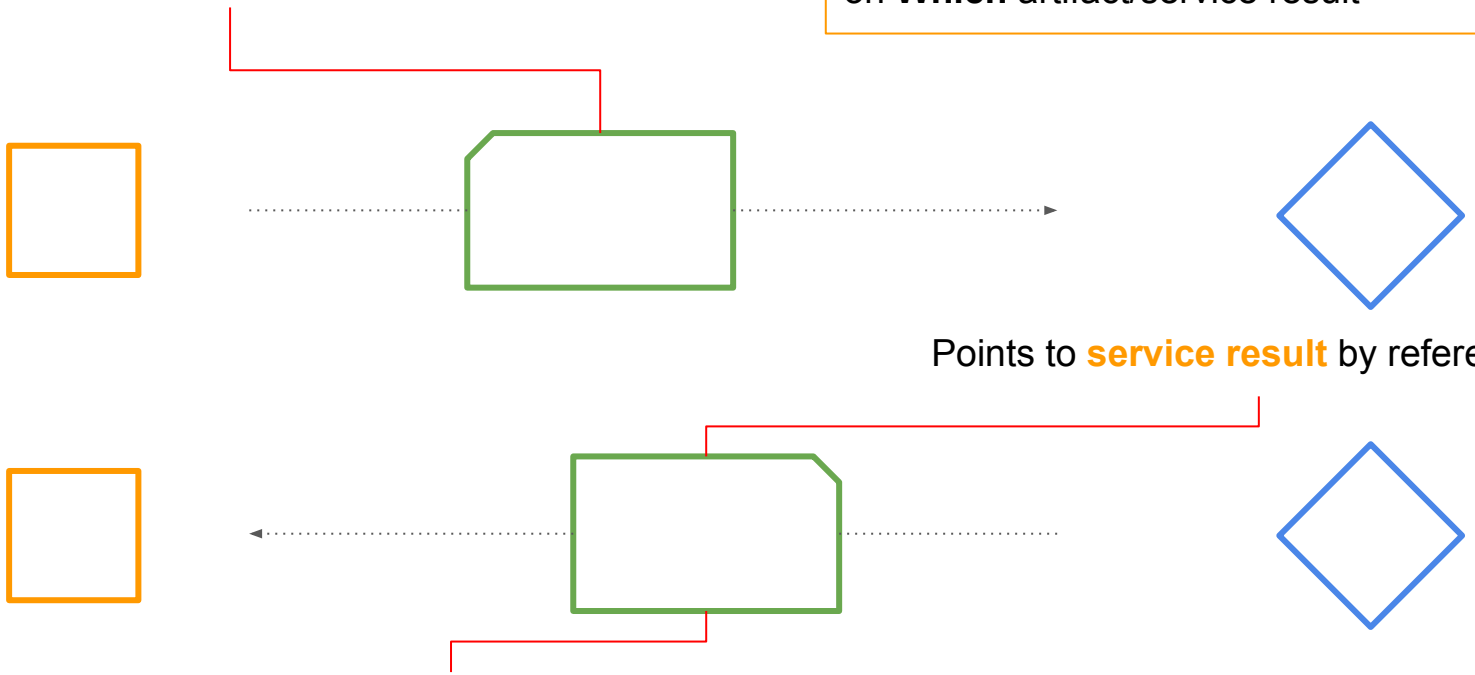
Service Result + Service Node

- **Service Result** is the *output* provisioning a *value-add service* pertaining to an **Artifact** on a **Data Node**
  - An ephemeral inline resource (a calculation result, a note , …)
  - An web resource with a URL (simple, complex)
    - Visiting this URL one may learn more about the service result
    - Doesn't require to have an **LDN Inbox** associated with it
- **Service Node** is a system that provides
  - Value-adding services pertaining to artifacts on **Data Nodes**
  - Optionally, hosts **LDN Inbox**(es) to request value-adding services for artifacts
- A **Service Node** has one or more **Agents** that send/receive **LDN+AS2 Notifications**

LDN+AS2 Notifications

Points to **artifact** by reference

Describes **Who** did/asked **What** **activity** on **Which** artifact/service result



