A Statewide Community of Trust: An RUcore Implementation using Shibboleth and XACML

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Topics for Today

- The Network and the RUcore Framework
- Authentication and Authorization Architecture
- Application scenarios
- Continuing Developments
NJ Vid – A Statewide Video Network
(Based on RUcore)

- **A digital video network**
  - An IMLS grant-funded project
  - Will support over 600 New Jersey institutions (academic, K12, & cultural heritage)

- **Three types of video collections**
  - Video Commons – publicly available videos
  - Commercial videos available through educational consortia
  - Lectures on demand – customized annotations of videos

- **Technical platforms based on RUcore and Fedora**
RUcore Architecture

User Input (metadata)

Workflow Management System

RUcore Portal

Partner Portals
New Jersey Institutions

Collection & Preservation Services

Fedora 3.0 Repository Service

Digital Video Master

Object XML

Object Ingest

Digital Object Repository (Fedora)

Video

Matrox Axio Encoder

Fedora 3.0 Repository Service

RUcore Portal

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Digital Object Repository (Fedora)

Object Ingest

Digital Video Master

Object XML

Workflow Management System

User Input (metadata)
RUcore Storage & Server Architecture

- Partner/Custom Portals
- Fedora and Middleware Host Server
- Fedora Repository (Digital Objects)
- Backend Storage
  - Archival Masters
    - External Storage
    - Checksum validation
- Streaming Server (Darwin)
- Local Storage
- QuickTime Video Stream
The Video Digital Object and Policies

Video Object

- Repository ID
- Metadata
- Behaviors (Disseminators)
  - Data streams
    - SMAP1 – StrMap (TOC)
    - FLV1 - download
    - MOV1 – QT stream
    - PDF1 – transcript (opt)
    - POLICY (xacml)
    - ARCH1- Archival master (external datastream)

Descriptive
Technical
Source
Rights
Digital Prov.
Managing the Community of Trust

- The Shibboleth Federation is managed by NJ EDge, New Jersey’s Higher Education Network
  - Shibboleth provides the solution for managing users at cooperating institutions

- For the statewide video network (NJVid)
  - The service provider (NJVid) relies on the identity provider (the institution) to supply attributes about the user
  - Shibboleth securely transfers attributes to the service provider

- For the Goal of “No Organization Left Behind”
  - NJ EDge provides a centralized proxy LDAP server to . . .
  - Support smaller institutions without directory services
Licensed Videos and XACML Policies

- There are multiple commercial vendors of videos
  - Each video object requires a unique xacml policy containing the licensing institutions and the authorized roles
  - Access is granted based on institutional affiliation and role (i.e. member, faculty, student, etc.)

- On ingest, the license manager (using WMS) creates the appropriate xacml policy datastream and rights event.
The Service Provider (NJ Vid), Identity Provider (the Institution), and the Federation

1. Web Browser (Mary makes request)

2. Service Provider detects policy

3. WAYF Service (Shibboleth Federation hosted at NJ Edge)

4. Authentication System (e.g. LDAP)

5. (attribute: faculty; rutgers; english)

Rutgers Community Repository
The Collection Architecture & Licensed Videos

Dynamic indexing creates collections based on policies
Further Developments

- **Delivery of Video**
  - Annotation of videos
  - Streaming Flash
  - See publicly available videos: [http://rucore.libraries.rutgers.edu/video/](http://rucore.libraries.rutgers.edu/video/)

- **Extending the State-wide Network**
  - Serve as an IR for state institutions
  - Content to include ETDs and Data

- **Moving Ahead with Open-source**
  - OpenWMS and OpenETD
  - See [http://rucore.libraries.rutgers.edu/open/](http://rucore.libraries.rutgers.edu/open/)
Thanks for listening.

Questions?

Many Contributors to this Work

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- Isaiah Beard – Digital Curator, Rutgers University Libraries
- Charles Hedrick, Benn Oshrin – OIT, Rutgers University
- Sujay Daniel - NJ EDge
- Software Architecture Group – Rutgers University Libraries
Video Specifications

- Archival master is uncompressed AVI
- Streaming protocol is QuickTime H.264
- 29.9 frames/second, 640 x 480 resolution, data rate from 384 – 512 kb/sec
- Delivery to user as QuickTime or Flash (progressive download)