

Capitoul – La gestion de configuration

PUPPET

Contexte

- ✱ Jusqu'en 2009 : Terminaux X / Ordinateurs portables
- ✱ A partir de 2009 : PC fixes sous Linux / Ordinateurs Portables

=> Nécessité de conserver le même niveau de services sur des postes individuels co-administrés.

Enjeux Techniques

- * Rapporter la charge de travail de gestion à un volume acceptable pour l'équipe informatique.
- * *Tâches identifiées*
 - * Déployer facilement de nouvelles machines
 - * Déployer facilement des applis sur l'ensemble du parc
 - * gérer les applis critiques automatiquement
 - * gérer les configurations critiques automatiquement
 - * gérer les MAJ sécurité
 - * Visibilité rapide des statuts machine

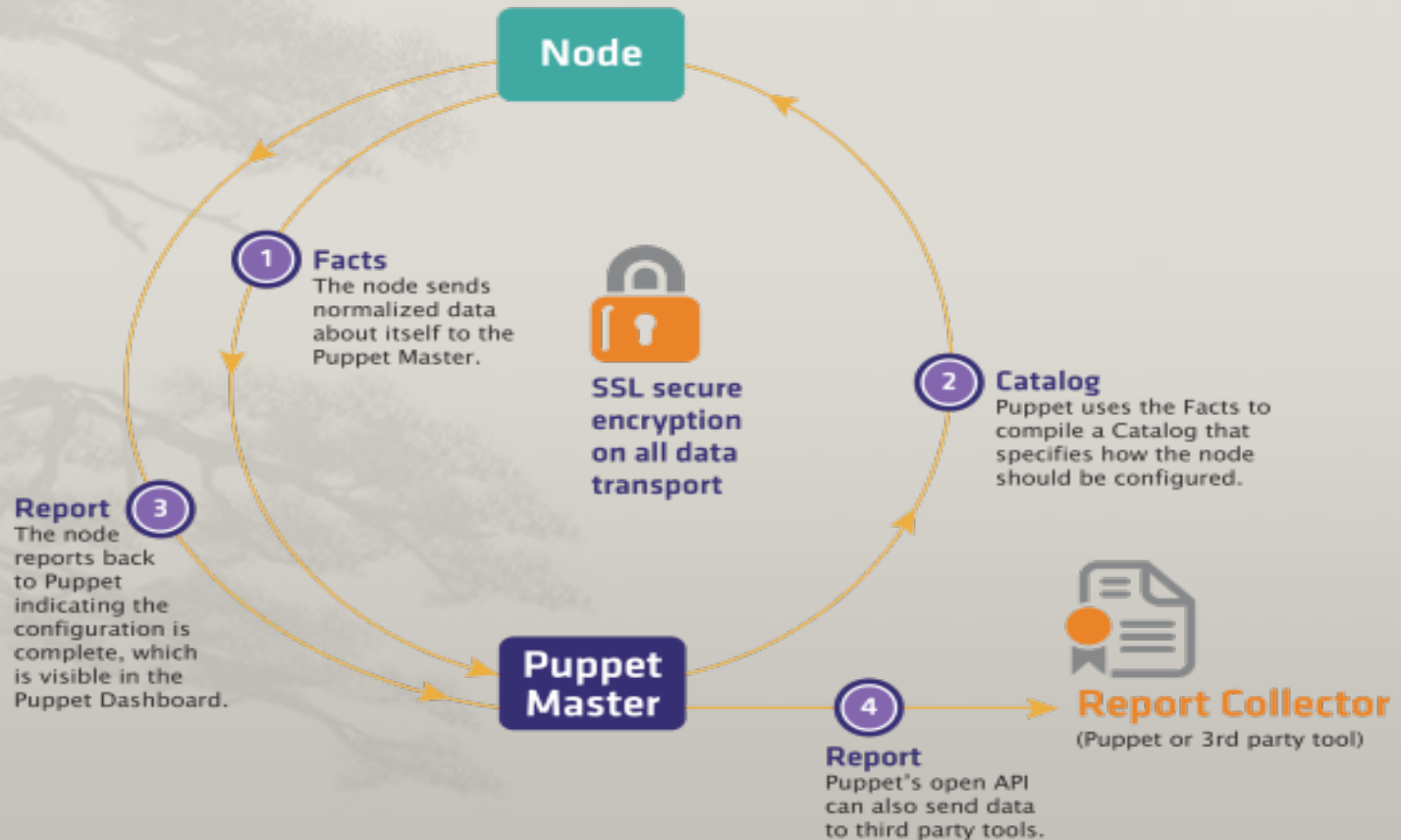
Solution : Puppet

- ✱ Développé par Puppet Labs depuis 2005, Open Source (Licence Apache 2.0)
- ✱ Disponible sur une grande majorité de plateforme (*BSD, Linux, Windows, MAC OS X, Unix propriétaire - même AIX -....)
- ✱ Communauté importante et vivante

