

Towards Interoperable Preservation Repositories

TIPR

DLF Spring Forum, 2009

Joseph Pawletko (NYU), Priscilla Caplan (FCLA), Bill Kehoe (CUL)

Presentation Overview

- ✦ Motivation & Goals
- ✦ Analysis
- ✦ TIPR Exchange Package (TEP)
- ✦ Transfer Tests
- ✦ Progress to Date / Next Steps
- ✦ Questions

Motivation:

Repository Requirement:

must not lose data

accommodate evolving technologies

succession plan

Mitigation Strategy:

geographically distribute copies, ideally in heterogeneous systems

upgrade/replace repository implementation

be able to transfer AIPs to another institution

All strategies benefit from AIP Transfer.

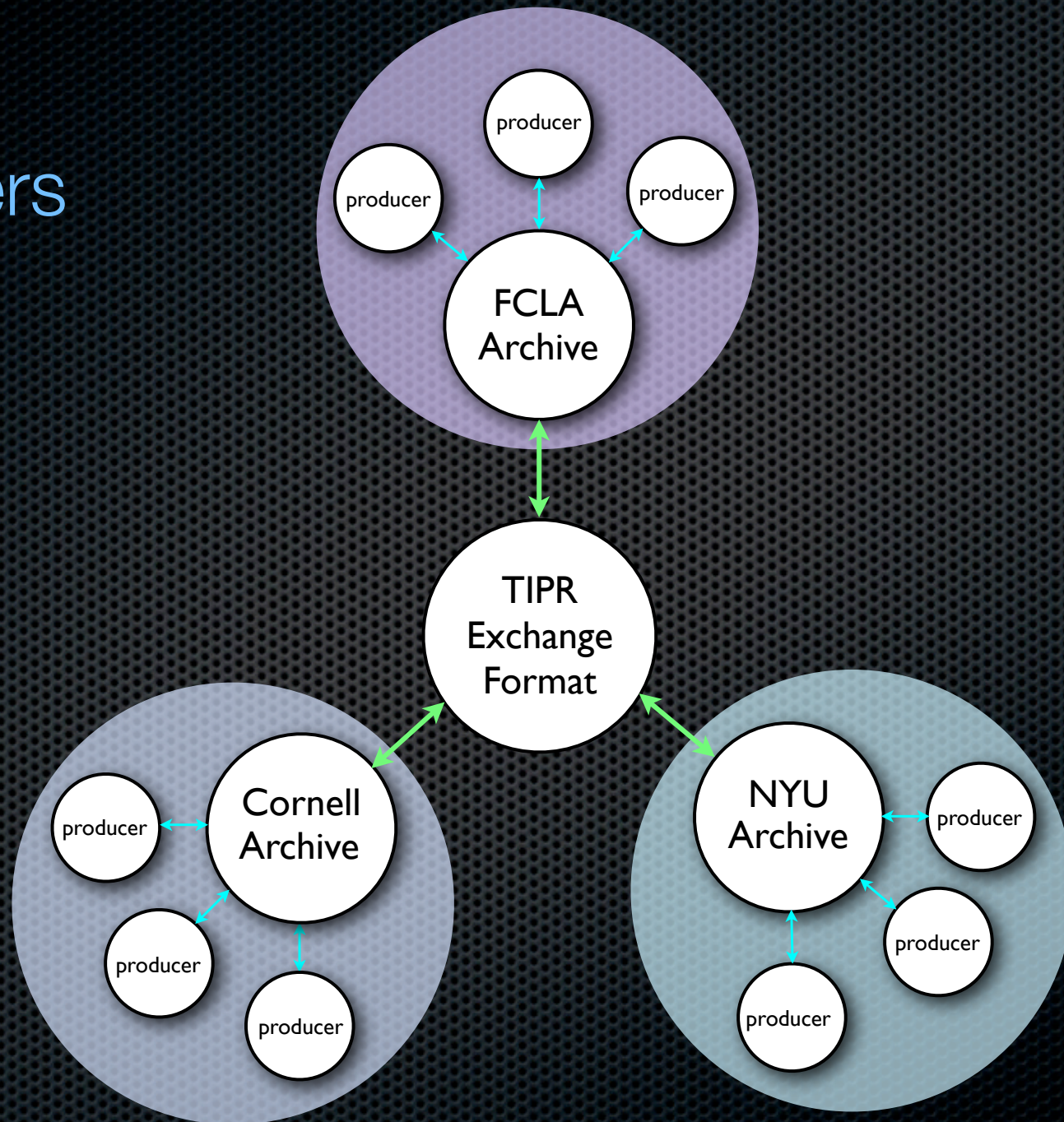
TIPR Goals:

- ✦ Demonstrate feasibility of repository-to-repository transfer of rich AIPs
- ✦ Identify and resolve issues that impede such transfers
- ✦ develop a usable, standards-based transfer format
- ✦ disseminate results to the international preservation community and the relevant standards activities