Points to **service result** by reference

Point to **artifact** context by reference

AS2 Activities used in COAR Notify

- **Offer** - one system offers one of its resources for some activity to be conducted by a second system.
  - E.g. offer for peer review
- **Accept** | **Reject** - acknowledge an offer activity, indicating acceptance or otherwise
  - E.g. a peer review service may first evaluate the offer
- **Announce** - announce the outcome of an activity, sometimes (but not always) linking an original resource to a new, related resource.
  - E.g. notifying the availability of a peer review of an artifact
- **Undo** - undoing a previous activity - for example rescinding an offer.
  - E.g. cancelling an offer for peer review

LDN + AS2 Notification in *JSON-LD*

Show folder contents

Announcement (standalone)

Properties

The `@context` must include:

- Activity Streams 2.0
- Notify

`id`

Notify notifications must describe an AS 2.0 `activity`. The `activity` has an `id` which must be a URI, and the use of URN:UUID is recommended. An HTTP URI may be used instead, but in such cases the URI should resolve to a useful resource.

`type`

The `activity` has a `type` which should include at least the value *Announce* from AS 2.0.

`actor`

The `activity` should have an `actor` describing the party responsible for initiating this `activity`. The `actor`:

- has an `id` which must be an HTTP URI.
- has a `type` which should be one of: *Application*, *Group*, *Organization*, *Person* or *Service* from AS 2.0.
- may have a name

`context`

This `activity` has a `context`. The `context` has:

- An `id` which is the HTTP URI of the "landing page" for the resource.
- A `type`.
- An `ietf:cite-as` which contains the persistent HTTP URI (sometimes called the "PID") which is to be used to cite or link to the resource.

`object`

This `activity` has an `object`. The `object` has:

Example JSON-LD Payload

```
{
  "@context": [
    "https://www.w3.org/ns/activitystreams",
    "https://purl.org/coar/notify"
  ],
  "actor": {
    "id": "https://generic-service.com",
    "name": "Generic Service",
    "type": "Service"
  },
  "context": {
    "id": "https://some-organisation.org/resource/0021",
    "ietf:cite-as": "https://doi.org/10.4598/12123487",
    "type": "Document"
  },
  "id": "urn:uuid:94ecae35-dcfd-4182-8550-22c7164fe23f",
  "object": {
    "id": "https://generic-service.com/resource/1234",
    "ietf:cite-as": "https://doi.org/10.9357/123003",
    "type": "Document"
  },
  "origin": {
    "id": "https://generic-service.com/system",
    "inbox": "https://generic-service.com/system/inbox/",
    "type": "Service"
  },
  "target": {
    "id": "https://some-organisation.org/system",
    "inbox": "https://some-organisation.org/system/inbox/",
    "type": "Service"
  },
  "type": "Announce"
}
```

Get raw JSON-LD

https://notify.coar-repositories.org/patterns/announcement/

https://www.eventnotifications.net

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Event Notifications in Value-Adding Networks

Living Document, 17 October 2022

This version:
https://www.eventnotifications.net

Latest published version:
https://www.eventnotifications.net

Previous Versions:
https://www.eventnotifications.net/0.1/

Issue Tracking:
GitHub
Inline In Spec

Editors:
Patrick Hochstenbach (Ghent University Library)
Miel Vander Sande (meemoo - Flemish Institute for Archives)
Ruben Dedecker (IDLab - Ghent University)
Paul Walk (Antleaf)
Martin Klein (Los Alamos National Laboratory)
Herbert Van de Sompel (IDLab - Ghent University)

Abstract

This document lists the possible notifications that can be used in the network.

Feedback welcome: value-adding-networks@googlegroups.com.

COAR Notify Scenarios

Peer-review

This use-case is concerned with peer-review of repository-based resources, initiated either by the repository, or by a peer-review service. This use-case encompasses a range of forms of peer-review, including open-peer-review.

The COAR Notify concept of review may be extended to a more general concept like endorsement or certification with no changes in underlying technology/framework. In the digital age, we do not need to rely on a journal for reviews of research outputs, and we are seeing a trend towards the formation of peer review communities. These communities can exist on their own and undertake peer review independently (PREerview), or contribute to peer review activities of existing journals (PCI example), or be attached to institutional and national research assessment activities. This scenario will involve working with CLACSO, which represents a large community of scholars in the humanities and social sciences, to develop and support communities of scholars that will undertake reviews of research articles and other types of content in repositories.

