Building the iRODS Consortium

One project's journey from academic code to enterprise software

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Dan Bedard (danb@renci.org)
The iRODS Consortium
What's this all about?
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- iRODS software manages around 100 PB of data worldwide.
- (It's open source.)
- It started as a sponsored research project at UCSD.
- Now it's managed by the iRODS Consortium.
This talk is about...
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- What iRODS is.
- How and why the iRODS Consortium came to be.
- How the Consortium works.
- Lessons learned and challenges.
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- What iRODS is.
- How and why the iRODS Consortium came to be.
- How the Consortium works.
- Lessons learned and challenges.

- Thirty minutes long.
But first...
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- Dan Bedard is not a software developer.
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- Dan Bedard is not a software developer.
- The iRODS Consortium is based at RENCI.
- RENCI is based at the University of North Carolina at Chapel Hill.
- RENCI is an applied research organization that helps other departments at UNC.
What is iRODS?

iRODS is open source middleware for...

Data Discovery,
Workflow Automation,
Secure Collaboration,
and Data Virtualization.
What is iRODS?

iRODS is open source middleware for...
↑sits between the user/admin and the file system

Data Discovery, ←metadata annotation

Workflow Automation, ←über cron

Secure Collaboration, ←consolidates access and control of data across sites and Data Virtualization. ←all your storage in a single namespace
What is iRODS?

iRODS makes huge sets of unstructured data manageable, usable, and shareable.
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Broad usage in...

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irods.org
iRODS History, Early Years
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- Storage Resource Broker (SRB) developed by General Atomics, Data Intensive Cyber Environments group (DICE) at UCSD, and San Diego Supercomputer Center (SDSC) under DARPA funding.

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- DICE deprecates SRB. Builds a new system around a "rule engine" and re-writes SRB concepts into a new system. Calls it iRODS.

  - The iRODS rule engine enables policy definition. (Any condition, any action.)
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- An inflection point.
iRODS in 2011
### iRODS in 2011

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We're thinking about funding iRODS-based federation between research groups...

What's your plan for long-term sustainability?
iRODS in 2011

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But...

- Today's grant funding doesn't provide for tomorrow's support.
- The iRODS architecture could be unwieldy.
- And the development and support community might be difficult to scale.
iRODS in 2011

iRODS is an asset to RENCI.

Stan Ahalt
Director@RENCI
iRODS in 2011

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Unless...
iRODS in 2011

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We need an enterprise-ready iRODS.
iRODS History: 2012-2014

- RENCI forks and creates E-iRODS. Forms the iRODS Consortium.

- E-iRODS and Community iRODS merged into iRODS 4.0.
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- E-iRODS and Community iRODS merged into iRODS 4.0.

iRODS 4.0 and beyond are enterprise-ready.

- Modern software development practices.
- Pluggable architecture.
- Packaged installation.
- More extensive testing and continuous integration.
The iRODS Consortium

- Founded after discussion with a Major Stakeholder.
- Founding members would be RENCI, DICE, and that Major Stakeholder.
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- Operating model based on the Kerberos Foundation.
  - Tests and certifies outside vendors' code.
The iRODS Consortium: Funding Model

- iRODS stakeholders join to protect their infrastructure investment.
  - Four levels of membership ($10k to $150k annually).
  - Increasing influence (voting) and priority (support).
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- Additionally: system integration, standby support, and training.
The iRODS Consortium: Governance

- Approves budgets, staffing, major release plans
- Develops software release roadmaps, establishes working groups
- Discusses technical approaches, open issues
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- March 2014: iRODS 4.0 released. First Consortium members join.
- October 2014: The Consortium has six members: RENCI, DICE, DDN, Seagate, Wellcome Trust Sanger Institute, and EMC
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- High value of being at RENCI.
- Longevity afforded by association with a University.
Lessons Learned
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  - Staying with the University was slow, but low risk.
  - Convincing the community that this is real takes time.
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- Think clearly and thoroughly about what your objectives are.

- Structure matters.

- You need Major Stakeholders and evangelists.
Lessons Learned

- At the end of the day, you need something that solves the problem better or cheaper than anyone else.

"Running code wins the day."
Building a Consortium

articulating the idea and vision

getting early members, establishing the community

establishing programs, working groups, bylaws, begin to show value & build momentum

new programs, growing existing programs, increasingly member-driven as founders give up some control

A sustainable, member-driven organization, possibly with professional managers/administrators
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We think we're right around here.

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"Last Slide Stuff"

- Thank you to:
  - David Knowles, Charles Schmitt, Stan Ahalt, Jason Coposky, and Terrell Russell for historical context.
  - The entire iRODS Consortium team for their continuing efforts.

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Questions?

Suggestions?