

**FCT**

Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

**FCCN**

Computação  
Científica Nacional

# Automatização

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GitLab



**CERT**  
**RCTS**

# Agenda

- CI/CD
- Repositório
- Automação de tarefas
- Vaults
- Casos Práticos
- Vantagens vs Desvantagens



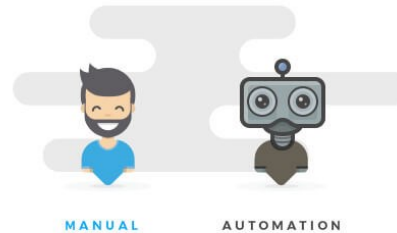
# CI/CD (JENKINS)

# CI/CD

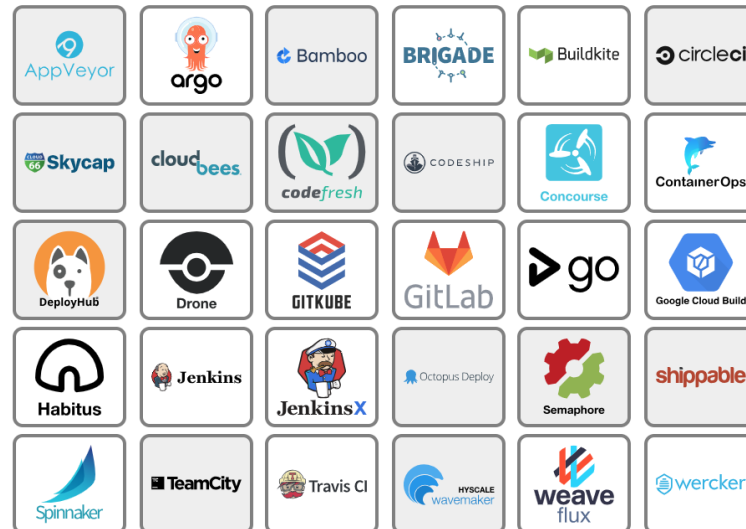
- O que é CI/CD?



- Porque deve ser usada?



- Que software usar?





# CI/CD - JENKINS

- Uma vasta comunidade com muita documentação
- Fácil utilização
- Web GUI
- Um project maduro (2004 Hudson)
- Plugins (JIRA, UIs, Authentication, GitLab etc.)
- Usado por grandes organizações:





# Jenkins - Main page

 **Jenkins**

search

Joshua Wyatt Smith | log o

Jenkins

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**Build Queue (26)**

[cling-generic-build](#)

[root-nightly-v6-04-00-patches](#)

[root-nightly-v6-06-00-patches](#)

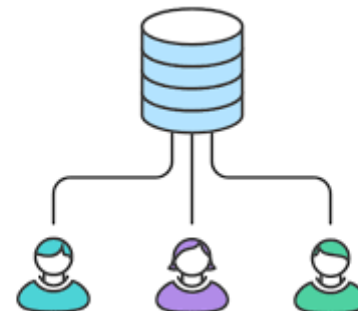
 [add descript](#)

All	CVMFS	CernVM	Geant4	GeantV	LCG Externals	ROOT	ROOT-incr	SAS	VecGeom	cling	hepmc3	+
S	W	Name ↓	Last Success		Last Failure		Last Duration					
		<a href="#">BuildCernVMKernel</a>	6 mo 19 days - <a href="#">#3</a>		6 mo 19 days - <a href="#">#1</a>		14 min					
		<a href="#">BuildKernel</a>	N/A		N/A		N/A					
		<a href="#">CernvmSetupBuildEnvironment</a>	3 hr 12 min - <a href="#">#10283</a>		17 days - <a href="#">#8484</a>		1 sec					
		<a href="#">Check-VecGeom-AVX</a>	8 days 20 hr - <a href="#">#87</a>		20 hr - <a href="#">#95</a>		8 min 41 sec					
		<a href="#">Check-VecGeom-scalar</a>	8 days 19 hr - <a href="#">#89</a>		19 hr - <a href="#">#97</a>		3 hr 7 min					
		<a href="#">cleanupnodes</a>	N/A		10 mo - <a href="#">#3</a>		2.2 sec					
		<a href="#">cling-generic-build</a>	15 days - <a href="#">#174</a>		4 days 1 hr - <a href="#">#207</a>		18 min					
		<a href="#">cling-periodic</a>	3 mo 18 days - <a href="#">#1498</a>		36 min - <a href="#">#2617</a>		1 min 10 sec					

# REPOSITÓRIO (GitLab)

# Repositórios

- O que é um repositório?
- Porque deve ser usado?
- Que software usar?



