Restoring Trust Relationships within Collaborative Digital Preservation Federations

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Question 1

• Do you host your repository and its storage in your own data center?

1. YES   2. NO   3. Don’t Know

To vote, text to 41411
"RETURN ID869 option"
Ex. “RETURN ID869 1”

Or go to http://m.textthemob.com/id869
Do you host your repository and its storage in your own data center?

1. Yes 24
2. No 2

Audience responses from 5.19.09 at Open Repositories 09
Question 2

• Do you host your repository and its storage in a co-located data center facility that is managed for you?

1. YES  2. NO  3. Don’t Know

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Do you host your repository and its storage in a co-located data center facility that is managed for you?

1. Yes 12
2. No 15
Don't Know 1

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Outline

• Organizational Structures to Support Repository Federations
• Trust Building Relationships
• Case Study on Restoring Trust Relationships
Trust

• Walters/McDonald - Creating Trust Relationships for Distributed Digital Preservation Federations – iPres 2008

(http://www.bl.uk/ipres2008/presentations_day2/31_Walters.pdf)

– Federating Repositories and Services to leverage costs
– Creating new virtual organizations
– How to establish and maintain trust?
Process Framework of the Development of Cooperative IORs

**Negotiations**
- of joint expectations
- risk & trust through
  - formal bargaining
  - informal sense making

**Assessments**
- based on:
  - efficiency
  - equity

**Commitments**
- for future action through
  - formal legal contract
  - psychological contract

**Executions**
- of commitments through
  - role interactions
  - personal interactions

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Federating Repository Services

• MetaArchive
  – NDIIPP Funded
  – LOCKSS Virtual Private Network

• HathiTrust (2.9M vols – 108 TB)
  – CIC Funded + CDL + UVA
  – Fedora + Wide Area File System + Discovery Interfaces
HathiTrust
http://www.hathitrust.org

Isilon OneFS Currently Supports up to 2.3 PB between Two Nodes

Two Node Federated Repository

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Question 3

• Do you have geographically dispersed replicated storage space for your institutional repository?

1. YES  2. NO  3. Don’t Know

To vote, text to 41411
"RETURN ID871 option"
Ex. “RETURN ID871 1”

Or go to http://m.textthemob.com/id871
Do you have geographically dispersed replicated storage space for your institutional repository?

1. Yes 8
2. No 21
Don't Know 1

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Question 4

• Do you have a federated partnership with other institutional repositories for data replication or preservation?

1. YES   2. NO   3. CAN’T DECIDE

To vote, text to 41411 "RETURN ID872 option"
Ex. “RETURN ID872 1”

Or go to http://m.textthemob.com/id872
Do you have a federated partnership with other institutional repositories for data replication or preservation?

1. Yes  9
2. No  23
Don't Know  0

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Case Study

Southeast Regional Advanced Storage Trust (SRAST)

– Digital repository access/preservation services
– Mass-scale storage for research libraries and data centers in U.S. southeast
– Based in research triangle region of North Carolina

• *Data replicated, backed up across national lambda rail at a similar data center in north Georgia. The Georgia center’s purpose is as a dark storage and preservation node only.*
The Disaster Scenario

- Category 5 hurricane struck coast of North Carolina, widespread electrical power outages Storage servers severely compromised

- SRAST facility sustained major damage, requires 3 month recovery. Access only to digital information in storage in first weeks

- In Georgia (400 miles away), hurricane brought 15” of rain in 3 hours

- North Georgia facility submerged in water from a local river with acres of mud flooding computing facility. Power lost for 48 hours

- Research data on servers in NC and GA were lost. Backed up on tape in GA (rotational backup, leaves 48 hours worth of data loss)

- Tape storage room hit by water and mud, damaging tape’s structure. Small portion of tapes recovered, only portions of data retrieved
The Main Question?

*What is this collaborative storage facility to do to regain the trust of its customer institutions?*

- Three recommended trust recovery steps:
  1) Initial public communiqué
  2) Transparent accounting of circumstances that led to data loss and recovery
  3) Independent audit
Initial Public Communiqué

“Framework for inter-org. trust prior to loss is critical. Engaging all groups in the IOR/VO is important”

1) Stabilize physical facilities, verify, understand data loss

1) Publicly acknowledge the disaster occurred
   – extent of damage to facilities, IT systems, data lost

2) Provide means to communicate with SRAST personnel and management (i.e. facilities, IT systems, data management, customer relations) should be given

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Intent of the Communiqué:

• Demonstrate openness, transparency, authenticity in SRAST’s communications with public, partners, customers
  
  \textit{(Holland and Lockett, Ring and Van de Ven assert importance of communication in their research)}

• Communication Plan expressed in MOU and annual renewal statement

• Partners may not want disaster-related information to be public, however, its release establishes public credibility in the face of disaster

• Establish near-term emergency communication, long-term multi-tiered communication responses (Childs 2008)
Transparent Accounting of Circumstances that Led to Data Loss and Recovery

1) Independent 3rd party employed to investigate conditions that created SRAST’s vulnerabilities during the natural disaster

2) Focus on SRAST’s strengths, weaknesses, opportunities in its IT, organizational, accountability systems. Documents them

3) Final report is a public document, transmitted to SRAST’s management and customer/partner institutions

4) Becomes basis for a fully independent audit. Begins process of improving SRAST’s processes, policies, infrastructures to rebuild services and trust of customers (Holland/Lockett 1998)
Independent 3rd Party Audit

1) Expertise to audit SRAST repository practices (TRAC, DRAMBORA)

2) Report on veracity of SRATS’s technical approaches, policies, procedures, organizational methods to promote transparency, documentation practices, and formalized inter-org. relationships

3) Report released to SRAST and customers/partners

4) SRAST to use findings as pathway to rebuild IT systems, management and accountability systems, inter-organizational relationships, services

5) Result: lengthen long-term involvement of partners, strengthen relationships that may be jeopardized during losses (Ring and Van de Ven Prop. 7)
Question 5

• Have you ever had hardware failures within your institutional repository infrastructure?

1. YES   2. NO   3. CAN’T DECIDE

To vote, text to 41411
"RETURN ID873 option"
Ex. “RETURN ID873 1”

Or go to http://m.textthemob.com/id873
Have you ever had hardware failures within your institutional repository infrastructure?

1. Yes - 17 respondents
2. No - 10 respondents
Don't Know - 2 respondents

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For example send "RETURN ID873 1" to vote for the first option.

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Question 6

• Have you ever lost data from your institutional repository?

1. YES  2. NO  3. CAN’T DECIDE

To vote, text to 41411
"RETURN ID874 option"
Ex. “RETURN ID874 1”

Or go to http://m.textthemob.com/id874
Have you ever lost data from your institutional repository?

1. Yes 3
2. No 21
Don't Know 4

Audience responses from 5.19.09 at Open Repositories 09

To vote, text "RETURN ID874 option" to 41411

For example send "RETURN ID874 1" to vote for the first option.

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Comments and Discussion