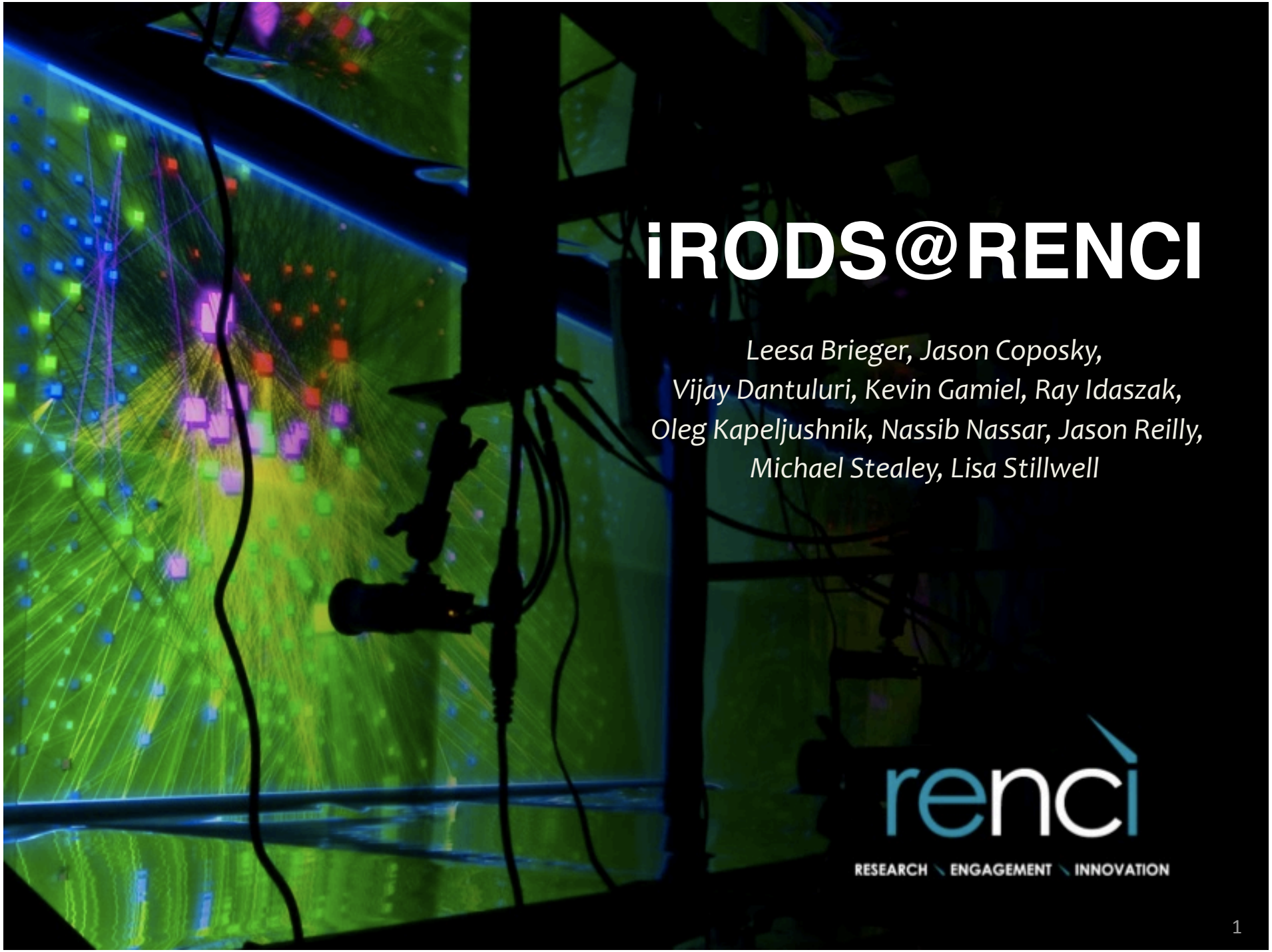


iRODS@RENCI

Leesa Brieger, Jason Coposky,
Vijay Dantuluri, Kevin Gamiel, Ray Idaszak,
Oleg Kapeljushnik, Nassib Nassar, Jason Reilly,
Michael Stealey, Lisa Stillwell

