

# DevOps Ignition to reach Galaxy continuous integration



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# DevOps ignition ...

DevOps



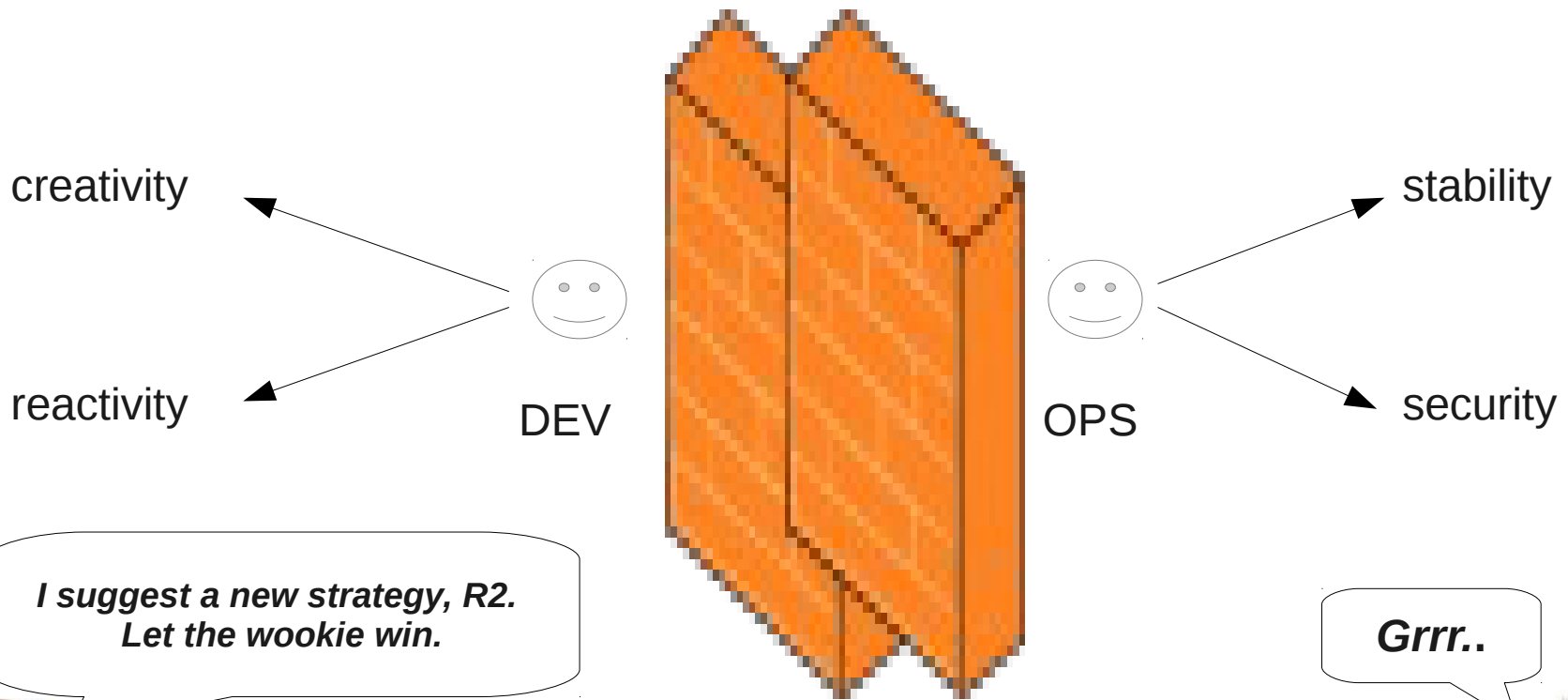


# DevOps

- Dev Ops in 2 sentences :
  - « The DevOps is a software development mouvement that stresses a close relationship between software developers and netsys admins. »
  - « The goal is to enhance and speed up the cycle of software production from the creation to the delivery to final users, with a special focus on quick resolution of users issues. »

# DevOps

- Usually a **wall** between dev teams and operational (netsys) teams



*I suggest a new strategy, R2.  
Let the wookiee win.*



=> how to break the wall ?

