

Building a virtual research environment with Galaxy



Galaxy DevOps II : Admins Strike Back

Olivier Inizan, Mikael Loaec, Eric Rasche, Sébastien Bridel and Hadi Quesneville.

INRA URGI,
RD 10 route de Saint Cyr
78026 Versailles Cedex



Mikael Loaec



Olivier Inizan

GCC 2013 : DevOps

- Collaboration
- Infrastructure as a code
- Continuous Delivery



DevOps Ignition to reach Galaxy continu...

from Galaxy Project



DevOps
Collaboration





DevOps : the other side

DevOps



Infrastructure as a code


Continuous Delivery

Accessible



Reproducible

Infrastructure As A Code

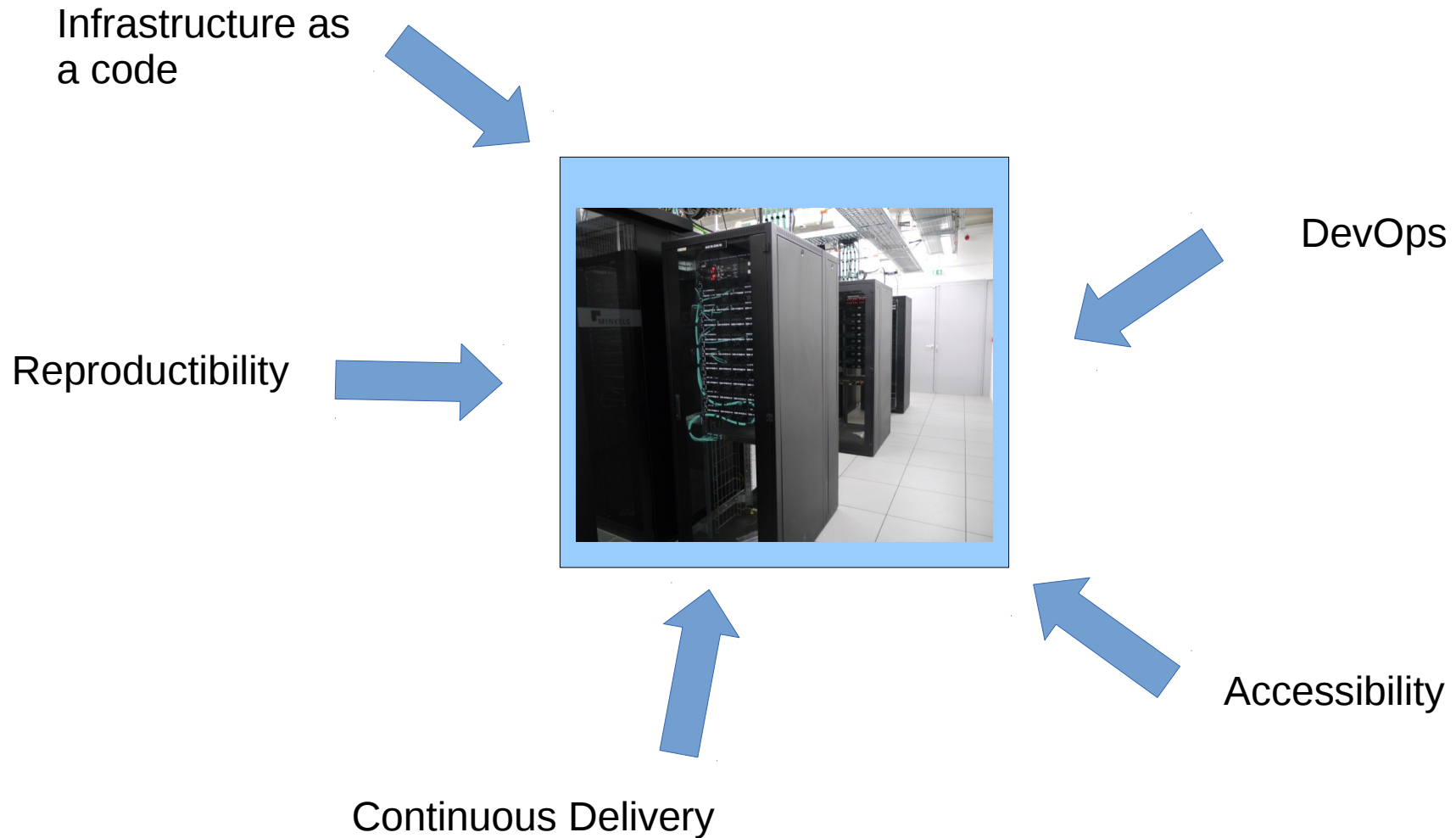
- *Is it useful to manage an infrastructure supporting a Galaxy server as a software ?*
- Tools == software
- Tools accessible with :  Galaxy Tool Shed
- At infrastructure level:
 - Virtualization : the hardware becomes software
 - => Not only tools are accessible ... but the whole environment analysis