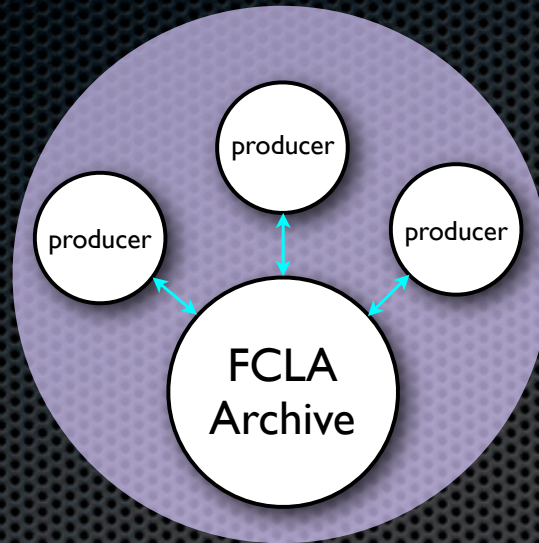
TIPR Analysis Phase:

- ✦ Analyze Repository and AIP structures to determine transfer format
- ✦ Determine Repository modifications required to Ingest and Export Exchange Packages

TIPR Partners



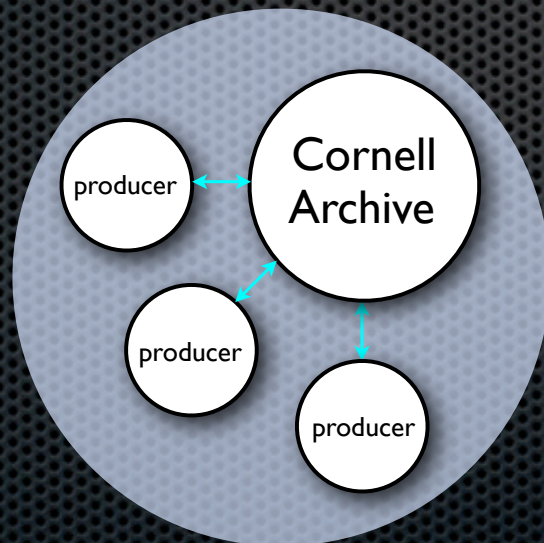
TIPR Repositories FCLA



- ✦ Florida Center for Library Automation (**FCLA**)
 - ✦ runs the **DAITSS** Preservation Repository
 - ✦ **Team**: Priscilla Caplan (**PI**), Franco Lazzarino, Randy Fischer, Marly Wilson

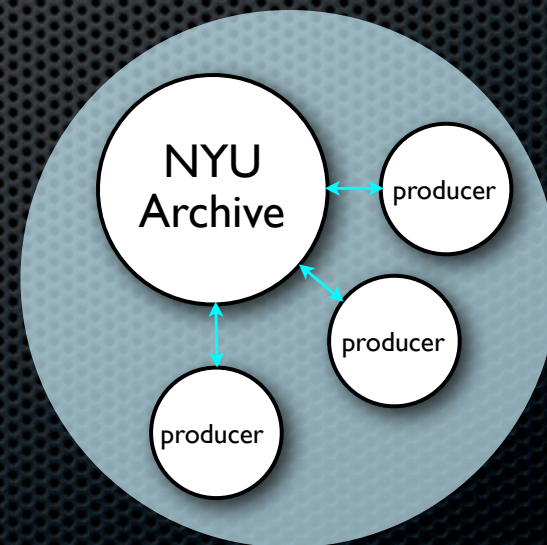
TIPR Repositories CUL

- ✦ Cornell University Libraries (**CUL**)
 - ✦ runs an **aDORe**-based repository
 - ✦ migrating to **Fedora**
- ✦ **Team**: Oya Rieger, Bill Kehoe, Rick Silterra



TIPR Repositories NYU

- ✧ New York University Libraries (**NYU**)
- ✧ runs a **DSpace**-based repository
- ✧ **Team**: Dr. Michael Stoller, Joe Pawletko, Rasan Rasch



Terms *as defined by PREMIS*

- ✦ Intellectual Entity:

“a set of content that is considered a single intellectual unit for purposes of management and description”.

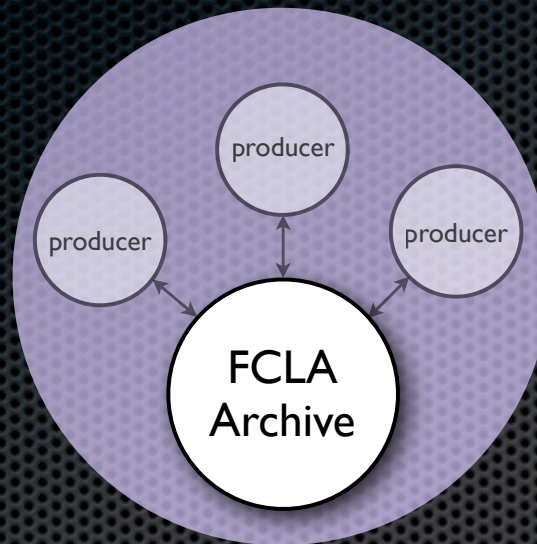
- ✦ Representation:

“the set of files, including structural metadata, needed for a complete and reasonable rendition of an Intellectual Entity.”

