A Science & Technology (S&T) Cloud Library : New Trends

By

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(SLSTINET Seminar – 06-03-2013)

Libraries – Then, Now & Future

Libraries within walls

i.e. Traditional Paper-based Libraries (Book Libraries)

Libraries without walls & Paperless Libraries

i.e. Hybrid Libraries
Electronic Libraries
Digital Libraries
Invisible or Virtual Libraries

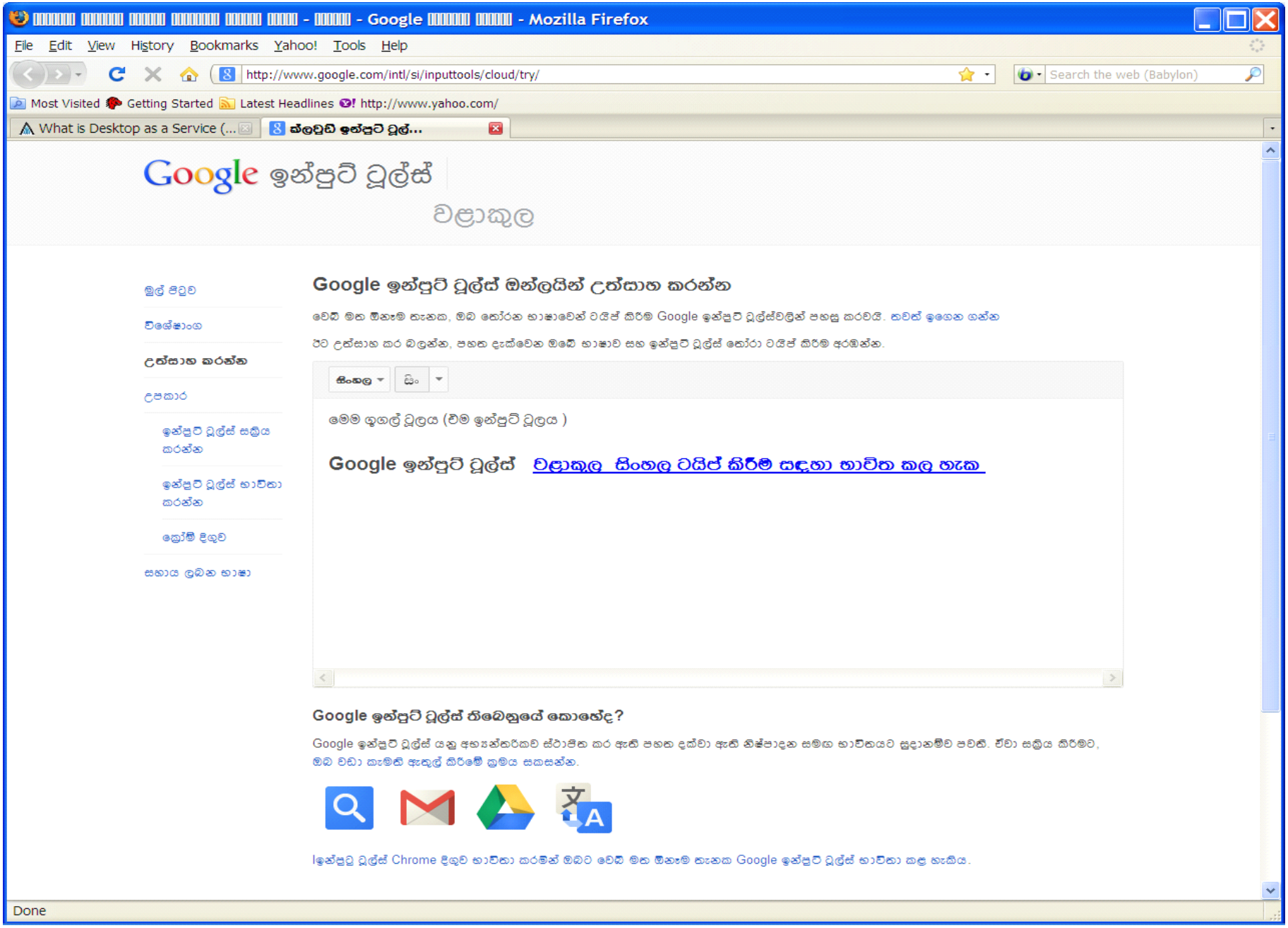
In near Future - Cloud Libraries

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."

Gartner

“‘Cloud’ is a metaphor for the internet. ‘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).

