

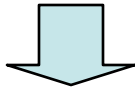
A Collaboration Model between Archival Systems to Enhance the Reliability of Preservation by an Enclose-and-Deposit Method

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Background and Goal

- Archiving/preservation of digital resources at many libraries, museums, archives, governmental sectors, etc.



Heterogeneity of archives

- Size of Archives
- Type of Archived Resources
- Architecture and Interface of Archival System
- Archive and Preservation Policies
- Language for Describing Metadata

Background and Goal (cont'd)

- Are the archives of digital resources really reliable?


Risks

- Shortage of human resources and funding to keep archives alive
- Organizational changes
- Natural and human-caused disasters



High risks especially in small communities

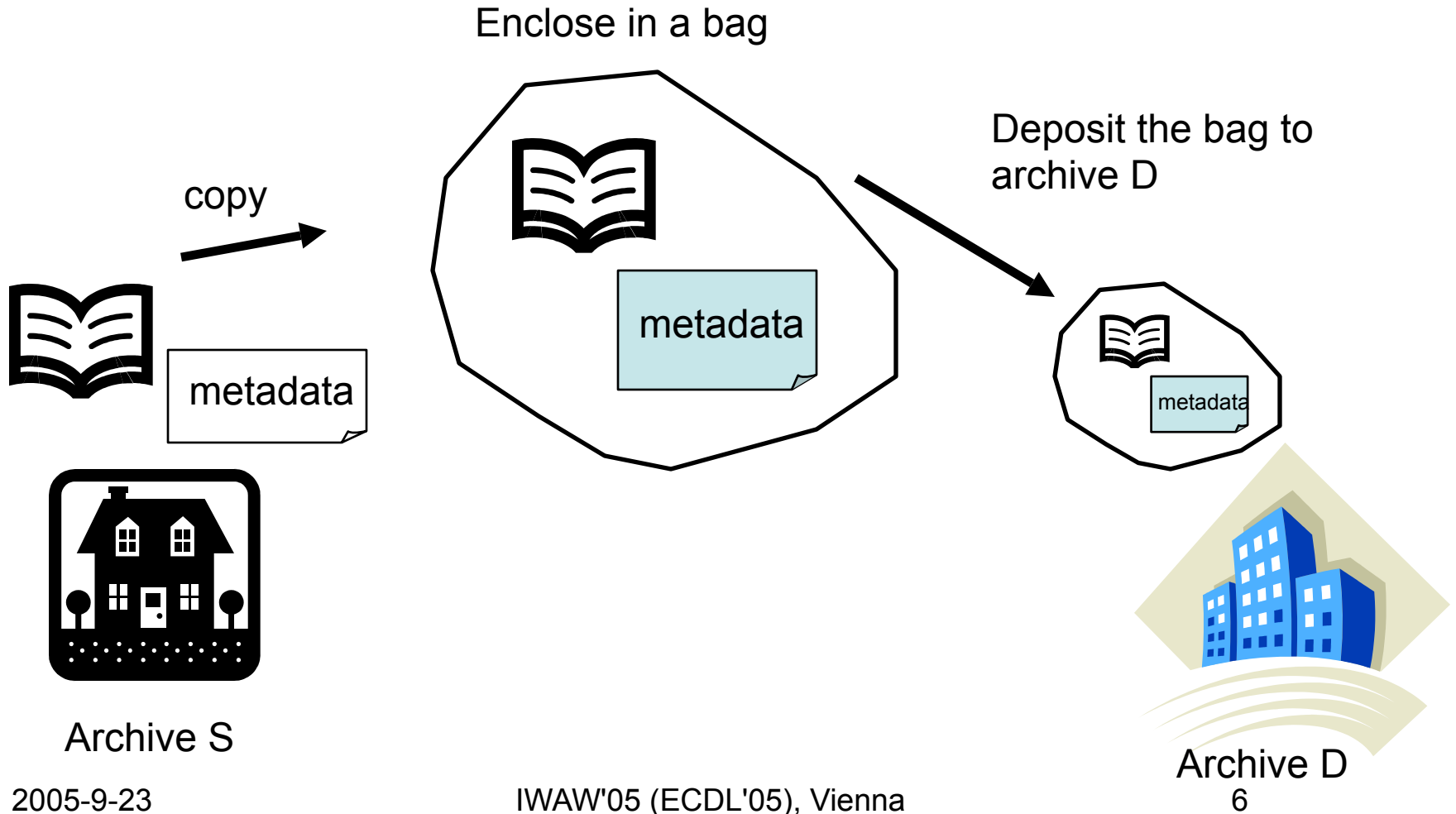
Background and Goal (cont'd)

- Crucial issues to make digital archives highly reliable
 - Simplicity
 - Inexpensiveness in system cost and in human labor
 -  Interoperability among archives over time