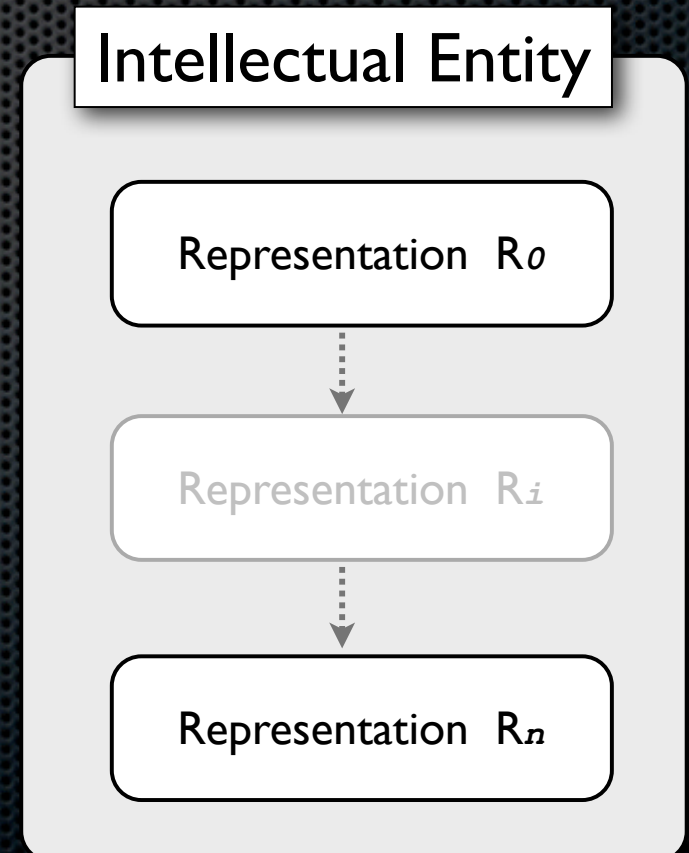
TIPR

AIP Structures

FCLA

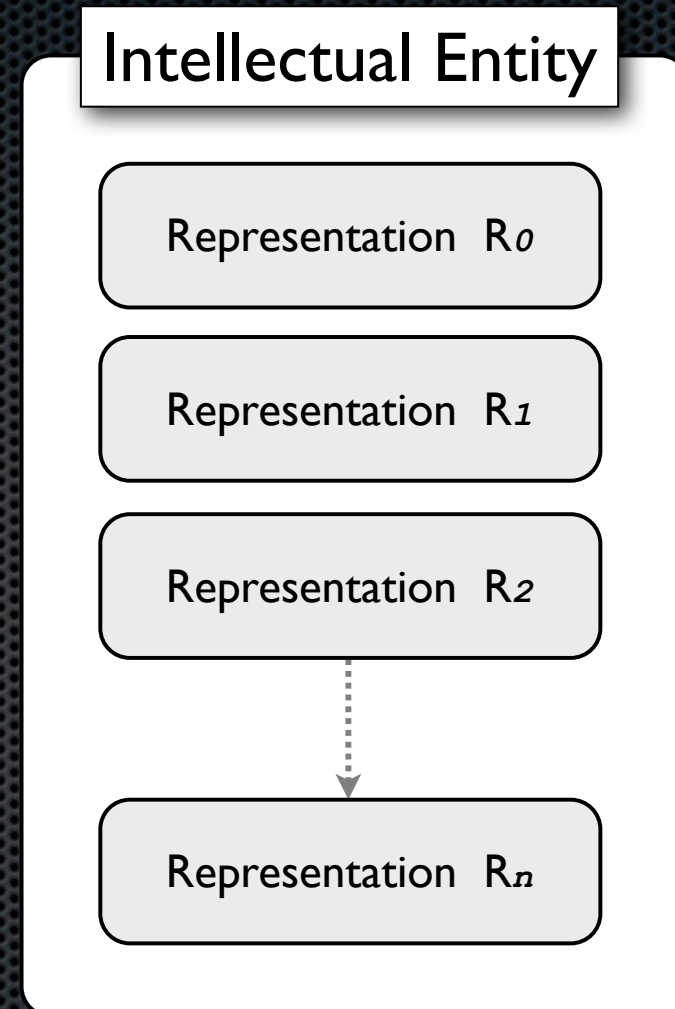
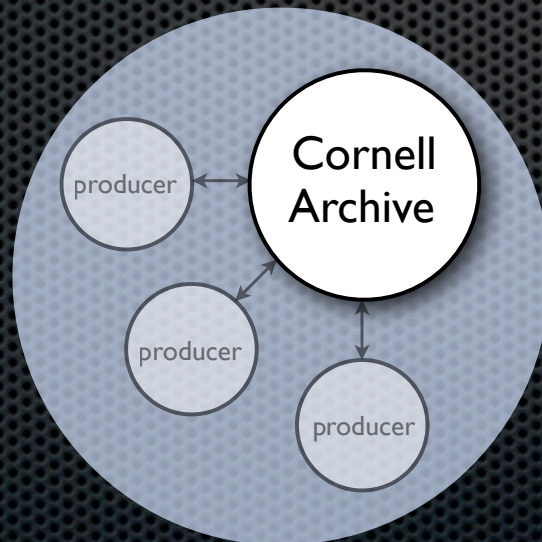