If we are using any of the popular Web 2.0 services for our day-to-day information and communication activities (e.g. Gmail, Wikipedia, Flicker, YouTube or Twitter), we already have some experience with cloud computing, since most of these applications are hosted in the large online data centers that are the hallmark of cloud computing.



http://www.google.com/intl/si/inputtools/cloud/try/

Introduction to Cloud computing

Public Cloud Vs. Private Cloud Vs. Hybrid Cloud

- **Public cloud**
  - Applications delivered over the Internet in the software-as-a-service model.
  - Computing resources such as storage or compute cycles delivered in the infrastructure-as-a-service model
  - Application development platform provided in a platform-as-a-service model

- **Private cloud, Also known as a Corporate Cloud**
  - uses cloud-like infrastructure and technology, such as virtualized servers in a scalable architecture, to run applications behind the corporate firewall

- **Hybrid Cloud**
  - A hybrid model takes advantages of both public and private structures. Organization may choose, for example, to run its e-mail system in the public cloud while keeping highly sensitive, customer-oriented applications behind the firewall

. Like water and electricity, a computing cloud is a communally-shared resource that you lease on a metered basis, paying for as little or as much as you need, when you need it.

effects of cloud computing will probably impact libraries

Cost savings

Flexibility and innovation

Broad, general IT skills vs. deep, specialized skills

Cloud OPAC and Cloud ILSWorldCat and FirstSearch

we all use the cloud

in libraries, research & education

State of Cloud Computing in Libraries

Cloud computing can be divided into four (4) categories:

Software-as-a-Service **(SaaS),**

Platform-as-a-Service (PaaS), and

Infrastructure-as-a-Service (IaaS).

Desktop as a Service (Daas)

Desktop as a Service (DaaS)

is a cloud computing solution in which virtual desktop infrastructure is outsourced to a third-party provider.

DaaS functionality relies on the virtual desktop, which is a user-controlled session or dedicated machine that transforms on-demand cloud services for users and organizations around the world. This is an efficient model in which the service provider manages all the back-end responsibilities that would normally be provided by application software.

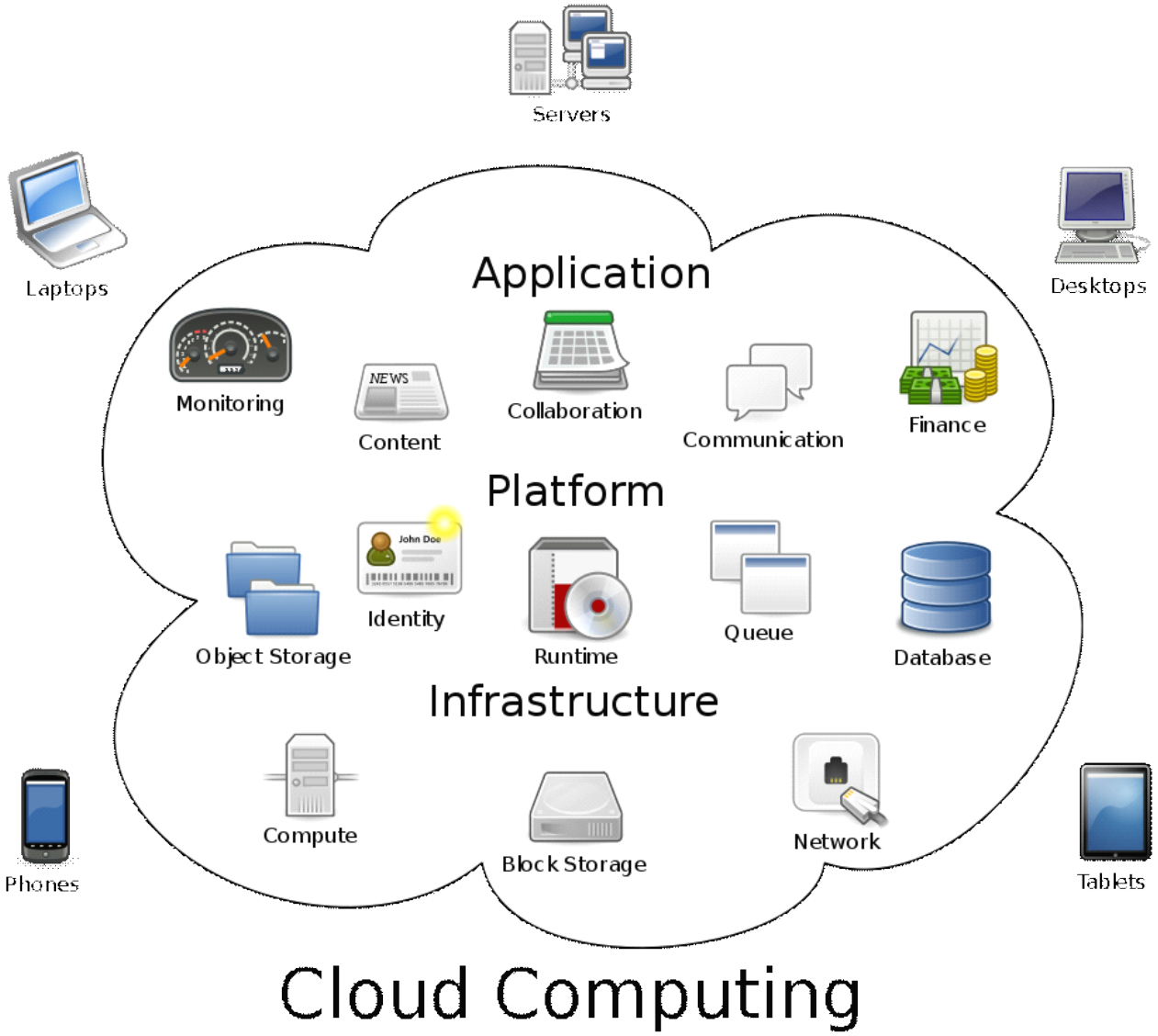
Desktop as a service is also known as a virtual desktop or hosted desktop services.

