Challenge:
Deploying Instances Dynamically

(How to make instance deployment better)

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Ganeti Rocks!*

** Except for operating system installation management*

OSL Instance Deployment Challenges

- ganeti-instance-image
- OSL manages base OS image
  - Manual updates, time consuming
- Users have no control over image
- Deployment problems on newer grub
  - End up using netboot installs
- No GWM integration for image creation

instance-image bugs / issues

- No support for os-params
- Badly implemented export / import scripts
- Linux-only support
- Limited maintainer time on project

Current State of Deployment

- Relies on node-level scripts
- Varies based on disk type
- No unified method for deployment
- Lack of self-serve image creation
- Prone to errors and bugs
- Instance Types
  - Debootstrap, Image, Raw, snf-image
- Synnefo

Instance Debootstrap

- Only works for Debian systems
- Relies on node kernel/initrd
- First instance type created

Instance Image

- Works on most Linux systems
- No configurable partition layout
- Grub issues
- Non-standard image creation

snf-image

- Works on most OS's
- Deploys image using helper VM
- Relies on KVM
- By itself, no self-serve
- Takes an interesting approach
- Excellent design

What do other platforms have?

- Most rely on file-based deployments
- Easier to do use features such as cloning
- Formats such as AMI are file-based
- Ganeti is a mixed platform with LVM and File
  - Makes it difficult to have the same feature set

Pros/Cons of File Images

- Pros
  - Flexible, mostly portable, more featureful
- Cons
  - No easy way to relate it to a raw block device such as LVM
  - Everybody hates images (but they are useful)

What about filesystem dumps?

- They work … most of the time
- Still have to deal with MBR/grub in some cases
- What about Windows? NTFSDump

What about using dd or qemu-img?

- Slow (dd at least)
- Need to resize partitions
- qemu-img doesn't translate to LVM

Goals for Dynamic Deployments

- Keep the current system as-is
- Add API interface
- Make instance creation easier for users
- Make the solution be part of the core
- Make instance creation more user friendly!

Deployment Proposal

- Integrate instance image creation into Ganeti
  - Possibly integrate or extend snf-image
  - Create a Ganeti Image Standard
- Implement API's for creating & managing images
  - Allows other tools such as Packer or GWM to manage said images

Example Usage

```
# this is just a concept!

$ gnt-image add -i $instance centos
$ gnt-image clone centos centos-clone
$ gnt-image remove centos
$ gnt-image list
$ gnt-image info centos

$ gnt-instance add --image centos $instance
$ gnt-instance clone --image centos-clone \
    $instance
```

Proposal Summary

- Integrate instance OS installs & images into Ganeti
- Create a unified image format
- Make RAPI access available for image management
- Provide tools for integrating with other deployment tools
  - i.e. cobbler, foreman, etc

Questions?

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