renci

RESEARCH \ ENGAGEMENT \ INNOVATION

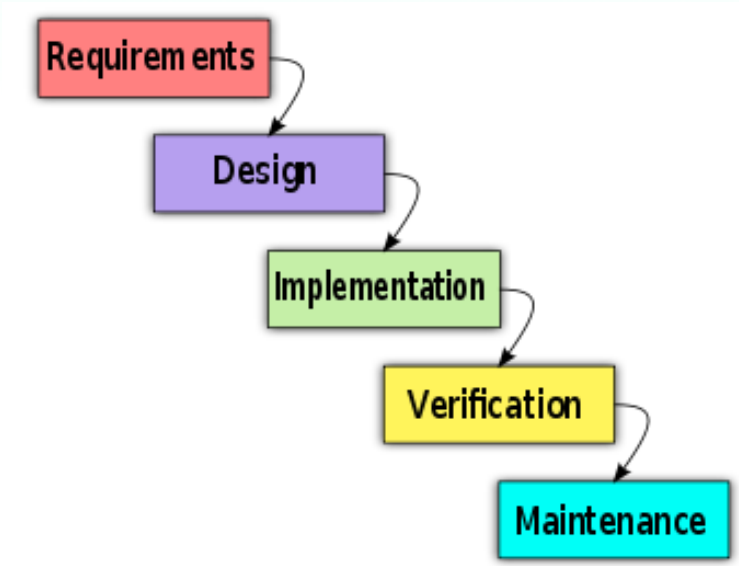
irods@renci

- A new initiative at the Renaissance Computing Institute (RENCI), a research unit of UNC
- An investment by UNC
- A step-up of the collaboration with DICE, already administratively tied to RENCI:
  - DICE-UCSD: Institute of Neural Computing (INC)
  - DICE-UNC: RENCI and the School of Information and Library Science (SILS)
- Stepping toward long-term sustainability

Agile Development Approach

- Incremental and iterative methodology
- Short development cycles (1-4 weeks)
- Whole team works through a full dev cycle:
  - planning - stakeholder needs taken into account
  - requirements analysis
  - design
  - coding
  - unit and acceptance testing
  - product demonstrated to stakeholders
- Iterate for next dev cycle, adapting to new requirements, technological constraints, etc

Agile: Not a Waterfall Model



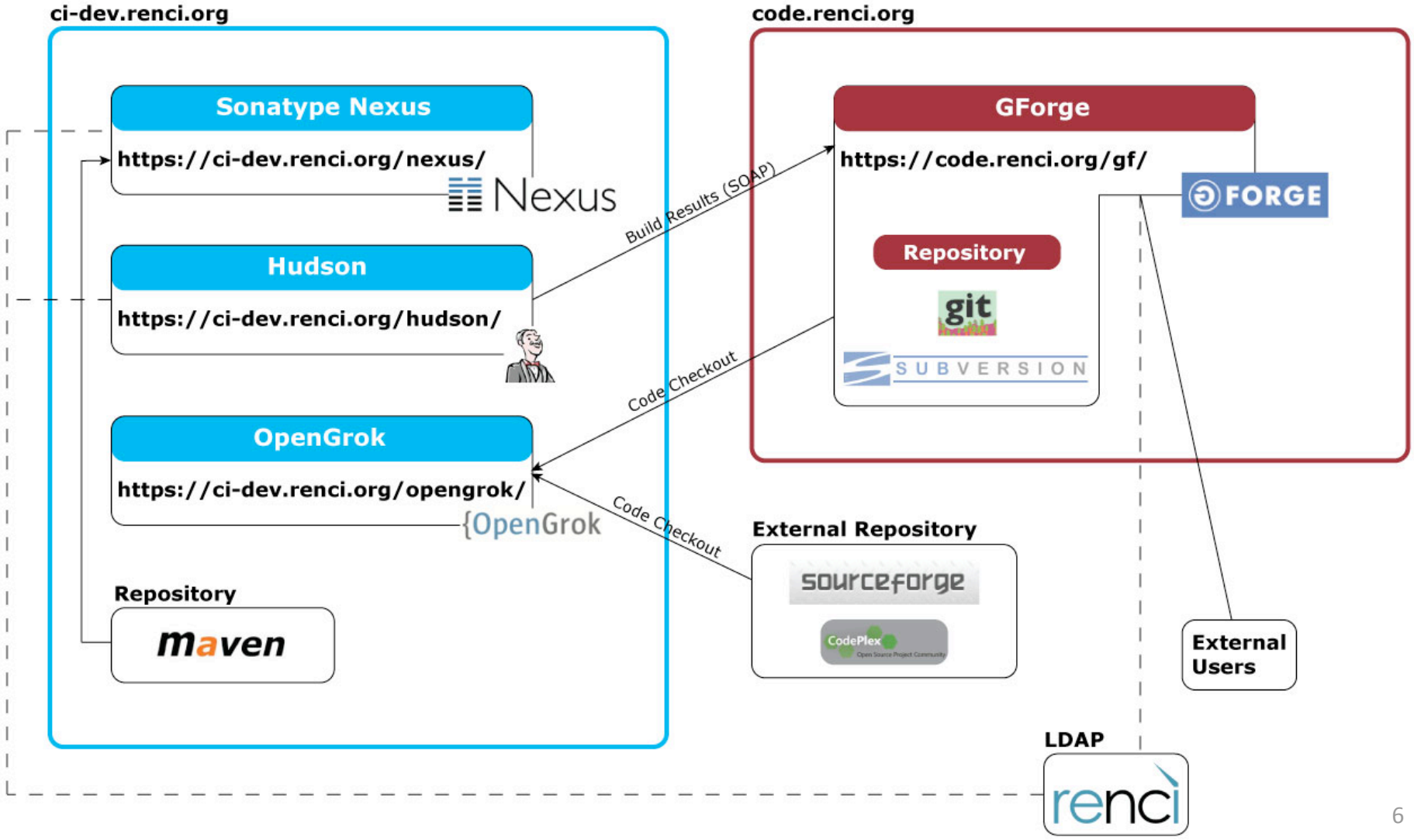
- Waterfall Model:
  good for manufacturing,
  not for software dev
- Agile:
  requirements and solutions evolve
  in short-cycle collaboration between
  self-organizing, cross-functional teams
- iRODS:
  de facto Agile development driven by community stakeholders; could never have evolved in a waterfall model
- RENCI:
  formalize an Agile approach in iRODS development for hardening, community participation, and sustainability