- One AIP per Intellectual Entity
- Retain First and Latest Representations
- Discard Intermediate Representations



TIPR AIP Structures CUL

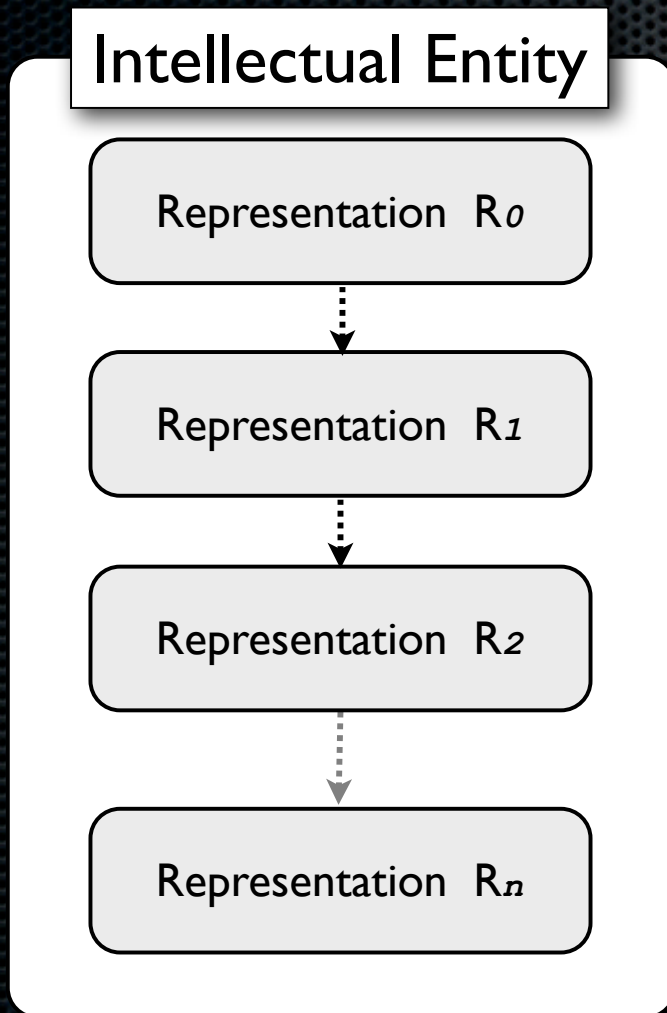
- One AIP per Representation
- Retain All Representation AIPs (including “intermediates”)



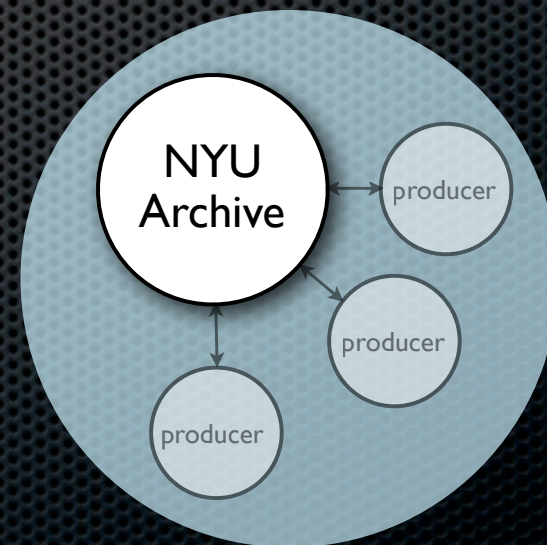
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AIP Structures

NYU



- One AIP per Intellectual Entity
- Retain all Representations (including “intermediates”)



Repository / AIP Heterogeneity:

	FCLA	CUL	NYU
Repository Implementation	DAITSS	aDORe -> Fedora	DSpace-based
# of AIPs per n representations	1	n	1
retain intermediate representations?	no	yes	yes

TIPR Exchange Package (TEP)

- ✧ TEP design goals:
 - ✧ be able to accommodate different AIP structures
 - ✧ contain sufficient data for receiving repository at:
 - ✧ TEP level
 - ✧ Representation level
 - ✧ use standards: METS and PREMIS

TEP: Minimal Structure

`./tipr.xml`

`./tipr-digiprov.xml`

`./tipr-rights.xml`

`./tipr-rep-1.xml`

`./tipr-rep-1-digiprov.xml`

`./files/`

TEP: Minimal Structure

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`./tipr-digiprov.xml`

`./tipr-rights.xml`

`./tipr-rep-1.xml`

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`./files/`

TEP-level
information

TEP: Minimal Structure

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`./files/`

Representation-
level information

TEP: Minimal Structure

`./tipr.xml`

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`./tipr-rep-1.xml`

`./tipr-rep-1-digiprov.xml`

`./files/`

METS

document
describing
Sender. Uses
mdRefs to point
to **rights**,
digiprov, and
representation
files.

