Motivation and Goals

Build and Test serves multiple purposes. The target audiences include core developers, external developers, users, users’ managers, and grid administrators.

• Transparency (in both process and product)
• Use existing industry best practices
• Coverage -> Confidence in Refactoring
• Packaging -> Ease of installation and upgrade
• Test framework idempotency
• Test independence
• Topology awareness

• Automation, Automation, Automation
Background

- iRODS 3.x Perl-based test framework

  - **Strengths**
    - Provided use cases / example usage
    - Good coverage of the most used features
    - Helpful summary of results
    - Cross platform
    - Good for confirmation of success

  - **Weaknesses**
    - Not idempotent on test failure
    - Not independent
    - ~20% overall coverage
    - Hard to incorporate new tests (and use test driven development)
Today

• iRODS 4.0+ Python-based framework (uses unittest)
  – ~57% coverage

• Hudson – Continuous Integration
  – Polling based
  – Uses long-running VMs
  – Currently scheduling 187 independent jobs
  – Compiling with –Wall, -Werror, and –O3
  – Static analysis with cppcheck
  – Building packages
  – Testing packages
Today

- **http://ci-dev.renci.org/hudson/view/iRODS**

- Tests Currently in Continuous Integration
  - OS and Version
    - Ubuntu 10 and 12, CentOS 5 and 6, SuSE 11 and 12
  - Database
    - PostgreSQL, MySQL, Oracle
  - Microservice plugins
    - URL, MSO, workflows, etc.
  - Authentication plugins
    - Native, PAM, OSAuth
  - Network plugins
    - TCP, SSL
  - Resource plugins
    - Compound, Random, Replication, RoundRobin, Passthru, Deferred
    - Unixfilesystem, UnivMSS, S3, WOS, MockArchive, NonBlocking
Tomorrow

• Fully dynamic VM infrastructure
  – Build
  – Test
  – Deployed via JSON gridbundle descriptions of grid topologies, database backend, server locations, network speeds, policy/rules, and resource hierarchies.
  – Goal: Replicate any user-driven scenario or problem case

• Driven by post-commit hook

• Growing matrix of:
  – OS and Version
  – Database and Version
  – Resource Type
  – Feature Type
  – Topological Location
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Questions?

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