Collaborative Development Environment

- Git – distributed revision control system
- GForge – project and software development management system:
  - hosting & version control
  - bug-tracking
  - messaging
- Hudson – continuous integration environment: incremental quality control
- Nexus – Maven repository that tracks dependencies and bundles for check-out (Java)

Infrastructure Overview

Supports community-based software development



Collaborative Dev Environment

- Starting out with Jargon to test the infrastructure
- Other iRODS clients hosted : PHP, Windows, Python, etc
- A full iRODS mirror will reside in this environment
- Provide automated continuous build and test for iRODS server and clients

GForge

Academic license: no limit on # of users

Community based plug-ins:

- Forums
- Trackers
- Document Managers
- News
- File Release System
- Mailing lists
- Wiki
- Continuous Build

https://code.renci.org/gf:

GForge

Projects in RENCI gforge

https://code.renci.org/gf/project/

		on TeraGrid, Open Science Grid, and RENCI resources. These resources are accessible via standard web services, JSR-168 compliant Portlets, or Java Swing desktop applications.
Region III	region3	Region III prototype development
Java Commons	commons	Assortment of Java based projects that are RENCI centric and highly reusable.
iRODS PHP	irodsphp	PHP client libraries and PRODS web browser for iRODS
iRODS Jargon trunk	jargontrunk	Classic Jargon API style as in iRODS trunk in SVN.
iRODS Jargon	jargon	Jargon-core and related libraries. This is the new core Java API for iRODS Jargon-core and related libraries are currently alpha, with an expected beta release in February. This code-base is differentiated from the current Jargon API style in the iRODS SVN trunk. These libraries may be used for development projects, but it is recommended to check in with the developers before proceeding.
iRODS iDrop	irodsidrop	iDrop consists of desktop and web GUI's for browsing and accessing iRODS data.
iRODS Fedora Repository Integration	irodsfedora	Tools and API for iRODS/DuraSpace integration projects
gForge@RENCI	gforge_renci	Project for tracking bugs/issues with the gForge installation at RENCI.
DROPS	drops	Orchestrating Distributed Resource Ensembles for Petascale Science. Sponsored by DOE ASCR.

