



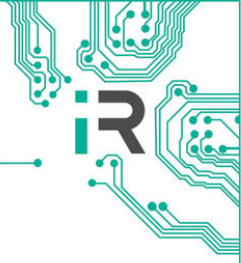
iRODS

Distributing the iRODS Catalog: A Way Forward

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A Limitation

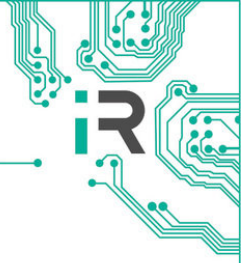


An iRODS Zone has traditionally been deployed in a relatively local physical environment.

- Perhaps within a single rack
- Perhaps within a single data center
- Perhaps within a single city
- Perhaps within a single country

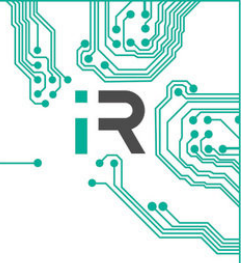
Longer distances (higher latency) has been solved via Zone Federation.

A New Use Case



In the last few years, researchers in academia and in both governmental and corporate sectors have become more interested in spanning greater physical distances within a single namespace (iRODS Zone).

However, connecting to a distant Catalog Provider is a significant, if not unbearable, hurdle.

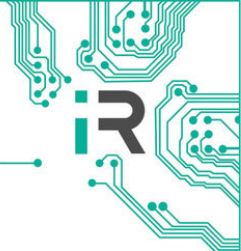


We have connected iRODS to a MariaDB Galera Cluster to provide a multi-master, distributed iRODS catalog.

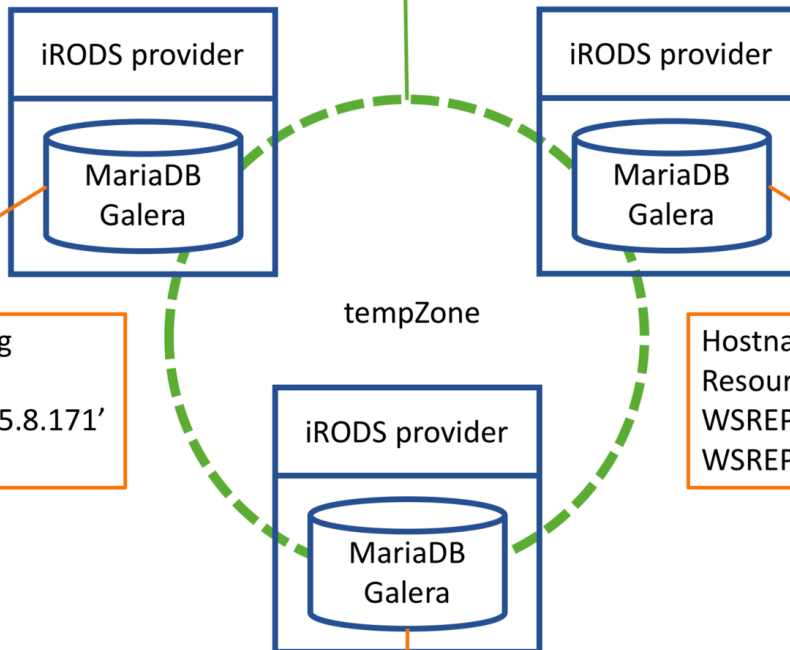
Provides:

- local authentication and query
- improved metadata read performance
- locality of reference for data at rest

Clustered iCAT



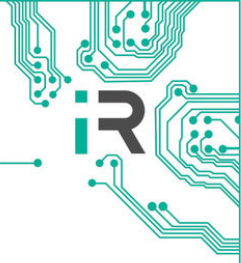
```
WSREP_CLUSTER_ADDRESS='gcomm:// 172.25.8.171, 172.25.8.172, 172.25.8.173'  
WSREP_CLUSTER_NAME='galera'
```



```
Hostname: galera-1.edc.renci.org  
Resource: galera1Resc  
WSREP_NODE_ADDRESS= 172.25.8.171'  
WSREP_NODE_NAME='galera-1'
```

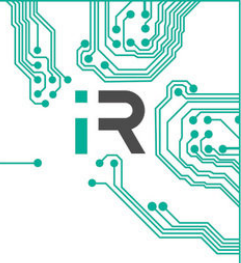
```
Hostname: galera-2.edc.renci.org  
Resource: galera2Resc  
WSREP_NODE_ADDRESS= 172.25.8.172'  
WSREP_NODE_NAME='galera-2'
```

```
Hostname: galera-3.edc.renci.org  
Resource: galera3Resc  
WSREP_NODE_ADDRESS= 172.25.8.173'  
WSREP_NODE_NAME='galera-3'
```



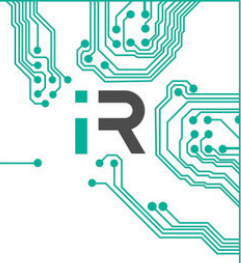
<https://github.com/mjstealey/irods-provider-galera/>

<https://mjstealey.github.io/irods-provider-galera/>



- Testing on real networks over distance
- Testing targeted edge cases
- Testing other database technologies
- Updating iRODS Core and/or plugins

Team



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