
Google ganeti

Ganeti

Ganeti Core Team - Google
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Ganeti Playbook

How to use your cluster

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Latest version of these slides

Please find the latest version of these slides at:

https://code.google.com/p/ganeti/wiki/LISA2013

Outline

- Adding nodes
- Organizing nodes
- Repairs
- Ganeti upgrades

Adding nodes

- Install and configure the node
  - or let your configuration management do the job
- Add the node with `gnt-node add <name>`
  - (asks for root passwords if key authentication is not possible)

Organizing nodes

- In a big cluster you want to organize nodes into groups.
- Ganeti will make sure instances' primary and secondary nodes are in the same group.
- Rule of thumb: One group per subnet
- Other possible considerations:
  - physical location (rack)
  - homogeneous architecture
  - homogenous hypervisor

```
# gnt-group add group2
# gnt-group rename default group1
# gnt-group assign-nodes group2 node20 node21 node22 ...
# gnt-instance change-group --to group1 instance_name
```

Recovering from master failure

```
# on a master candidate
gnt-cluster master-failover

# use --no-voting on a 2 node cluster
```

(A linux-HA experimental integration is present in 2.7)

Preemptively evacuating a node

We can remove instances from a node when we want to perform some maintenance.

Drain, move instances, check, set off-line:

```
gnt-node modify -D yes node2   # mark as "drained"
gnt-node migrate node2         # migrate instances
gnt-node evacuate node2        # remove DRBD secondaries
gnt-node info node2            # check your work
gnt-node modify -O yes node2   # mark as "offline"
```

It is now safe to power off `node2`

Recovering from node failure (1)

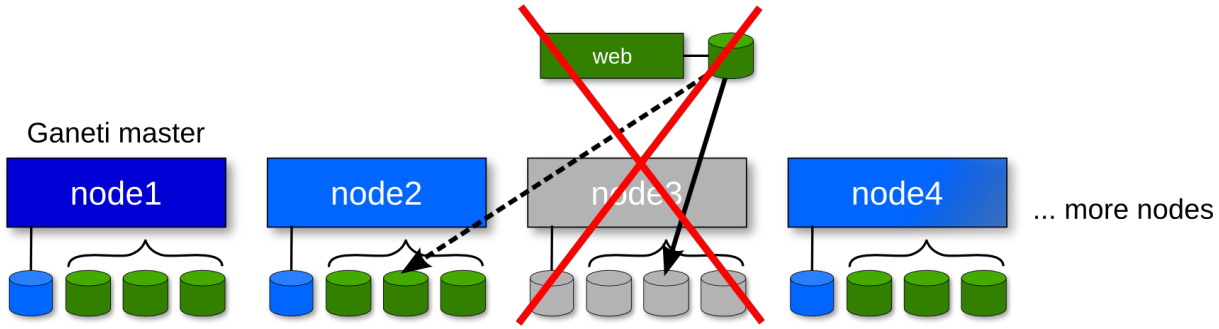
Offlining the node

Set the node offline:

```
gnt-node modify -O yes node3
```

Use `--auto-promote` or manually promote a node if the node was a master candidate.

(This step can also be automated using linux-HA)



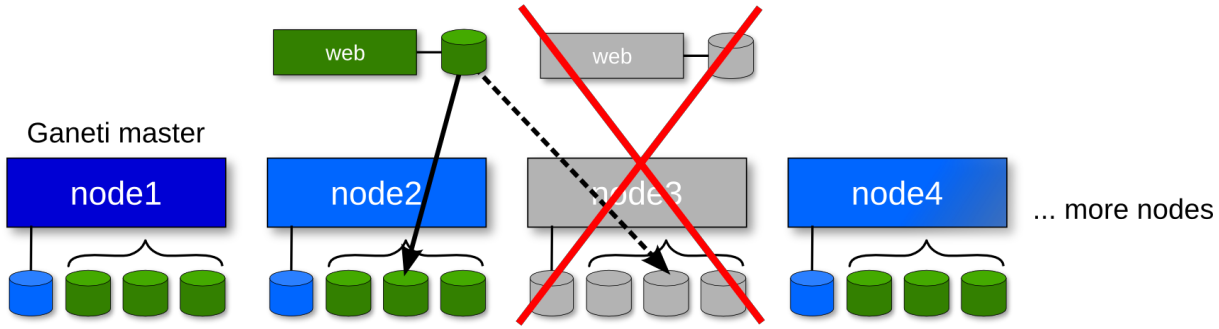
Recovering from node failure (2)