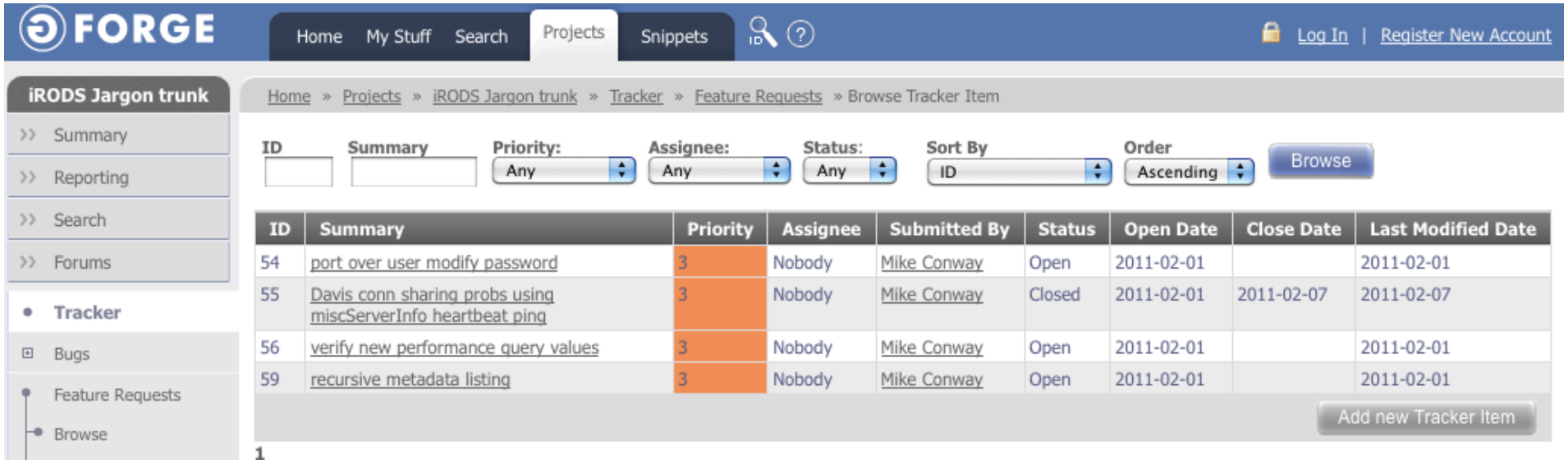
Add new Project | Filter by category

Search for projects in all categories

Search

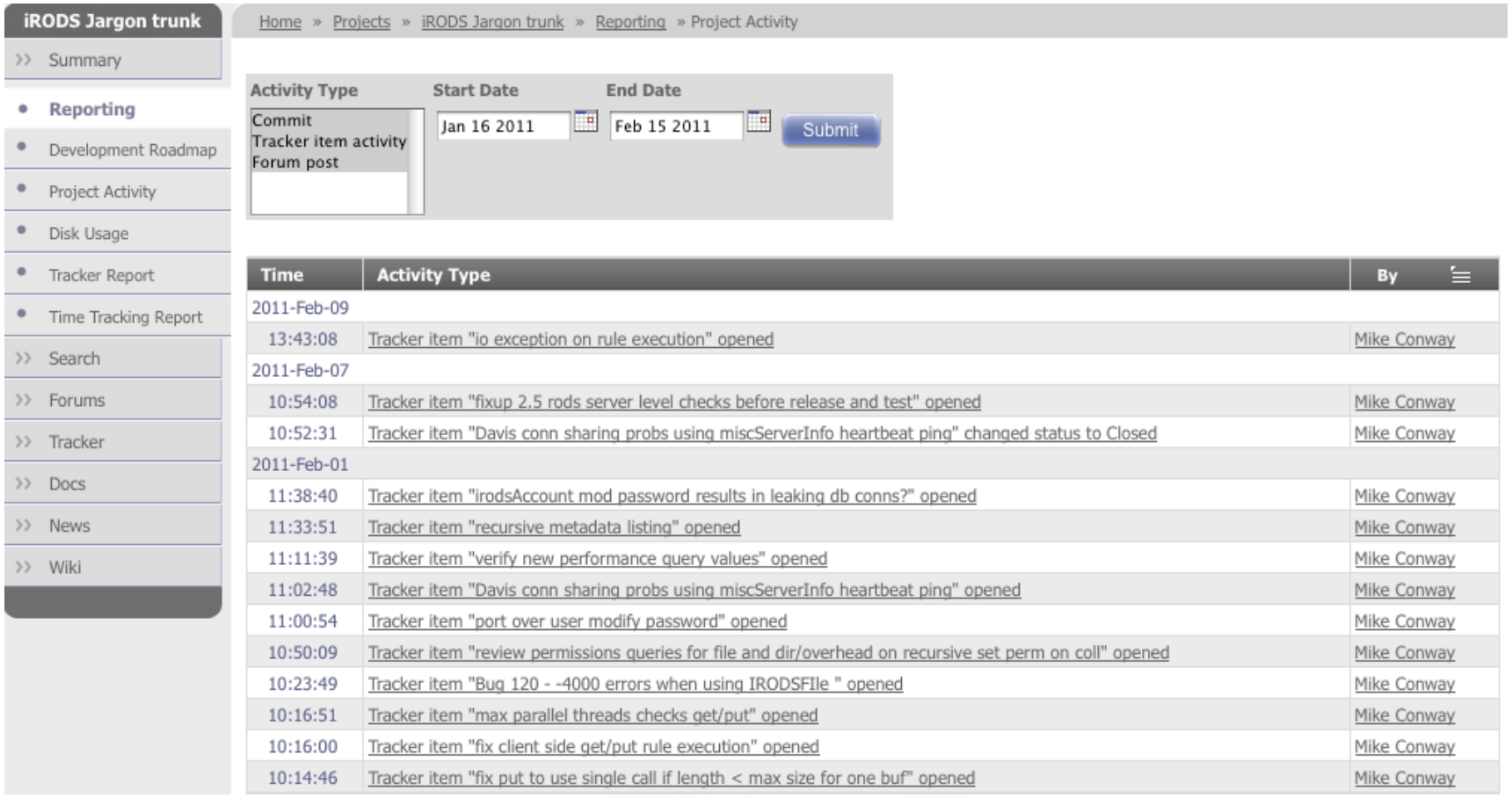
GForge

Tracking Feature Requests in Jargon Trunk



GForge

Tracking Project Activity in Jargon Trunk



iRODS Jargon trunk

- Summary
- Reporting
- Development Roadmap
- Project Activity
- Disk Usage
- Tracker Report
- Time Tracking Report
- Search
- Forums
- Tracker
- Docs
- News
- Wiki