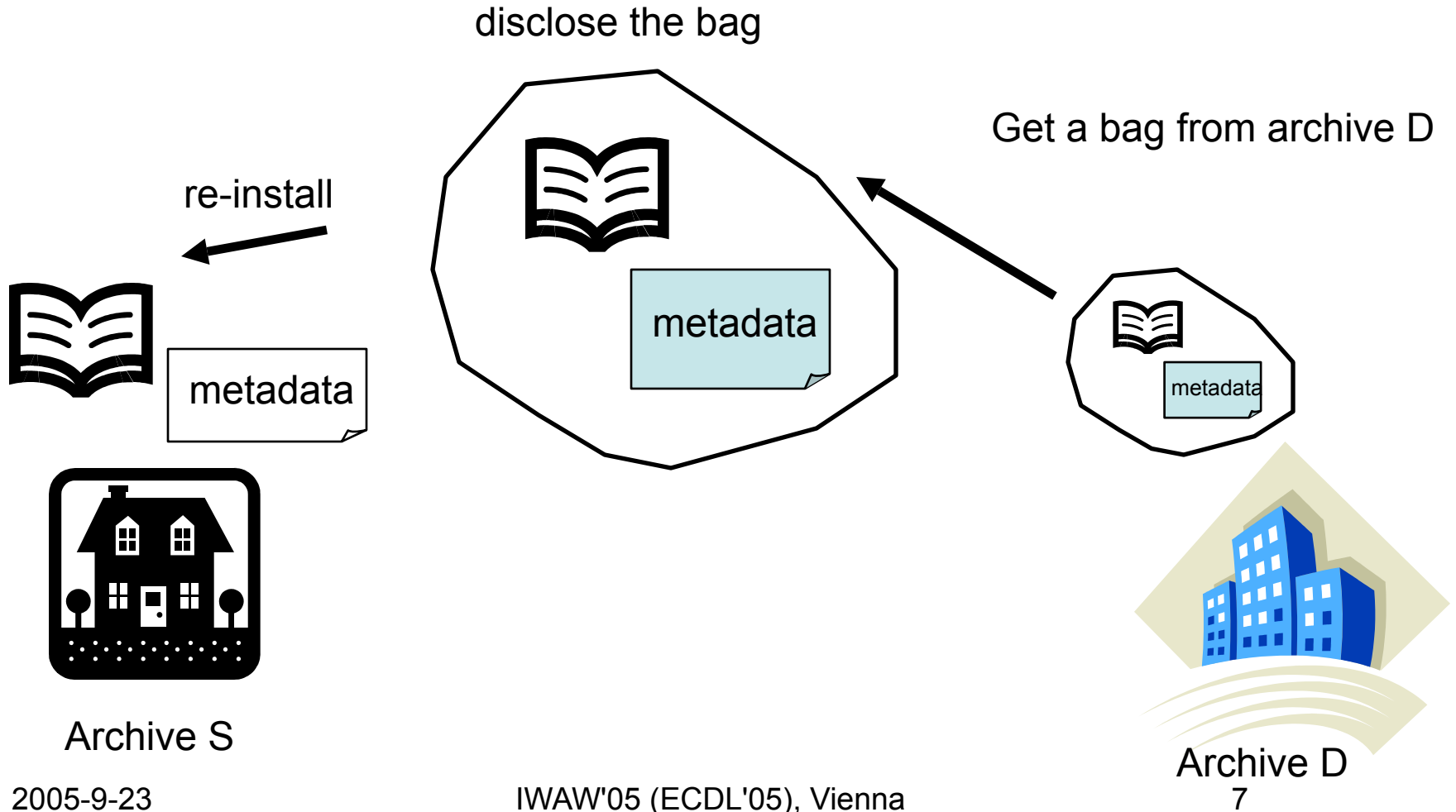
Background and Goal (cont'd)

- Our approach, “Enclose-and-Deposit”
 - Enclose a preserved resource into a bag with an appropriate description and deposit the bag to a collaborating archive (or archives)
- Preservation by Collaborating Archives
 - Simple collaboration protocol to reduce costs and to enhance interoperability
- Use XML to realize a Bag
 - Simple and Stable

