Cyberinfrastructure Facilitators
New Approaches to Information Professionals for E-Research
CI-Facilitators:
Accelerating Knowledge Development and Collaboration across the STEM Disciplines

- Design - Educational Program
  - Internships, Technical Training, Stand Alone Learning Modules
- Prototype
  - Cohort of Masters Degree Students, Who Will be Part of a Two-Year Graduate Level Certification Program
- Revision and Evaluation
Participatory Librarianship

• What should be the future of libraries and librarians in a democracy?

• What is a Deep Conceptual Framework for Navigating that Future?
Outline

• What is a CI-Facilitator
• The Need for Frameworks
• Massive Scale Information
• Participatory Librarianship
Define: Cyberinfrastructure

• Broadly defined to include the web, wireless grids, parallel processors, laptops, cell phones, mainframes, telecommunication networks, etc.
Define: Cyberinfrastructure Facilitator

• One who aids the research of topical experts with cyberinfrastructure
## Necessary Skills: O*Net

<table>
<thead>
<tr>
<th>Agreement Level</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Tools and Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>English Language</td>
<td>Reading Comprehension</td>
<td>Desktop Computers</td>
</tr>
<tr>
<td>100%</td>
<td>Computers and Electronics</td>
<td>Active Learning</td>
<td>Notebook Computers</td>
</tr>
<tr>
<td>100%</td>
<td>Customer and Personal Service</td>
<td>Active Listening</td>
<td>Database management System software</td>
</tr>
<tr>
<td>86%</td>
<td>Science/Math</td>
<td>Critical Thinking</td>
<td>Object or component oriented software</td>
</tr>
<tr>
<td>71%</td>
<td>Administration and Management</td>
<td>Instructing/Teaching</td>
<td>Mainframe Computers</td>
</tr>
<tr>
<td>57%</td>
<td>Education and Training</td>
<td>Written Communication</td>
<td>Metadata management software</td>
</tr>
</tbody>
</table>
## Necessary Skills: Focus Group

<table>
<thead>
<tr>
<th>Importance (1-10)</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Tools and Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Domain knowledge in one or more areas of science and mathematics</td>
<td>Research skills (data elicitation, data analysis, scientific writing)</td>
<td>Database design tools</td>
</tr>
<tr>
<td>9</td>
<td>Architecture and operation of data networks</td>
<td>Communication skills (oral and written)</td>
<td>Content Management System / Website Development Tools</td>
</tr>
<tr>
<td>8</td>
<td>Information policy (Access controls, intellectual property rights, licensing, privacy)</td>
<td>Service skills (working with people, determining user needs)</td>
<td>Server Administration</td>
</tr>
<tr>
<td>7</td>
<td>Human-computer interaction</td>
<td>Database design skills</td>
<td>Large Scale Computing (Mainframes, Supercomputing, Grids)</td>
</tr>
<tr>
<td>6</td>
<td>Scripting, query, and programming languages</td>
<td>Cultural sensitivity, working with people with disabilities</td>
<td>Distributed collaboration tools</td>
</tr>
</tbody>
</table>
Need for Frameworks
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Gigabyte per Mile
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- Soon Every Mile of Road will Generate a Gigabyte of data a day
  - Road Sensors, Real-Time Traffic Data, Weather Information, Toll Data, Car Black Boxes
Gigabyte per Mile

- Soon Every Mile of Road will Generate a Gigabyte of data a day
  - Road Sensors, Real-Time Traffic Data, Weather Information, Toll Data, Car Black Boxes
- It is assumed that this will become a gigabyte an hour. As there are 3.5 million miles of highways in the U.S. that would be 3.3 petabytes of data per hour, or 28 exabytes per year.
Options?
Options?

- Catalog it All
  - Tried It
Options?

- Catalog it All
  - Tried It
- Ignore It
  - Commercialization of Data Stewardship
  - Dissolution of the Library as Institution?
    Continued Reduction to a Niche Player
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- Limit the Library
  - Selection versus Intellectual Freedom
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- Ignore It
  - Commercialization of Data Stewardship
  - Dissolution of the Library as Institution?
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- Limit the Library
  - Selection versus Intellectual Freedom
- Embrace It
  - The Ethical Responsibility of LIS Education
Documents to Conversations
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Traditional Terminology becomes Metaphoric

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“Document,” “Collection”

Documents to Conversations
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“Document,” “Collection”

Append Prefixes
Traditional Terminology becomes Metaphoric

“Document,” “Collection”

Append Prefixes

“e-Journal,” “e-Book”

Documents to Conversations
Traditional Terminology becomes Metaphoric

“Document,” “Collection”

Append Prefixes

“e-Journal,” “e-Book”

Document Approaches Fail

Documents to Conversations
CORC

NSDL
CORC

(1,000,000,000,000 pages*1 minute)/65,000 ALA Members=15,384,615.38 minutes or (~29 years)

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NSDL

A Digital Library is a Collection of SERVICES - One of Which is Access
Participatory Librarianship

- Knowledge is Created through Conversation
  - Conversation Theory
  - Scalable
    - Intra-individual, Inter-personal, Organizational

- Artifacts are Simply By-Products

http://ptbed.org/
Did it Rain June 18th in Yellowstone?
Did it Rain June 18th in Yellowstone?
Did it Rain June 18th in Yellowstone?

Yes
Did it Rain June 18th in Yellowstone?

Yes

How Sure Are You?

70°
Did it Rain June 18th in Yellowstone?

Yes

How Sure Are You?
Did it Rain June 18th in Yellowstone?

Yes

How Sure Are You?
Did it Rain June 18th in Yellowstone?

Yes

How Sure Are You?
Did it Rain June 18th in Yellowstone?

Yes

How Sure Are You?
Did it Rain June 18th in Yellowstone?

Yes

How Sure Are You?
Follow-Ups

- Participatory Librarianship: http://ptbed.org
- CI-Facilitator:
  - Lankes <rdlankes@syr.edu>
  - Cogburn <dcogburn@syr.edu>
  - Oakleaf <moakleaf@syr.edu>
  - Stanton <jmstanto@syr.edu>