Ganeti Test Bed

a Ganeti test and development environment

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Motivation and Idea

closer to real world

- real hypervisor (currently KVM only): e.g. live migration, hot-plugging, new / changed HV behavior, ...
- using DRBD (as a kernel function)
- testing and training Ganeti operation, e.g. Upgrade, node fail-over, ...

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Solution

Build „virtual“ test clusters on a real / existing Ganeti cluster

- using nested virtualization
- do it fast: testing a PR
- work in parallel: testing multiple things at the same time

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Requirements

- a working Ganeti cluster (working RAPI / hail)
- resources for a single virtual cluster:
  4x (8 GB RAM and 45 GB disks)
- `gnt-network` with `ip=pool` address management
- OSI capable of creating instances with ready to use networking
- a system running ansible (controller)

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Preparation

- make a copy from `group_vars/all.example` to `group_vars/all`
- edit it to match your setup
  - RAPI: Host, User, Password
  - name of the OS interface to use (without variant)
  - Ganeti disk template
  - name of the network from `gnt-network`
  - optionally a NFS Server for `sharedfile`
  - optionally a NFS Server providing an OSI / images

```
---
rapi_host: "localhost"
rapi_user: "gnt-test-bed"
rapi_pass: "XXXXXXX"
instance_osi: "instance-guestfish"
disk_template: "file"
fqdn_suffix: "gnt.test"
instance_network: "vm-net"
instance_tag: "ganeti-test-bed"
nfs_sharedfile: "192.168.1.9:/srv/ganeti/test-bed"
nfs_share_osi: "192.168.1.9:/srv/ganeti/os"
nfs_share_images: "192.168.1.9:/srv/ganeti/images"
```

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Setup

```
$ ansible-playbook test_cluster.yml -e target_os=debian-bullseye -t setup
```

- creates 4 instances with OSI `instance_osi+target_os`, each:
  4 vcpus, 8 GB RAM, disks 15+30 GB, 3 NICs (12 reserved IPs)
  - 1 build instance
  - 3 virtual Cluster nodes: master, node02, node03
- building Ganeti from source, default github-org ganeti, branch master
- parameter hash `build_id`: Ganeti version(s) + OSI + $USER
  - /tmp/{{ build_id }} (SSH key, outputs, build path, ...)
  - instance: {{ inventory_hostname }}.{{ build_id }}.{{ fqdn_suffix }}
  - sharedfile dir: {{ nfs_sharedfile }}/{{ build_id }}
  - ...

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Development ...

- edit code on the build instance

```
cd /tmp/running
git checkout -b your_branch
vi some/code (./lib/cmdlib/instance_create.py #475)
make
(make py-tests hs-check)
```

- install and test your changes

```
gnt-cluster command "cd /tmp/running && make install"
gnt-cluster command "systemctl restart ganeti"
gnt-instance add -t plain -o instance-guestfish+debian-bullseye --disk 0:size=5G --net 0:net
```

- when done, remove test cluster

```
$ ansible-playbook test_cluster.yml -e target_os=debian-bullseye -t destroy
```

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Limitations and Improvements

- align configure parameters with Debian package
- option to use binary package
- also build/publish a Debian package
- run qa-suite
- use a persistent tmp location
- ...

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THANKS

Questions?

https://github.com/saschalucas/ganeti-test-bed

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