

Ontario Library Research Cloud

future considerations & cost models

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Roadmap

History & brief technical overview

Current state

Future considerations and issues

Cost model and cost questions



Acronyms & names, decoded

OLRC (oh-lurk) = Ontario Library Research Cloud, built by 11 OCUL partners

OCUL (oh-cool) = Ontario Council of University Libraries
- 21 total members

Scholars Portal (SP) = service of OCUL, shared collections and technology infrastructure, hosts/operates OLRC core



History

2012 - idea articulated, original proposal drafted

2013, summer - ready to start, but had a “funding accident”

2014 - purchase, deployment

2015 - final testing, production launch in October

2016 - the fun part starts



Multi-site,
widely
distributed

~500 km
between
most distant
nodes



Technical overview

Dell PowerEdge R720xd heads & MD 1200 storage shelves

Each carries $12 \times 4\text{TB} = 48\text{ TB}$

ORION (Ontario-based 'Internet2') VLAN between nodes

OpenStack Swift object storage

Parent node: SP data centre @ Univ. of Toronto



Current state

1.2 PB (net)

220 TB dedicated for original 11 partners

~1 PB - used by SP, U of Toronto to support digital scholarship / text analysis needs / other projects / other institutions



Work in progress

Many partners just getting started with transfers

McMaster: 14 TB, but in testing phase

Bit of trial and error with tools, learning to use object storage



Future plans, considerations, and questions

Tools - we need to develop tools and documentation for existing tools

What to do with (large chunks) of the petabyte?

Repository / Archivematica integration





SP System Administrators

Create Swift accounts for



Library System Administrators

Create Swift accounts for



Project Staff
(Library and Research)

Access to All Accounts and Containers

Access to Institutional Accounts and Containers

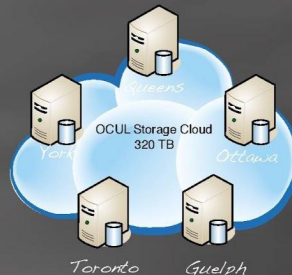
Access to Project Accounts and Containers

Command Line Tools

Swift Browser

Project Software

OCUL Storage Cloud Access Scenarios



Access to Institutional Accounts and Containers

Direct Access
Indirect Access



Library Staff

Account management via
Shibboleth / LDAP /
Self registered?



Researchers

Indirect Access to Storage
Cloud via other services



Services Hosted by SP or
installed at libraries



To Be Developed



Use Cases

SP Journals / SP Books
SP Geoportal

Backup

Preservation

Text Mining

Projects
(big files, many
files, need for sharing)

Big Research Data

Dropbox Services for
individuals



Possible use cases

— — —

Future:

