

通过案例了解 puppet 创建虚拟资源解决资源冲突问题

虚拟资源是一种用来管理多种配置共同依赖同一资源的方法。如果多个类依赖同一个资源时则可避免写多个资源，也可以解决资源重定义的错误。虚拟资源经常用于用户管理中，虚拟资源只会被声明一次，但可以运用一次或多次。

要使用虚拟资源是需要资源声明开头加上字符“@”来使资源虚拟化。然后再使用下面两种方法之一来实例化虚拟资源：

- "飞船"语法<||>
- realize 函数

1. 定义两个用户，puppet 和 root，并将其虚拟化

注意定义虚拟资源必须在全局作用域或者节点作用域中定义，简单的理解，以下目录中 site.pp 就是全局作用域，包含 nodes 目录（site.pp 中 import 了 nodes 目录），在节点 node 下定义的虚拟资源属于节点作用域，其他模块中的都属于局部作用域。

1.1 在全局作用域中创建对应的 pp 文件

```
[root@linuxmaster1poc testing]# tree manifests/
manifests/
├── nodes
│   ├── puppetclient.pp
│   ├── virtual_group.pp
│   └── virtual_user.pp
└── site.pp

1 directory, 4 files
```

1.2 创建虚拟用户 puppet、root、xiaonuo

```
[root@linuxmaster1poc testing]# vim manifests/nodes/virtual_user.pp
class alluser{
    include alluser::puppet,alluser::root
}
```

```
class alluser::puppet{
  @user { 'puppet':
    ensure => present,
    uid    => '52',
    gid    => '52',
    home   => '/var/lib/puppet',
    shell  => '/sbin/nologin',
  }
}

class alluser::root{
  @user { 'root':
    ensure => present,
    uid    => '0',
    gid    => '0',
    home   => '/root',
    shell  => '/bin/bash',
  }
}

class alluser::xiaonuo{
  @user { 'xiaonuo':
    ensure => present,
    uid    => '600',
    gid    => '600',
    home   => '/home/xiaonuo',
    shell  => '/sbin/nologin',
  }
}
```

1.3 创建虚拟组 puppet、root 和 xiaonuo

```
[root@linuxmaster1poc testing]# vim manifests/nodes/virtual_group.pp
class allgroup{
  include allgroup::puppet,allgroup::root
}

class allgroup::puppet{
  @group { 'puppet':
    ensure    => present,
    name      => 'puppet',
```

```
gid      => '52',
allowdupe => false,
members  => 'puppet',
}
}

class allgroup::root{
  @group { 'root':
    ensure  => present,
    name    => 'root',
    gid     => '0',
    allowdupe => false,
    members => 'root',
  }
}

class allgroup::xiaonuo{
  @group { 'xiaonuo':
    ensure  => present,
    name    => 'xiaonuo',
    gid     => '600',
    allowdupe => false,
    members => 'xiaonuo',
  }
}
```

2. 编写 puppet 模块，将虚拟资源用户 puppet 和组 puppet 实化

2.1 编写 puppet 模块

```
[root@linuxmaster1poc testing]# tree environment/modules/puppet
environment/modules/puppet
├── files
├── manifests
│   ├── config.pp
│   ├── init.pp
│   ├── install.pp
│   ├── params.pp
│   └── service.pp
├── README
└── templates
```

```
├─ auth.conf.erb
├─ namespaceauth.conf.erb
└─ puppet.conf.erb
```

3 directories, 9 files

2.2 编写 puppet_linux57poc 模块

```
[root@linuxmaster1poc testing]# tree agents/modules/puppet_linux57poc/
agents/modules/puppet_linux57poc/
├─ files
├─ manifests
│   └─ init.pp
└─ templates
    ├── facts.txt.erb
    └─ motd.erb
```

3 directories, 3 files

2.3 实例化虚拟资源

2.3.1 在 puppet 模块中实例化

```
[root@linuxmaster1poc testing]# vim environment/modules/puppet/manifests/config.pp
class puppet::config{
    include puppet::params
    include
puppet::puppet_config,puppet::namespaceauth_config,puppet::auth_config,puppet::user
,puppet::group
    include alluser,allgroup #必须将节点作用域中的类包含进来
}

class puppet::puppet_config{
    file { ['/etc/puppet/puppet.conf':
        ensure => present,
        content => template('puppet/puppet.conf.erb'),
        owner   => 'puppet',
        group   => 'puppet',
        mode    => '0644',
        backup  => main,
        require => Class['puppet::install','puppet::user','puppet::group'],
        notify  => Class['puppet::service'],
    ]
}
```

```
}

class puppet::auth_config{
  file { ['/etc/puppet/auth.conf':
    ensure => present,
    content => template('puppet/auth.conf.erb'),
    owner   => 'puppet',
    group   => 'puppet',
    mode    => '0644',
    backup  => main,
    require => Class['puppet::install','puppet::user','puppet::group'],
    notify  => Class['puppet::service'],
  ]
}

class puppet::namespaceauth_config{
  file { ['/etc/puppet/namespaceauth.conf':
    ensure => present,
    content => template('puppet/namespaceauth.conf.erb'),
    owner   => 'puppet',
    group   => 'puppet',
    mode    => '0644',
    backup  => main,
    require => Class['puppet::install','puppet::user','puppet::group'],
    notify  => Class['puppet::service'],
  ]
}

class puppet::user{ #使用飞船语法实化用户 puppet 资源
#  realize User['puppet']
  User <| title == 'puppet' |>
}

class puppet::group{ #使用 realize 函数实化组 puppet 资源
  realize Group['puppet']
#  Group <| title == 'puppet' |>
}
```

