



# Creating an iRODS zone with terraform

Brett Hartley

# iRODS at Sanger - 2019

6 production zones, 6 dev zones  
23PB

Where we were:

Mostly 4.1.12, with one 3.3.1

Mostly Ubuntu 12.04

Some 18.04 and RedHat 7.4

Where we wanted to be:

All 4.2

All Ubuntu 18.04



# Where can we do our upgrade testing?

~~Maybe one of our production zones?~~

~~How about a development zone?~~

Somewhere else?

Where?

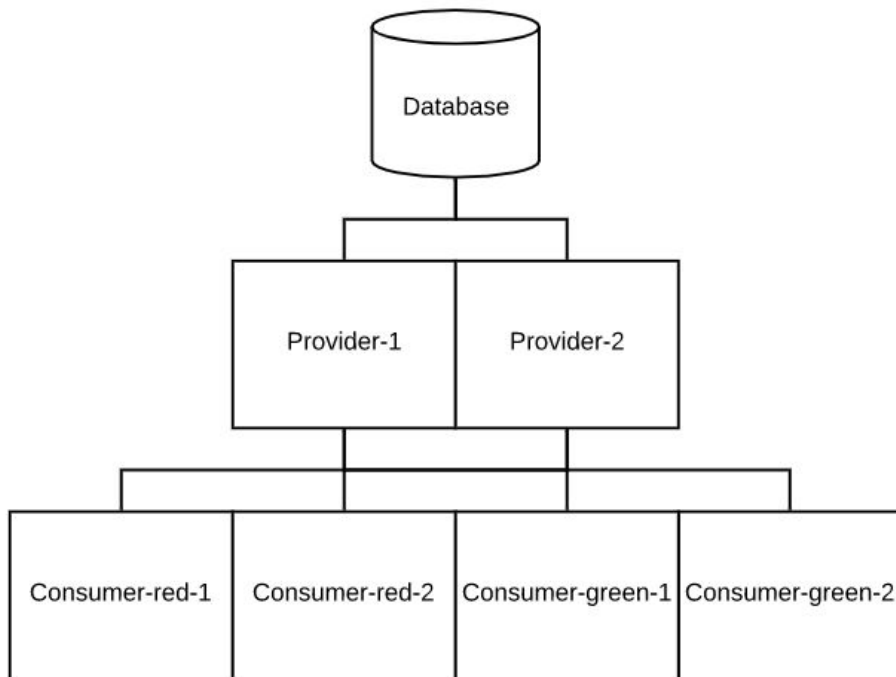
What resources can we spare?

What if we want more than one?

# Terraform and Openstack at Sanger



# Writing the terraform



# Configuring /etc/hosts

We need to populate /etc/hosts so the various hosts can talk to each other. We do this by passing the information from terraform into the configuration scripts as a list, then parsing that information in order like so:

```
for i in {1..${IESCOUNT}}; do
    NEXTNAME= $(echo ${IESNAMES} -${(i-1)})
    NEXTIP=$(echo ${IESIPLIST} | sed 's/[][]//g' | cut -d',' -f$i)
    tee <<-EOF>>/etc/hosts
$NEXTIP $NEXTNAME
EOF
done
```

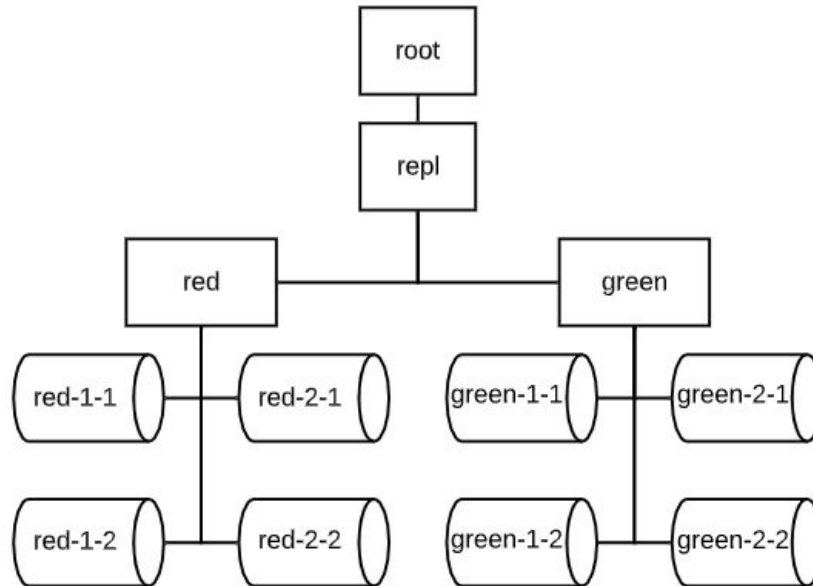
Note: This might be possible to do with hosts\_config.json instead, not tried

```
cat <<-EOF > /tmp/irods_setup
irods
irods
${ZONENAME}
1247
20000
20199
/var/lib/irods/iRODS/Vault
TEMPORARY_zone_key
TEMPORARY_32byte_negotiation_key
1248
TEMPORARY__32byte_ctrl_plane_key
https://schemas.irods.org/configuration
rods
rodspass
yes
$DBHOSTNAME
1521
icat
irods
testpassword
yes
EOF
```

# Automating setup\_irods

Then run  
`/var/lib/irods/packaging/setup_irods.sh < /tmp/irods_setup`

# Creating all the resources



# So how far have we got?

- 3 production zones upgraded to 4.2.7
- 2 production zones still at 4.1.12
- 1 production zone migrated into another zone
- 3 development zones upgraded to 4.2.7
- 3 development zones retired, with testing moved to another development zone instead
- ALL consumers running Ubuntu 18.04
- Added 7.5PB to take the total to 30.5PB

# Other benefits

- Demonstration zones
- Rapid feature testing
- Plugin evaluation
- Debugging
- Safe testing environment

Plugins and features we've been able to test:

- Nfsrods
- Metalnx
- SSL
- PAM authentication
- Indexing
- Migration to postgres

# Next steps

- De-Sangerize the terraform templates and put them on GitHub
- Convert terraform templates to support 4.2.X
- Upgrade the remaining 2 production zones
- Enforce SSL on all zones
- Start testing 4.2.8
- Constructing an in-depth automated test harness using these templates to test potential upgrade candidates
- Test S3 Resource Plugin

# ACKs

Sanger:

John Constable and the rest of ISG

iRODS:

Alan and Terrell  
EVERYONE





**Any questions?**