*Grrr..*





# 3 hammers to break the wall



- **Collaboration :**

- A collaborative approach : work together, talk together

- **Infrastructure as a code :**

- You manage your infrastructure as you manage a piece of code
- Ex : creating a new image via a script/api execution

- **Continuous delivery**

- « *Continuous Delivery is a software development discipline where you build software in such a way that the software can be released to production at any time.* » Martin Fowler.



# The mission ...

- Objective : put quickly new releases in production
  - Tools, workflows
  - New Galaxy releases
- The problem :
  - Big differences between dev env and prod env
  - Galaxy instance difficult to update
  - Only netsys admin team can put in production

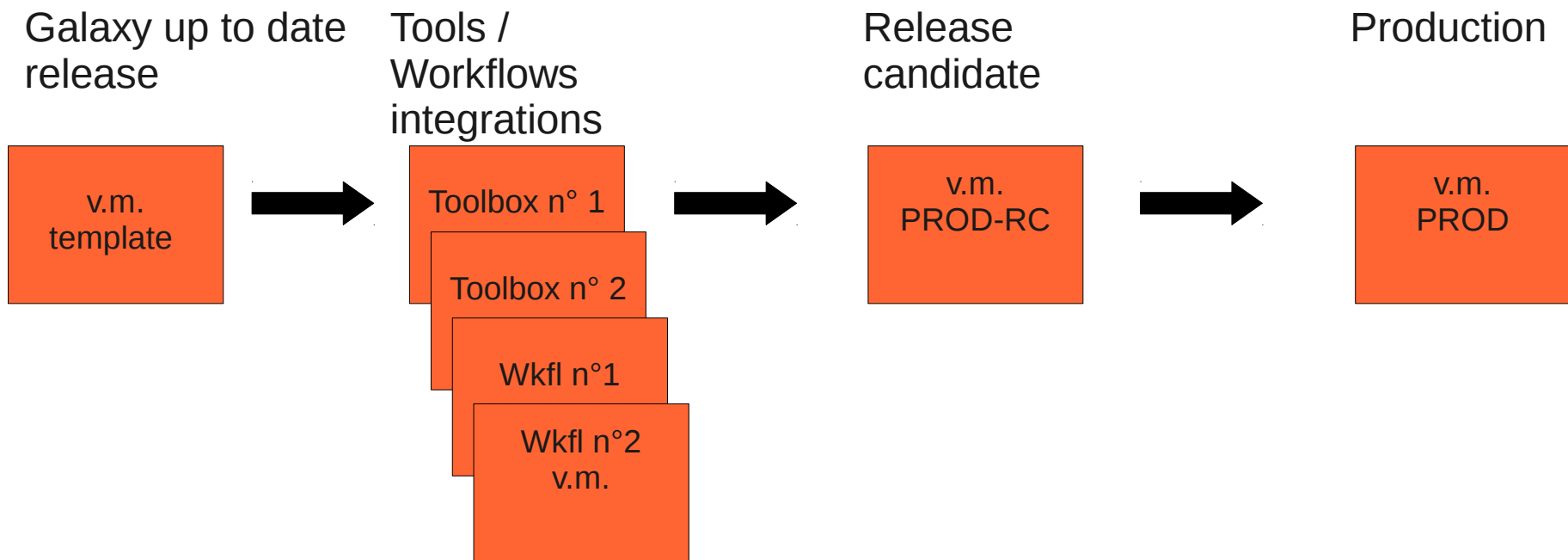


# Design a dev workflow

- Virtualization tech are available



- A model for dev workflow :





# Fix the problems

- Differences dev/prod:
  - Dev image becomes production image
- Update problem:
  - A template with a fresh version of Galaxy
- Only netsys admin ....:
  - Ask the developers to “execute” the workflow !