TEP: Minimal Structure

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`./tipr-rights.xml`

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`./files/`

PREMIS
document
containing
TEP-level
digiprov
information

TEP: Minimal Structure

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`./tipr-rep-1-digiprov.xml`

`./files/`

PREMIS
document
containing
TEP-level
rights
information

TEP: Minimal Structure

`./tipr.xml`

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`./tipr-rights.xml`

`./tipr-rep-1.xml`

`./tipr-rep-1-digiprov.xml`

`./files/`

METS document
describing
representation 1

TEP: Minimal Structure

`./tipr.xml`

`./tipr-digiprov.xml`

`./tipr-rights.xml`

`./tipr-rep-1.xml`

`./tipr-rep-1-digiprov.xml`

`./files/`

PREMIS
document
containing
representation 1
digiprov
information

TEP: Minimal Structure

`./tipr.xml`

`./tipr-digiprov.xml`

`./tipr-rights.xml`

`./tipr-rep-1.xml`

`./tipr-rep-1-digiprov.xml`

`./files/`

directory
containing the
representation
files

TEP: Optional Files

```
./tipr.xml.sig
```

a stand-alone digital signature in
OpenPGP format generated using
sender's private key, and `tipr.xml`

TEP: Optional Files

`./tipr-rep-2.xml`

`./tipr-rep-2-digiprov.xml`

⋮

`./tipr-rep-n.xml`

`./tipr-rep-n-digiprov.xml`

information for
additional
Representations

Each `tipr-rep-n.xml` must be
accompanied by a corresponding
`tipr-rep-n-digiprov.xml`.

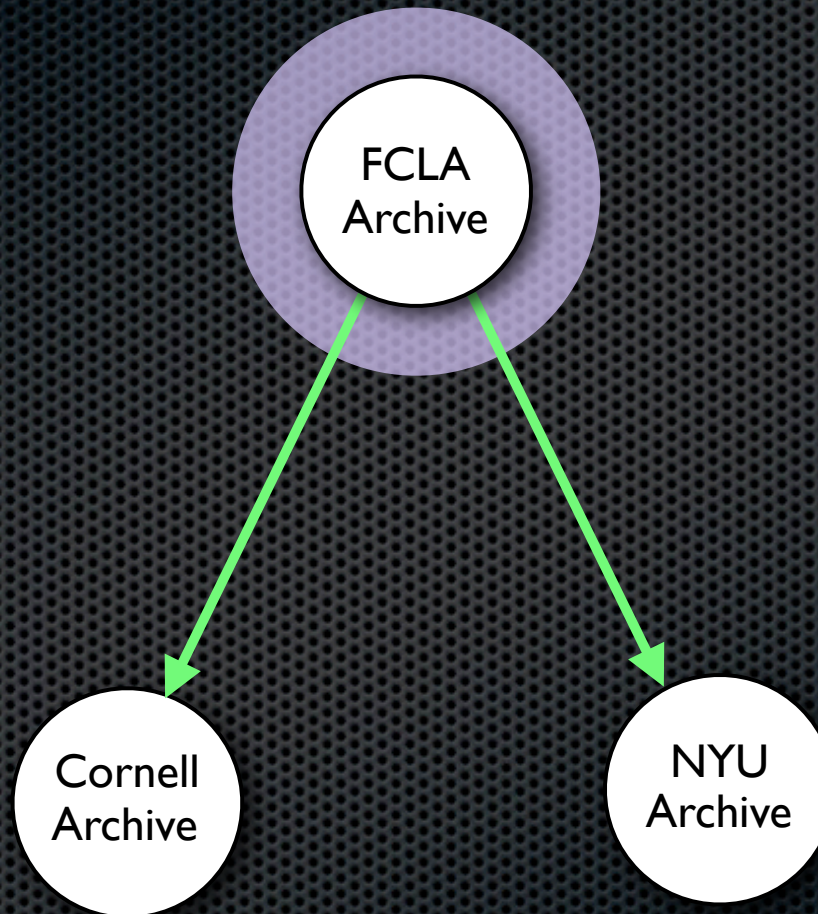
Transfer Tests

- ✧ Will run two different transfer scenarios
 - ✧ Broadcast Transfer
 - ✧ Ring Transfer
- ✧ Will analyze test results against expectations
 - ✧ will use results to improve TEP structure

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Testing:

