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# Create a HA-NFS service with Oracle Linux 7

## Using Corosync, Pacemaker, and Gluster

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# About me

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- Oracle Linux Product Manager
- 10+ years with Oracle Linux Team
- Background in servers, storage, Linux, Solaris (and other UNIX), thin clients
- BS in Computer Science
- Based in the DFW area
- Hobbies:
  - Amateur Radio Extra (callsign K5GIL) – especially enjoy digital modes
  - Electronics
  - 2 Pembroke Welsh Corgis



## What am I going to talk about and show today?

*Using Gluster, with Pacemaker, NFS-Ganesha, and Corosync, to provide a multi-node highly available NFS network storage system.*

*These are components provided in the Oracle Linux distribution.*

*Presentation, intermingled with a live demo*



### **Application?**

Repurpose old x86 servers with contained hard drives or SSD

Learn how to take existing Linux components and use them in different ways

# What is Oracle Linux?

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- RHEL/CentOS clone (RPM based)
- Binary compatible with RHEL
- FREE to download, FREE to use, FREE to update
- Shipping since 2006
- #2 Enterprise Linux distribution
- Over 10 million Docker hub downloads
- Oracle is a Platinum member of the Linux Foundation
- Oracle is also a Platinum member of the Cloud Native Computing Foundation
- Gluster, Pacemaker, and Corosync are all included with Oracle Linux distribution



## Demo & Presentation Hardware & Software

- Lenovo T420 (circa 2012)
- 2 Cores/4 Threads, 16GB RAM
- 120GB SSD
- Oracle Linux 7 Update 7 64-bit
- Git
- Vagrant
- VirtualBox
- Okular

← *Dream On... 1,060 node Raspberry Pi Supercomputer at Oracle Open World 2019. Runs Oracle Linux!*

## “Live” Demo

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Unfortunately, due to limited and congested hotel WiFi and AT&T 4G LTE tethering networks, the demo did not complete during the “live” event.

The Demo is actually a Hands-On Lab that was scheduled at Oracle Open World in September 2019.

The Hands-On Lab is now available from Github:

<https://oracle.github.io/linux-labs/>

It is published under the Universal Permissive License 1.0

The Lab uses Oracle VM VirtualBox and Vagrant by HashiCorp.

Click on the instructions for more information: <https://oracle.github.io/linux-labs/HA-NFS/>

# Vagrant? VirtualBox?

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- I can't afford to drag servers around!
- Vagrant (open source) helps automate bringing up the VMs
- Oracle VM VirtualBox provides the desktop virtualization for the 4 “boxes” in the demo

To expedite the demo, I have already:

- Cloned the boxes from my Git repository
- Brought all 4 boxes up (with `vagrant up`)
- 4 Terminal sessions, each accessed with “`vagrant ssh <hostname>`”



# Gluster

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Gluster is a free and open source scalable distributed filesystem.

<https://www.gluster.org>

It aggregates disk storage resources from multiple servers into a single global namespace.

It can be configured with combinations of:

- Replicated volumes (for data protection)
- Distributed volumes (for scaling storage size)
- Striped volumes (to improve performance)

# NFS-Ganesha

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NFS-ganesha is a free and open source user-mode file server for NFS.  
<https://github.com/nfs-ganesha/nfs-ganesha/wiki>

NFS-ganesha has the “hooks” to use Gluster volumes as the back-end storage for the NFS file system.

# Pacemaker & Corosync

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Pacemaker is an open-source high-availability cluster resource manager.

<https://wiki.clusterlabs.org/wiki/Pacemaker>

Pacemaker provides the ability to control how the cluster behaves.

Corosync (actually Corosync Cluster Engine) is a High Availability framework.

<http://corosync.github.io/corosync/>

Corosync enables servers to communicate as a cluster.

# PCS (Pacemaker Cluster System)

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PCS is a Corosync and Pacemaker configuration tool.

<https://github.com/ClusterLabs/pcs>

It permits users to easily view, modify, and create Pacemaker based clusters.

# Thank you

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