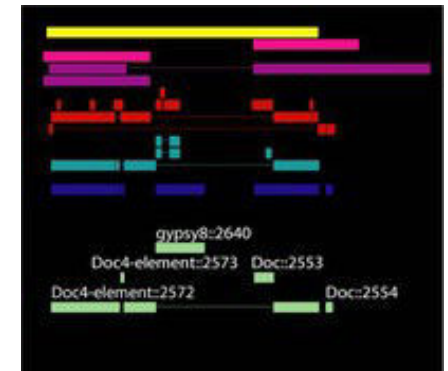
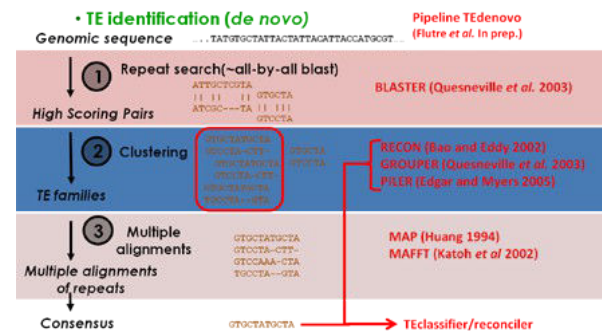




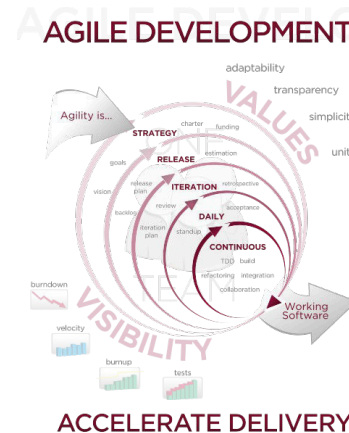
# Existing resources : the crew

Software developers team:

(i) working on TEs and mobile elements detection + workflows NGS



(ii) and organize itself according Agile :



```
void Test_BLRMatcher::test_merge_on_one_query(void)
{
    bool joiningParameter = true;
    bool cleanBefore = false;
    bool cleanAfter = false;
    int verboseParameter = 0;

    string match_file = "match_align";
    Test_BLRMatcherUtils::writeInputFile();

    BLRMatcherParameter para = Test_BLRMatcherUtils::createParameter();
    BLRMatcher matcher(para);

    matcher.load();

    matcher.mapPathJoinAndComputeScoreWithLengthOnly(joiningParameter, cleanBefore, cleanAfter, verboseParameter);

    BLRMatcher::MapPath inMapPath = matcher.getMapPath();

    //Test_BLRMatcherUtils::viewMapPath(inMapPath);
    matcher.merge();

    BLRMatcher::MapPath expMapPath = Test_BLRMatcherUtils::createExpMapPathFor_test_mapPath_only_merge();
    BLRMatcher::MapPath obsMapPath = matcher.getMapPath();

    //
    std::cout << "expMapPath: " << expMapPath << endl;
    std::cout << "obsMapPath: " << obsMapPath << endl;
    Test_BLRMatcherUtils::viewMapPath(obsMapPath);
    //

    CPPUNIT_ASSERT(expMapPath == obsMapPath);
    FileUtils::removeFile(match_file);
}
```

for project management

for code production

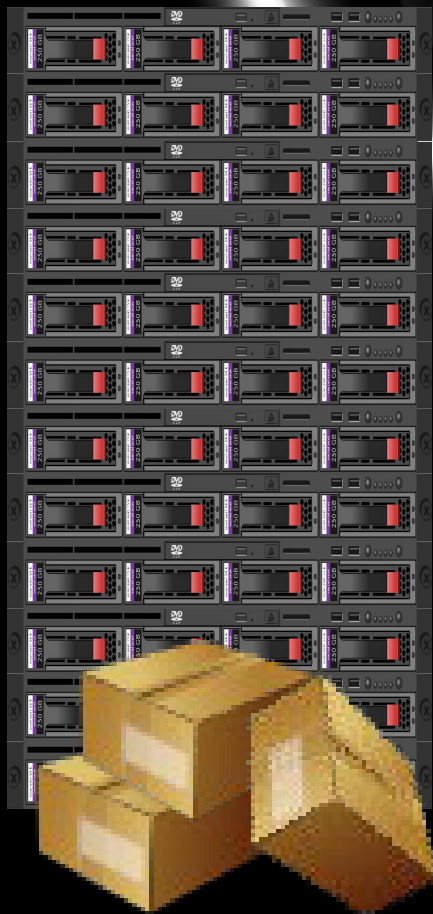
# URGI Existing resources: the ship

« You've never heard of the Millennium Falcon? ... It's the ship that made the Kessel run in less than 12 parsecs » H.S.