Continuous Delivery

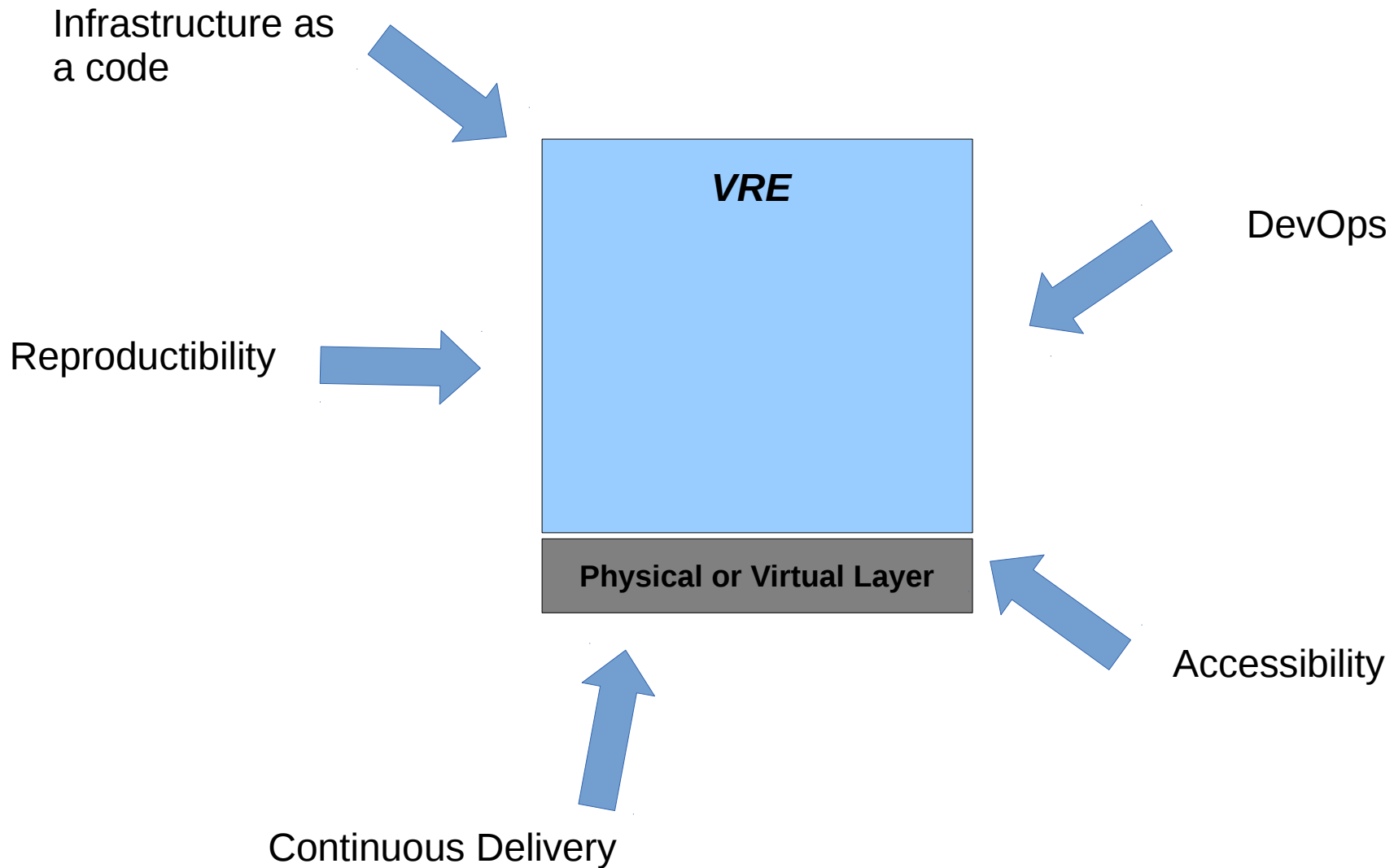
- *Is it useful to be able to build a galaxy server « at any time » ?*
- At any time, maybe not
- But the ability to build the whole environment analysis ...
- or to rebuild it after the first analysis
- is a contribution to reproducibility
- => Automatic Delivery is more accurate

Concepts rock but ...