Bit Bucket



GitHub



GitLab



- Gratuito
- Opensource
- Web GUI
- Privados/Publicos
- Grupos
- REST API
- Versionamento
- Integração com CI/CD



# AUTOMATIZAÇÃO DE TAREFAS (Ansible)

# Automatização de tarefas

- Porque deve ser usado?
- Que software usar?



- Manual

```
root@server:~# # Install the GPG key
root@server:~# gpg --keyserver keyserver.ubuntu.com --recv-keys 561F9B9CAC40B2F7
root@server:~# gpg --armor --export 561F9B9CAC40B2F7 | sudo apt-key add -

root@server:~# # Install https support for apt
root@server:~# apt-get install apt-transport-https

root@server:~# # Add the passenger apt repository
root@server:~# vi /etc/apt/sources.list.d/passenger.list
root@server:~# chown root: /etc/apt/sources.list.d/passenger.list
root@server:~# chmod 600 /etc/apt/sources.list.d/passenger.list

root@server:~# # Update the apt cache so we can use the new repo
root@server:~# apt-get update

root@server:~# # Install nginx
root@server:~# apt-get install nginx-full passenger

root@server:~# # Set up passenger in the nginx configuration
root@server:~# vi /etc/nginx/nginx.conf

root@server:~# # Start nginx
root@server:~# service nginx restart
```

- Shell Script

```
# Install the GPG key
gpg --keyserver keyserver.ubuntu.com --recv-keys 561F9B9CAC40B2F7
gpg --armor --export 561F9B9CAC40B2F7 | apt-key add -

# Install https support for apt
apt-get install apt-transport-https -y

# Add the passenger apt repository
echo "deb https://oss-binaries.phusionpassenger.com/apt/passenger raring main"
chown root: /etc/apt/sources.list.d/passenger.list
chmod 600 /etc/apt/sources.list.d/passenger.list

# Update the apt cache so we can use the new repo
apt-get update

# Install nginx
apt-get install nginx-full passenger -y

# Set up passenger in the nginx configuration
sed -i "s/# passenger_root/passenger_root/" /etc/nginx/nginx.conf
sed -i "s/# passenger_ruby/passenger_ruby/" /etc/nginx/nginx.conf

# Start nginx
service nginx restart
```

- Ansible

```
---
- hosts: all
  tasks:

    - name: Ensure the PGP key is installed
      apt key: >
        state=present
        id=AC40B2F7
        url="http://keyserver.ubuntu.com/pks/lookup?op=get&fingerprint=on&search"

    - name: Ensure https support for apt is installed
      apt: >
        state=present
        pkg=apt-transport-https

    - name: Ensure the passenger apt repository is added
      apt repository: >
        state=present
        repo='deb https://oss-binaries.phusionpassenger.com/apt/passenger raring'

    - name: Ensure nginx is installed
      apt: >
        state=present
        pkg=nginx-full

    - name: Ensure passenger is installed
      apt: >
        state=present
        pkg=passenger
        update_cache=yes

    - name: Ensure the nginx configuration file is set
      copy: >
        src=/app/config/nginx.conf
        dest=/etc/nginx/nginx.conf

    - name: Ensure nginx is running
      service: >
        name=nginx
        state=started
```



# VAULTS

## (Ansible Vault)

# Ansible Vault

- Porque deve ser usado?
- Que software usar?