Composants Puppet

- ✱ Un serveur : Puppet Master
 - ✱ Existe en « standalone » - serveur Webrick - ou en module apache
- ✱ Un client par machine
 - ✱ Processus Ruby
- ✱ Une interface de supervision : Puppet Dashboard
 - ✱ Interface Web Ruby
 - ✱ S'appuie sur une base de données MySQL pour stocker l'historique

Principe de fonctionnement



Configuration Serveur

<root_config_dir>/puppet

| -files

| -manifest

| -----*site.pp*

| -modules

| -----<mon_module_1>

| -----<mon_module_n>

| -templates

Configuration Serveur

`my_module` — Le nom du module.

`|manifests/`

`|----init.pp` — contient la définition de la classe. **Le nom de la classe doit reprendre le nom du module.**

`|----other_class.pp` — la classe `my_module::other_class`.

`|files/` — fichiers statiques, téléchargeables par les postes clients..

`|templates/` — contient des templates, utilisables par le(s) manifest(s)

Configuration : Langage

- ✧ Manipulation de « ressources »
- ✧ Syntaxe Ruby
 - ✧ Expressions régulières
 - ✧ Boucles conditionnelles
 - ✧ Chainage de ressources
 - ✧ Héritage
 - ✧ Mots clés définissant des comportements de ressources (subscribe, require)
 - ✧ Fonctions réutilisables
 - ✧

Configuration : Ressources

✧ Différents types de ressources

✧ Fichier

```
file { 'sshdconfig':  
    path => $operatingsystem ? {  
        solaris => '/usr/local/etc/ssh/sshd_config',  
        default => '/etc/ssh/sshd_config',  
    },  
    owner => 'root',  
    group => 'root',  
    mode  => '0644',  
}
```

Configuration : Ressources

✱ Différents types de ressources

✱ Package

```
package {  
    "openssh-server":  
        ensure => installed,  
        provider => apt,  
}
```

✱ Service

```
service { 'sshd':  
    ensure      => running,  
    enable      => true,  
    hasrestart  => true,  
    hasstatus   => true,  
    subscribe   => File['sshdconfig'],  
}
```

Configuration : Ressources

* Fonctions réutilisables

```
define apt::key($ensure, $apt_key_url = "http://www.math.univ-toulouse.fr/~sysadmin/IMT/IMT.key") {  
  case $ensure {  
    "present": {  
      exec { "apt-key present $name":  
        command => "/usr/bin/wget -q $apt_key_url -O -/usr/bin/apt-key add -",  
        unless => "/usr/bin/apt-key list | /bin/grep -c $name",  
      }  
    }  
    "absent": {  
      exec { "apt-key absent $name":  
        command => "/usr/bin/apt-key del $name",  
        onlyif => "/usr/bin/apt-key list | /bin/grep -c $name",  
      }  
    }  
    default: {  
      fail "Invalid 'ensure' value '$ensure' for apt::key"  
    }  
  }  
}
```

Configuration : Ressources

- ✱ Comportement sur changement d'un fichier

```
File['/etc/ntp.conf'] -> Service['ntpd']
```

- ✱ Chainage

```
file {'/tmp/test1':  
  ensure => present,  
  content => "Hi.",  
}  
  
notify {'after':  
  message => '/tmp/test1 has already been synced.',  
}
```

```
File['/tmp/test1'] -> Notify['after']
```

Configuration : Ressources

* Aggregation de ressources : les classes

```
class unix {  
    file { '/etc/passwd':  
        owner => 'root',  
        group => 'root',  
        mode  => '0644',  
    }  
    file { '/etc/shadow':  
        owner => 'root',  
        group => 'root',  
        mode  => '0440',  
    }  
}
```

Configuration : Ressources

✿ Héritage

```
class freebsd inherits unix {  
    File['/etc/passwd'] { group => 'wheel' }  
    File['/etc/shadow'] { group => 'wheel' }  
}
```