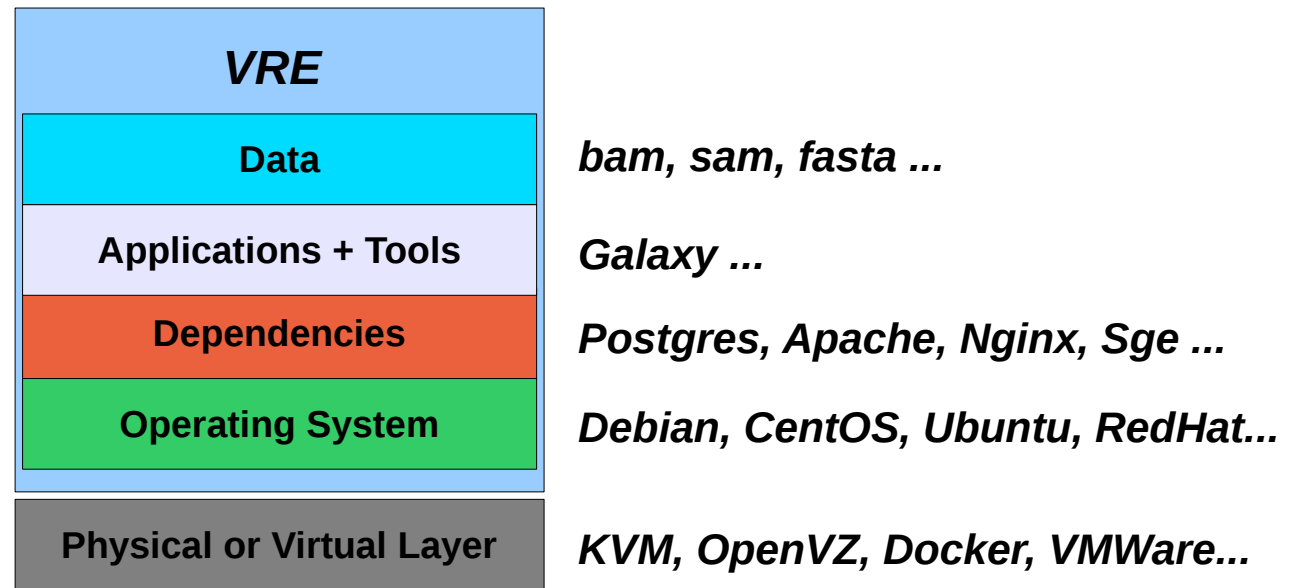


Virtual Research Environment



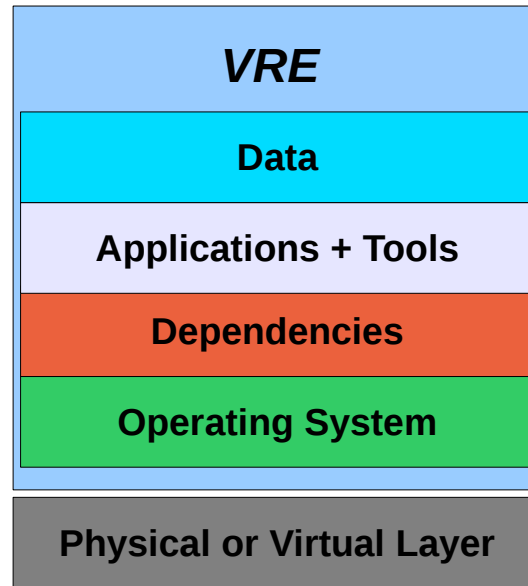


