CNI Spring Taskforce

April 16, 2004
Presentation Overview

- Project origins
- Project description
- Project update
- Discussion
LionShare Origins

- Visual Image User Study (VIUS)
- A two-year user study sponsored by Mellon Foundation
- Hosted in University Libraries at Penn State
- Looking at how fac/staff/students use digital images in teaching, research and service
- Several prototypes identified
  - Peer-to-Peer was identified as one possible solution - LionShare prototype
VIUS
Problems Identified

• Need for tools to manage personal collections
• Rapid movement from analog to digital
• Difficulty in finding appropriate resources
• Difficulty merging public/private collections
• Need for faculty/student/dept’s to manage large collections
• Need for copyright and access control
Why Use P2P?

- Encourages collaboration
  - Student, faculty members and departments
- Helps manage the digital media explosion
  - Digital consumer devices
- Provides common organizational structure
  - Metadata and standards
- Flexible and Scalable
  - Customizable for different needs
LionShare Vs. Other P2P
How is it different?

• Authentication
• Access Control
• Defined user groups for sharing
• Searches both P2P and central fixed collections
• Persistent file sharing
Project Overview

LionShare Uses

• Media organization (offline use)
• Publish personal media collections
• Person-to-person collaboration
• Group collaboration
• Departmental collaboration
• Formation of user communities
• Publication of academic collections
Project Overview
LionShare Team

- Penn State University
- Internet 2 Middleware and P2P WGs
- Simon Fraser U. (eduSource Canada)
- MIT - Open Knowledge Initiative (OKI)
- And others
Project Overview

Design Goals

• Personal media management
• Simple, intuitive interface
• Authenticated access to the P2P networks and traditional networks
• User-defined sharing
• Support standard descriptive metadata structures
• Leverage work done on Shibboleth and ECL
• Leverage Open Source
LionShare Provides...  
Tools for Organization

Optimizing organization of personal resources
- Use automated methods to tag resources
- Batch methods for tagging resources
- Metadata tagging tools

Sorting and viewing resources
- Visual resource editors
- Leverage existing resource viewers
LionShare Provides…
Tools for Discovery

Searching across the Internet
- Within P2P network
- Within fixed repositories
  - Any repository accessible via ECL (IMS DRI spec)
- Publicly accessible or access controlled
- Bookmark URLs, or save objects when possible
LionShare Provides... Tools for Publishing

Publishing on the P2P network

- Publisher manages metadata describing resource
- Publisher manages their published resources
- Publisher manages access control (AC) policy
- AC resources leverage Federation model
- PeerServer allows publishing 24 X 7
LionShare Provides...
Tools for Collaboration

Support collaboration on the P2P network around a resource, or a collection of resources

- One-to-one chat
- Group chat
- Digital whiteboards
- Shared spaces
- Shared collections
- Shared object
LionShare Peer Features

- **Search**
  - Peers
  - PeerServers
  - Repositories
  - Query
  - Retrieve
  - Browse Host

- **Share**
  - Share locally on Peer
  - Publish to a PeerServer
  - Access Control
  - Share Metadata Only

- **Collaborate**
  - One-on-One Chat
  - Group Chat
  - Shared Spaces

- **Organize**
  - Metadata Entry
  - Metadata Automation
  - Metadata Template
  - Personal Profile
  - Local Media Search
Project Overview

Conceptual Design

P2P Networks

Peer → Peer

Institution “A”
Project Overview
Conceptual Design

P2P Networks

Peer

Peer

PeerServer

Institution “A”
Project Overview
Conceptual Design

P2P Networks

Peer

Peer

PeerServer

Authentication Service

Institution "A"
Project Overview
Conceptual Design

P2P Networks
PeerServer
Institution “A”
Authentication Service

Institutional Boundary
Institution “B”
PeerServer
Peer
Authentication Service

Peer
Peer
Project Overview
Conceptual Design

Institutional Boundary

P2P Networks

[Shibboleth-like]

Institution “A”

Authentication Service

Institution “B”

Trust fabric

PeerServer

PeerNetworks

PeerServer

Authentication Service
**Project Overview**

**Conceptual Design**

Institutional Boundary

P2P Networks

Authentication Service

Institution “A”

[Shibboleth-like]

Trust fabric

PeerServer

Peer

Peer

PeerServer

Institution “B”

Authentication Service

Gateway

Gateway

Fixed Repository

(Merlot, Careo, EdNA)
Interoperability requires use of agreed upon standards

- IEEE LOM
- IMS Digital Repository
- Interoperability specification
- OKI - DR OSID
- Shibboleth-like federation
LionShare
Deliverables

- P2P application for organizing, searching, collaborating, and publishing
- Middleware for authenticated access using ECL and Gnutella protocols
- A Gnutella server (using access control)
# LionShare Update

## Roadmap

<table>
<thead>
<tr>
<th>Milestones</th>
<th>2004</th>
<th>2005</th>
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<tbody>
<tr>
<td>Q1</td>
<td>LionShare Alpha 0.2</td>
<td>Q1 LionShare Beta 0.8</td>
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<tr>
<td>Q2</td>
<td>LionShare Alpha 0.4</td>
<td>Q2 LionShare Beta 0.8</td>
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<tr>
<td>Q3</td>
<td>LionShare Beta 0.6</td>
<td>Q3 LionShare 1.0</td>
</tr>
<tr>
<td>Q4</td>
<td>LionShare Beta 0.8</td>
<td>Q4 LionShare 1.0</td>
</tr>
</tbody>
</table>

**Milestones**: Core Functionality, Basic Org & Collab, Integration, Refinement & Testing, Advanced Org & Collab, Testing, Additional Low Priority Features & Testing, Feature Freeze, Testing, and Debugging

**App**: Architecture & OSID Repair, Initial Coding, Stabilization & Client Integration, Additional Coding & Testing, Feature Freeze, Testing, and Debugging

**Security**: Architecture, Initial DM Work, Prospecting, DM Coding and First Integration, Stabilization, Additional DM/ Testing, Feature Freeze, Testing, and Debugging

Project Update

Current Focus

• Finishing up White Papers and fine-tuning Project Roadmap

• Ongoing development of LionShare Application and PeerServer (May/Sept)

• Developing and testing security model

• Developing Lionshare OKI/ECL Plug-in

• Developing Research Agenda for LS 2
Discussion