Home » Projects » iRODS Jargon trunk » Reporting » Project Activity

Activity Type: Commit, Tracker item activity, Forum post

Start Date: Jan 16 2011

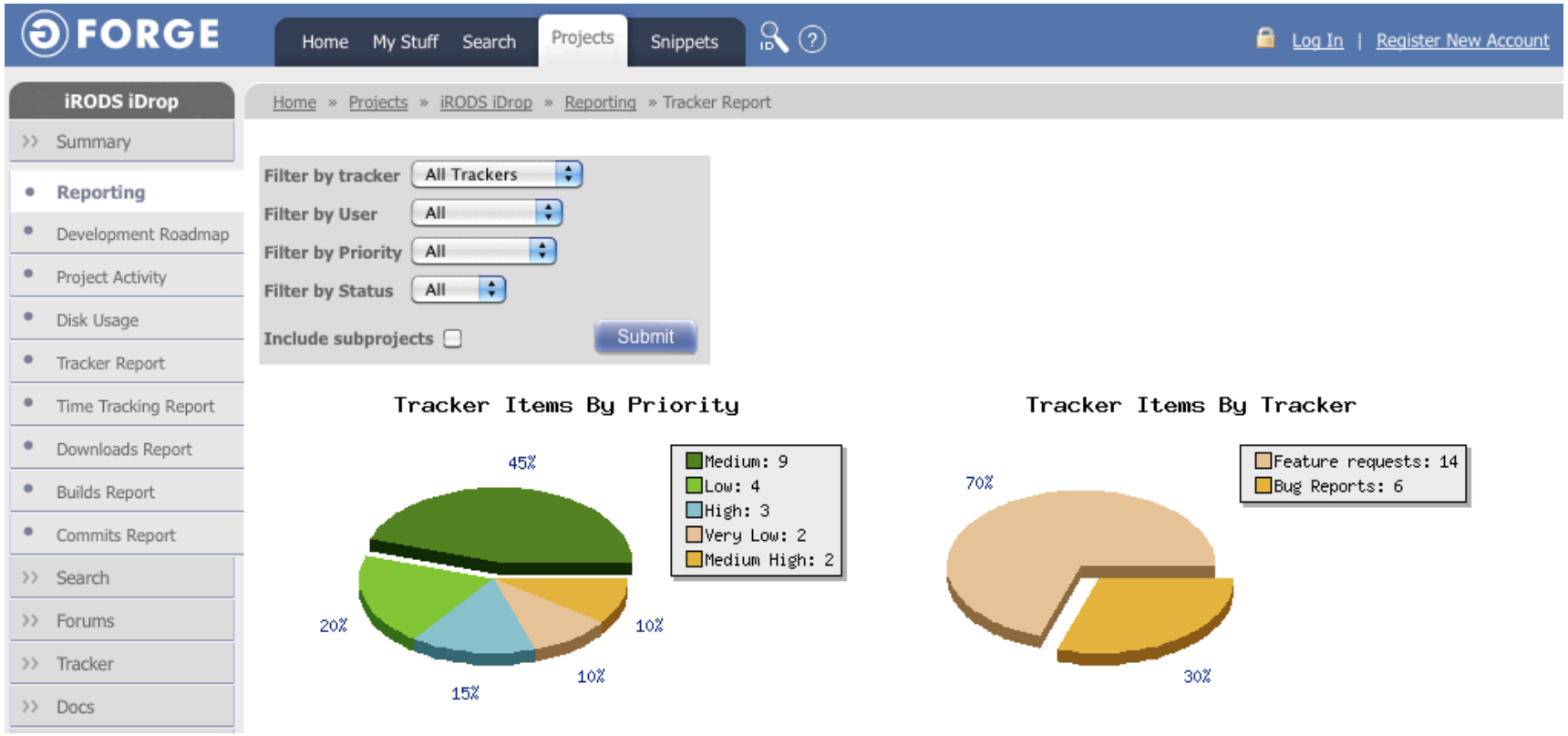
End Date: Feb 15 2011

Submit

Time	Activity Type	By
2011-Feb-09		
13:43:08	Tracker item "io exception on rule execution" opened	Mike Conway
2011-Feb-07		
10:54:08	Tracker item "fixup 2.5 rods server level checks before release and test" opened	Mike Conway
10:52:31	Tracker item "Davis conn sharing probs using miscServerInfo heartbeat ping" changed status to Closed	Mike Conway
2011-Feb-01		
11:38:40	Tracker item "irodsAccount mod password results in leaking db conns?" opened	Mike Conway
11:33:51	Tracker item "recursive metadata listing" opened	Mike Conway
11:11:39	Tracker item "verify new performance query values" opened	Mike Conway
11:02:48	Tracker item "Davis conn sharing probs using miscServerInfo heartbeat ping" opened	Mike Conway
11:00:54	Tracker item "port over user modify password" opened	Mike Conway
10:50:09	Tracker item "review permissions queries for file and dir/overhead on recursive set perm on coll" opened	Mike Conway
10:23:49	Tracker item "Bug 120 - -4000 errors when using IRODSFIle " opened	Mike Conway
10:16:51	Tracker item "max parallel threads checks get/put" opened	Mike Conway
10:16:00	Tracker item "fix client side get/put rule execution" opened	Mike Conway
10:14:46	Tracker item "fix put to use single call if length < max size for one buf" opened	Mike Conway