Virtual Research Environment

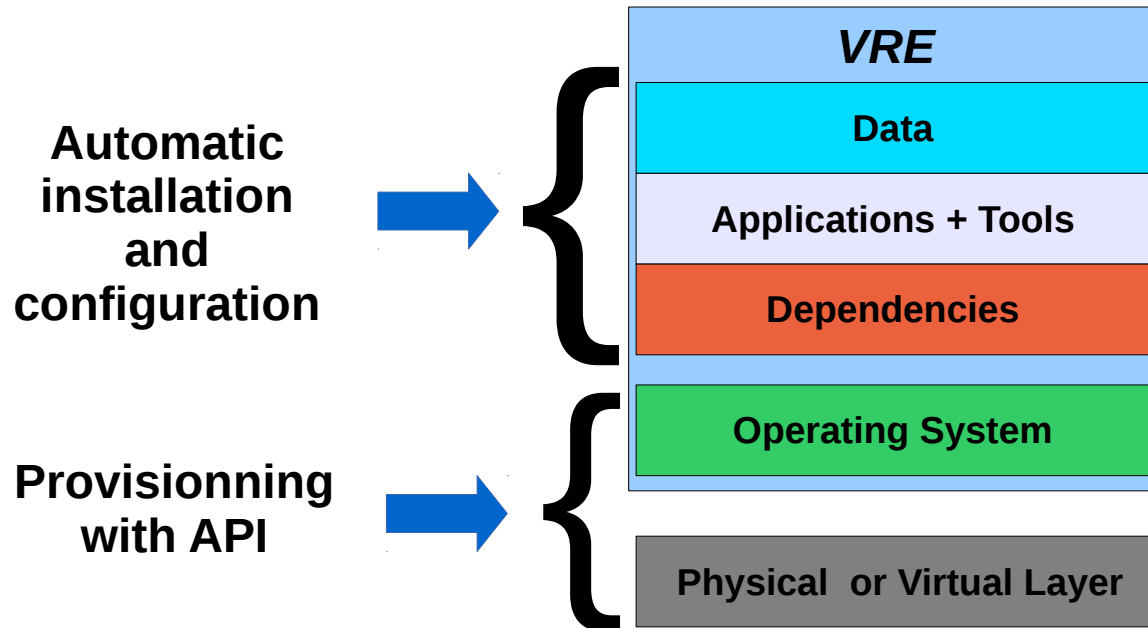




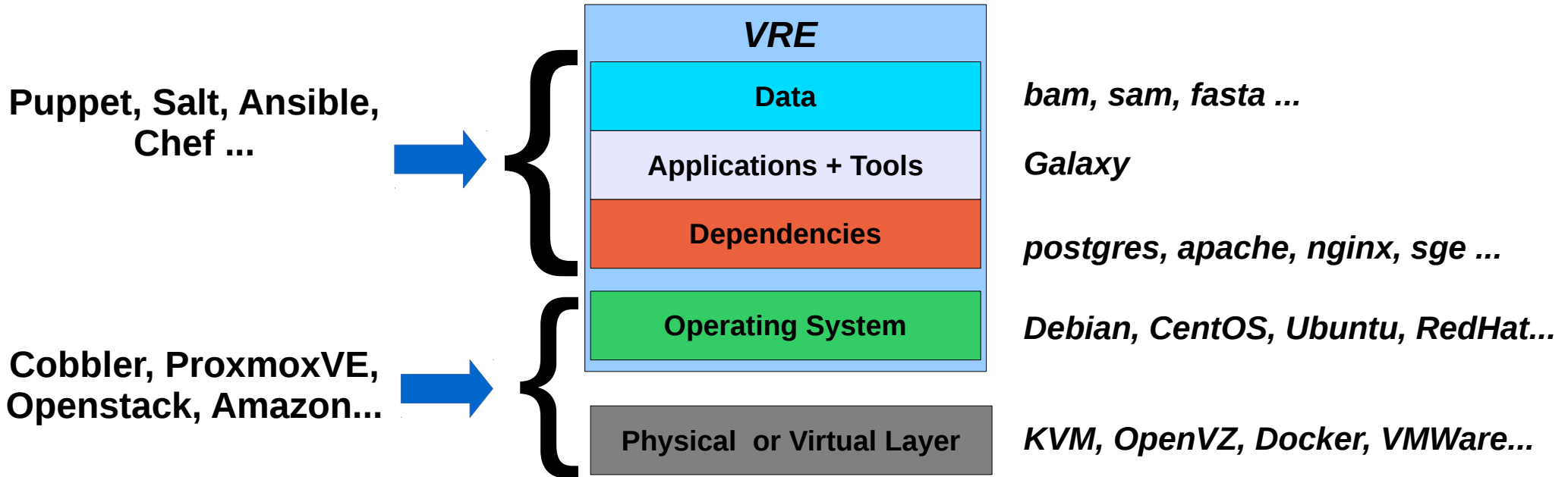
Build it !