[Techopedia.com **]**

SaaS

PaaS

IaaS




MEET THE AUTHOR
ACCELERATED READER
BOOK CAROUSEL
SYNDETICS COVER IMAGES
STUDENT MANAGEMENT SYSTEMS
WEB 2.0
OLIVER BOOK REVIEWS
VIRTUAL LEARNING ENVIRONMENT
WEB SERVICES API
Oliver
by Softlink
SIP2
SELF CHECK-IN & RFID
FEDERATED SEARCH
BIOSTORE FINGERPRINT RECOGNITION
LIBRARY LINK MOBILE APPLICATION
EBOOKS & DIGITAL MEDIA
OVERDRIVE EBOOKS
DVC
TV FOR EDUCATION (V-TV)
HERMES MOBILE COMMUNICATION SUITE
CLICKVIEW


3M
Cloud Library


3M™ Cloud Library
An innovative way to browse, borrow and read popular fiction and non-fiction e-books from your local public library.

3M Cloud Library

3M launched its cloud library in June 2011.
It currently has a stockpile of 100,000 ebook titles (other formats will be forthcoming) from 40 publishers.

Small public libraries in a consortial group can be easily accommodated by the 3M service.

It also has pricing terms for small libraries that wish to remain independent.
3M **allows libraries to transfer content to another platform once a contract has expired if they wish to do so. It also features cloud delivery of content.**

The company is engaged in discussions with Amazon and hopes to offer downloads to Kindle devices in the future


3M
Cloud Library
easy. ebooks.

Amazon CloudFront

Amazon CloudFront is a web service for content delivery.
It integrates with other Amazon Web Services to give developers and businesses an easy way to distribute content to end users with low latency, high data transfer speeds, and no commitments.

Amazon CloudFront can be used to deliver your entire website, including dynamic, static and streaming content using a global network of edge locations.

Requests for your content are automatically routed to the nearest edge location, so content is delivered with the best possible performance.

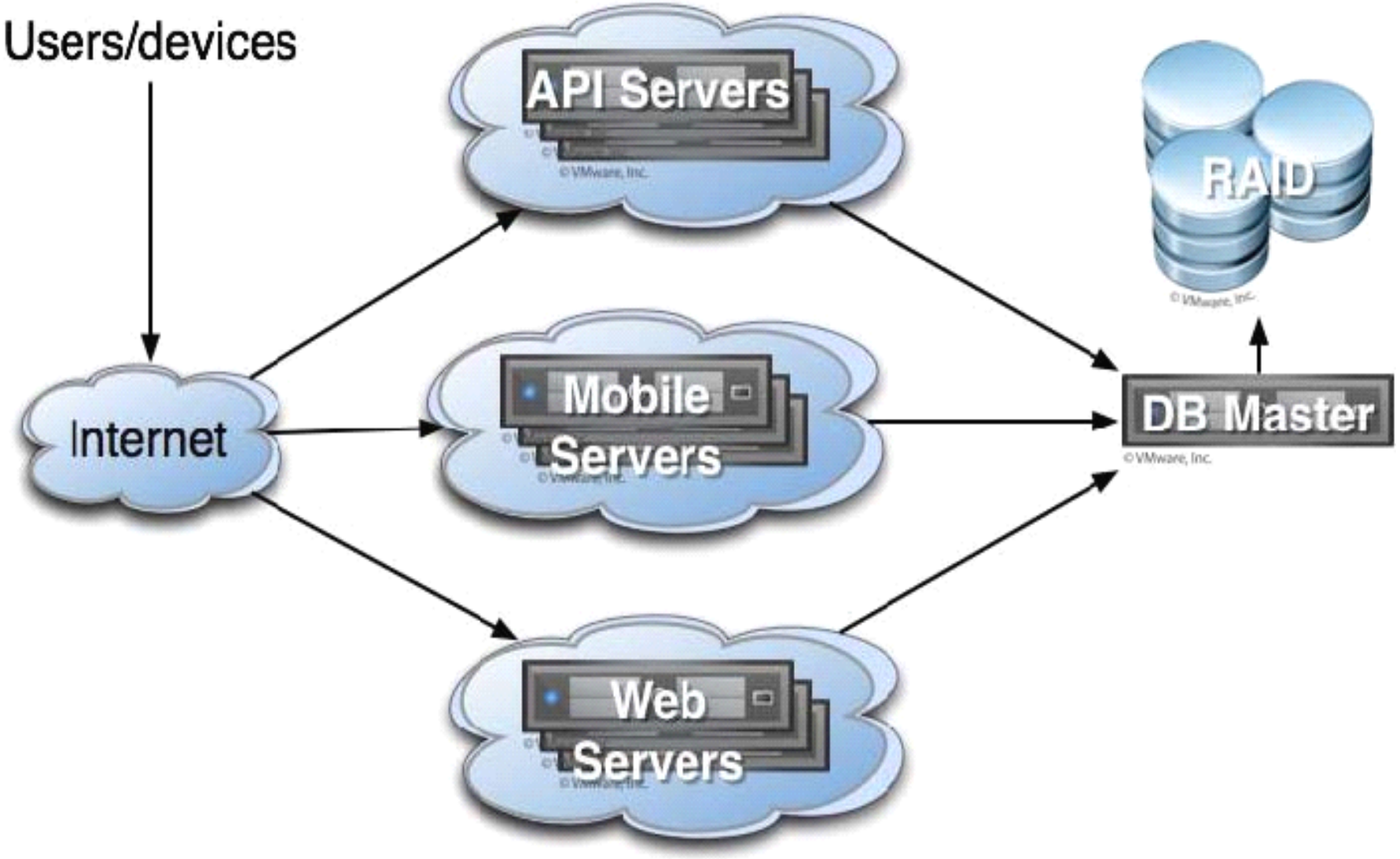
Amazon CloudFront is optimized to work with other Amazon Web Services, like Amazon Simple Storage Service (Amazon S3), Amazon Elastic Compute Cloud (Amazon EC2), Amazon Elastic Load Balancing, and Amazon Route 53.