Failover the instances' secondaries

```
gnt-node failover --ignore-consistency node3
```

or, for each instance:

```
gnt-instance failover --ignore-consistency web
```



Recovering from node failure (3)

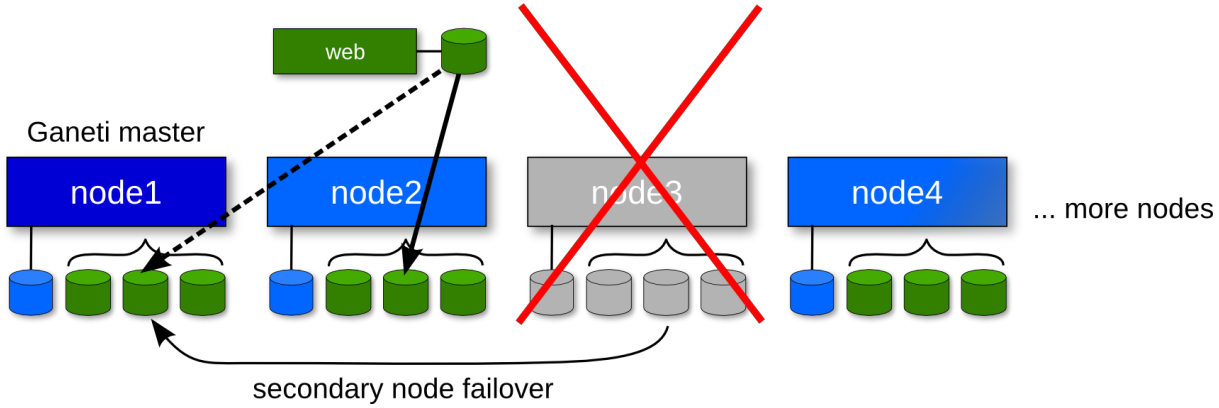
Restoring redundancy

```
gnt-node evacuate -I hail node3
```

or, for each instance:

```
gnt-instance replace-disks {-n node1 | -I hail } web
```

(The autorepair tool in Ganeti 2.7 can automate these two steps)



Re-add an off-lined node

After a node comes back:

```
gnt-node add --readd node3
```

Then it's a good idea to rebalance the cluster:

```
hbal -L -X
```

Maintenance

Shutting/Starting down all instances:

```
gnt-instance stop|start --all [--no-remember]
```

Blocking/Unblocking jobs:

```
gnt-cluster queue [un]drain
```

Stopping the watcher:

```
gnt-cluster watcher pause <timespec>|continue
```

Cluster Shutdown

Graceful shutdown before powering off nodes:

```
gnt-cluster verify
gnt-cluster watcher pause 6000
gnt-instance stop --all --no-remember
gnt-cluster queue drain
gnt-job list --running   # Check if jobs have completed
```

Emergency shutdown (faster):

```
gnt-instance stop --all --no-remember
```

Cluster Re-start

After a graceful shutdown, return the cluster to service:

```
gnt-cluster queue undrain
gnt-cluster watcher continue
```

The watcher will restart all instances in 10-20 minutes:

```
gnt-cluster verify
```

Ganeti upgrades

From the master node:

```
alias gnt-dsh=dsh -cf /var/lib/ganeti/ssconf_online_nodes
```

Stop Ganeti:

```
gnt-dsh /etc/init.d/ganeti stop
```

Now unpack/upgrade the new version on all nodes. eg:

```
gnt-dsh apt-get install ganeti2=2.7.1-1 ganeti-htools=2.7.1-1
```

Now upgrade the config and restart

```
/usr/lib/ganeti/tools/cfgupgrade
gnt-dsh /etc/init.d/ganeti start
gnt-cluster redist-conf
```

Further information and outlook

Regarding upgrades, we are currently (as of 2.10) working on upgrading Ganeti from inside Ganeti, to make upgrading smoother.

For more best practices, see the Ganeti administrator's guide

http://docs.ganeti.org/ganeti/current/html/admin.html

Thank You!

Questions?

Survey at https://www.usenix.org/lisa13/training/survey