cloud computing for libraries
we all use the cloud
at work
in libraries, research and education
Gartner

Cloud computing: “a style of computing in which massively scalable and elastic IT-enabled capabilities are delivered as a service to external customers using Internet technologies.”

The 4S experience—consumers’ desire to
• store
• sync
• stream
• and share
their content seamlessly regardless of device or platform.

Predicts 2012:
Cloud Computing Is Becoming a Reality

PC stands for ... personal cloud (from 2014).
key characteristics
## service types 1

<table>
<thead>
<tr>
<th>Type</th>
<th>What it is</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Services</td>
<td>Ready to use services accessed with a Web browser</td>
<td>Google Maps</td>
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<tr>
<td>Applications</td>
<td>Software applications accessed with a Web browser</td>
<td>Google Docs</td>
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<td>Microsoft 365</td>
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<td></td>
<td>Salesforce.com</td>
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<tr>
<td>Platform</td>
<td>An existing software platform to build your own applications on</td>
<td>Facebook</td>
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<tr>
<td>Infrastructure</td>
<td>Buying space / time on external servers</td>
<td>Amazon A3</td>
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</table>
service types 2

- Private cloud
  – on site
  – outsourced

- Community (vertical) cloud
  – on multiple sites
  – outsourced

- Public cloud
Cloud delivery models and service types

**Infrastructure as a Service**
- Amazon
- Rackspace
- Terremark

**Platform as a Service**
- Amazon
- Google Apps engine
- Windows Azure

**Software as a Service**
- Dropbox
- Google Apps
- Microsoft Office 365

End-user focus
- Standardized, generic
- Consume
  - Economy of scale: high
  - User control: low

Vendor management
- Licenses and service levels
- Connect vendors to SURFconext to achieve interoperability

Standardized, shared services on shared platform

Enterprise focus
- Customized
- Produce
  - Economy of scale: low
  - User control: high

Transfer Virtual Machines from individual organizations to community or public cloud
why?

- scalable
- elastic
- anytime, anywhere
- any device (iPads ...)
- pay per usage
- economy of scale & skills

- technology improvements
- integrated services
- no upgrades
- community power
- online collaboration, easy sharing
- findability
why not?

- standard services
- inflexibel
- legal & privacy issues
- poor integration with existing systems on campus and other cloud solutions
- fixed subscription price (e.g. per fte)

- vendor lock-in
- reliability (+ or -)
- security
cloud storage 1

• many suppliers (IBM, Amazon...Dropbox, Mozy)
• some data is more equal than others
  – one size does not fit all
  – hybrid solution (public, community, private)
  – storage ≠ back-up
• reliability, continuity, integrity
• performance
cloud storage 2: preparations

1. before you get in: how to get out?
2. functionality and performance
3. legal issues
   - ownership
   - privacy
   - security
   - integrity
   - continuity
   - SLA’s
4. cost
architectural & technical requirements

• clear architecture, separated services, e.g.:
  – identity management
  – payment services
  – authentication & autorisation

• well defined interfaces (open, mashable)

• open standards

• secure channels

• network access & bandwidth
requirements: different skills

LESS
• operations
• systems management
• application development
• helpdesk?

MORE
• IT architects
• information analysts
• legal knowledge
• contracting skills
• service (level) management
requirements for libraries

• separation between front end and back end
• separation of services
  – account management
  – financial (licensing, fees, fines)
• standardise (MARC21, RDA, …)
• know your functional requirements (MoSCoW)
• collaborate closely with IT
the view from NL

- higher education CEO’s & SURF: cloud first
  - common strategy
  - preconditions: security, privacy & identity management
  - business cases
  - governance
  - community cloud services
the view from Tilburg: data

- high level SAN’s on campus
- 2 sites (fail over)
- back-up at SARA in Amsterdam

- for research: low cost NAS – no back-up
  - research data sets in Dataverse
    - back from Harvard to Utrecht
    - -> community cloud (SURF)?

- library data to the cloud: OCLC (WMS)
- student e-mail and data to the cloud: Google
the view from Tilburg: applications

• SAP (HR & finance): hosted yes, (public) cloud no
• SIS: hosted -> community cloud?
• CRM: -> cloud

• student e-mail & apps: Microsoft -> Google
• side effect: Google apps for staff

• library
  – ILS front end: WorldCat (cloud)
  – ILS back end: WMS (cloud)
the view from Tilburg: focus shift

• from
  – IT support
  – systems management
  – application development

• to
  – education support
  – research support
  – opening up management information
  – allow mobile services
Cloud computing for libraries

Local content
- KB/depot/special collections

Global content
- harvesting
- digitizing on demand print
- licensing info
- harvesting
digitization
- Google (Scholar, Books)
- Wikipedia
- Amazon, Bol

Journals / articles
Databases
Worldcat

digitization

KB/depot/special collections
See also:

– http://www.youtube.com/watch?v=QJncFirhjPg
– http://www.youtube.com/watch?v=_eq3Sj1GGs8&feature=related
– Wikipedia
– Slideshare
– Educause
– OCLC
– SURF, JISC, etc.
– Gartner
– plain old Google 😊