Use of Quattor in BEgrid

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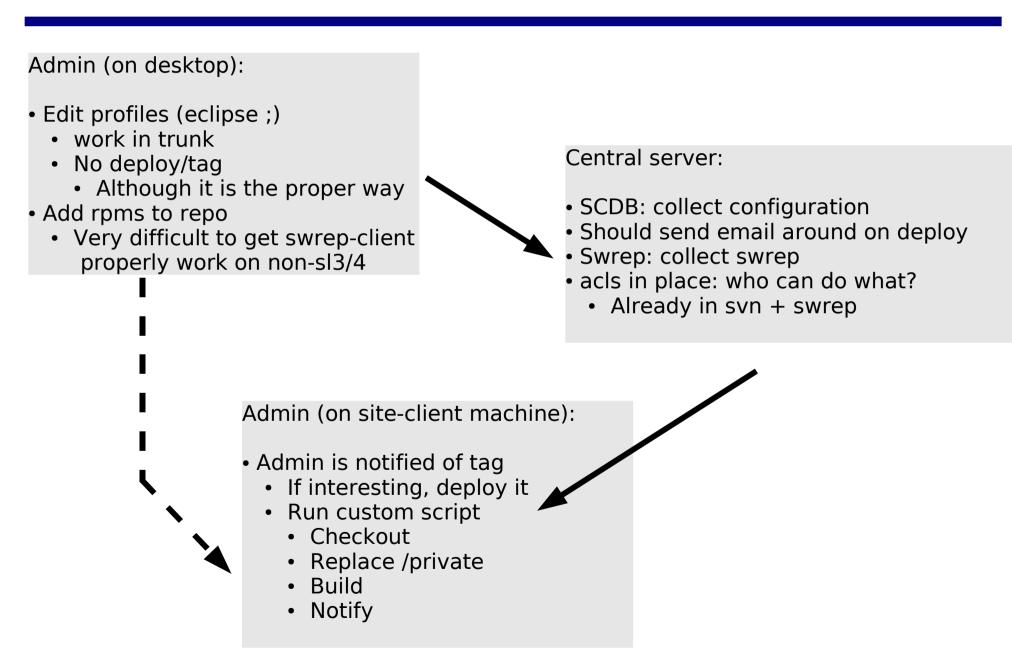
BEgrid & administration:

- a Belgian research grid
- current: 7 institutes
- Quattor usage is default policy
- 80% or more of all site work is identical
  - only 1 site in LHC
  - no real other computing intensive collaboration
- we want to share a lot of the work and expertise
- we want to lower the "new-site startup level"
  - New site in 1 day goal?
    - It's certainly possible for expert, but not for new people
- http://quattor.begrid.be/trac/centralised-begrid-v4/wiki/BEgridAndQuattor

Use of Quattor in BEgrid: layout

Proposed solution:

- central server
  - configuration repository (SCDB)
  - rpm repository (swrep)
  - SCDB: access/acl based on certificates
    Swrep: access/acl based on certificates
- site/client : AII server/swrep-cache
  - No sensitive data in repo, correct rebuild on site
  - No auto-update on site level

- Not a new idea: "inspired" by Grid Ireland and GRIF

Use of Quattor in BEgrid: workflow

Admin (on desktop):

- Edit profiles (eclipse ;)
  - work in trunk
  - No deploy/tag
    - Although it is the proper way
- Add rpms to repo
  - Very difficult to get swrep-client properly work on non-sl3/4

Central server:

- SCDB: collect configuration
- Should send email around on deploy
- Swrep: collect swrep
- acls in place: who can do what?
  - Already in svn + swrep

Admin (on site-client machine):

- Admin is notified of tag
  - If interesting, deploy it
  - Run custom script
    - Checkout
    - Replace /private
    - Build
    - Notify

Use of Quattor in BEgrid: issues

Tools used:
- Standard: svn/ant/https/python
- Easy to setup, fullfills our needs, well known

No real "centralised administration"
- Not wanted: auto-update might be bad idea
- Not allowed on all sites
- Could be interesting for smaller institutes/multiple clusters

Sensitive data:
- Not allowed to share
- No standard "encryption" in pan
- Solution: use dummy values + real ones on site
  - All passwords are set through variables
  - Certificates deployed with ncm-filecopy
    - Use SINDES also for this

- SINDES
  - certificate distribution/managment part only
    - Non sensitive file distribution (yet)
  - Needs mods to AII
    - Not yet done for AII2
  - More info:
    http://quattor.begrid.be/trac/centralised-begrid-v4/wiki/SINDES

- QWG os templates are not used
  - Historical reasons only
    - Have no idea of amount of work needed
  - Will migrate asap

- AII2
  - Integrate SINDES
  - Test and migrate asap

Use of Quattor in BEgrid: non-standard: dummy build

- Increase build speed dramatically by reusing already compiled template
  - Taken from CERN
  - Large parts of build are left unchanged
  - Speedup: 88 machines, 65 WNs: 101s (250MB max heap) vs 220s (500MB max heap)
  - Current form needs some major changes in QWG templates
  - Not optimal but works
  - base.tpl, wn.tpl
  - other: components/spma/functions
    - Don't know if it's still needed

```
function resolve_pkg_rep = {
    if (exists(DUMMY_NODE) && DUMMY_NODE) {
        return(self);
    };
```

Use of Quattor in BEgrid: non-standard: dummy build (II)

- Include in every template through machine-types/base.

```
##
## the real magic
##

"/"= {
    if (DUMMY_NODE) {
        path = value("//"+PROFILE_PREFIX+EXACT_NODE+"/");
        ## what is different from a normal profile and the dummy ones??
        ## /ccm
        ## aii
        ## /system/hardware
        ## /system/network
        ## filesystems
        delete(path["system"]["hardware"]);
        delete(path["system"]["aii"]);
        delete(path["system"]["network"]);
        delete(path["system"]["filesystems"]);
        return(path);
    } else {
        return(self);
    };
};
```

Use of Quattor in BEgrid: non-standard: dummy build (III)

- Modify machine-type/base
    - Include special template
        - selection logic + set variables
        - /-path replacement
- Modify machine-type/wn to select:
    - Dummy: very stripped down version
    - normal behaviour: first time
    - Site specific templates
    - Use function dinc() to return something based on dummy variable
    - Less recompilation = faster build time
    - Would be nice if default/modified include would support something like this
        -
```
template config/glite_base;

include { dinc("config/ssh") };
```

Use of Quattor in BEgrid: other issues

- Still need better integration of monitoring tools in quattor
- Integration of DNS management
  - Like DHCP management in AII
- Integration of SINDES
  - Should be default
  - Needs integration in AII tools