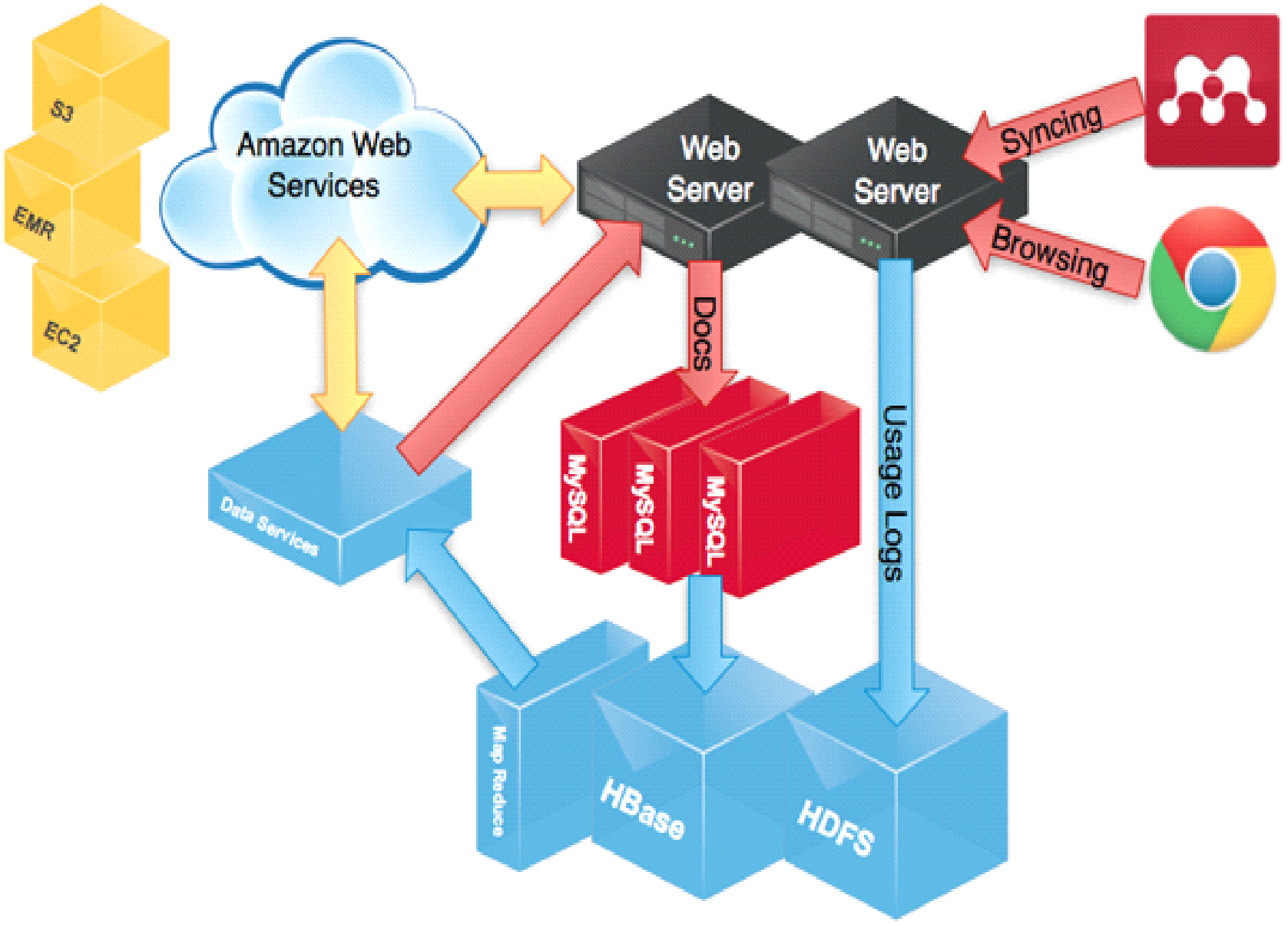
Contd…/

Global Amazon CloudFront uses a global network of edge locations, located near your end users in the United States, Europe, Asia, and South America

aAmzon CloudFront has a simple, web services interface that lets you get started in minutes.
In Amazon CloudFront, your content is organized into distributions. A distribution specifies the location or locations of the original version of your files. A distribution has a unique *CloudFront.net* domain name (e.g. abc123.cloudfront.net) that you can use to reference your objects through the global network of edge locations

