

# Pacemaker

# What is a cluster

## Types of clusters

1. Failover Cluster (High Availability or HA Cluster)
2. Loadbalancing Cluster (High Performance cluster)

eg: amazon ec2 auto scaling is an example of both failover and loadbalancing cluster.

cluster implementations: CloudSigma, IBM ha clustering, MCS (Microsoft Cluster Server.), OCF (open cluster framework) supported by Linux HA, Redhat cluster suite, Veritas Cluster suite for Solaris.

## Taxonomy

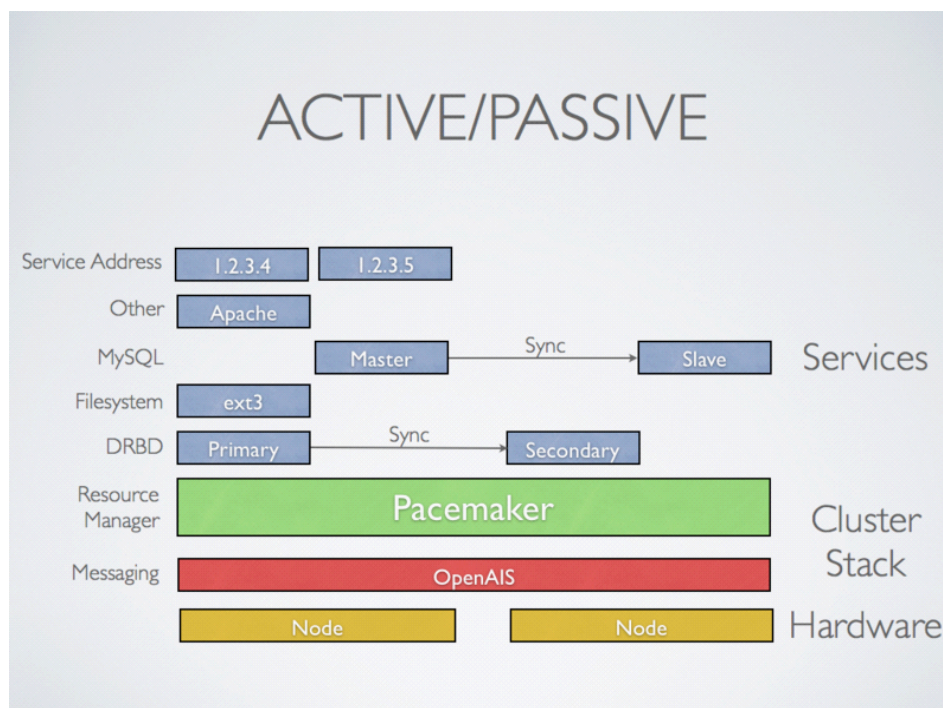
- heartbeat/openais
- cluster glue/stonith
- drbd
- crm
- pacemaker
- gfs, ocfs2

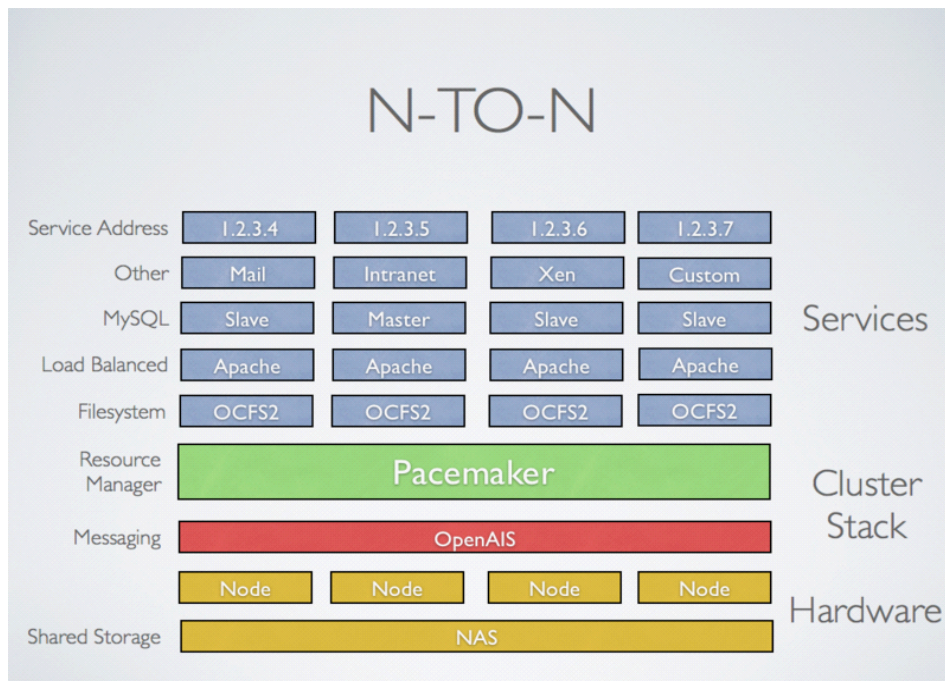
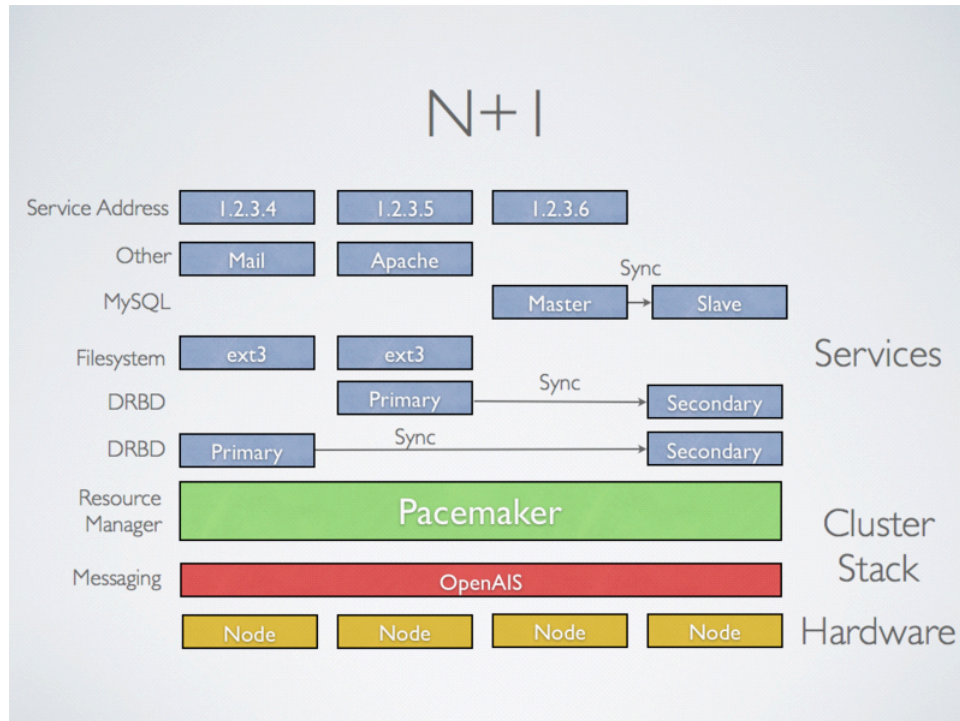
## Pacemaker.