# Ansible Vault

- O que é?
- Quando deve ser usado?



```
[root@controller myec2]# vim vars/main.yml
[root@controller myec2]# cat credentials.yml
$ANSIBLE_VAULT;1.2;AES256;aks
34363163656136346566303432353162323062313466396638306630313031386134663036363930
3136396265356163393437383939333337326233393465380a396333363236316634323833326631
37333966393034333261373839623662653266326465656337366634393664616437373135343630
3266386432393136650a613763663066333234333365656334313637663261636438343732663339
35636130643534666161633364346563363035323466666138353863313738383364393266366238
35353662396431333364393735333534366664386161303462326265303061363537643537663839
38333066666230363437333334303534323564316362346433653961326134393961393339336662
66323335386530353639
[root@controller myec2]#
```

# CASOS PRÁTICOS

# Casos Práticos

- Criar utilizadores
- Patches de Segurança
- Gestão de regras de FW
- Distribuição e rotatividade:
  - Chaves SSH (Mais Seguro)
  - Passwords (Menos Seguro)
- Inventário
  - Qual o software usado no parque informático?
  - Em que servidores está instalado?



# Casos Práticos

- Auditorias
  - O ficheiro 123.txt existe nos nossos servidores? Quais?
  - O utilizador color existe nos nossos servidores? Quais?
- Fazer tarefas repetitivas:
  - Reboot de máquinas
  - Cronjobs
  - Deployment de Software
- Upgrades :
  - Software
  - OSs

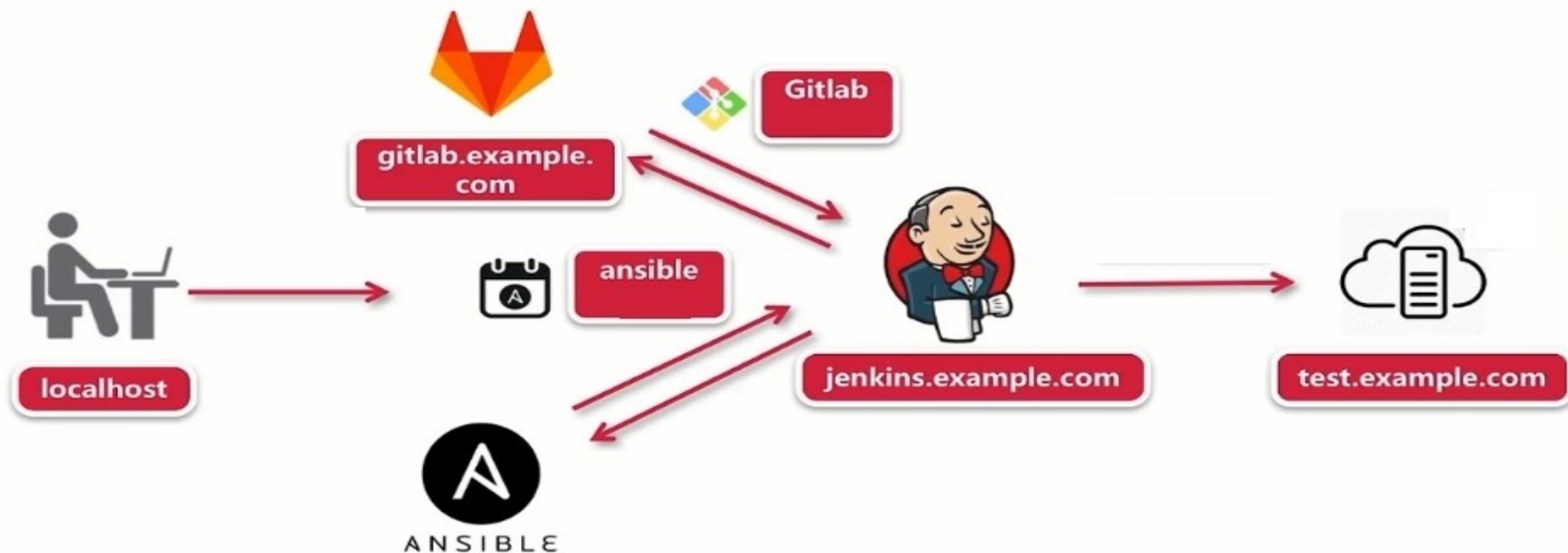




# VANTAGENS vs. DESVANTAGENS

# Vantagens e Desvantagens

- Vantagens:
  - Simples e conciso
  - Redução do tempo
  - Estruturado
  - Fácil leitura / interpretação
  - Colaboração
- Desvantagens:
  - Aprender um novo paradigma
  - Alterar o processo existente



# Em Resumo



Aumentar a Productividade



Aumentar a Segurança



Ampla gama de ferramentas open-source  
disponíveis



# Obrigado