Enclose and Deposit



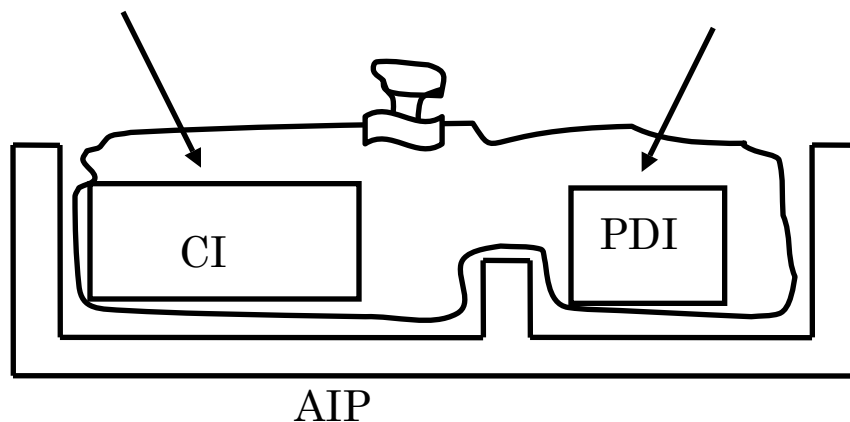
Enclose and Deposit



Bag and AIP

Content Information

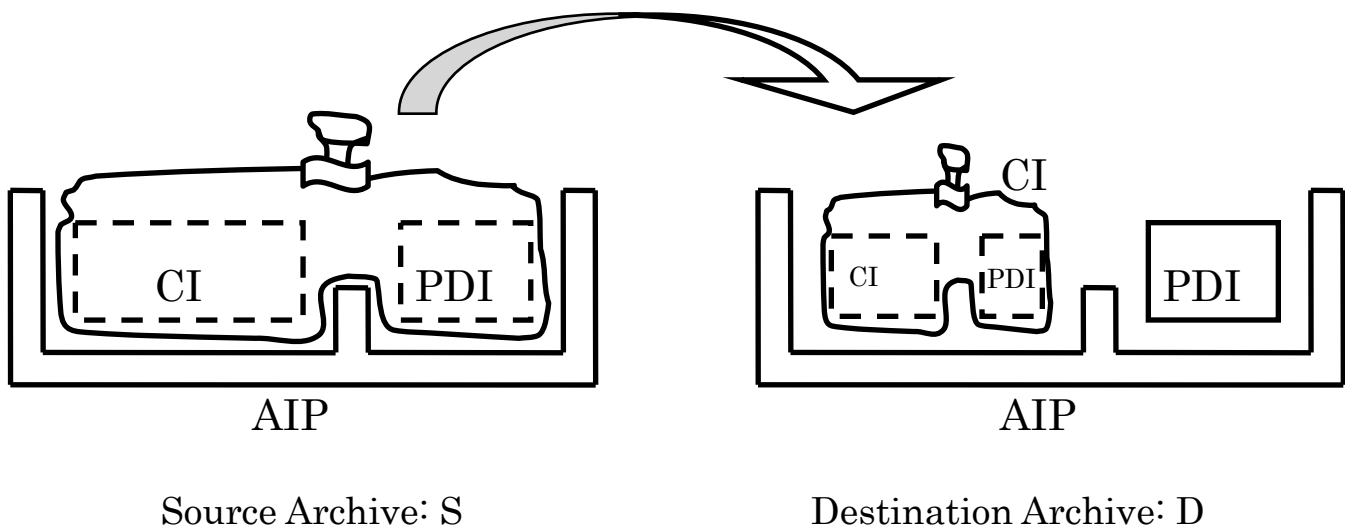
Preservation Description Information



Archived Resource enclosed in a bag

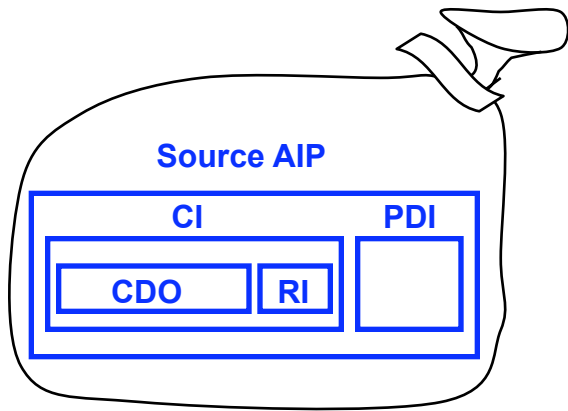
Archival Information Package (AIP) of OAIS

Bag and AIP



Concept of Deposition between OAISs

Bag and AIP



A Bag created from a source AIP



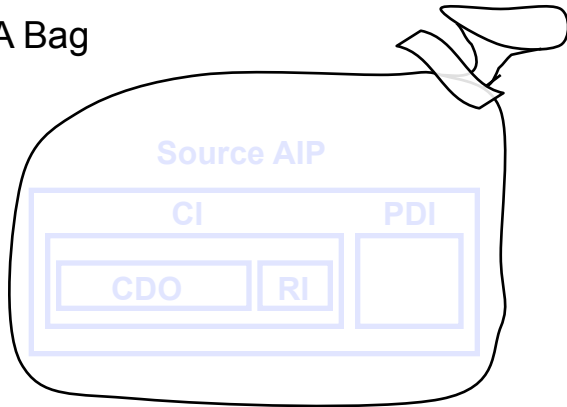
```
<?xml version="1.0" encoding="xxx"?>
<AIP>
  <CI>
    <CDO>xxx</CDO>
    <RI>xxx</RI>
  </CI>
  <PDI>xxx</PDI>
</AIP>
```

XML Implementation of a Bag

A Skeleton of an XML instance which encloses Source AIP

Bag and AIP

A Bag



Realized as an XML instance

```
<?xml version="1.0" encoding="xxx"?>
<AIP>
  <CI>
    <subCI><CDO>xxx</CDO><RI>xxx</RI></subCI>
    <subCI><CDO>xxx</CDO><RI>xxx</RI></subCI>
    <subCI><CDO>xxx</CDO><RI>xxx</RI></subCI>
  </CI>
  <PDI>xxx</PDI>
</AIP>
```

An XML instance

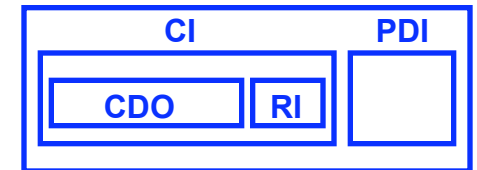
(A Example of multiple Objects)

A manual prepared by the source archive for archive managers in future

```
XXXXXXXX
XXXXXXXX
XXXXXXXX
XXXXXX
```