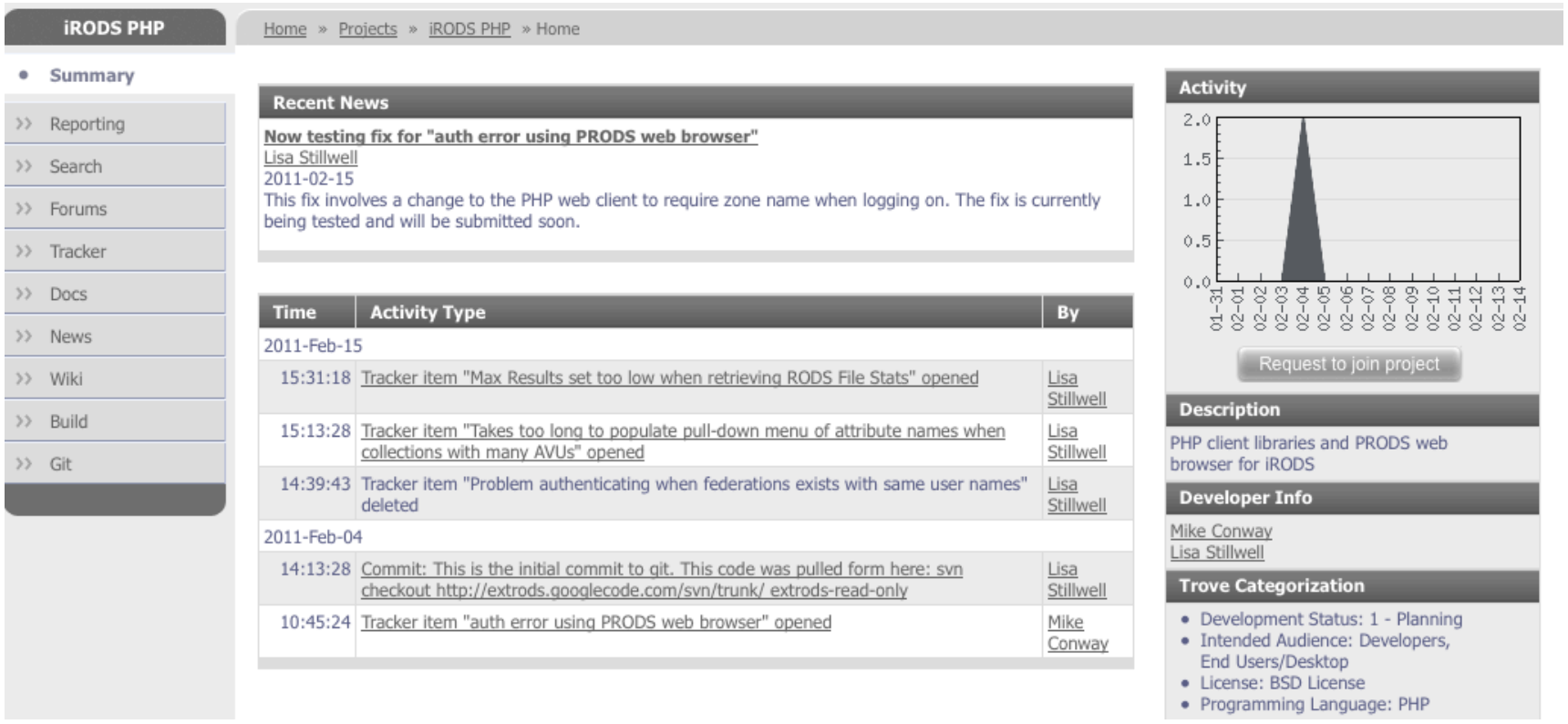
GForge

iDrop Tracker Report Activity



GForge

Project Summary for iRODS PHP



iRODS PHP

Home » Projects » iRODS PHP » Home

- Summary
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- Tracker
- Docs
- News
- Wiki
- Build
- Git

Recent News

Now testing fix for "auth error using PRODS web browser"
Lisa Stillwell
2011-02-15
This fix involves a change to the PHP web client to require zone name when logging on. The fix is currently being tested and will be submitted soon.

Time	Activity Type	By
2011-Feb-15		
15:31:18	Tracker item "Max Results set too low when retrieving RODS File Stats" opened	Lisa Stillwell
15:13:28	Tracker item "Takes too long to populate pull-down menu of attribute names when collections with many AVUs" opened	Lisa Stillwell
14:39:43	Tracker item "Problem authenticating when federations exists with same user names" deleted	Lisa Stillwell
2011-Feb-04		
14:13:28	Commit: This is the initial commit to git. This code was pulled form here: svn checkout http://extrods.googlecode.com/svn/trunk/ extrods-read-only	Lisa Stillwell
10:45:24	Tracker item "auth error using PRODS web browser" opened	Mike Conway

Activity

Request to join project

Description

PHP client libraries and PRODS web browser for iRODS

Developer Info

Mike Conway
Lisa Stillwell

Trove Categorization

- Development Status: 1 - Planning
- Intended Audience: Developers, End Users/Desktop
- License: BSD License
- Programming Language: PHP

Hudson

Build automation:

- Continuous build/test of software projects
  - easier for developers to integrate changes to the project
  - easier for users to obtain a fresh build
- Notification of failures to help keep systems healthy
- Monitor executions of externally-run jobs
  - cron jobs and procmail jobs, even running remotely
  - Hudson keeps job outputs and makes it easy to notice when something is wrong