**HPC Cluster :**  
**Nodes: 78 Cores : 888**  
**Powered by Rocks Cluster Linux and**  
**Sun Grid Engine**

**Netapp powered by DataOnTap**  
**Cluster-Mode**  
**Storage Capacity :**  
**150To**

**Virtualization Server powered by**  
**Proxmox (KVM)**



# Mission stages



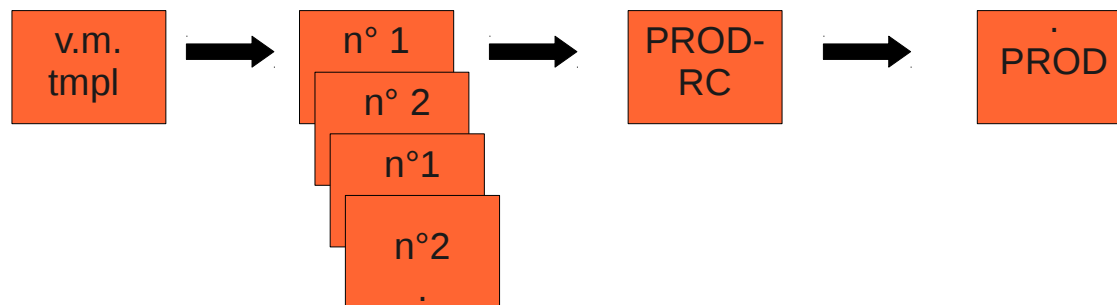
- Stage 1 :

- Build a VM image with one of URGI's workflow inside
- Send a small crew for exploration : 1 netsys + 1 dev
- One month later a prototype :
  - A machine image
  - A template for image creation

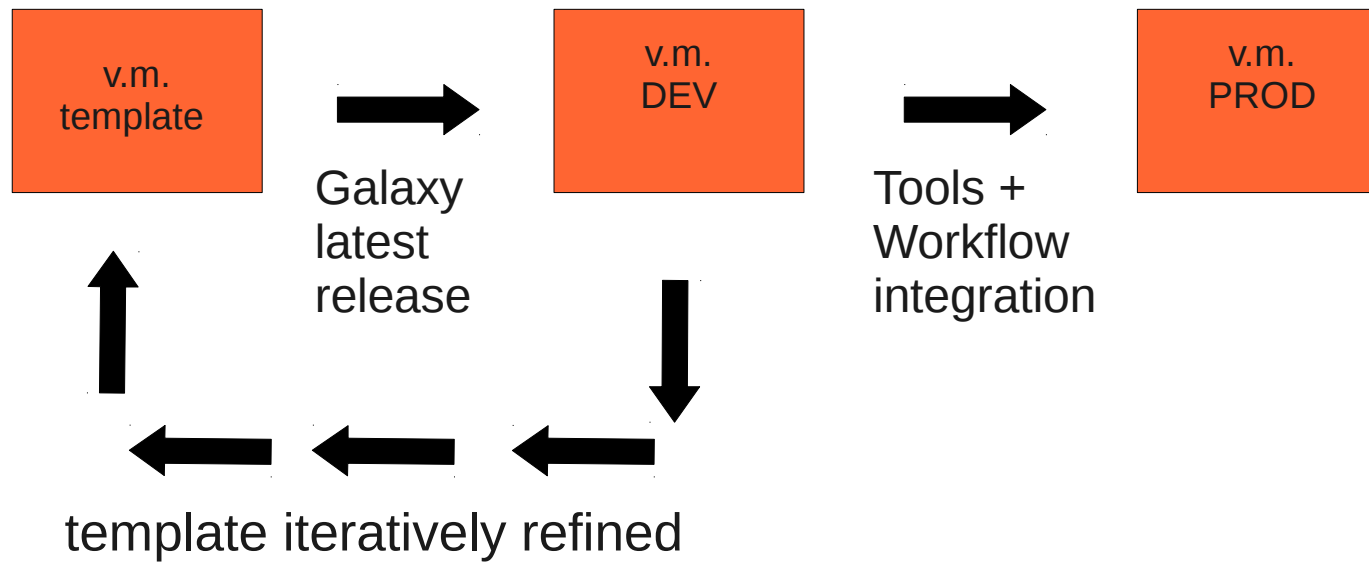


- Stage 2 :

- Improve the prototype with all URGI's workflows and toolboxes
- All the crew for this mission
- 3 months later : a new instance in production !