describes how to open and restore the bag in the source archive environment

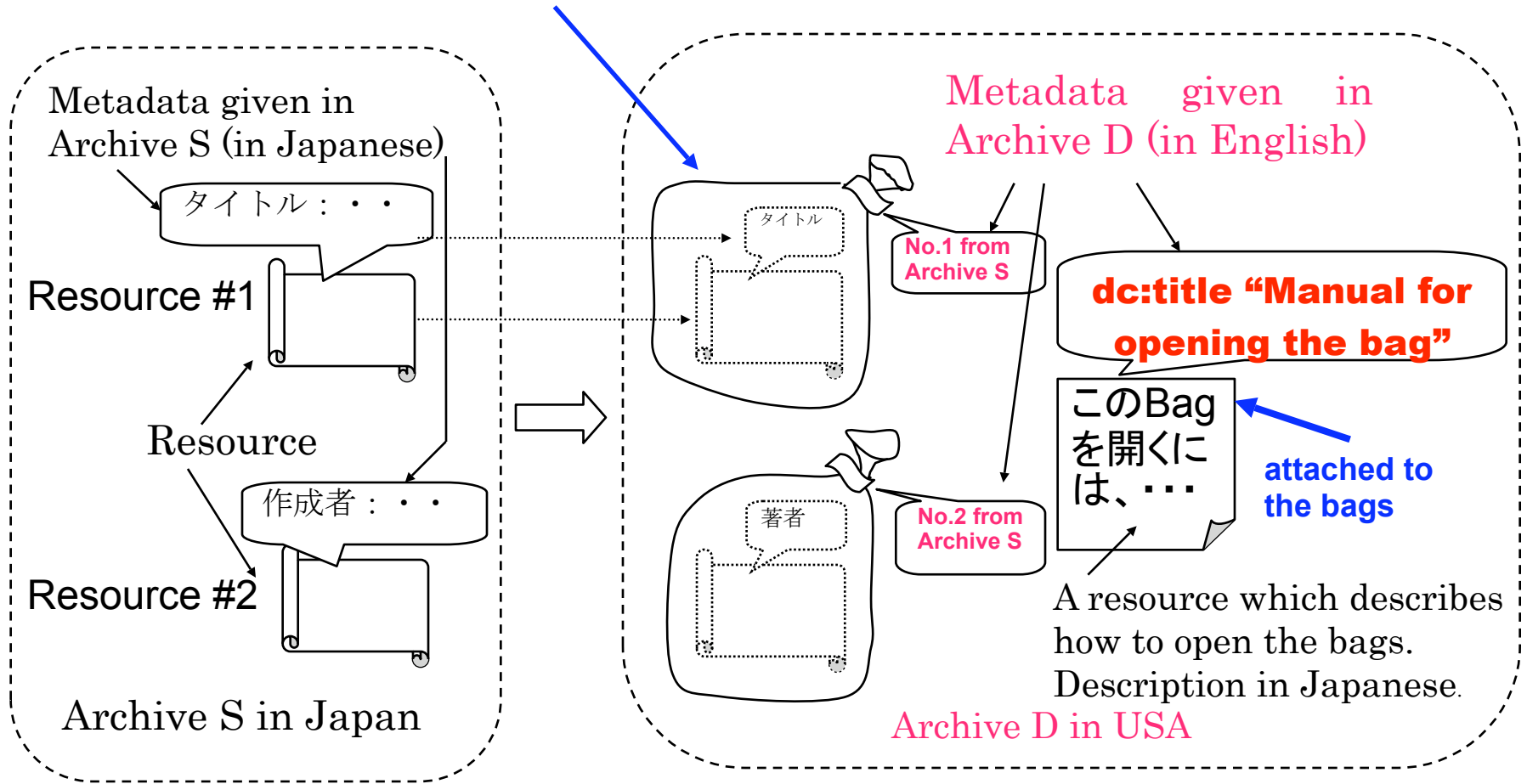
Source AIP restored



A Manual required to restore a bag

Bag and AIP

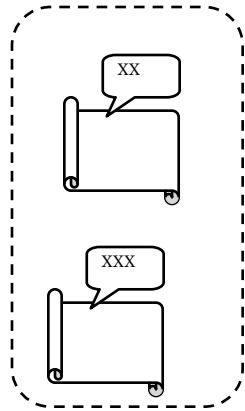
A resource and its metadata enclosed in a bag.



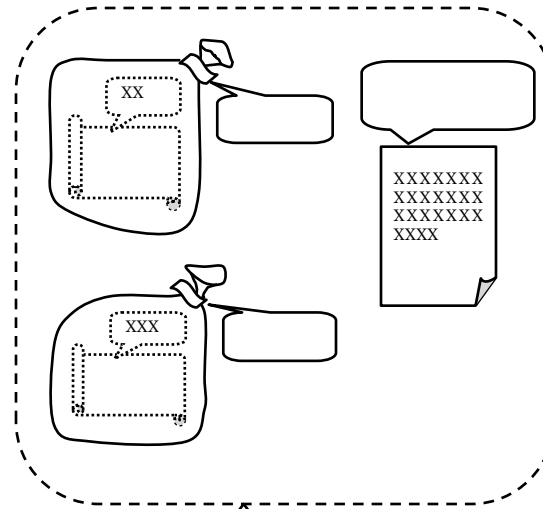
An enclose-and-deposit Model between Archives

Enclose and Deposit

Archive S
(Japan)



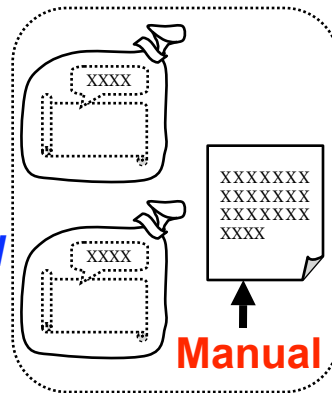
Archive D
(USA)