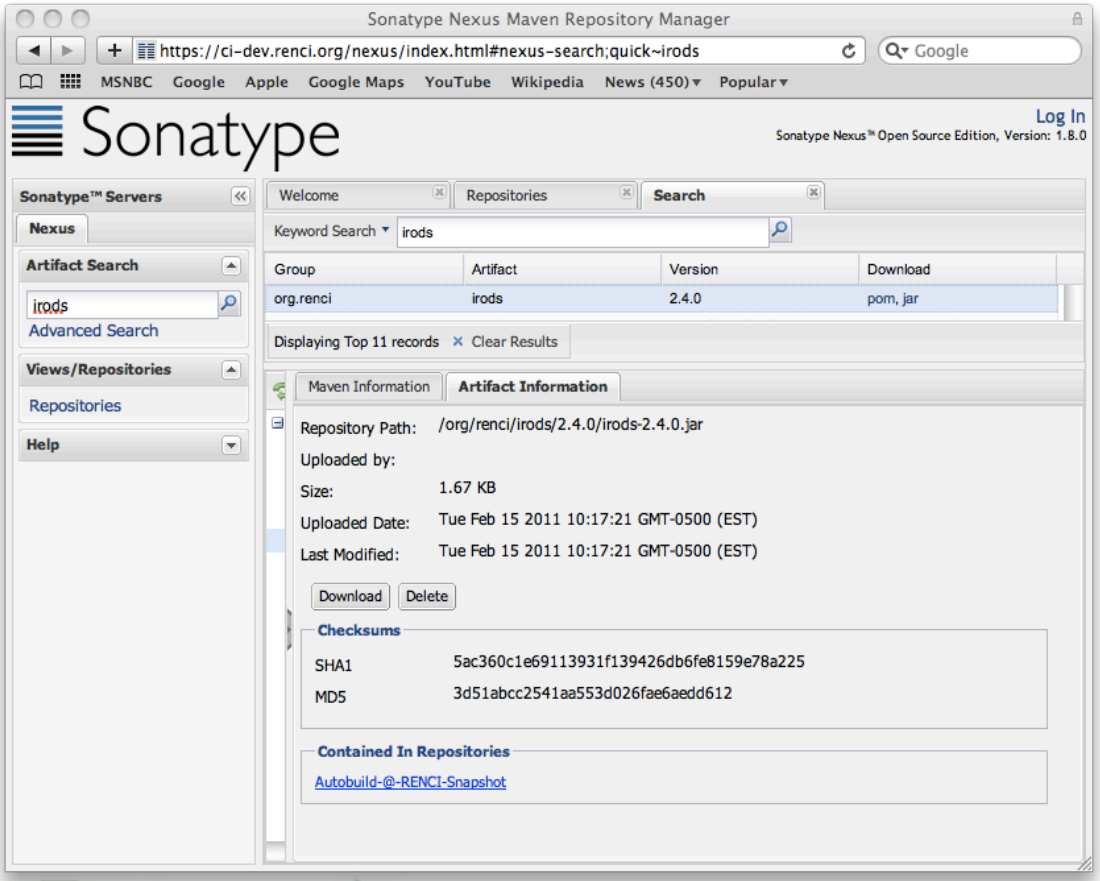
https://ci-dev.renci.org/hudson:

Sonatype Nexus

Nexus - Maven artifact repository

- Manages software artifacts for development, deployment, and provisioning
- Allows sharing of artifacts with other developers and end-users
- Centralized control of access and deployment of artifacts

https://ci-dev.renci.org/nexus/



Toward a Unified Cross-Platform Code

- Migrate platform-specific APIs and system calls away from server-level code
- Provide strategy for future support on other platforms
- Move to g++ for access to libraries such as Boost C ++ libraries

Targeted APIs and Functions:

- Threading
- Regular Expressions
- Character Encoding
- Signals
- Fork

Current Status:

- port to g++ is done and build is passing devtest
- Move to boost::thread is almost complete and also passing devtest

Windows Support

- Update of non-iCAT iRODS server
- Implementation of iCAT-enabled iRODS server:
  - Integration of MS SQL Server with iRODS
  - Builds of supported iCAT DBs for Windows
- Support of Windows iExplorer client

iRODS.NET Client

- Connect to iRODS server from .NET platform
  - iRods.NET Client will perform most of the iRODS client operations
  - Native integration with .NET Framework
  - Supports .NET 3.5 and up
- Usage scenarios for iRODS.NET Client
  - LinqToIRods development to query iRODS server
  - Powershell commands to simulate icommands
  - Drive or folder mounted to iRODS
  - .NET web and windows application development

Database Activities

- Database Resources Testing
  - DBR interaction with database instances: MySQL, Oracle, Postgres on Ubuntu 10.10
    - Local to iRODS server
    - Remote to iRODS server
- Developing MS SQL Server Interface to support iCAT Windows Implementation
- iCAT data redundancy and failover mechanisms
- iCAT Special Query Usage and Applicability with examples
- iCAT database performance tuning and recommended enhancements

Java Rule Engine

- Analyze design and resource requirements for a Java-based rule engine
  - Determine best inter-process communication method between (next-gen) C engine and Java
  - Semantic synchronization with C engine
  - Integration with Jargon
- Analysis complete by summer 2011

iRODS Clients: PHP API & Web Browser

iRODS@RENCI Start-up:

- Assist DICE with ongoing support
- Monitor Chat discussion (already fixed 1 issue!)
- Pull most complete & up-to-date versions from DICE/Google Code/ Community and merge
- Put in GForge, Git repository.
- Incorporate PHPUnit and Hudson continuous integration

PHP API & Web Browser

Community Involvement:

- Who is using PHP API/Web Browser?
- Who is contributing to source?
- Who would like to help maintain?
- What new features are needed?

