

Host deployment and configuration technologies at SCC

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Challenges

- Projects
 - GridKa
 - LSDF
 - SDIL
 - ... any other

- Resources:
 - Bare Metal
 - ESX, RHEV, OpenStack

- Some experience with Puppet and Co.
- Everybody wants 1-click deployment and 0-click configuration management

Statement 1

- Everything in GIT



GitLab Community Edition

- Puppet: 1 module = 1 GitLab project
- Naming convention for Groups and Projects
 - Clear structure, permissions, responsibilities

```
Puppet-Modules-Lib:  
  lib_ntpd  
  lib_xinetd  
  lib_network  
  lib_user  
  ...  
Puppet-Modules-Middleware  
  middleware_emi_cream  
  middleware_pool_accounts  
  ....
```

Statement 2

- Rollout with CI
 - not only for puppet related projects

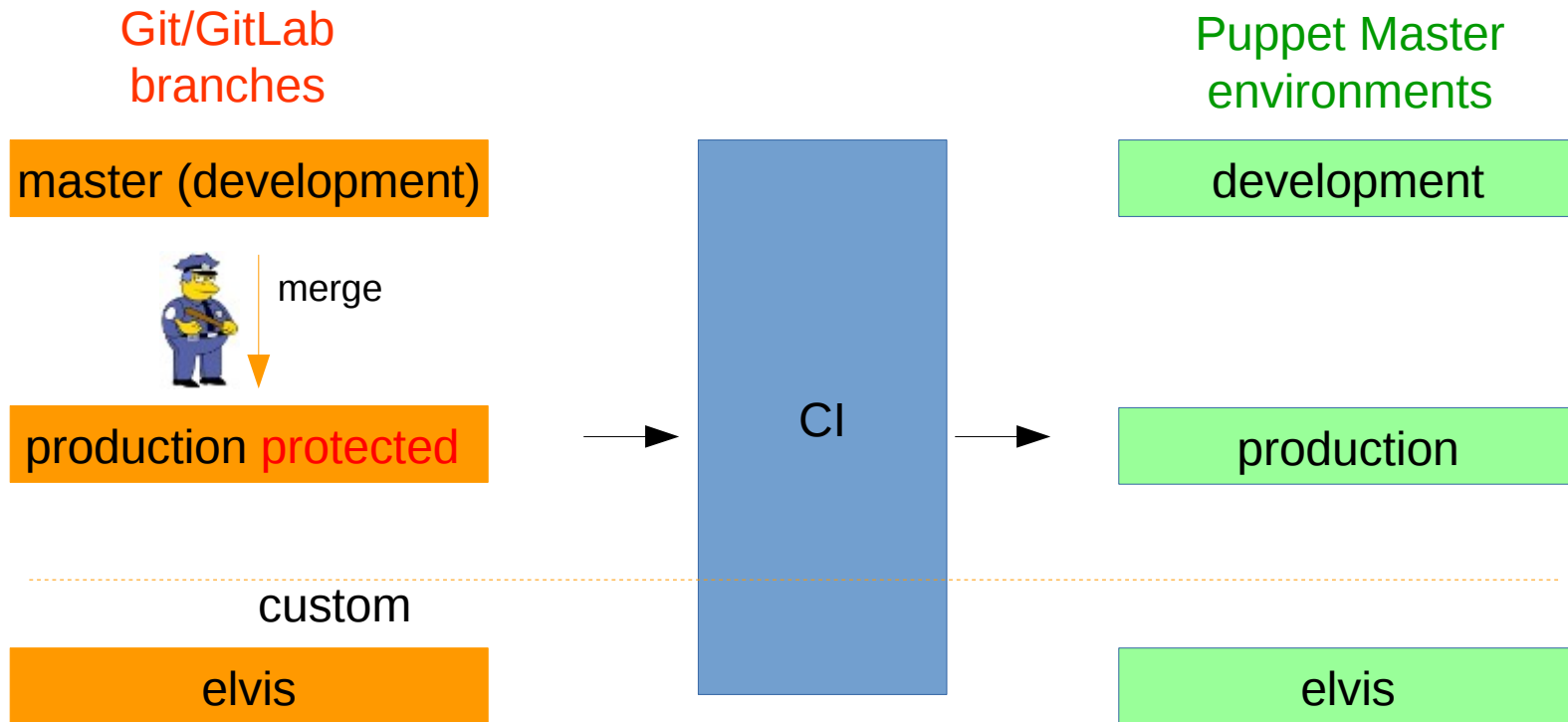
GitLab CI

strong API between GitLab and CI

Project Name	Last commit	Access	Commits
Puppet-Modules-Lib / lib_mysql	success (aa2420cc) 1 minute ago	🔒 Private	26
Puppet-Modules-Lib / lib_rhel	success (6a4d5f98) about 2 hours ago	🔒 Private	7
Puppet-Modules-Lib / lib_cvmfs	success (84e39de9) about 5 hours ago	🔒 Private	27
Puppet-Data / hiera_data	success (d57eff6c) about 7 hours ago	🔒 Private	119