Download

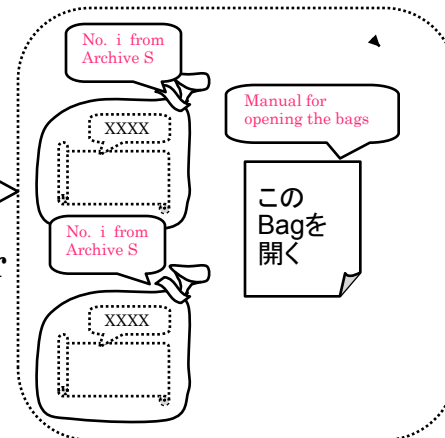
Upload

*Enclosing and
Preparing a manual
for opening*



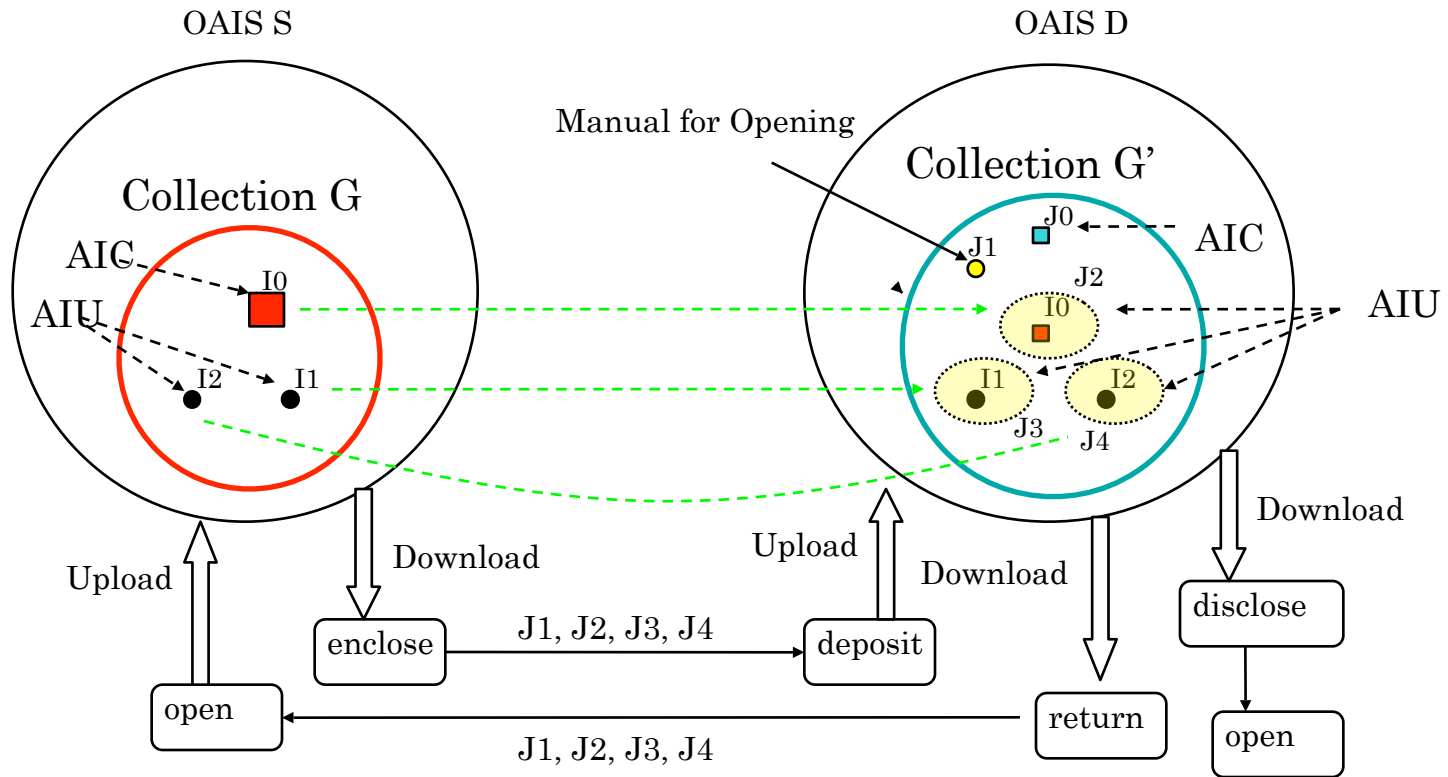
Transfer

*Creating
Metadata of
Archive D*



Procedure for an Enclose-and-Deposit Method

Enclosing a Collection



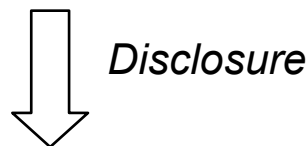
AIC: Archival Information Collection
AIU: Archival Information Unit

Enclosed instance

Depositing a Collection between OAISs

Encoding of a Collection

```
<?xml version="1.0" encoding="xxx" ?>
<Collection>
  <AIP><CI><CDO>yy0</CDO><RI>xxx</RI></CI><PDI>xxx</PDI></AIP>
  <AIP><CI><CDO>yy1</CDO><RI>xxx</RI></CI><PDI>xxx</PDI></AIP>
  <AIP><CI><CDO>yy2</CDO><RI>xxx</RI></CI><PDI>xxx</PDI></AIP>
</Collection>
```

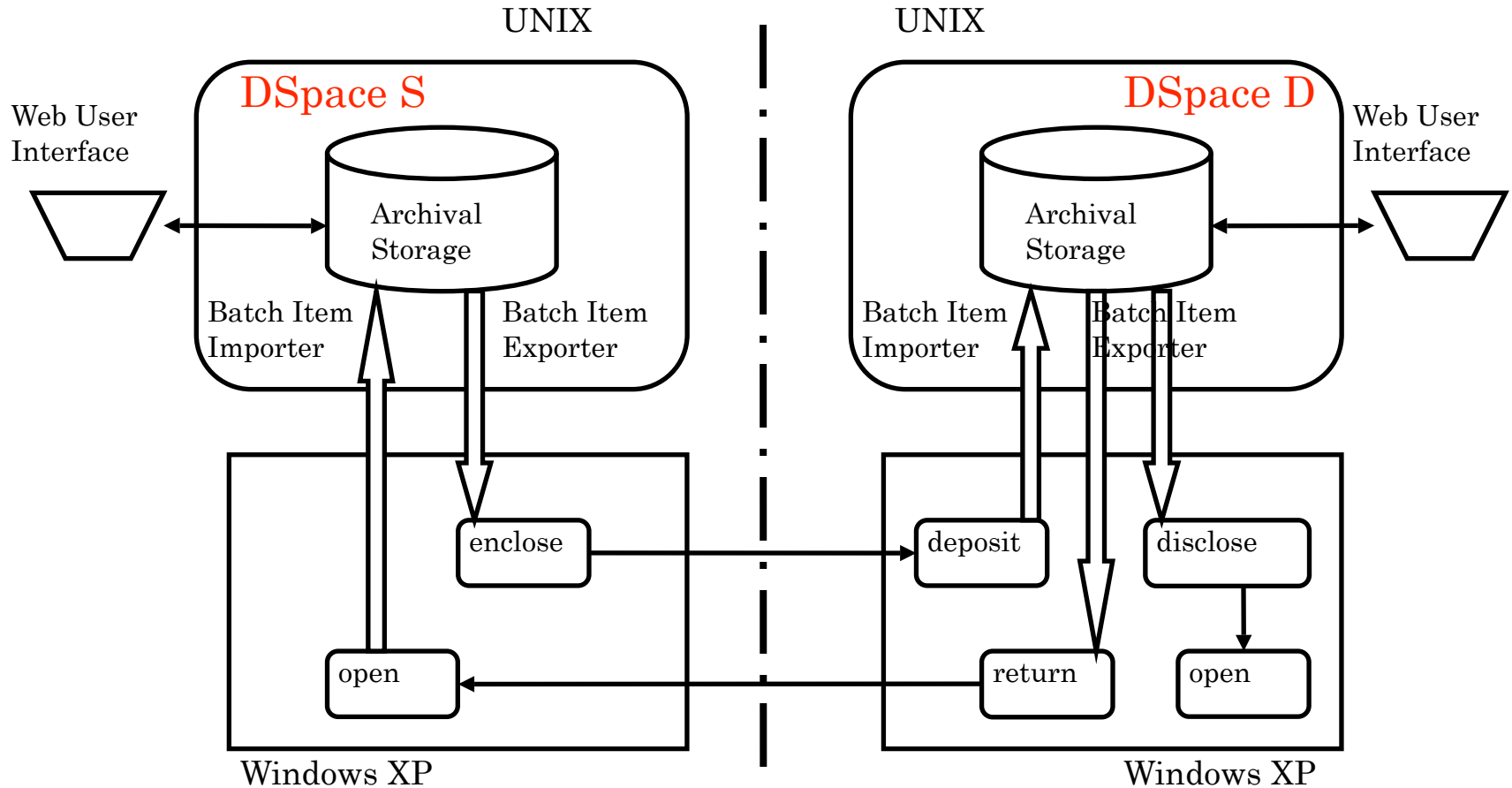


CDO	RI	PDI
C:/ppp/qqq/1/rrr0.xml	xxx	xxx
C:/ppp/qqq/2/rrr1.xml	xxx	xxx
C:/ppp/qqq/3/rrr2.xml	xxx	xxx