- cluster resource manager
- detection and recovery of node and service level failures
- resource agonistic
- storage agonistic
- data integrity with stonith
- ordering, location and colocation
- unified, scriptable and cluster shell

## Types of pacemaker clusters

- Active/Active
- Active/Passive
- N+1
- N+M
- N-to-1 and N-to-N.





## What is DRBD ?

- An alternate and cost effective solution for shared storage.
- For data synchronization
- Can be thought of as a network based RAID-1 (mirroring)
- Support for both active/active or active/passive.

## Setting an active/passive cluster

- Install pacemaker and drbd-utils
- Resource agents
- Cluster ip
- Configure the apache resource
- Check failover
- Configure drbd

## Reference

<http://library.linode.com/linux-ha/ip-failover-heartbeat-pacemaker-drbd-mysql-ubuntu-10.04>

[http://www.novell.com/documentation/sles11/book\\_sleha/index.html?page=/documentation/sles11/http://www.novell.com/documentation/sles11/book\\_sleha/index.html?page=/documentation/sles11/book\\_sleha/data/book\\_sleha.html](http://www.novell.com/documentation/sles11/book_sleha/index.html?page=/documentation/sles11/http://www.novell.com/documentation/sles11/book_sleha/index.html?page=/documentation/sles11/book_sleha/data/book_sleha.html) (a good guid for cluster commands, and ui manage as well)

[http://en.wikipedia.org/wiki/High-availability\\_cluster](http://en.wikipedia.org/wiki/High-availability_cluster)

[http://en.wikipedia.org/wiki/Category:High-availability\\_cluster\\_computing](http://en.wikipedia.org/wiki/Category:High-availability_cluster_computing)

[http://en.wikipedia.org/wiki/Microsoft\\_Cluster\\_Server](http://en.wikipedia.org/wiki/Microsoft_Cluster_Server)

<http://en.wikipedia.org/wiki/Linux-HA>

[http://www.linux-ha.org/wiki/Cluster\\_Glue](http://www.linux-ha.org/wiki/Cluster_Glue)

[http://www.linux-ha.org/wiki/LSB\\_Resource\\_Agents](http://www.linux-ha.org/wiki/LSB_Resource_Agents)

[http://www.linux-ha.org/wiki/OCF\\_Resource\\_Agent](http://www.linux-ha.org/wiki/OCF_Resource_Agent), <http://www.linux-ha.org/doc/dev-guides/ra-dev-guide.html> (info about ocf)

<http://www.linux-ha.org/doc/users-guide/users-guide.html> (good guid for heartbeat)

DRBD - <http://www.drbd.org>

Pacemaker - <http://www.clusterlabs.org>

[http://www.clusterlabs.org/doc/Cluster\\_from\\_Scratch.pdf](http://www.clusterlabs.org/doc/Cluster_from_Scratch.pdf)

[http://www.clusterlabs.org/doc/crm\\_cli.html](http://www.clusterlabs.org/doc/crm_cli.html)

OpenAIS - <http://www.openais.org>

pgsql howto- [http://www.clusterlabs.org/wiki/DRBD\\_PgSQL\\_HowTo](http://www.clusterlabs.org/wiki/DRBD_PgSQL_HowTo)[http://www.clusterlabs.org/wiki/DRBD\\_PgSQL\\_HowTo](http://www.clusterlabs.org/wiki/DRBD_PgSQL_HowTo)