Example scenarios involved in peer-review

ID	Scenario	Use-case(s)	Participating Systems
1	Author requests review with possible endorsement (via overlay journal)	Peer-review, Endorsement	Overlay Journal <-> Repository
2	Author requests review with possible endorsement (via repository)	Peer-review, Endorsement	Repository <-> Overlay Journal
3	Overlay Journal Announces Review and Endorsement of Pre-print to Aggregator	Peer-review, Endorsement, Dissemination	Overlay Journal <-> Aggregator
5	Repository requests review (on behalf of corresponding author)	Peer-review	Repository <-> Review Service
6	Author submits to overlay journal using repository to host resource and reviews	Peer-review, Endorsement	Overlay Journal <-> Repository
7	Review Service Announces Review of Pre-print to Aggregator	Peer-review, Dissemination	Review Service <-> Aggregator
8	Review Service Announces Review of Pre-print to Repository	Peer-review	Review Service <-> Repository
9	Author requests reviews from review service, via repository	Peer-review	Repository <-> Review Service

https://notify.coar-repositories.org/usecases/

COAR Notify Scenarios

Endorsement

This use case is about endorsement of repository resources, involving an endorsement service of some kind. One common example may be the publishing of repository-based resources in overlay journals, initiated either by the repository, or by the overlay journal.

Overlay journals

In the overlay publishing model, a journal performs peer review and endorsement of an article or preprint, but it doesn't publish articles on its website. Rather, the journal's website links to final article versions hosted in an online repository. In some cases, the final article versions may also be mirrored on the journal website. The overlay publishing process usually involves a number of steps that can be automated using the Notify technologies.

Example scenarios involved in endorsement

ID	Scenario	Use-case(s)	Participating Systems
1	Author requests review with possible endorsement (via overlay journal)	Peer-review, Endorsement	Overlay Journal <-> Repository
2	Author requests review with possible endorsement (via repository)	Peer-review, Endorsement	Repository <-> Overlay Journal
3	Overlay Journal Announces Review and Endorsement of Pre-print to Aggregator	Peer-review, Endorsement, Dissemination	Overlay Journal <-> Aggregator
4	Overlay Journal Endorses Pre-print (Initiated by Author)	Endorsement	Overlay Journal <-> Repository
6	Author submits to overlay journal using repository to host resource and reviews	Peer-review, Endorsement	Overlay Journal <-> Repository

https://notify.coar-repositories.org/usecases/

COAR Notify Scenarios

Dissemination

This use-case is about those services which wish to use, classify, aggregate or otherwise process other activities (such as reviews or endorsements) that have generated resources related to repository-based resources.

Example scenarios involved in dissemination

ID	Scenario	Use-case(s)	Participating Systems
3	Overlay Journal Announces Review and Endorsement of Pre-print to Aggregator	Peer-review, Endorsement, Dissemination	Overlay Journal <-> Aggregator
7	Review Service Announces Review of Pre-print to Aggregator	Peer-review, Dissemination	Review Service <-> Aggregator
10	Repository announces relationship between local resource and second resource hosted on another repository	Dissemination	Repository <-> Repository

https://notify.coar-repositories.org/usecases/

Further potential scenarios considered

- Pre-print <-> data/code repository linking
- Audit, transparency in scholarly communication service (see U Ghent)
  - Notifications sent from all involved systems about all (most?) occurring events
  - Audit consumer to offer value-added services
- (peer) review on micro-publications, blog posts, tweets, etc.
  - Maybe as simple as an authenticity check
- Citation notification
- Pre-print <-> journal version linking

Social Challenges

Community Acceptance

The post-publication review model is disruptive

Academic conservatism/inertia reinforced by current assessment practices

There is perceived value on current formatting of articles in traditional editorial processes

Next steps

Over the four year time frame for the project, the **Notify project will provide implementing partners technical support and, where appropriate, funding** to assist them in the adoption of the Notify technologies and protocol (linked data notification functionalities) and develop the workflow for managing the notifications in their platforms and services. The end result will be **several clusters of interrelated services** that are using Notify to manage the interactions related to peer review on repository resources.

Thank you

Questions?