CDO: Location of the enclosing document instead of data objects

Table of Source AIPs obtained by Disclosing the Bag of Bags

Implementation

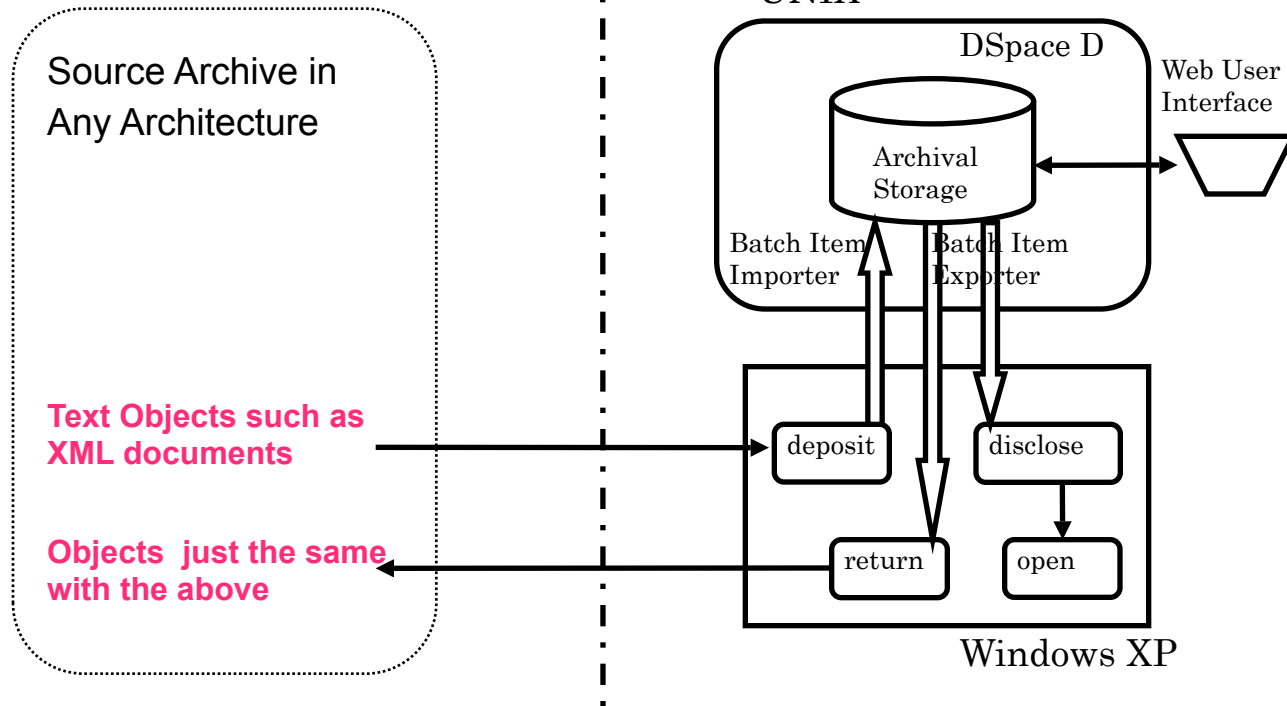


Experimental Implementation for verifying the functionality of the "Enclose-and-Deposit" model using DSpace

