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Libraries Plus Cloud Computing Equals Human Rights:

Open Information Requires Open Infrastructure
Key Topics

• Who are we?
• The genesis of the idea – a trip abroad
• Information and infrastructure
• The cloud and human rights
• The opportunity for librarians is huge
• Towards concrete steps forward
Al Cordle

- Started his library career as a student worker at Virginia Tech in what was then the ACRL's fourth-largest microforms collection.
- For nearly fourteen years has worked as a reference librarian at Portland Community College. He is currently faculty chair.
- Traveled to sixteen countries.
- Interested in human rights.
Antony Falco’s Bio

Currently COO of Basho Technologies, an open-source cloud database company

Twenty employees, distributed across country

Make Riak, an open source database

Executive at Akamai Technologies, which built one of the first global “cloud” services in 1999

At Public Citizen, a Ralph Nader advocacy organization, built first web site in 1995

Worked at Aspen Systems, putting government clearinghouse info on the web in 1996

Every job that has involved the internet has involved librarians.
The librarian at the start of the Internet

- Tim Berners-Lee, at CERN, in collaboration with Paul Kunz, Terry Hung, and Louise Addis (a librarian) from Stanford connected the first web client to a database of research documents.

- SPIRES-HEP called “the killer app” by Berners-Lee.

- Suddenly anyone with an internet connection could query a web-connected database.
Human Rights and Information

From Article 19 of the Universal Declaration of Human Rights:

“Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”

This statement puts librarians and the technologies of information transmission dead center in the struggle for universal human rights.
THE GENESIS OF THIS IDEA

Human rights, information, and a burgeoning friendship
The Inception of the idea: South Africa / race relations
What I learned about Truth

• Large collection of Truth and Reconciliation transcripts
• At the time, very little digitized
• Few people with actual stake in outcome could access the history of Apartheid
• Around this time, I met Tony, who was working on open-source software
• Tony and I concluded....
What I learned about truth....

“Truth,” or the information that underpins open societies, has little value if not accessible to the populace.

We became interested in the relationship between free information and infrastructure.

Today’s internet infrastructure – the cloud - is not as free as you might think.
Infrastructure of Today

- Physical collections – still an important way to deliver information
- Proprietary databases (expensive)
- Web access to library catalogs
- The internet
Where is information infrastructure headed?

What are the trends and what do they mean for information freedom?
“Cloud applications can be cheaper to develop than other types of applications, especially because it removes the need to worry about how and where users install software…The net of it is that you spend hundreds of hours less in support over the life of a product for a group of customers.”

- Matt Wegner, CEO, Aviary

Making Art Pay, Kate Green, Technologyreview.com

http://www.technologyreview.com/computing/22607/?a=f
What is cloud computing?

A new approach to managing computing infrastructure

**On-demand - Storage**, compute power (CPU), memory, bandwidth

**Virtualization** – software that divides a physical server into multiple virtual servers with a fraction of the storage, CPU, memory, bandwidth

Infrastructure, NOT applications

Google Docs is not cloud, but an app running on cloud infrastructure.

The resources and software used to manage those resources are “the cloud”
Three Defining Characteristics

**Utility-like** – on-demand capacity, delivered automagically

Like water from tap or electricity in the United States

**Opaque** – where the app is running doesn’t matter. The “app” is decoupled from physical servers and data centers.

A unit of cloud infrastructure might use a fraction of the resources of a single server or pool many physical devices (cluster)

**Programmable** – you can write software that manages the use of resources

Example: as user thresholds are met during a day, more resources are recruited to meet demand. These resources can be automatically released as traffic dies down.

Follow-the-sun, annual traffic spikes for e-commerce, the Oprah effect

**APIs** – the tools and instructions one application uses to interact with another application
Who owns the cloud?

Not you.

Amazon, Joyent, Rackspace, Microsoft, Google, large network providers like Level 3
State-owned network/hosting providers
Internet providers control access – Vodafone in Egypt
Current Chokepoints

- Relying on private/state-owned infrastructure makes democratic movements vulnerable
  - Egypt
  - Wikileaks
  - China
  - US proposed “internet kill switch”
  - BBC http://178.63.252.42/
- Privacy – even with access, surveillance
- Self-censorship – if you know they’ll censor it, you save everyone the hassle
What’s needed?

Infrastructure commons

- Open-source software
  - Permissive licenses like Apache Foundation
- No central control, local efforts
- Federation between local and regional efforts

Economic pressure applied not to the infrastructure companies, but their clients.
Examples of Open Source Infrastructure

Rackspace’s Openstack – cloud stack

Basho Riak – open-source version of Amazon storage engine

SOLR/Lucene – Apache Foundation software for searching documents
The Role of Librarians
21. Why do libraries have an obligation to provide government information in digital format?

The role of libraries is to provide ideas and information across the spectrum of social and political thought and to make these ideas and this information available to anyone who needs or wants it. In a democracy, libraries have a particular obligation to provide library users with information necessary for participation in self-governance. Because access to government information is rapidly shifting to digital format only, libraries should provide access to government information in this format.

From Questions and Answers: Access to Digital Information, Services, and Networks: An Interpretation of the Library Bill of Rights
The Librarians’ Mission, Part Two

22. What is the library’s role in the preservation of information in digital formats?

The digital medium is ephemeral and information may disappear without efforts to save it. Libraries may need to preserve and archive digital information critical to their mission.

From Questions and Answers: Access to Digital Information, Services, and Networks: An Interpretation of the Library Bill of Rights.
Towards A New Definition Of Intellectual Freedom

The mere existence of information does not mean we have a democracy.

The freedom that underpins human rights must include infrastructure for storing, retrieving, and analyzing that information.

Recent history clearly demonstrates we cannot depend on corporations and governments to protect those freedoms.
Librarians Need To Acquire New Proficiencies

23. Do libraries have a role in supporting the creation and distribution of digital information by patrons?

Library services should reflect the library’s specific mission and the objectives of the institution. For example, some schools may have budgeted funds to support the creation, storage, and distribution of student-generated content; others may not have such resources. Academic libraries may have resources for “creation and distribution” to which their enrollees would have access but the community users would not, including their intranet and campus e-mail. Public libraries generally must consider all eligible users rather than a minority when offering services.

From Questions and Answers: Access to Digital Information, Services, and Networks: An Interpretation of the Library Bill of Rights
Concrete steps

• Add in open source projects – add the librarian’s voice to defining an open cloud.
• Start user groups to build local infrastructure.
• Build regional networks.
• Become involved in technology governance.
  • Play the “budget” card with open source software and data collections.