Text mining / analysis

SP Journals / Books / GeoPortal

Projects - sharing large/many files

Large research data sets

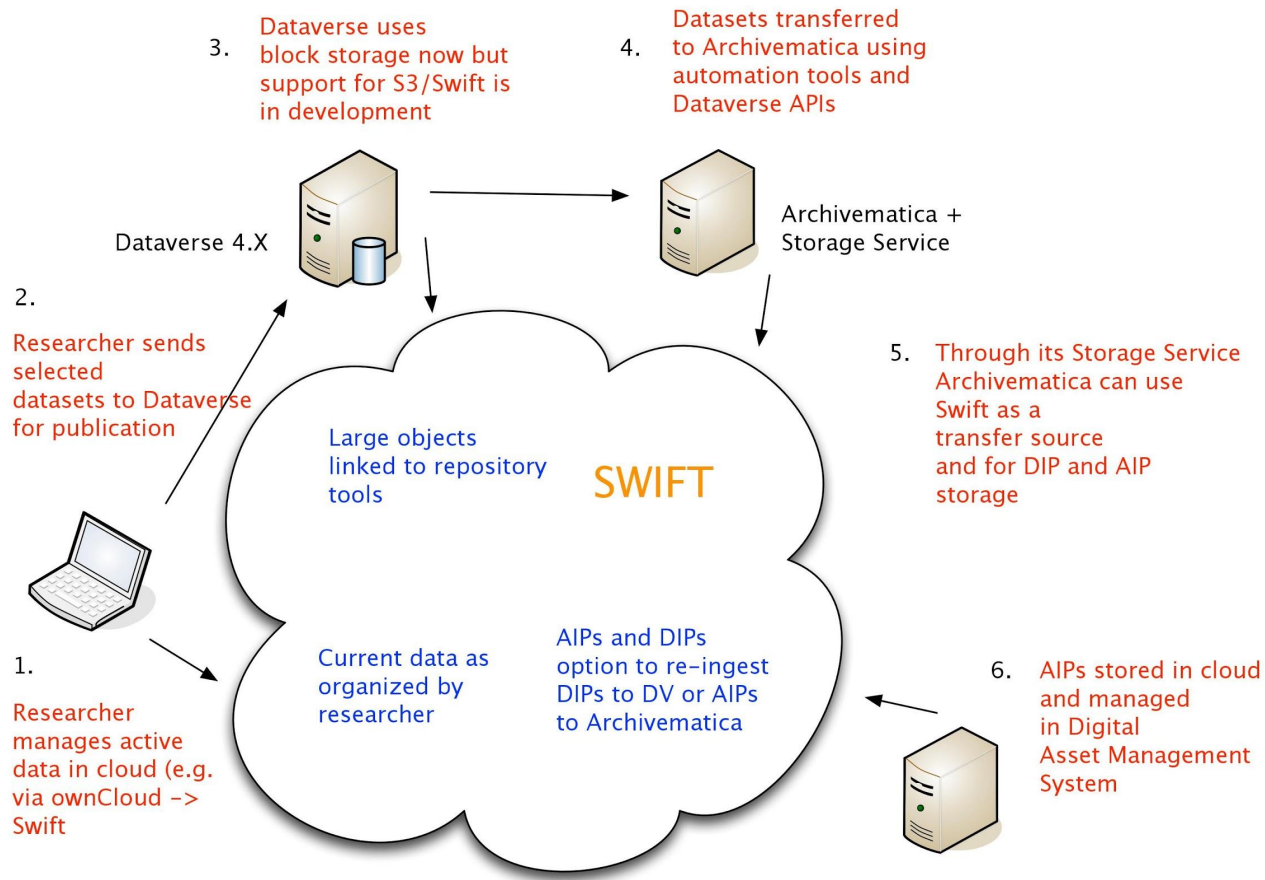
‘Dropbox’ services for individuals

Now:

Backup

Preservation





Questions in search of answers

When do we let others access the storage?

Who, i.e.- how broadly do we throw open the door?

What do we charge them? Ourselves?

Do we sell directly, or via partners?

Will others replicate our model?



Costs: some good news

Scholars Portal: established and capable

Dedicated partners; others ready to step in

OCUL governance model and history



Costs: who and how much?

Who:

- original partners
- other OCUL institutions
- other non-Ontario institutions
- researchers



Costs: model needed

Relied extensively on Ratliff and Goldstein (2010):

DataSpace: A Funding and Operational Model for Long-Term Preservation and Sharing of Research Data

<http://arks.princeton.edu/ark:/88435/dsp01w6634361k>



Costs: assume it's going to rain

Calculated in partner costs, even if those are not currently levied

Conservative estimate of annual decrease in storage costs

Five-year hardware refresh cycle



1 CAD != 1 USD

— — —

1 CAD = .75 USD, .69 EUR, .53 GBP, 18.6 CZK



Estimated per TB costs

(Include a 20% surcharge to fund expansion on top of cost recovery)

Annual subscription: \$416/TB

Pay once, store forever: \$2,594/TB



Last thoughts

We collaborated to build it; now we need to collaborate on using it and developing tools

Need to let others use it sooner rather than later

Need to solidify future governance within OCUL



Thank you

Much credit due to:

- Alan Darnell, Amaz Taufique, Steve Marks
- partner libraries
- OLRC Admin & Tech Committees
- SP/U of Toronto systems teams: Graham Stewart, Steve Baroti, Chris Crebolder, Miki Wong, Harpinder Singh, Bikram Singh