Implementation

Source Archive

Destination Archive

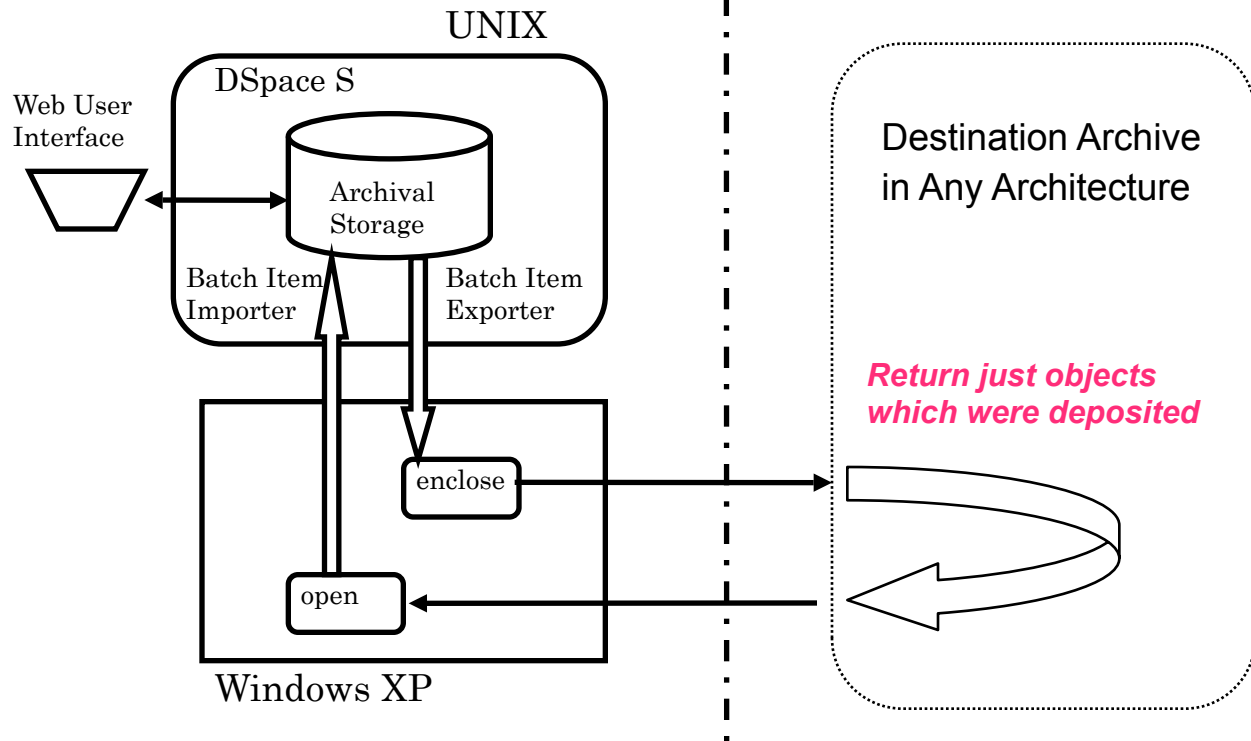


Verification of the Destination Side using DSpace

Implementation

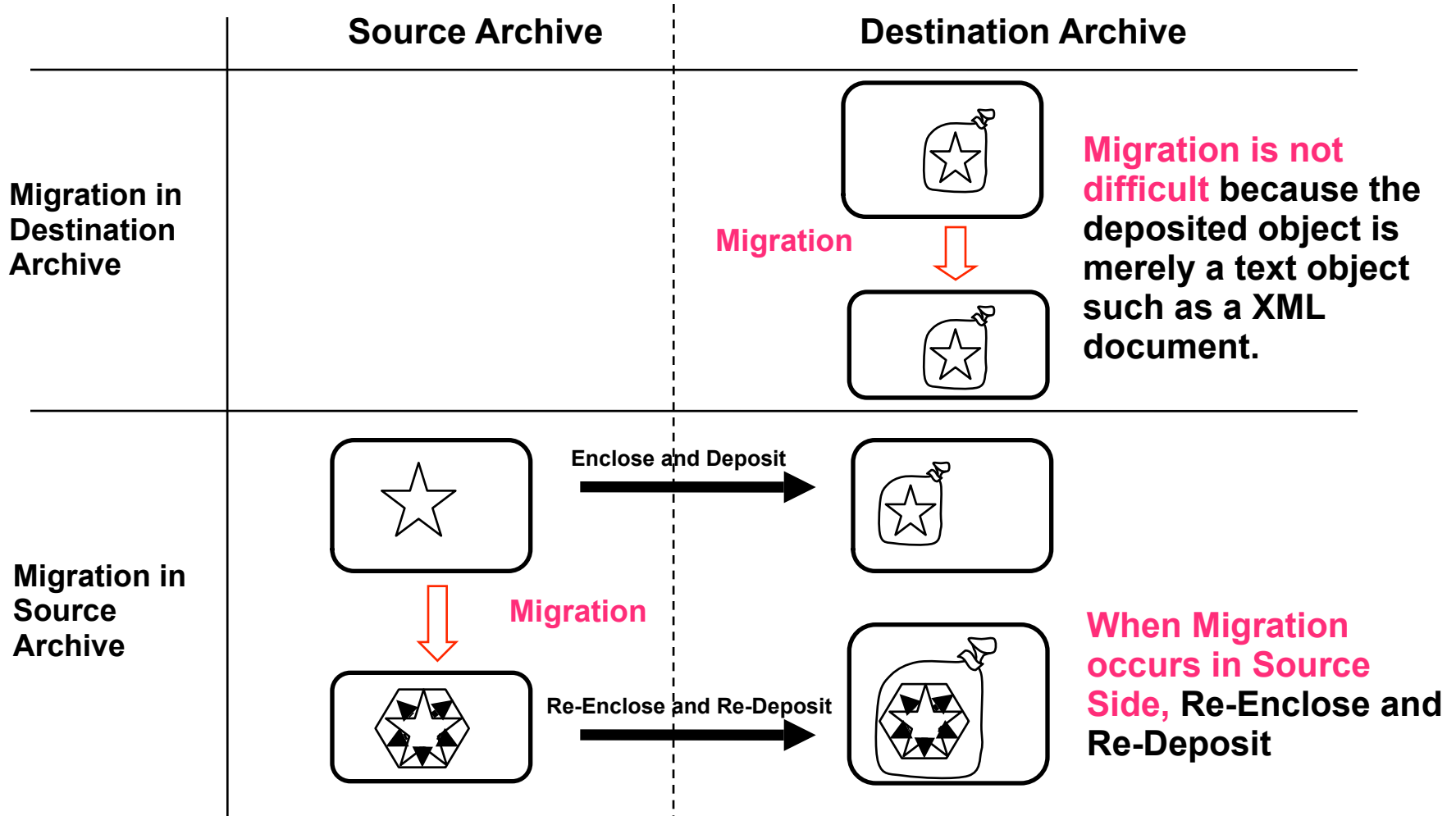
Source Archive

Destination Archive



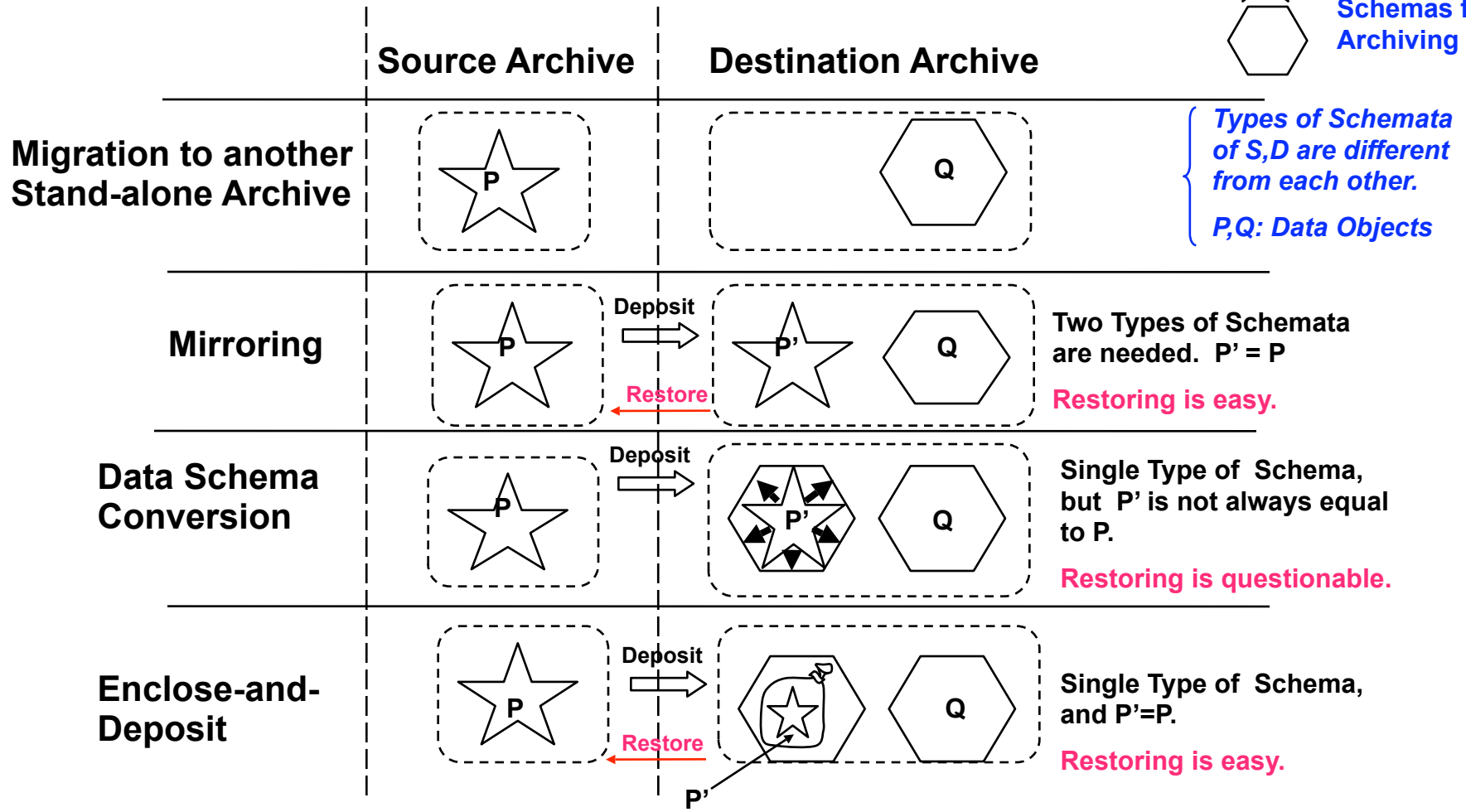
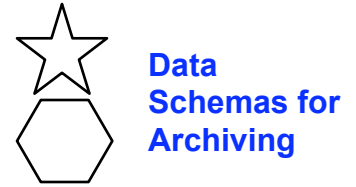