Broadcast
Transfer

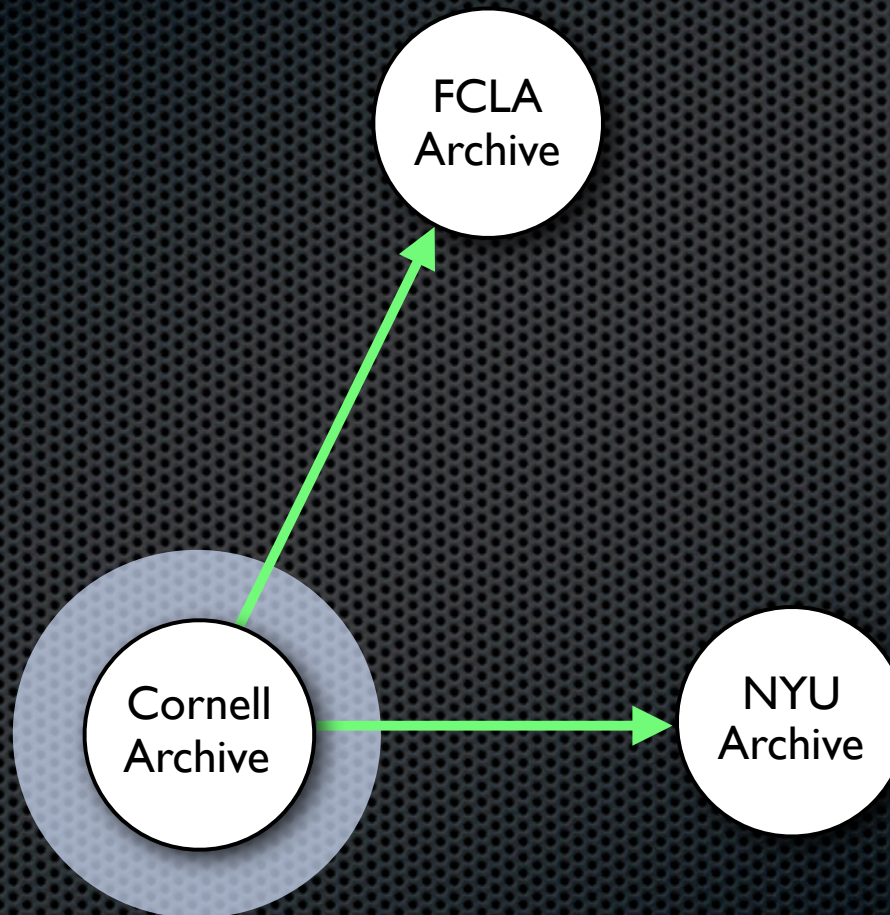


FCLA sends TEP_{FCLA} to **CUL** and **NYU**.
CUL and **NYU** Ingest TEP_{FCLA} .

TIPR

Testing:

Broadcast
Transfer

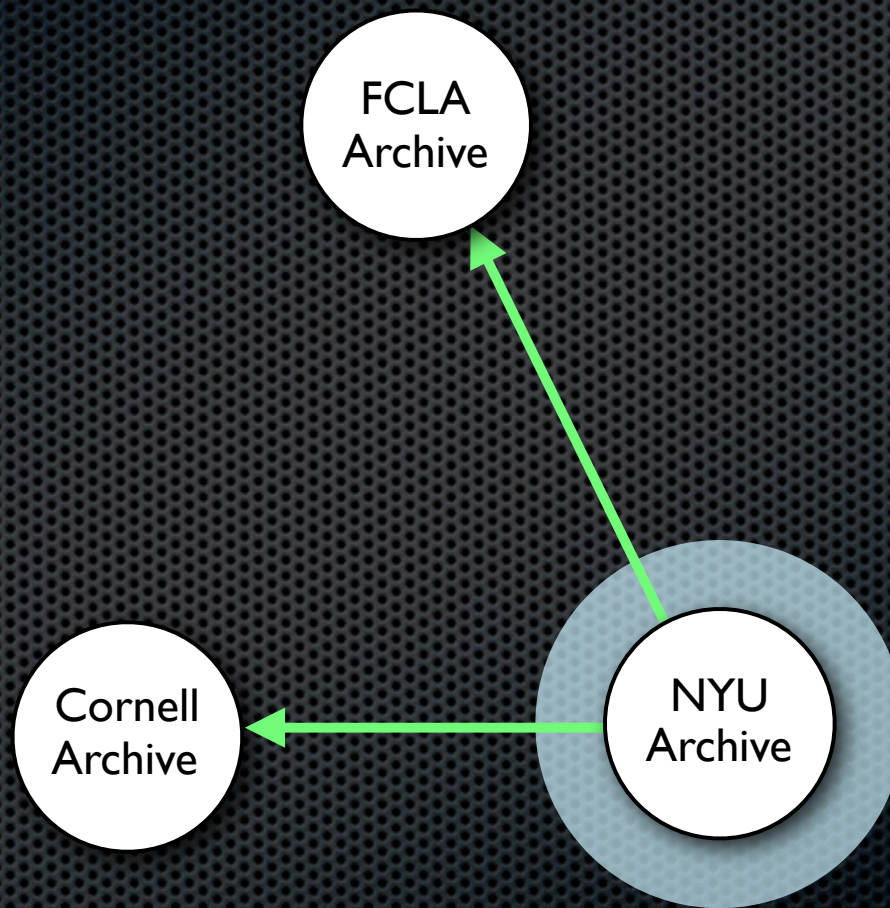


CUL sends TEP_{CUL} to **FCLA** and **NYU**.
FCLA and **NYU** Ingest TEP_{CUL} .