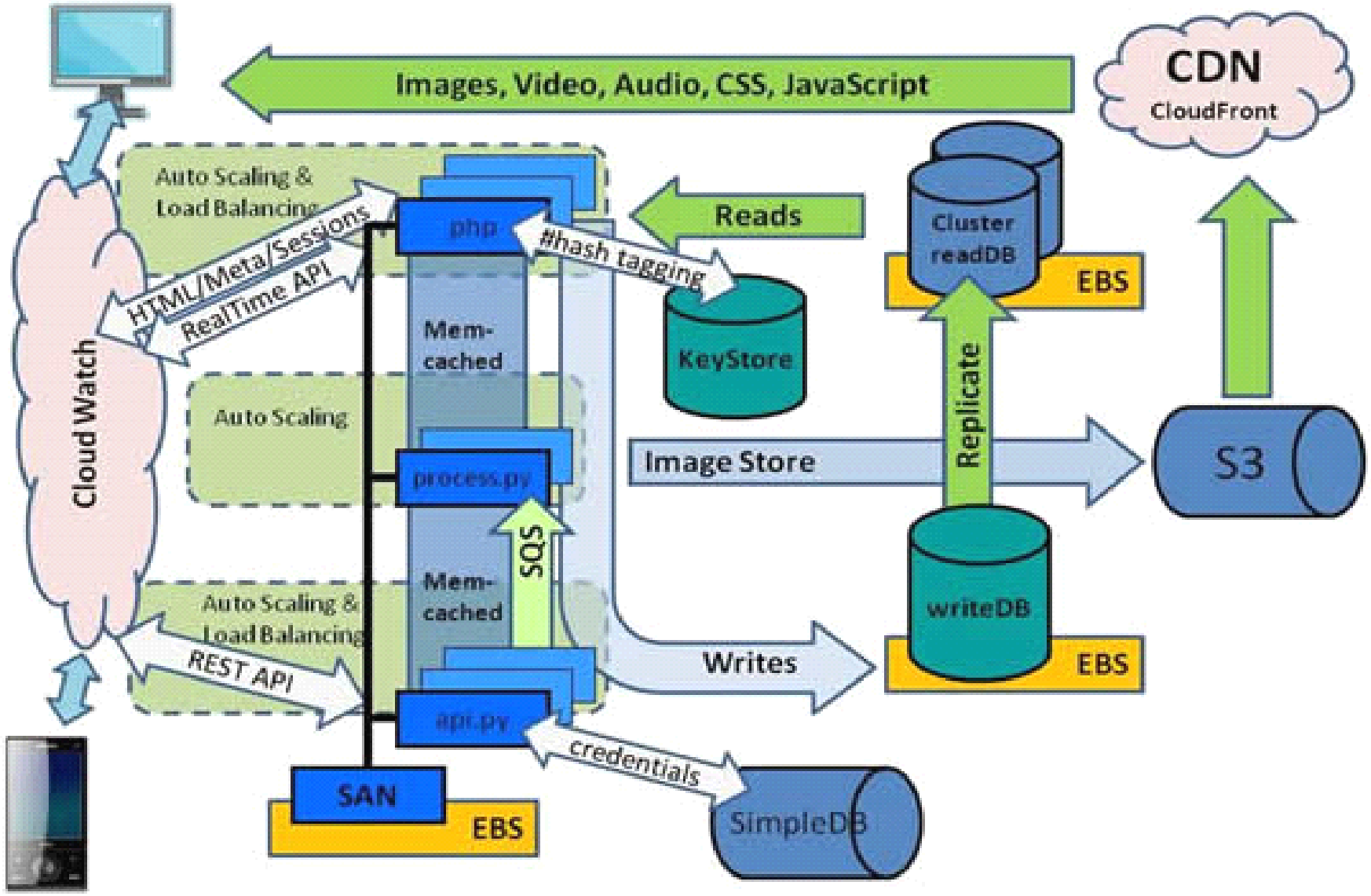
Amazon CloudFront services architecture

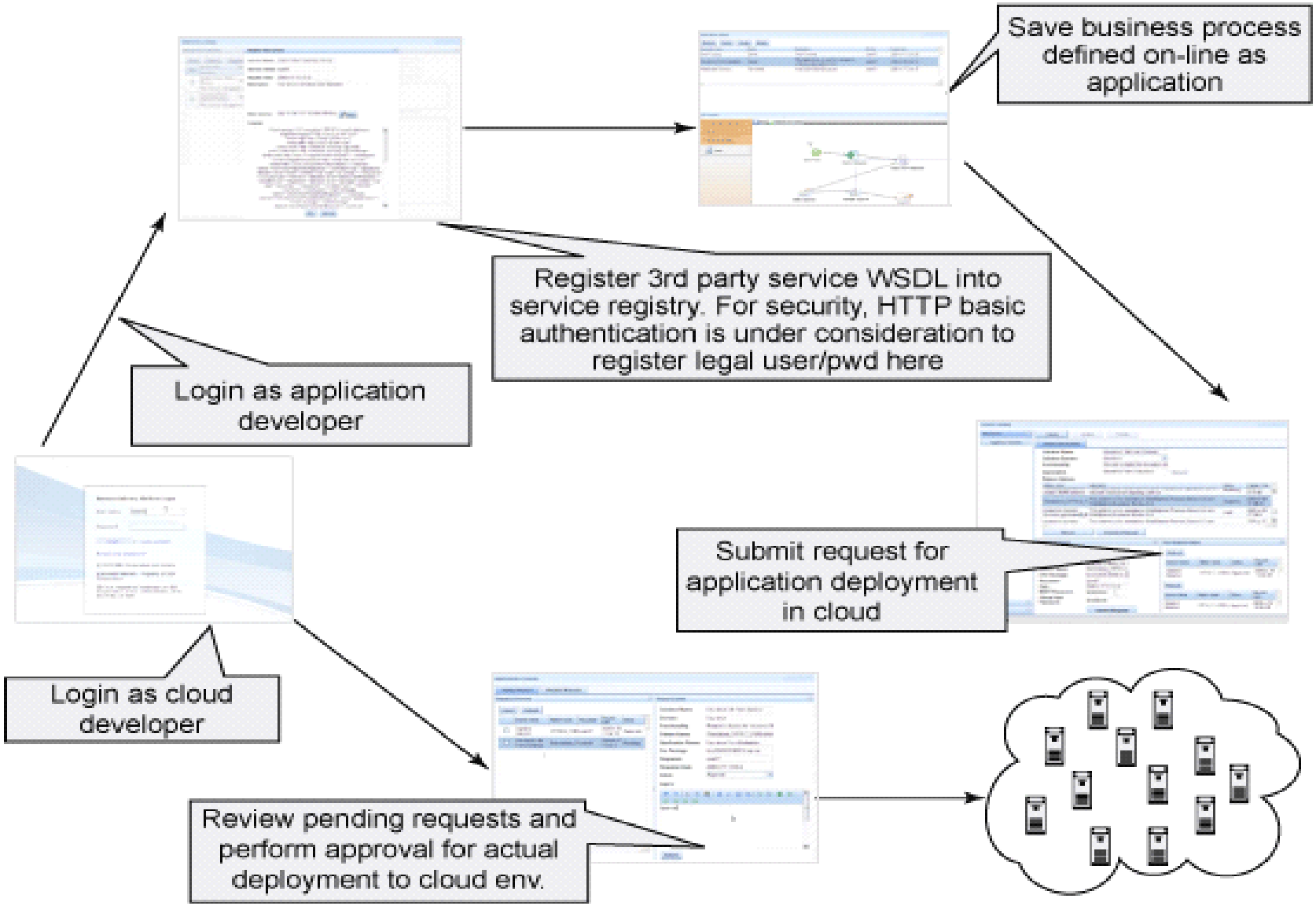



S3
EMR
EC2
Amazon Web Services
Web Server
Web Server
Syncing
Browsing
Docs
Usage Logs
Data Services
MySQL
MySQL
MySQL
Map Reduce
HBase
HDFS

