High(ish) Availability For iRODS

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Design User Stories

As a Systems Administrator, I want to be able to take an IES down for maintenance without affecting sequencing pipelines.

As a Zone Administrator, I don’t want the failure of one server to stop the pipelines.
Federation Master

Federated Zones

It's all on 4.1.10
Reference Design

Taken from https://irods.org/2015/07/configuring-irods-for-high-availability/

However, this leaves the load balancer as a single point of failure, if you’re not using LBaaS such as on Amazon et al.
Design

Floating IP (pacemaker)

HAPerxy

IES1

IES2

HAPerxy
We ran into a few snags

Installing iRODS 4.1.10 with Oracle database plugin as RPM has dependency errors with Oracle Client installed from Oracle package #3863

Open

kript opened this issue on Mar 29 · 3 comments
Cannot setup two new iES servers simultaneously #3864

Open  kript opened this issue on Mar 29 · 0 comments
Control which IP Address or network interfaces iRODS binds to #3872
setup script ignores non-standard port value provided in resource setup tests #3873
Not really a snag, but boy does it make the logs chatty

sending 'PING' to 1247 causes -4000 error in log #3880
Whatever port you install the IES on, it expects the rest of the Zone to also be on.

This makes installing HAproxy in front of it somewhat… tricky.
IPtables to the rescue!
Current Design

Floating IP (pacemaker)

HAProxy (port 1246)

iptables

IES1

HAProxy (port 1246)

iptables

IES2
- name: "Red Hat | Query firewalld for deployed rules"
  command: firewall-cmd --list-all
  register: firewall_rules
  tags:
    - testing_firewall
    - haproxy

- name: "Red Hat | Forward iRODS Traffic to HAProxy"
  shell: firewall-cmd
    --add-forward-port=port=1247:proto=tcp:toport=1246:toaddr={{ ip4_backend }} --permanent
  when: "'proto=tcp:toport=1246:toaddr=' not in firewall_rules.stdout"
  tags:
    - testing_firewall
    - haproxy
  notify: "Restart firewalld"
Old Infrastructure;
10G (1 on VM’s until recently))
Federation master: 8G RAM, two vCPU’s
Largest Zone IES: 8G RAM, 8 CPU

New Infrastructure;
Two servers
front and back end 10G (legacy 25),
520G RAM
SSD
Using a variant of Terrell’s Benchmarking script

Unfortunately, this is something of a Work In Progress

Only a small set of test data, from four servers
We suspect routing

Or HAProxy.

It’s some kind of misconfiguration on our end, likely.
To Be
Continued?
Thank you for listening!

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