Puppet-Modules-Lib / lib_backuplocal	success (e898399f) 4 days ago	🔒 Private	12
Puppet-Modules-Lib / lib_backuptape	success (4ae3a5e6) 4 days ago	🔒 Private	2
Continuous-Integration / list_external_modules	failed (0b1a59d0) 4 days ago	🔒 Private	30
Puppet-Modules-Monitoring / monitoring_icinga	success (d70d484e) 7 days ago	🔒 Private	18

Branches and Environments

- Git branches to manage puppet environments



Making life easier

- Create project in Gitlab and register at CI (parallel builds)
 - Login to GitLab: create project
 - Do some initial commits to create file structure
 - Create .gitlab-ci.yaml
 - Insert jobs(copy paste from some wiki page)
 - Login to CI
 - Activate runners for the project
 - Do some commits, watch failing builds and find out what you forgot to do.

- Or use API
 - # pag -g Puppet-Modules-Lib -p lib_user

does the job using GitLab and CI API

Puppet for everything

- Initial setup after host provisioning
 - ntpd, user, syslog, snmpd

- Setup and config services:
 - BDII, CREAM CE, WMS, dCache,
 - Apache, MySQL ..

```

hiera:
---
:hierarchy:
- fqdn/{fqdn}
- service/{service}/common
- role/{service}/common
- cluster/{cluster}/common
- common
  