photoWALL Cloud Arch

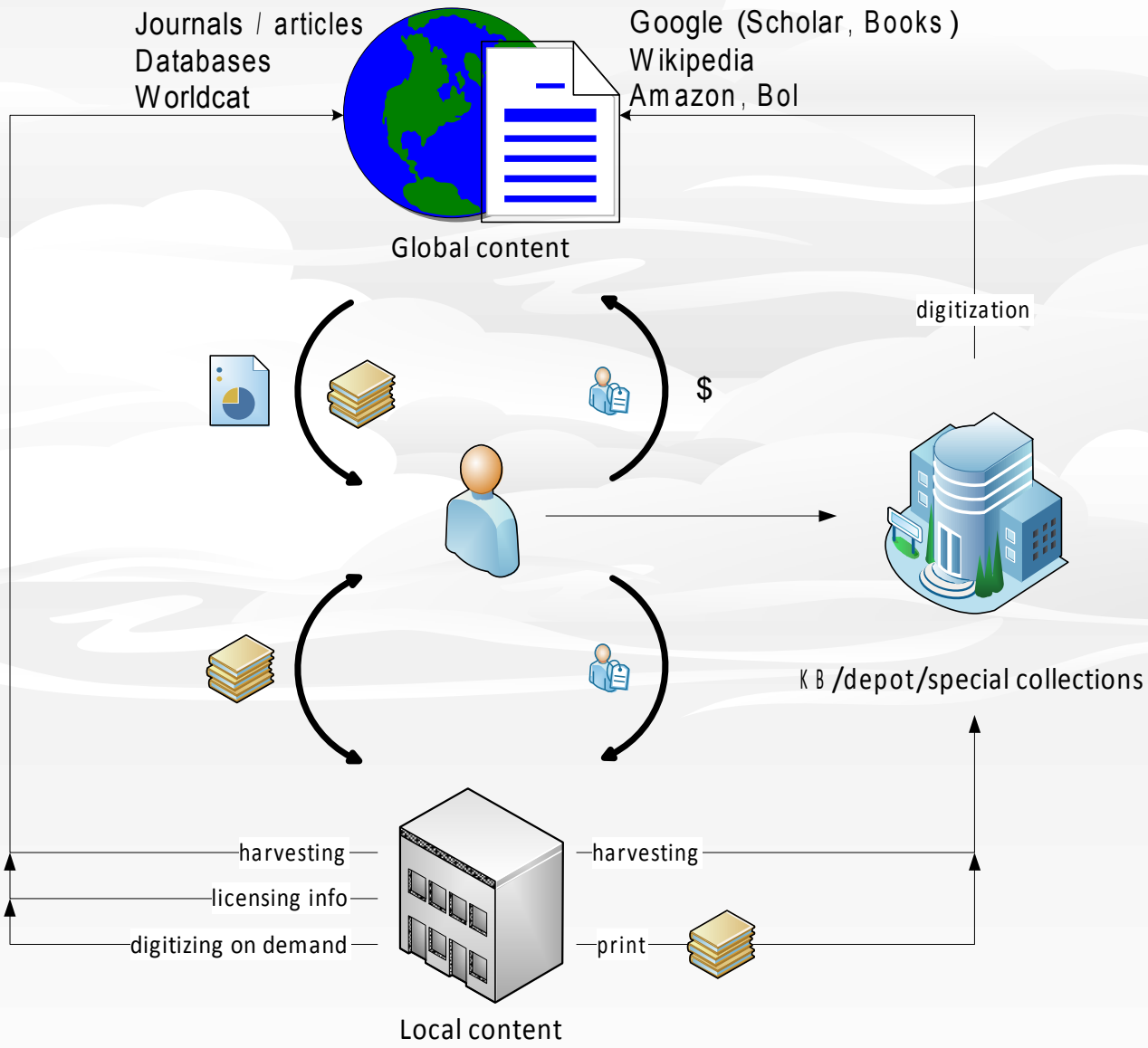
9/17/09




Save business process defined on-line as application
Register 3rd party service WSDL into service registry. For security, HTTP basic authentication is under consideration to register legal user/pwd here
Login as application developer
Submit request for application deployment in cloud
Login as cloud developer
Review pending requests and perform approval for actual deployment to cloud env.

Requirements for Libraries

- separation between front end and back end
- separation of services
  - account management
  - financial (licensing, fees, fines)
  - Bibliographic Services (OPAC, Indexes,SDI)
- standardise (MARC21, RDA, DDC or UDC…)
- know your functional requirements (ILL, DDS)
- collaborate closely with IT


Journals / articles
Databases
Worldcat
Google (Scholar, Books)
Wikipedia
Amazon, Bol
Global content
digitization
$
KB /depot/special collections
harvesting
licensing info
digitizing on demand
harvesting
print
Local content

Cloud computing examples

IaaS:

- Amazon Elastic Compute Cloud (Amazon EC2)
- Amazon Simple Storage Service (S3)

PaaS:

- Heroku (Ruby on Rails, PostgresSQL)
- Google App Engine

DaaS*:

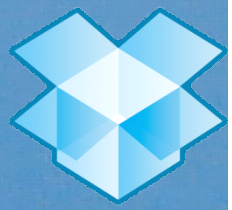
- Serials Solutions Summon
- Ex Libris Primo Central

SaaS:

- Microsoft Office 365
- Google Docs

Cloud services for libraries

- Document sharing in libraries
  - DropBox, Google Docs, Evernote, Sugar Sync
- Web conferencing software
  - Skype, Adobe Connect
- Web publishing
  - WordPress, Google Sites
- Marketing, branding, communication
  - Facebook, Twitter, YouTube, mobile social apps



Library systems in the cloud

- **Integrated library systems**
  - Koha in the Cloud
  - OCLC WMS
- **Repository software**
  - Archives hosted in the cloud
  - Institutional repositories (bepress DigitalCommons)
- **Discovery systems**
  - Ebsco Discovery Service
  - Ex Libris Primo Central

In Libraires

Remote access to data for librarians

-Saves on electricity, servers, workstations, and maintenance

–Means dumb terminals that aren't replaced frequently can be referred over high-performance individual workstations

Questions about cloud computing for libraries

Do libraries need the same type of scalability as a retailer that specializes in Indian costumes?

Do vendors from outside the library world understand library needs?