# Highlight (i)



- template construction :
  - too huge for a single man (netsys admin)
  - skills transfered to the team ...

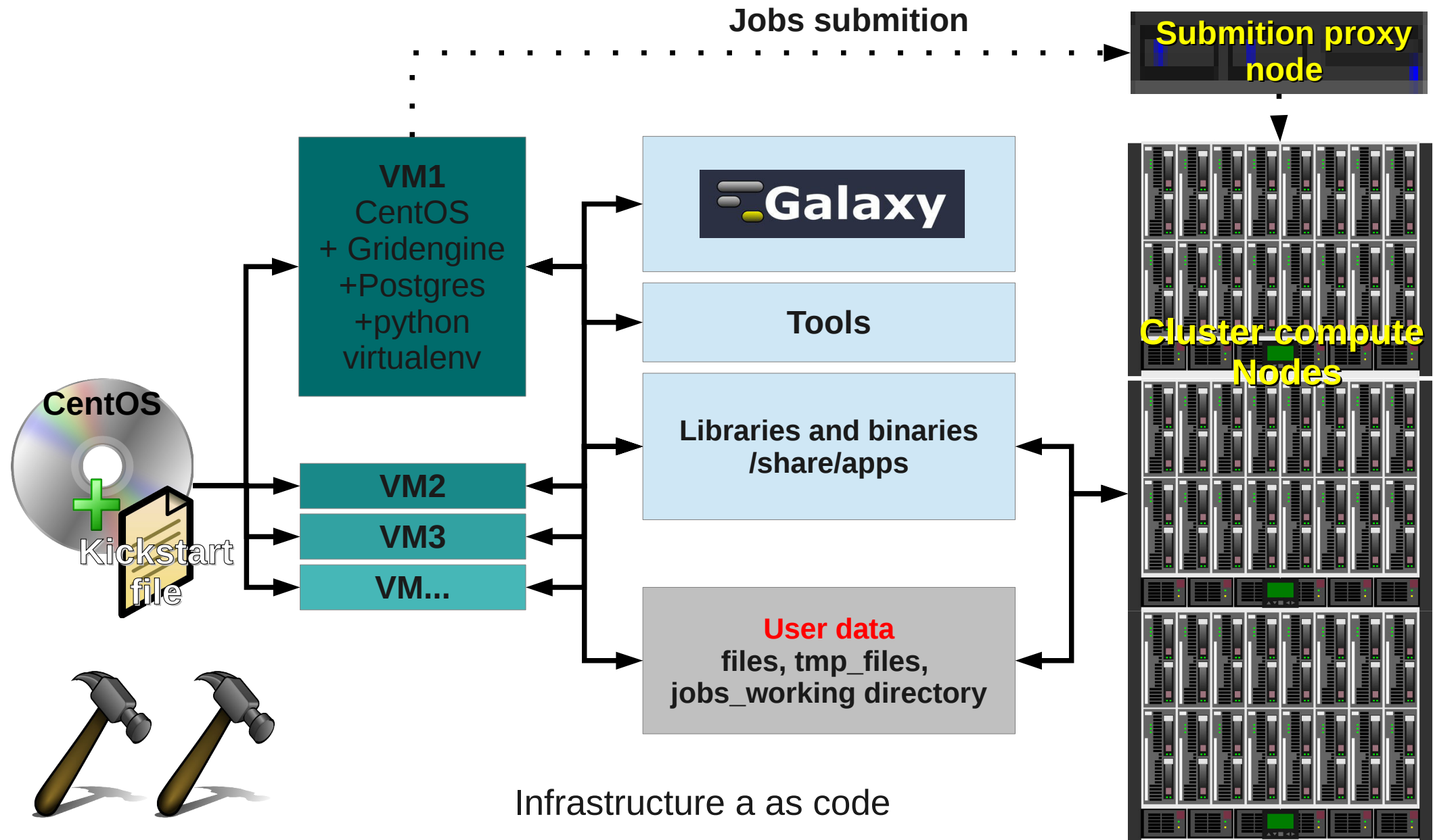


Collaboration





