Ontario Library Research Cloud: From Idea to Infrastructure in Three Easy Years

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Roadmap

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History and background
Technical overview
Current state/Work in progress
Pricing
Governance and participation
Acronyms & names, decoded

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**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
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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

~420 km between most distant nodes, as crow flies
Technical overview - Commodity hardware!

19 Dell PowerEdge R720xd heads
77 MD 1200 storage shelves
Each carries 12x4TB = 48 TB
OpenStack Swift (object storage)
Parent node: SP data centre @ Univ. of Toronto
Technical overview

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4 R620 (OpenStack proxy/authentication)

15 10Gbit network switches + fiber optics

ORION (Ontario-based ‘Internet2’) VLAN between nodes
Access
OpenStack Swift API
Swift Browser
Current state

1.2 PB (net)

300 TB dedicated for original 11 partners plus SP

20 TB container for each partner institution

-- utilization is poor, thus far --

~1 PB - U of Toronto to support digital scholarship & other projects - not geographically replicated
Work in progress - York

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Bag storage (Dark archive)
Archivematica integration
Fedora 4 integration
Bacula
Partnerships with Central IT w/research life cycle
Work in progress - McMaster

McMaster: 14 TB, but in testing phase

7TB raw archives, 6TB Digital Archive, 1 TB IR & OJS

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

Not preservation, but working toward it through testing and development
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

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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 (hardware refresh, data centre costs, bandwidth, etc.)

Conservative estimate of annual decrease in storage costs

Five-year hardware refresh cycle
1 CAD != 1 €

1 CAD = .79 USD, .69 EUR, .54 GBP
Estimated per TB costs, OCUL members

Annual subscription: $320/TB*

3% discount for 10TB block
6% discount for 50TB block

* OCUL schools pay a $1600/yr 5TB minimum
Estimated per TB costs, non-OCUL members

Annual subscription: $790/TB
3% discount for 10TB block
6% discount for 50TB block

* Non-OCUL clients pay a $3950/yr 5TB minimum
Costing questions in search of answers

When do we let others access the storage?
Who, i.e.- how broadly do we throw open the door?
Do we sell directly, or via partners?
Will others replicate our model?
Costing: the big question

What should a TB of preservation-capable storage cost? $10? $4000?
Governance

Project Phase

* Steering Committee
* Technical Committee
Governance

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Production Phase

* OCUL Cloud Storage Committee
* One member from each institution
OCUL Cloud Storage Committee

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Supports the operation and future development of the Storage Cloud.

Makes recommendations to the OCUL Executive regarding the plans, mission, goals, policies, operations, and development of the Storage Cloud, including possible partnerships with non-OCUL institutions.
OCUL Cloud Storage Committee

Facilitates informed decision-making on the part of current and future members.

Develops and reviews annually a storage pricing model for OCUL members and non-OCUL clients.

Considers, reviews, and approves usage and operational policies for the Storage Cloud as recommended by Scholars Portal staff.
Governance/Collaboration - issues

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

Repository / Archivematica integration
Governance/Collaboration - issues

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Contributing to work, not just riding along
Developing expertise, diving in
Overemphasis on policy
Concerned about scenarios that may not materialize
Last thoughts

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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

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