The Reality of the Cloud: Implications of Cloud Computing for Mobile Library Technologies

Dr. Heather Lea Moulaison
School of Information Science & Learning Technologies, University of Missouri, USA

School of Information Science & Learning Technologies
University of Missouri

@libacat on twitter

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Cloud computing and libraries, also a reality?

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Predicts 2012: Cloud Computing Is Becoming a Reality

8 December 2011

David Mitchell Smith Yefim V. Natis Gregor Petri Thomas J. Bittman Eric Knipp Paolo Malinverno Joseph Feiman

As cloud computing matures and adoption begins, businesses continue to explore its potential. In many instances, local regulations and data privacy restrictions will delay adoption.

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Agenda

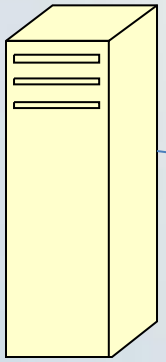
- Cloud computing in libraries defined
- Mobile libraries: on the move & in the cloud
  - Services in the cloud
  - Products in the cloud
- The mobile, social *cloud*
  - Platform for sharing content
  - Platform for sharing data
- Challenges in the cloud
- Conclusions

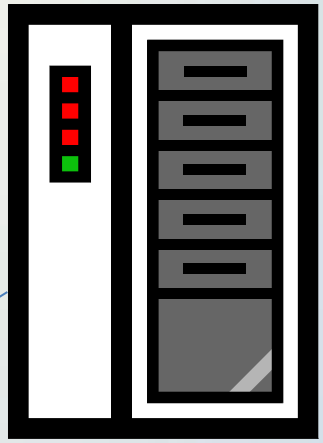
Defining *cloud computing*

“ ‘Cloud computing’ is a phrase that is being used today to describe the act of storing, accessing, and sharing data, applications, and computing power in cyberspace” (Anderson & Rainie, 2010).

The cloud computing paradigm is increasingly interesting when we start thinking about mobile technology and libraries…

Cloud computing and mobile devices





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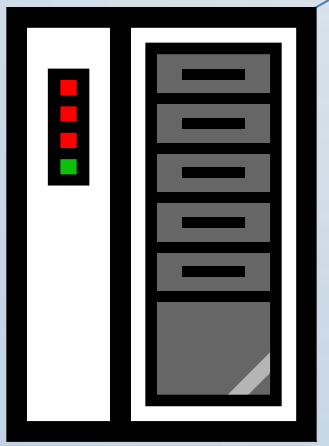
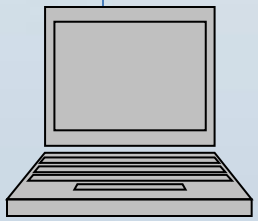
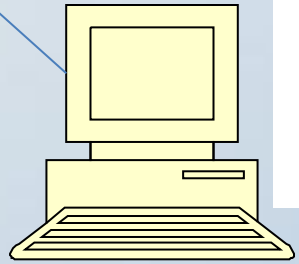






"'Cloud' is a metaphor for the internet" (Anderson & Rainie, 2010).

Software as a Service (SaaS)

- Any software (web-based application, file creation and storage service, social software, etc.) accessed via the internet
  - All of the computers (and staff) hosting, maintaining, and making available the service are "elsewhere"
  - For more information, see the NIST *Definition of Cloud Computing*
- One of three service models for computing in the cloud as identified by the NIST
  - The other two are Platform as a Service (PaaS) and Infrastructure as a Service (IaaS)
  - All three are used in libraries, but PaaS and Iaas require programming knowledge
  - Some others talk about Data as a Service and IT as a Service, too
- The easiest aspect of cloud computing to understand and implement in libraries
  - No programming knowledge required
  - Simple account creation with SaaS provider
- Has come to be equated with "cloud computing" in its own right

SaaS and some library services in the cloud

Library services = reference services, reader's advisory services, information literacy instruction services, etc.

- Web conferencing software
  - Skype, Google Voice, Google+ Hangouts
- Web publishing
  - WordPress, Google Sites
- Marketing, branding, web-based communication
  - Facebook, Twitter, YouTube, mobile social apps
  - Yahoo! Mail, Gmail
- Document sharing in libraries
  - DropBox, Google Docs, Evernote, Sugar Sync

