Overview

- Brief description of NFSRODS
- What's changed since the last release
- The list operation (i.e. /bin/ls)
- Future Work
A standalone NFSv4.1 server that enables presenting iRODS as a mountable filesystem.

- Configurable
- Users do not have to learn iCommands
- Users do not have to install any additional packages
- Supports many common *nix commands and software
What's changed since 1.0.0?

13 issues have been resolved.

- NFSRODS now uses Jargon Connection Caching
- The mtime rule engine plugin requirement has been relaxed
- The rename operation (i.e. mv) now supports overwriting data objects
- The portmap service message warning has been resolved

All resolved issues can be found at the following URL:

- https://github.com/irods/irods_client_nfsrods/releases/tag/2.0.0
The list operation

Prior implementations had issues.

- Didn't handle large collections
  - Results were truncated
  - The implementation was incorrect
- Poor performance against Oracle databases
- Slow
  - Extra work
  - No caching
These issues have been resolved.

- NFSRODS now caches many, if not all, results obtained through Jargon.
- Added options to Jargon that enable support of Oracle. See the troubleshooting section of the NFSRODS README for details.
- We learned that using a log level that results in a lot of messages degrades performance.
- We learned that applying color to the output triggers more stat operations (which means more network traffic).
The list operation (cont.)

Performance comparison between 1.0.0 and 2.0.0.

Test setup:

- iRODS provider (backed by Postgres) running on Ubuntu 16.04 (32 cores)
- NFSRODS container running on the same machine hosting the provider
- Set NFSRODS log level to INFO
- Mount command: `sudo mount -o port=2050 localhost:/ /mnt/nfsrods`
- Timing command: `time /bin/ls <collection> | wc -l`

<table>
<thead>
<tr>
<th>Collection Size</th>
<th>1.0.0</th>
<th>2.0.0 (no cache)</th>
<th>2.0.0 (cached)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>1m7.211s</td>
<td>0m0.857s</td>
<td>0m0.046s</td>
</tr>
<tr>
<td>1,000</td>
<td>3m49.246s</td>
<td>0m0.708s</td>
<td>0m0.041s</td>
</tr>
<tr>
<td>3,000</td>
<td>31m45.147s</td>
<td>0m2.345s</td>
<td>0m0.045s</td>
</tr>
<tr>
<td>6,000</td>
<td>86m56.771s (results truncated)</td>
<td>0m5.274s</td>
<td>0m0.052s</td>
</tr>
<tr>
<td>10,000</td>
<td>87m18.675s (results truncated)</td>
<td>0m9.302s</td>
<td>0m0.058s</td>
</tr>
</tbody>
</table>
Future Work

- Add parallel I/O support for large file transfers
- Investigate support of metadata via extended file attributes
- Improve test coverage
- Return better error messages
- SMBRODS
Questions?