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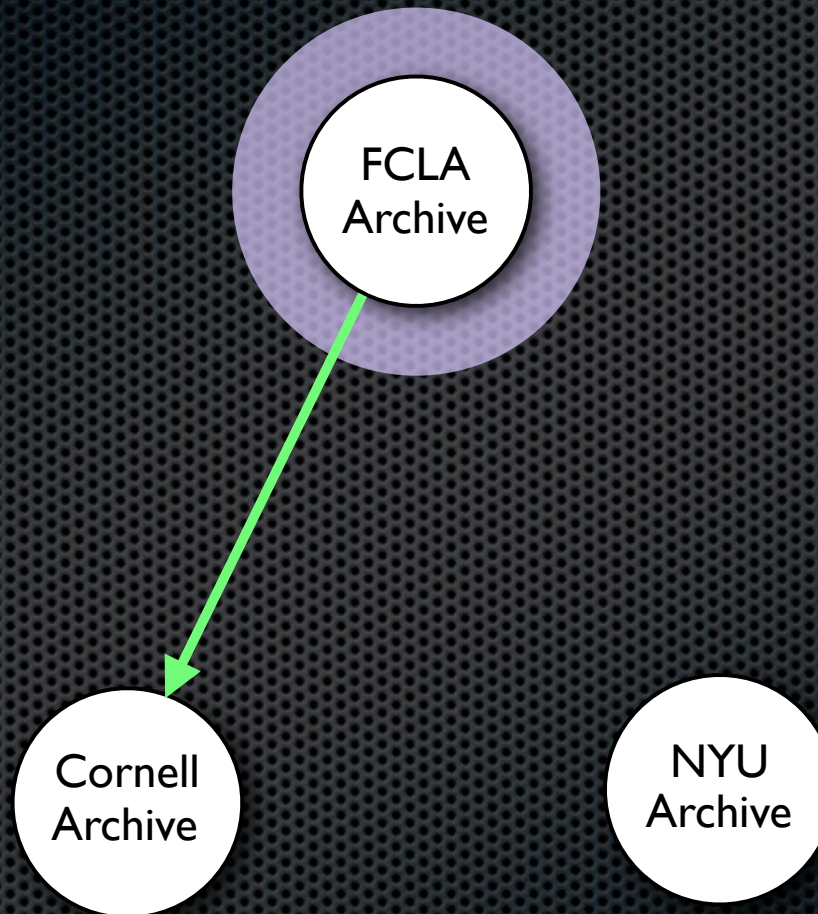
Testing:

Broadcast
Transfer



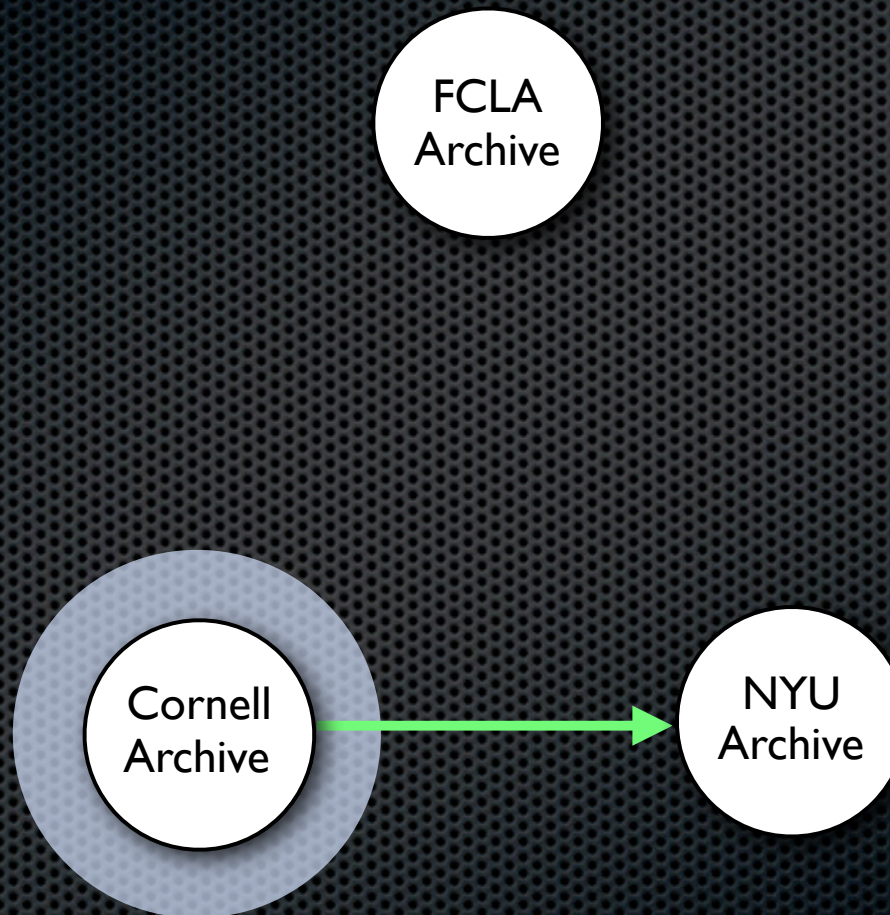
NYU sends TEP_{NYU} to **FCLA** and **CUL**.
FCLA and **CUL** Ingest TEP_{NYU} .