2.3.2 在 puppet_linux57poc 模块中实例化

```
[root@linuxmaster1poc testing]# cat
agents/modules/puppet_linux57poc/manifests/init.pp
class puppet_linux57poc{
```

```
include
puppet_linux57poc::motd_install,puppet_linux57poc::motd_config,puppet_linux57poc::facts,puppet_linux57poc::user,puppet_linux57poc::group
  include alluser,allgroup #必须将节点作用域中的类包含进来
}

class puppet_linux57poc::motd_install{
  package{ setup:
    ensure => present,
  }
}

class puppet_linux57poc::motd_config{
  file{ "/etc/motd":
    owner   => "xiaonuo",
    group   => "root",
    mode    => 0440,
    content => template("puppet_linux57poc/motd.erb"),
    backup  => 'main',
    require =>
Class['puppet_linux57poc::motd_install','puppet_linux57poc::user','puppet_linux57poc::group']
  }
}

class puppet_linux57poc::facts{
  file{ "/etc/mcollective/facts.txt":
    owner   => "root",
    group   => "root",
    mode    => 0400,
    content => template("puppet_linux57poc/facts.txt.erb"),
    backup  => 'main',
    require =>
Class['puppet_linux57poc::motd_install','puppet_linux57poc::user','puppet_linux57poc::group']
  }
}

class puppet_linux57poc::user{ #使用 realize 函数实化用户 xiaonuo 和 root 资源
  realize( User['xiaonuo'],
    User['root'] )
}

class puppet_linux57poc::group{ #使用 realize 函数实化组 xiaonuo 和 root 资源
  realize( Group['xiaonuo'],
    Group['root'] )
}
```

```
}
```

3. 测试

3.1 测试 puppet 模块（略）

3.2 测试 puppet_linux57poc 模块

3.2.1 查看当前系统是否有 xiaonuo 用户和组

```
[root@linux57poc puppet]# id xiaonuo
id: xiaonuo: No such user
[root@linux57poc puppet]# cat /etc/group | grep xiaonuo
[root@linux57poc puppet]#
[root@linux57poc puppet]# ll /etc/motd
-rwxrwxrwx 1 puppet puppet 313 Jan  2 06:17 /etc/motd
```

3.2.2 同步 puppetmaster

```
[root@linux57poc puppet]# puppet agent -t --environment=testing
info: Retrieving plugin
info: Loading facts in /var/lib/puppet/lib/facter/fact_apply.rb
info: Caching catalog for puppet_linux57poc.dev.shanghaigm.com
info: Applying configuration version '1389555288'
notice: /Stage[main]/Allservice::Lm_sensors_service/Service[lm_sensors]/ensure:
ensure changed 'running' to 'stopped'
notice: /Group[xiaonuo]/ensure: created
notice: /Stage[main]/Alluser::Xiaonuo/User[xiaonuo]/ensure: created
...
info: FileBucket adding {md5}b2090646c444c5ddf1533749743ebd71
info: /Stage[main]/Mcollective::Facter/File[/etc/mcollective/facts.yaml]:
Filebucketed /etc/mcollective/facts.yaml to main with sum
b2090646c444c5ddf1533749743ebd71
notice: /Stage[main]/Sysctl::Exec/Exec[sysctl -p >/dev/null &]/returns: executed
successfully
notice: /Stage[main]/Puppet_linux57poc::Motd_config/File[/etc/motd]/owner: owner
changed 'puppet' to 'xiaonuo'
notice: /Stage[main]/Puppet_linux57poc::Motd_config/File[/etc/motd]/group: group
changed 'puppet' to 'root'
notice: /Stage[main]/Puppet_linux57poc::Motd_config/File[/etc/motd]/mode: mode
changed '0777' to '0440'
notice: /Stage[main]/Allservice::Bluetooth_service/Service[bluetooth]/ensure:
ensure changed 'running' to 'stopped'
```

```
notice: Finished catalog run in 4.54 seconds
```

3.2.3 验证结果是否正确

```
[root@linux57poc puppet]# id xiaonuo
uid=600(xiaonuo) gid=600(xiaonuo) groups=600(xiaonuo)
[root@linux57poc puppet]# cat /etc/group | grep xiaonuo
xiaonuo:x:600:
[root@linux57poc puppet]# ll /etc/motd
-r--r----- 1 xiaonuo root 313 Jan  2 06:17 /etc/motd
[root@linux57poc puppet]#
```

为了能够和大家更好的交流和学习 Puppet，本人 2014 年又新开辟了微信公众号进行交流学习，目前已经有 300 多人同时收听，喜欢 Puppet 的大神们可自行加入哦。

如果你有好的有关 Puppet 的咨询也可以给我投稿，投稿邮箱：admin@kisspuppet.com

微信公众号：“**puppet2014**”，可搜索加入，也可以扫描以下二维码