Verification of the Source Side using DSpace

Discussion - Migration

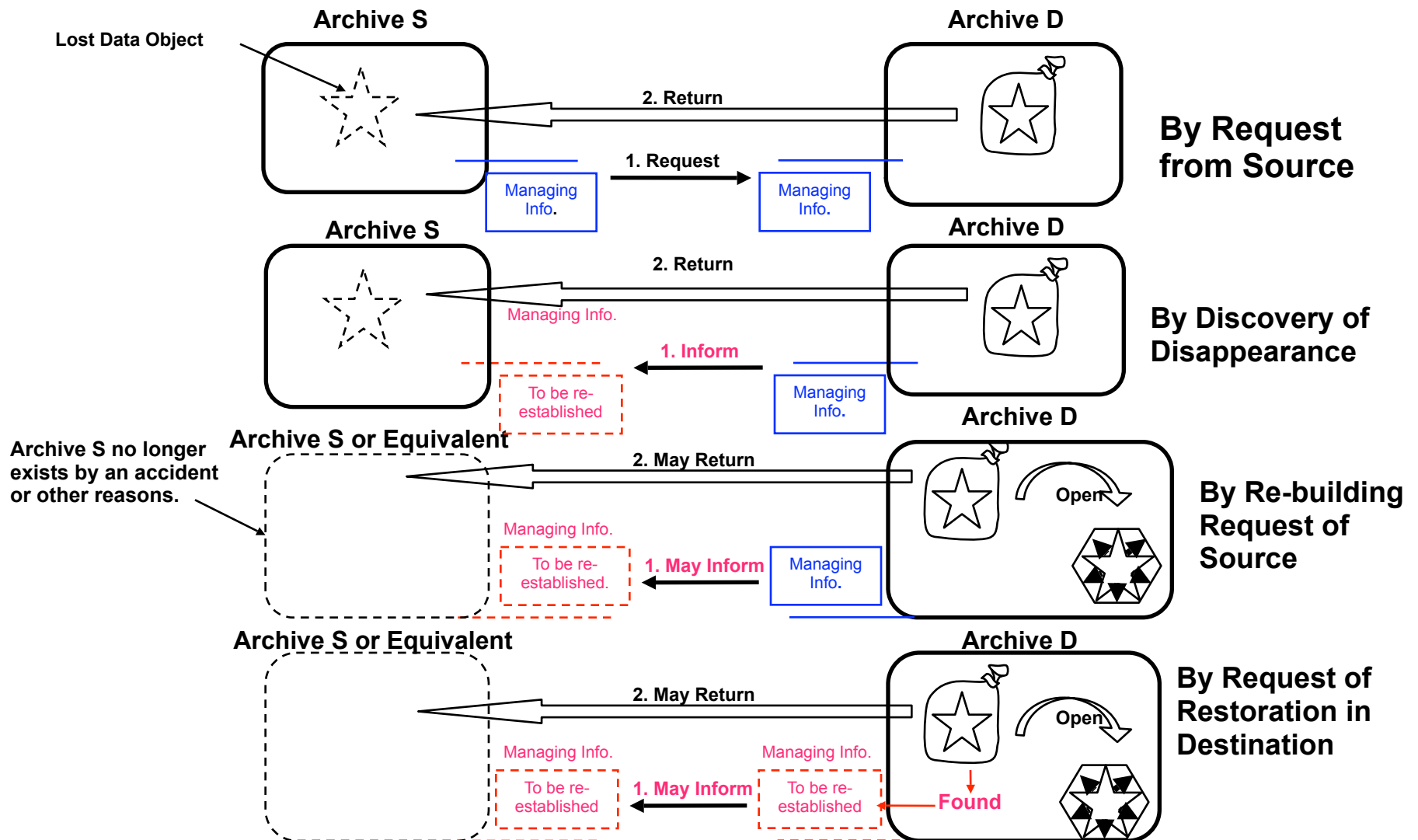


Migration

Discussion – Comparisons



Discussion – Restoration Scenarios



Summary

- A Simple Scheme for Decreasing Risks of Preservation
- Simplicity for Heterogeneous Communities

Thank You!