✿ Noeuds

```
node 'serveurs_sysadmin' inherits 'serveurs_base' {  
    include init_systeme::resolveur  
    include insertion-domaine::motd_serveur  
    include insertion-domaine::limit_access_to_sysadmin  
    include insertion-domaine::install_nfs_v3  
    include insertion-domaine::install_ldap  
    include insertion-domaine::install_autofs_ldap_v3  
    include insertion-domaine::install_krb5  
    include insertion-domaine::pam-serveur  
    include insertion-domaine::sudo-ldap-serveur  
}
```


Exemple de configuration

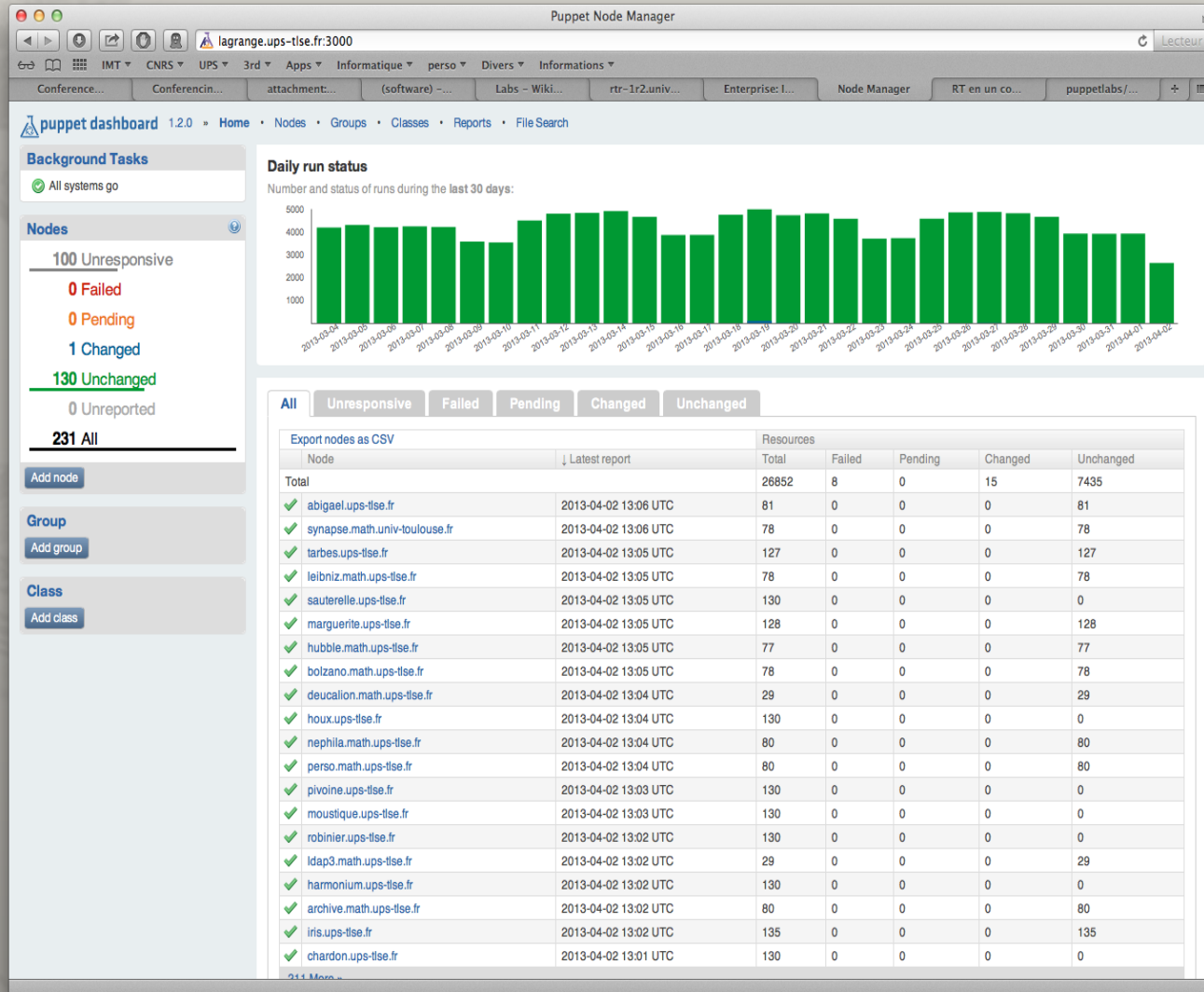
```
node 'membres_ldap' {  
  apt::key { "DC3BAF35":  
    ensure => present,  
  }  
  apt::key { "BA684223":  
    ensure => present,  
  }  
  include init_systeme::debian  
  include init_systeme::ps-watcher  
  include init_systeme::mise-a-jour  
  include insertion-domaine::ntp  
  include insertion-domaine::print  
  include insertion-domaine::sudoers_postes-ldap  
  include insertion-domaine::pam-client  
  include insertion-domaine::install_nfs  
  include insertion-domaine::install_krb5_nfsv4  
  include insertion-domaine::install_autofs_client  
  include insertion-domaine::install_ldap  
  include insertion-domaine::install_cleaners  
  include insertion-domaine::ocsinventory  
  include insertion-domaine::vino  
  include insertion-domaine::puppet_conf  
  include insertion-domaine::ssh-server  
}
```

```
class install_krb5 {  
  
  file {  
    [...]  
  }  
  package {  
    "heimdal-clients":  
      ensure   => installed,  
      provider => apt,  
  }  
  package {  
    "libpam-krb5":  
      ensure   => absent,  
      provider => apt,  
  }  
  package {  
    "libpam-heimdal":  
      ensure   => installed,  
      provider => apt,  
  }  
}
```