Some library products in the cloud

The cloud enables more than just applications…

- Ebooks as cloud-based products
  - Overdrive
    - Allows patron downloads onto mobile devices
      - E-readers, tablets, smartphones, etc.
    - Does not call itself “cloud-based” since there is no synchronization between devices after the initial download
  - 3M
    - Also allows patron downloads onto mobile devices
      - Creating its own e-reader for libraries to purchase and make available
    - Does call itself “cloud-based” since there can be synchronization between devices after the initial ebook download
  - Google Books
    - Allows user downloads onto Android-powered devices, MyLibrary application
    - Seamless integration with Google Scholar
    - Does not sync reading across devices
  - HathiTrust
    - Allows user downloads of public domain ebooks
    - Seamless integration into a library’s discovery layer

Accessing library data silos from the cloud

http://www.fowlerwestrup.com/images/galvanized-silos-storage-system-gallery9.jpg

- Integrated Library System (ILS) or Library Management System (LMS) (MARC-based) library data
  - Vendors increasingly prefer hosting to local installations
  - Examples: Koha in the Cloud, OCLC WMS
- Repository library data
  - Institutional archives /local content hosted in the cloud; Institutional repositories
  - Example: bepress DigitalCommons
- Discovery systems
  - Reindex library data for a more powerful searching experience
  - Provide access to the above silos, the ebook silos, and to journal database silos
  - Examples: Ebsco Discovery Service, Ex Libris Primo Central

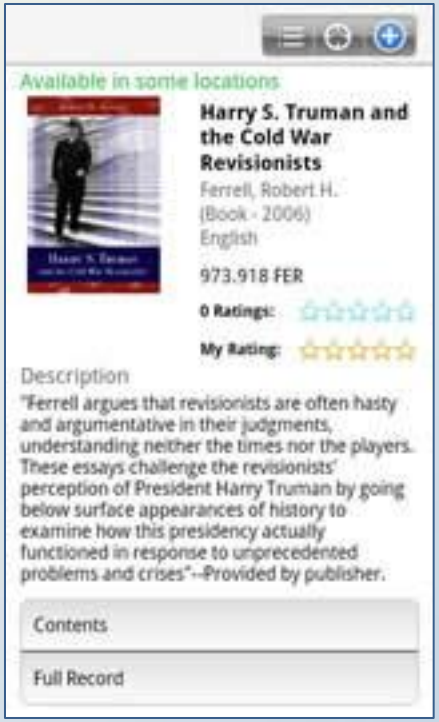
The mobile social cloud

- Cloud content can be accessed on a multitude of internet-connected devices, including mobile ones
  - Some of the power of this paradigm comes from the mobility of the user's devices
  - Some of power comes from what libraries can do with big data accessible over the internet
- Harnessing the power of *platforms*
  - Successful Web 2.0 sites are all *platforms*
    - Facebook, MySpace, blogs, Twitter, etc.
    - Platforms allow for personalization, sharing and mashing up of data, and /or creation of content

Library as platform for sharing mobile content

Between librarians and patrons, patrons and patrons, and librarians and librarians, content can be shared to and from mobile devices via the cloud

- Recommendations, comments, etc.
  - Bibliocommons discovery layer allows patrons to share their thoughts on library materials
- Publicizing, making accessible
  - Blogs, Facebook updates , YouTube videos can inform users in general of services and upcoming events in the library
- Making connections
  - Twitter, Facebook, and others help librarians connect one-on-one with patrons and even with other librarians



DBRL Bibliocommons app
http://www.dbrl.org/catalog/mobile-apps

Library as platform for sharing data

When big data (library content at web-scale) can be exploited and repurposed via the cloud, new services become possible…

- Recommender systems (more like this)
  - Bibliocommons (books)
  - bibEx from ExLibris (journal article recommender system)

New services can also be born of current content

- Mashups
  - A series of mash-ups from the WorldCat API are available (Coombs, 2011) including ones to
    - Find libraries (CampusBooks, Red Laser, Pic2Shop) *
    - Format references (Cite This)
    - Enhance access (LibX toolbar integration)

*Particularly well-suited to use on mobile devices

New vendor-based library services

- StackMap
  - Allows patrons to view locations in the library on their mobile devices
- Third Iron
  - Browzine's iPad app allows users to browse current journal articles and download, save, and share them

Pros and cons of moving to the cloud

- Drawbacks
  - Loss of local control
  - Concerns over privacy and security of data
  - Questions of ownership
    - What formats can data be retrieved in?
    - Who owns enhancements to data while it was stored with the cloud vendor?
- Benefits
  - Less staff time spent doing IT work, more can be spent supporting library's mission
  - Can ultimately be more accessible and cheaper
  - Potential to turn the library into a platform

Conclusion

- Now is the time to look to the cloud for mobile solutions in libraries
- Care and thought still need to be given to any strategic IT move:
  - Detailed examination of contracts (SLAs)
  - Careful discussions about desired end-results
  - Strategic and future-minded alignment with institutional goals