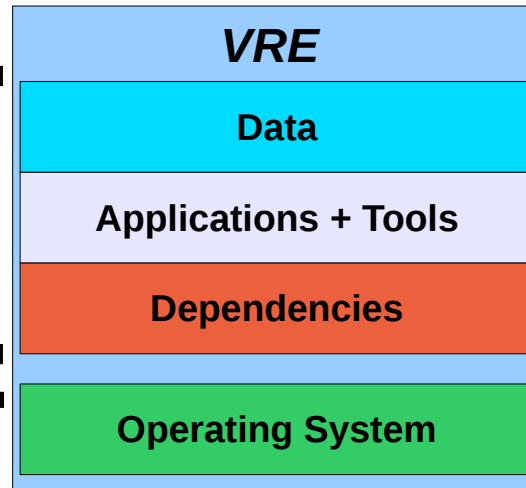
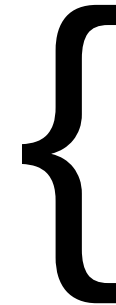
Build it !



Many solutions...



In our Lab

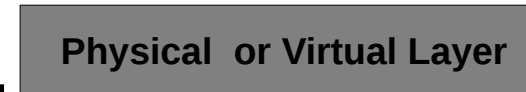


bam, sam, fasta ...

Galaxy

postgres, apache, sge

CentOS



KVM



**Cobbler & ProxmoxVE
API**



What is Puppet ?

- A declarative language
- Stand alone or client-server mode
- Automate many repetitive tasks
- Package your code and share it on puppet forge



Search from 2,419 modules

Welcome to the Puppet Forge

A repository of modules written by our community for [Puppet Open Source](#) and [Puppet Enterprise](#) IT automation software



And now ...



The story of Galaxy and Puppet



Once upon a time in France ...

- Two guys working on puppet module dedicated to Galaxy
- Installation and configuration of a basic instance
- Publication on the puppet forge



Olivier Inizan @OlivierInizan · 28 févr.

#usegalaxy @inra_urg i A puppet module for a very basic galaxy server (use for development) : forge.puppetlabs.com/urg i/galaxy

← ↻ 4 ★ 1 🗑️ ⋮



urg i/galaxy

A module for a basic Galaxy installation. Galaxy is an open, web-based platform for accessible, reproducible, and transparent computational biomedical research.

107 downloads

Version 0.0.2 released Mar 20, 2014 | 65 downloads of this version


Meanwhile in the Texas ...

[...] working on some puppet modules for managing galaxy [...]

[...] figured it would be useful to the community [...]



[Eric Rasche](#) Mar 12, 2014; 4:28pm [Puppet Modules](#)



43 posts

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Sys Admins,

I'm working on some **puppet** modules for managing galaxy. I'm not sure how many of you use **puppet**, but I figured it would be useful to the community. I'll place them on **puppet** forge when I'm done.

So far I'm doing the following:

- - enabling initial deployment (updating?) with the vcsrepo module
- - managing the following files: job_conf.xml, tool_conf.xml, tool_sheds_conf.xml, universe_wsgi.ini

If there's anything that you find important to be managed, or features you'd like to see, please email me and let me know!

Cheers,
Eric



And a project is born ...



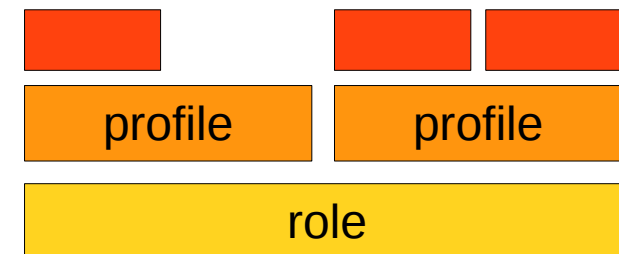
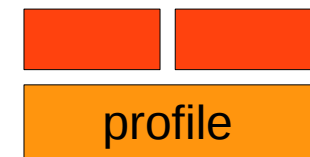
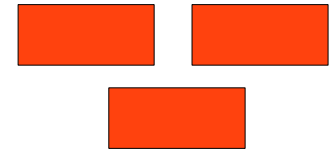
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| Popular repositories | |
|--|-----|
| galaxy-roles-profiles Contains roles and profiles for a Galaxy server management. | 1 ★ |
| puppet-galaxy Root repository for the puppet galaxy project. | 1 ★ |

<https://github.com/puppet-galaxy>

Project design

- puppet-galaxy
 - Blocks for building a server
- galaxy-roles-profiles
 - Agregate building blocks in ready to use classes
 - Profile : a technology layer
 - Role : a complete server configuration
 - A role is composed by one or many profiles