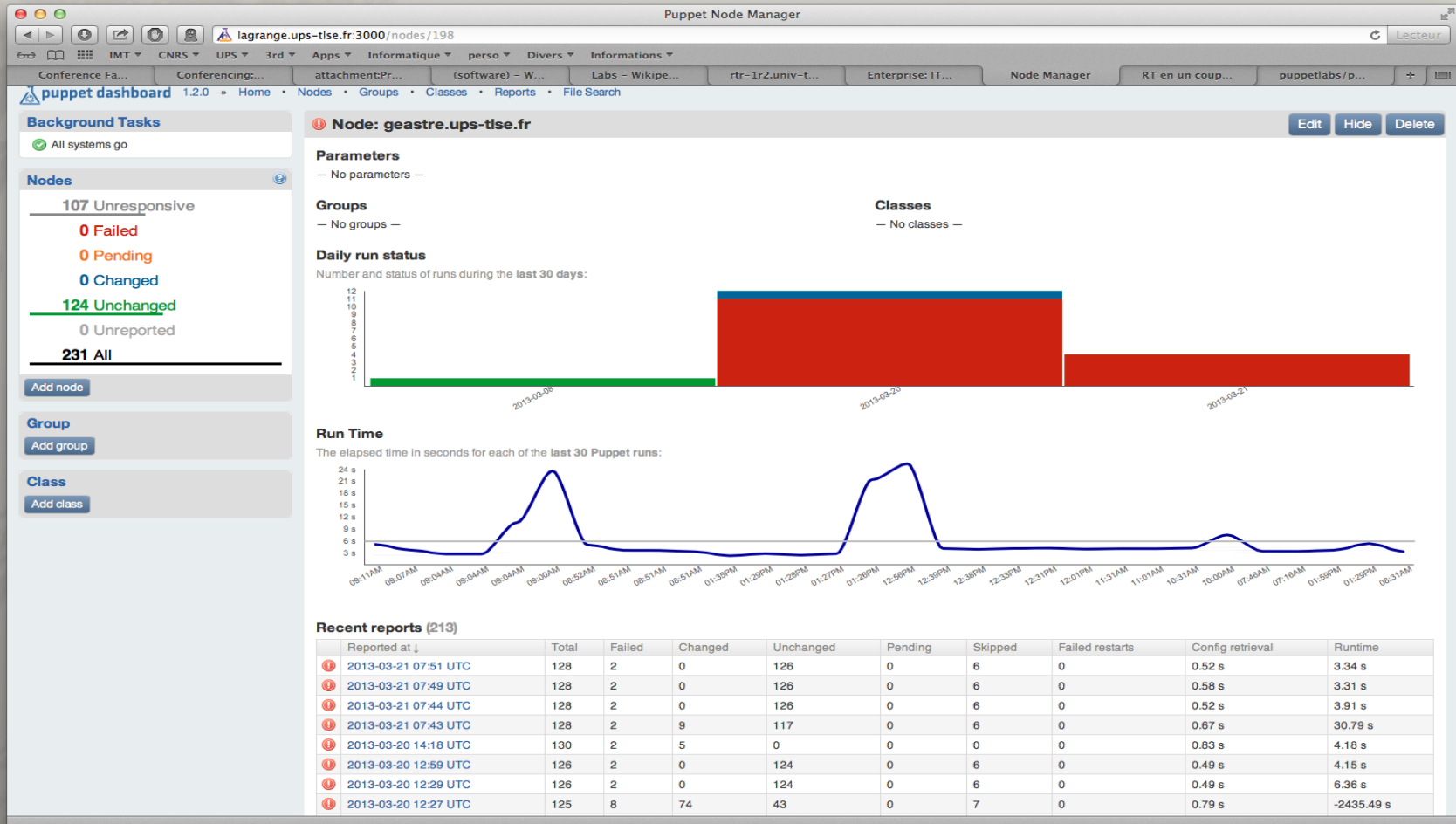
Exemple de configuration

```
class install_krb5_nfsv4 inherits install_krb5 {
  package {
    "librpcsecgss3":
      ensure   => installed,
      provider => apt,
  }
  File["/etc/krb5.conf"] {
    source=>$lsbdistrelease ? {
      "5.0.4"   =>"puppet://monserveur/baselayout/debian/identiques/etc/krb5.conf.nfsv4",
      "10.04"  =>"puppet://monserveur/baselayout/debian/lucid/etc/krb5.conf.nfsv4",
      "11.04"  =>"puppet://monserveur/baselayout/debian/natty/etc/krb5.conf.nfsv4",
      "12.10"  =>"puppet://monserveur/baselayout/debian/precise/etc/krb5.conf.nfsv4",
      "6.0.7"  =>"puppet://monserveur/baselayout/debian/squeeze/etc/krb5.conf.nfsv4",
    },
  }
  file {
    "/etc/krb5.keytab":
      owner   => "root",
      group   => "root",
      mode    => 600,
      source  => "puppet://monserveur/files/tickets/${hostname}.krb5.keytab",
      require => Package[krb5-config],
  }
}
```