Can we effectively negotiate a contract if we don't have the sufficient budget?

Are we ok with many (most?) cases of a contract: take it or leave it?
Are there bottom line cost savings?

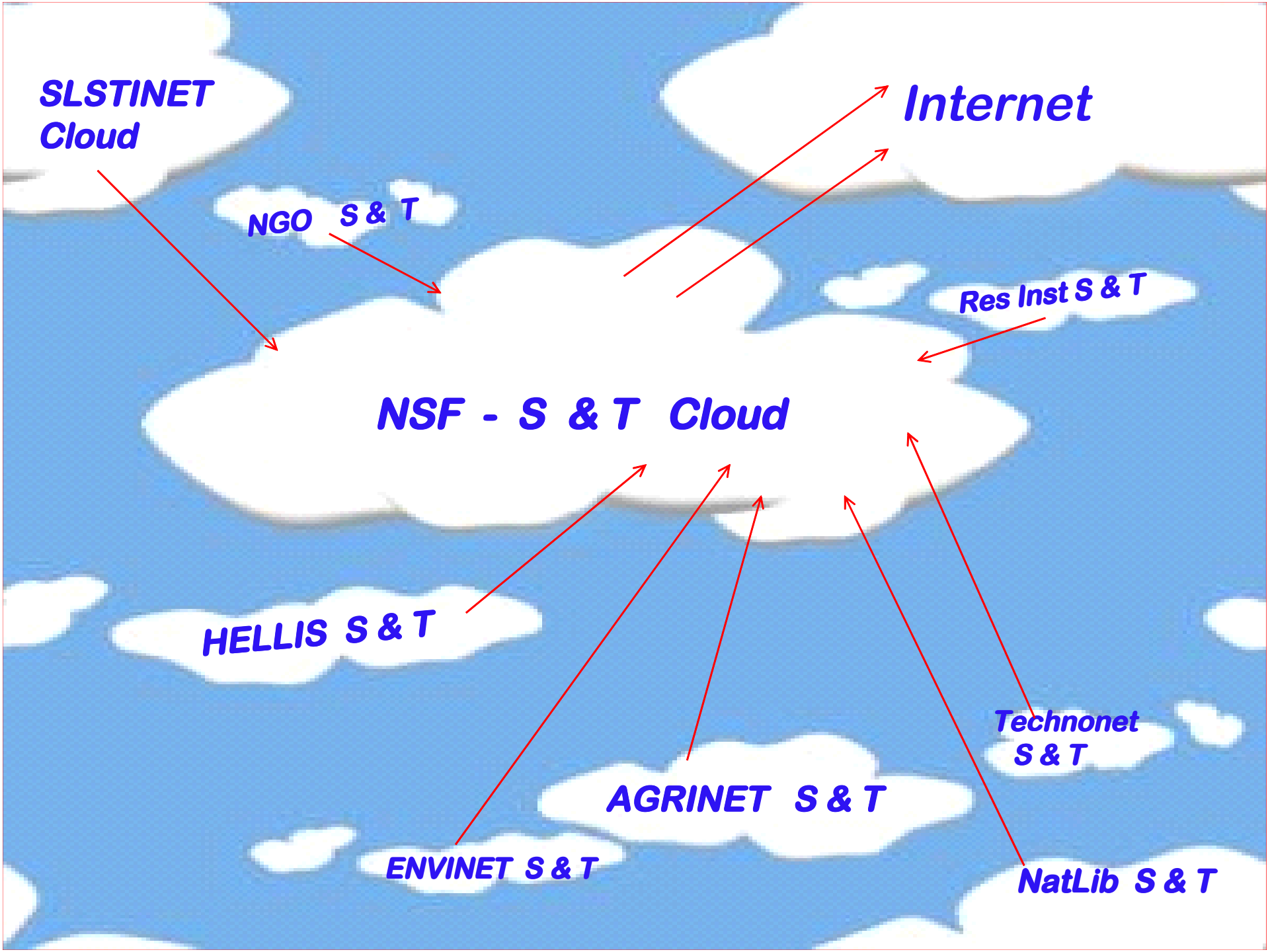
Should we evaluate cloud services in the same way as other services?

Data ownership questions

- What rights do the library and vendor have to data in the cloud?
- How do you access data?
- How and what format do you get your data back when a contract ends?
- What happens to the data should the vendor go out of business?

Advantages of cloud computing for Libraries

- Greater efficiency
- Increased flexibility
- Scalability
- A way to deal with lack of technical expertise
- A way to do something a single library simply could not do alone (i.e. CARI)
  - Aggregation of library-land data
- Lower computing costs:
  - Often free or low cost solutions are available (i.e. Google Apps for EDU)
- Uptime vs. downtime (cloud may or may not be better than local IT)


SLSTINET
Cloud
Internet
NGO S & T
Res Inst S & T
NSF - S & T Cloud
HELLIS S & T
Technonet
S & T
AGRINET S & T
ENVINET S & T
NatLib S & T


Sci.&Tech.
Library
Any Questions ??


Thank you !!!