TIPR Testing: Ring Transfer



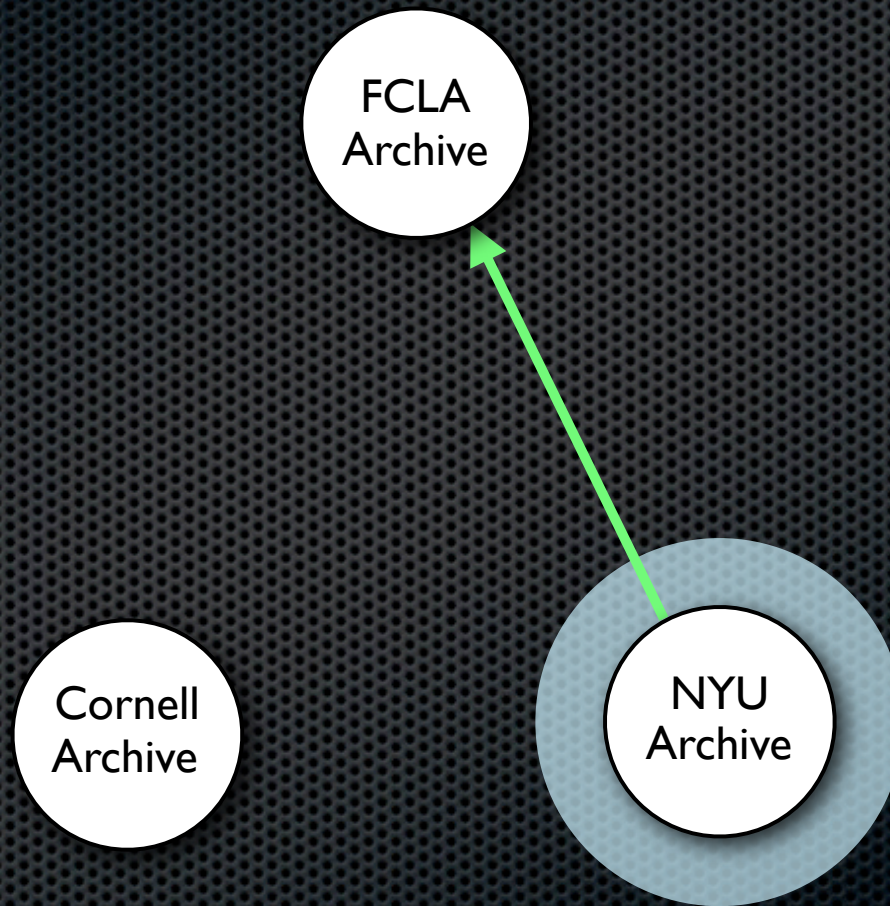
FCLA sends TEP_{FCLA} to **CUL**.
CUL Ingests TEP_{FCLA} .

TIPR Testing: Ring Transfer



CUL sends $TEP_{FCLA,CUL}$ to **NYU**.
NYU Ingests $TEP_{FCLA,CUL}$.

TIPR Testing: Ring Transfer



NYU sends $TEP_{FCLA,CUL,NYU}$ to **FCLA**.
FCLA Ingests $TEP_{FCLA,CUL,NYU}$.

Progress to Date

- ✧ Defined TEP Structure
- ✧ Each Partner created TEPs for sample AIPs
- ✧ TIPR Specification draft on Partner site
- ✧ Developed Schematron tests for TEP METS, PREMIS
- ✧ Coding in progress
 - ✧ FCLA can programmatically generate TEPs
 - ✧ CUL and NYU development in progress

Issues Under Investigation:

- ✧ Rights:
 - ✧ What rights pertain to an AIP when transmitted from one repository to another?
 - ✧ Can sending repository restrict what receiving repository can do with TEP?
 - ✧ Seeking clarification from legal experts
- ✧ Significant Properties
 - ✧ how to communicate via TEP?

Next Steps:

- ✧ Finish coding
- ✧ Run tests
- ✧ Analyze results
- ✧ Refine transfer format
- ✧ Communicate findings

Acknowledgements

- ✦ TIPR is funded by a generous grant from the **Institute of Museum and Library Services (IMLS)**

TIPR Towards Interoperable
Preservation Repositories



Cornell University



NEW YORK UNIVERSITY



The Florida Center
for Library Automation

Questions?

✦ **Thank you for your time...**

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Cornell University



NEW YORK UNIVERSITY



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TIPR:

Interchange you can believe in!

<http://wiki.fcla.edu:8000/TIPR/>

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NEW YORK UNIVERSITY



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