```

- Self developed modules + external modules
 - Puppet librarian 

```

/etc/puppet/environments/$env
    modules/ {custom}

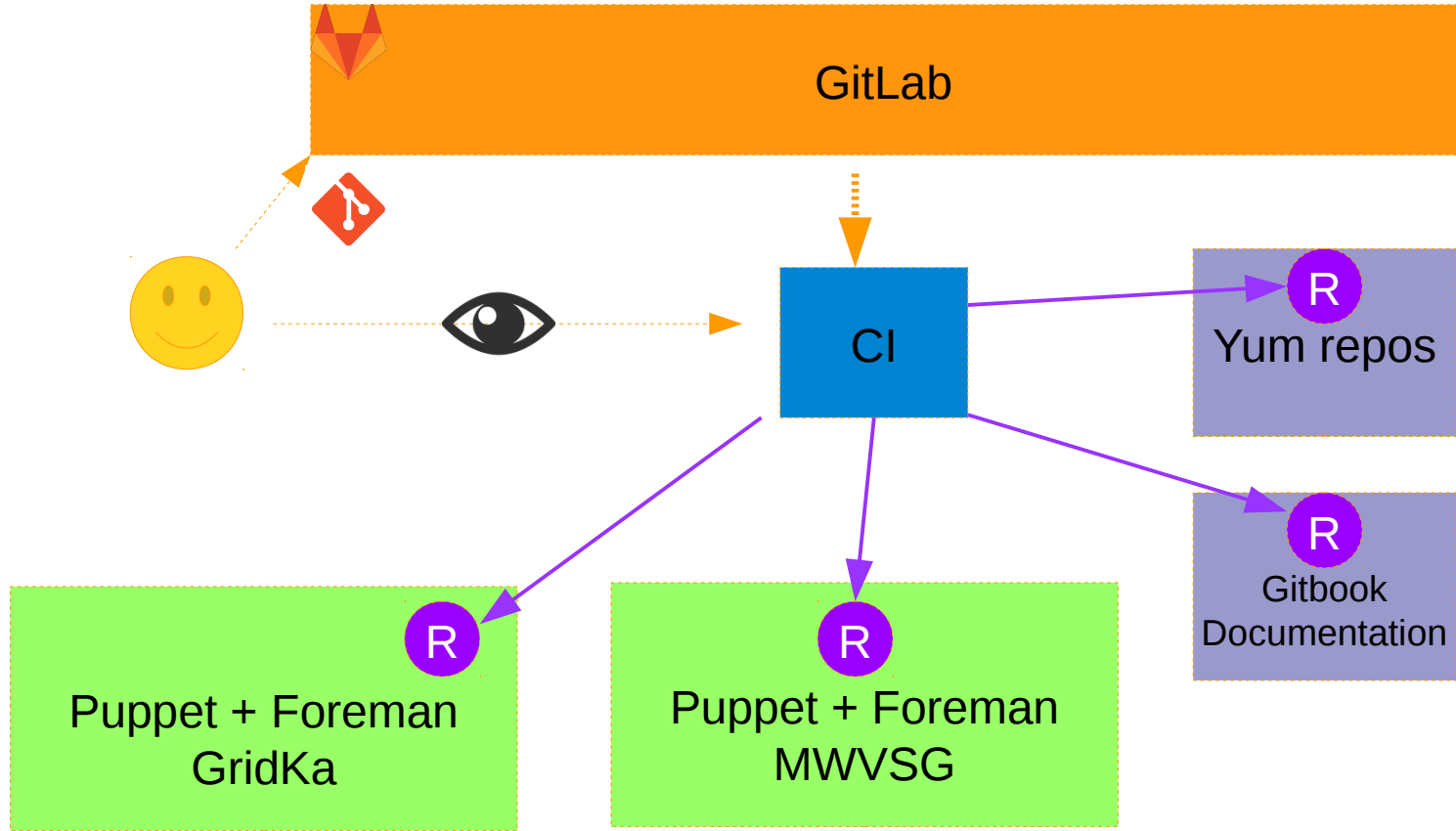
/etc/puppet/modules/
    {external}
  
```

- Everybody is able to create custom “environment” for his needs


Puppet classes at host

```
middleware_emi_wms  
middleware_grid_service::emi_release  
middleware_grid_service::host_certificate  
middleware_grid_service::grid_environment  
middleware_grid_service::grid_mapfile  
middleware_grid_service::crls  
middleware_grid_service::vommdir  
middleware_grid_service::pool_accounts  
middleware_emi_wms::lcmaps  
middleware_emi_wms::gridftp  
middleware_emi_wms::condor  
mysql::server  
lib_network::resolv_conf  
lib_user::password  
lib_user::ssh_authorized_keys  
lib_ssh::server  
lib_motd  
xinetd::params  
xinetd  
lib_ntpd  
profile_gridka::syslog  
profile_gridka::snmp
```


All together










Foreman

- Host provisioning
 - Provisioning templates 
 - Partition tables
 - Snippets
 - etc...
- Host discovery
- Connect to Virtual Resources (oVirt)
- Host groups
- Parameter for host specification (ENC)
- Parameter for provisioning templates
- **no class assignment**



Foreman 1.8

Host deployment

-  Power On
-  Load discovery image → register to Foreman
-  Find host at Foreman.
-  Edit / use “Host groups”
-  Set “host parameters” to define configuration
-  Save and Reboot
-  Boot → PXE → Install OS / Provisioning Template → Puppet

What we use

- Puppet 3.8
 - Future parser enabled
 - augeas
- Hiera
 - Yaml
 - Eyaml – secrets
- GitLab and GitLab CI – latest
- Foreman 1.8 → 1.9 update planed
- GitBook

Questions?