# Highlight (ii)





# Summary

- Collaboration
- Infrastructure as a code
- Continuous Delivery





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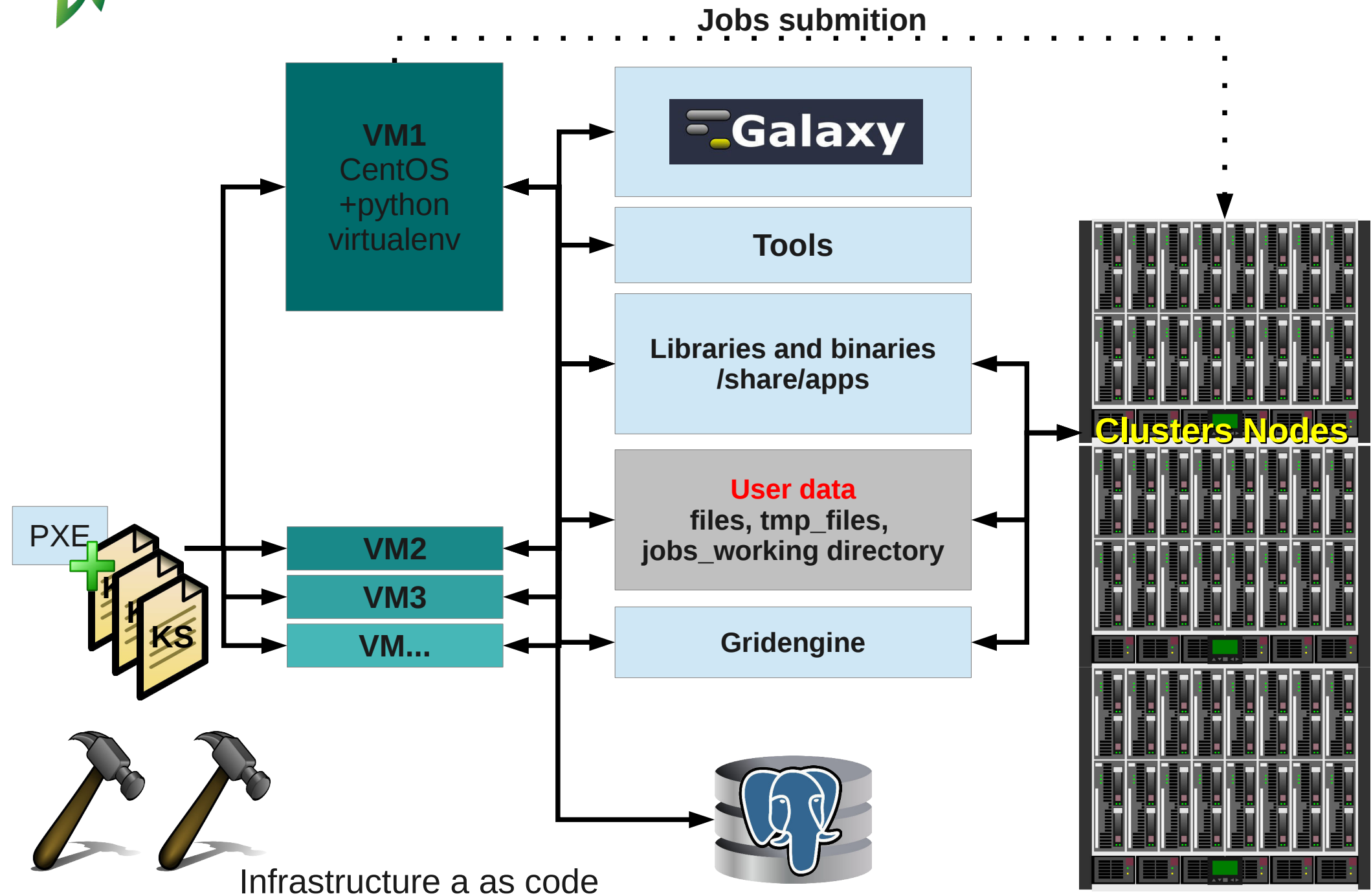