PHP API & Web Browser

Long-Term Planning:

- Determine new feature set
- Investigate implementation technologies (i.e. PHP in JAVA VM)
- Standardization among client APIs (i.e. iRODS Server/Client compatibility versioning, and standardize function & parameter naming
- Hardening

Special Projects

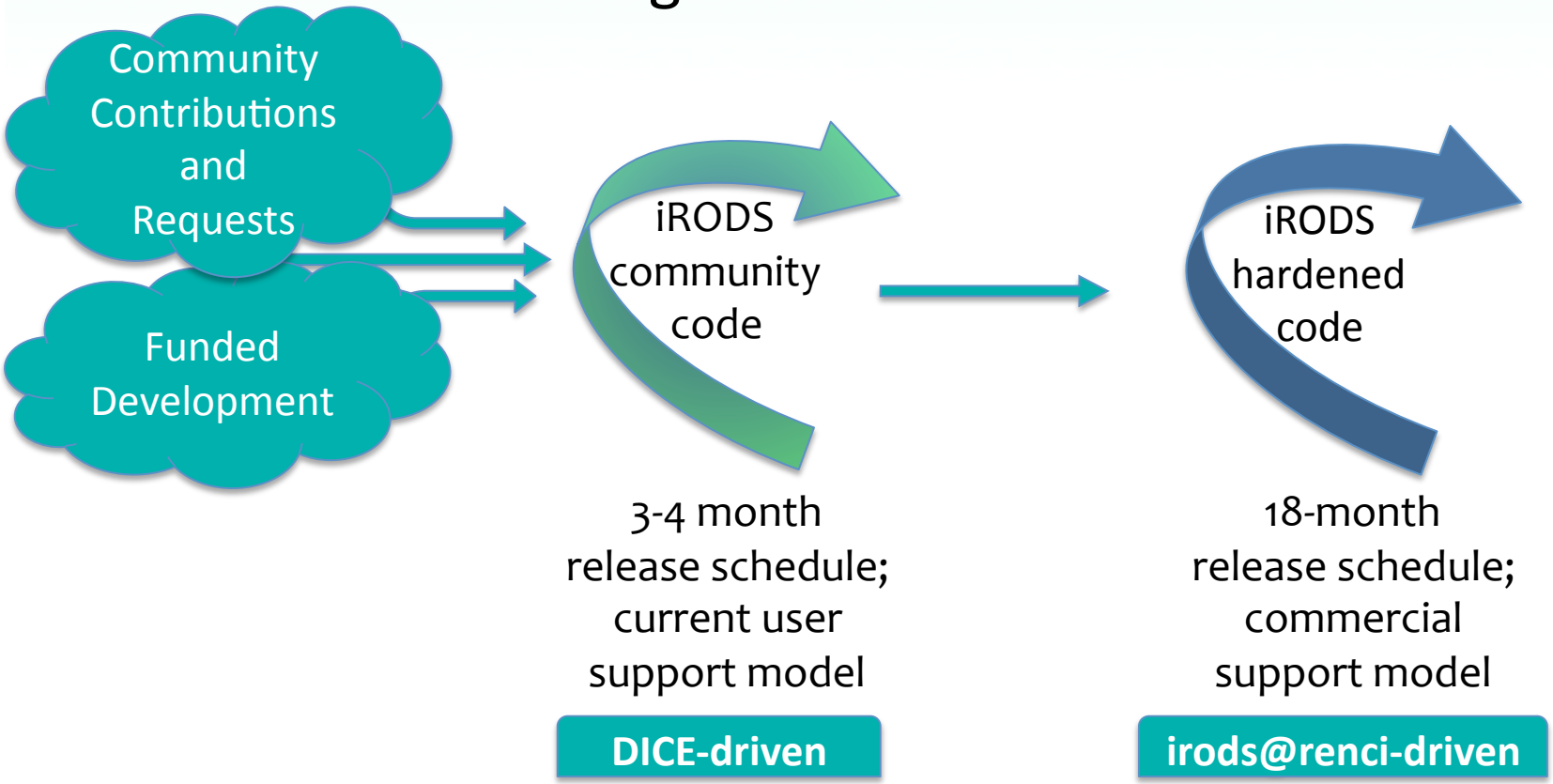
- NCDC use cases
- Hadoop driver - genomics
- TUCASI project – federated environment for the 3 Triangle universities (Duke, NCSU, UNC)
- Shibboleth Authentication – map external authenticated user to iRODS user (TUCASI project)
- NARA – Cyberinfrastructure for Billions of Records
- NC Bio Preparedness – distributed data access

Sustainability – the Community Architecture Model

- Support and formalize the collaborative model for iRODS
  - Collaborative development environment
  - Agile development approach
- Red Hat Fedora model (Fedora Linux, not Fedora Digital Repository)
- Develop service level agreements for targeted user groups

irods@renci

Building a RedHat Fedora Model



Differences Between Community and Hardened Releases

	Community Code	Hardened Code
Users	Technical enthusiasts using iRODS in non-critical computing environments	Users looking for stable, supported, and certified iRODS (business, government, etc)
Primary Benefits	Bleeding-edge technology released early and often.	Stable, reliable, and broadly supported. Easy to deploy and manage. Many certified applications available.
Feature Selection	DICE and developer community	DICE and irods@renci
Development Model	Open Source	Open Source

Community Release vs. Hardened Release

	Community Code	Hardened Code
Certifications	None	Hardware, software
Support Options	None (community supported)	Many, including 24x7 with 1 hour response. Unlimited incidents. Include upgrades
Maintenance & Updates	Community & 3rd party driven	Complete update and management
Testers	Developer Community	irods@renci, DICE, partners, beta team
Price	Free download	Annual subscription, multiple offerings

Service Level Agreements

The extension of the community code

- hardened code base
- certifications
- specialized services for target groups

will lead to service level agreements tailored to target user needs.