4.0 and Beyond

Jason Coposky
Renaissance Computing Institute (RENCI)
University of North Carolina at Chapel Hill
State of the Union : Features

- Feature Compatible with 3.3.1
- Full SSL support with encrypted parallel transfer
- Live Hierarchy Manipulation – move and rename resources in a hierarchy with existing data on the resources
- Added rebalancing as an operation
- Six Plugin Interfaces
State of the Union: Plugin Interfaces

- Microservice
- Resource
- Network
- Authentication
- Database
- API
## State of the Union: Existing Plugins

<table>
<thead>
<tr>
<th>Resources:</th>
<th>Authentication</th>
<th>Network</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Compound</td>
<td>• Native</td>
<td>• SSL</td>
<td>• PostgreSQL</td>
</tr>
<tr>
<td>• Deferred</td>
<td>• PAM</td>
<td>• TCP</td>
<td>• MySQL</td>
</tr>
<tr>
<td>• Load Balanced</td>
<td>• OSAuth</td>
<td></td>
<td>• Oracle</td>
</tr>
<tr>
<td>• MSO</td>
<td>• GSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Non Blocking</td>
<td>• Kerberos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Passthru</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Random</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Replication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Round Robin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Universal MSS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Unix File System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Direct Access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Direct Access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• WOS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HPSS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• S3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Point Releases : 4.0 to 4.0.x

- Run In Place and OSX Support
- Database Update Mechanism
- Microservice Template Framework
- Additional Rebalance Support
- Additional Options for Setup
- Security Fixes
- Bug Fixes
- Memory Leaks

- C API Support
- Complete review and testing of system microservices
iRODS 4.1

Consortium-Driven Road Map via the Technical Working Group

- Architectural Changes (e.g. Abstract Parallel Transfer)
- Put data with metadata as an atomic operation
- Key-Value passthrough from icommands to plugins
- Support symlink following for recursive puts
- Improved support for file streaming and associated PEPs
- Support user defined service account names during binary installation
- Updates to “imeta set” for consistency
Further Down the Road

• Refactoring – Continue migrating to more abstract interfaces (e.g. Special Collections)
• Plugin Registry – keep track of plugins and state in the catalog
• Plugin Dependency Model – describe interdependencies between plugins, ship groups of plugins as a collective feature
• Improved API Language Support – migration to protobuf