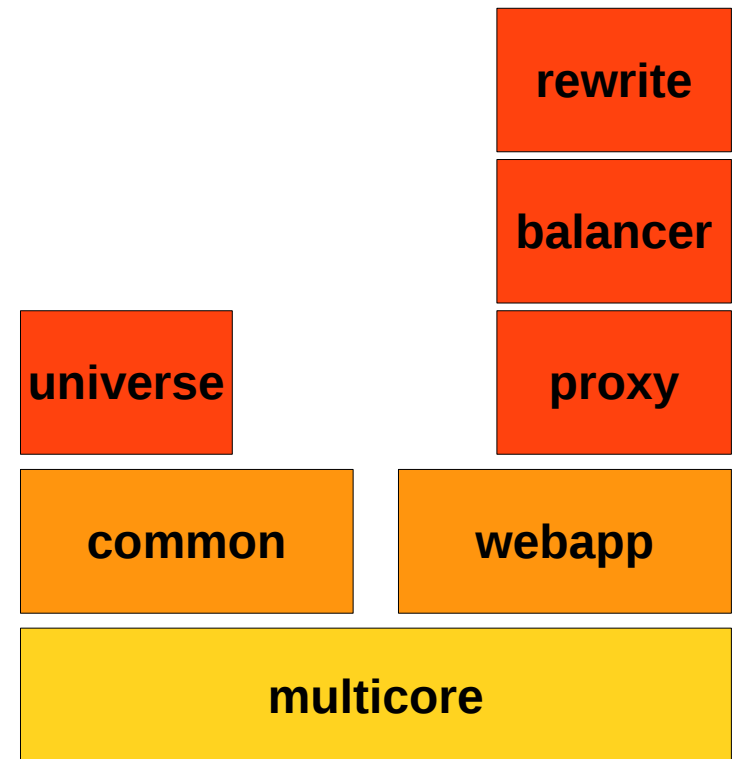
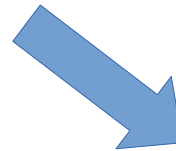


Example : role multicore

Scaling and Load Balancing

Contents

1. Web Server(s)
2. Job Handler(s)
3. Remaining configuration options
2. Starting and Stopping
3. Proxy Server
 1. Apache
 2. nginx
4. Notes on legacy configurations



Want to break the wall between dev and ops ?

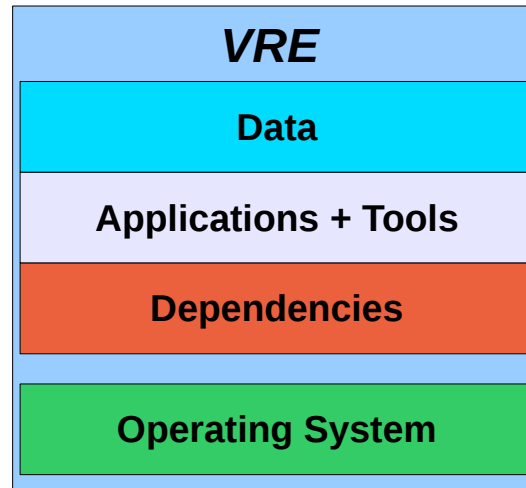


Beta Testers : <https://forge.puppetlabs.com/>

Developpers: <https://github.com/puppet-galaxy/>



DevOps

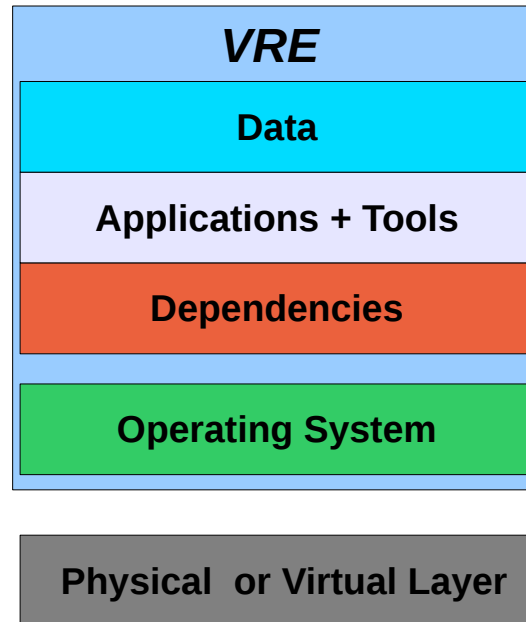


Physical or Virtual Layer





DevOps



BUILD IT !





Thank you



Thank you for your attention !

« May the Force be with you ! »



Olivier Inizan
Olivier.Inizan@versailles.inra.fr
Twitter: @OlivierInizan

Mikael Loaec
Mikael.Loaec@versailles.inra.fr