# Summary

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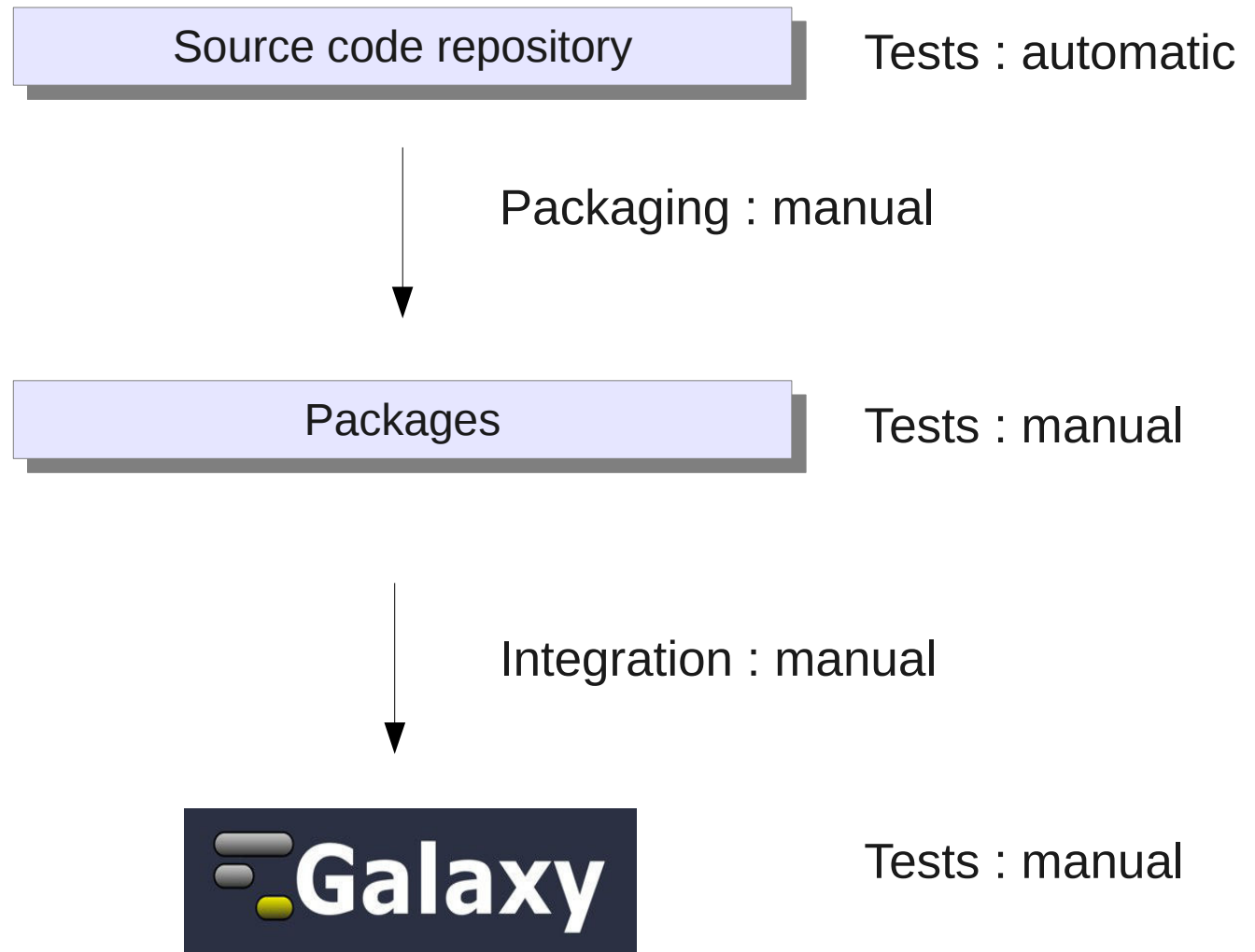
# Summary

- Collaboration
- Infrastructure as a code
- Continuous Delivery



# Continuous Delivery applied to our code ...

- Today :



# Continuous Delivery applied to our code ...

- Tomorrow :

Source code repository

Tests : automatic

Packaging : automatic

Packages

Tests : automatic

Integration : automatic



Tests : automatic



# A New Team is born ...

- Jonathan Kreplak
- Véronique Jamilloux
- Françoise Alfama
- Nicolas Lapalu
- Mark Moissette
- Claire Viseux
- Tina Alaeitabar
- Timothée Chaumier
- Hadi Quesneville



# Thank you for your attention !

***« May the Force be with you ! »***



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