Suivi : Puppet Dashboard



Suivi : Puppet Dashboard



Suivi : Puppet Dashboard

Puppet Node Manager

lagrange.ups-tlse.fr:3000/reports/1954148

Conference Fa... Conferencing... attachmentPr... (software) - W... Labs - Wikipe... rtr-1r2.univ-t... Enterprise: IT... Node Manager RT en un coup... puppetlabs/p...

puppet dashboard 1.2.0 » Home » Nodes » Groups » Classes » Reports » File Search

Background Tasks
All systems go

Nodes
107 Unresponsive
0 Failed
0 Pending
0 Changed
124 Unchanged
0 Unreported
231 All

Add node

Group
Add group

Class
Add class

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Report: 2013-03-21 07:51 UTC for geastre.ups-tlse.fr Delete

Metrics **Log** **Events**

Log

Level	Message	Source	File	Line	Time
err	change from purged to present failed: Execution of '/usr/bin/apt-get -q -y -o DPkg::Options::=--force-confold install ff-cleaner' returned 100: Reading package lists... Building dependency tree... Reading state information... E: Unable to locate package ff-cleaner	/Stage[main]/Insertion-domaine::Install_cleaners/Package[ff-cleaner]/ensure	/etc/puppet/modules/baselayout/manifests/init.pp	1293	2013-03-21 07:51 UTC
err	change from purged to present failed: Execution of '/usr/bin/apt-get -q -y -o DPkg::Options::=--force-confold install th-cleaner' returned 100: Reading package lists... Building dependency tree... Reading state information... E: Unable to locate package th-cleaner	/Stage[main]/Insertion-domaine::Install_cleaners/Package[th-cleaner]/ensure	/etc/puppet/modules/baselayout/manifests/init.pp	1298	2013-03-21 07:51 UTC
notice	Finished catalog run in 3.41 seconds	Puppet			2013-03-21 07:51 UTC
info	Applying configuration version '1363846684'	Puppet			2013-03-21 07:51 UTC
info	Caching catalog for geastre.ups-tlse.fr	Puppet			2013-03-21 07:51 UTC

Gain à posteriori

- ✱ Gain de temps sur le déploiement des serveurs
- ✱ Détection des changements « sauvages » de versions
- ✱ Détection des versions de distribution plus maintenues



Merci pour votre attention