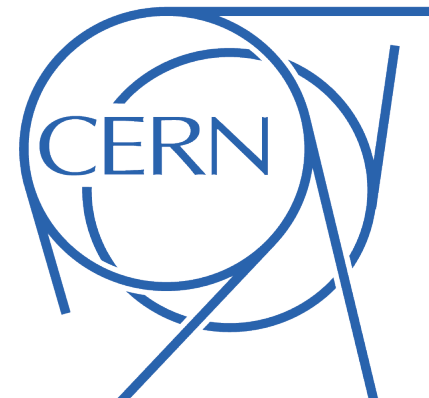
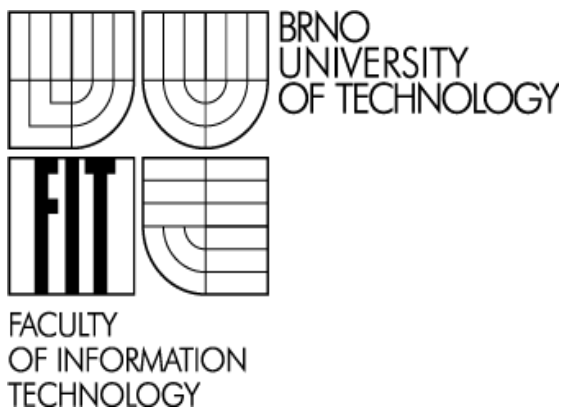


Continuous Integration and Jenkins

Petr Jirout

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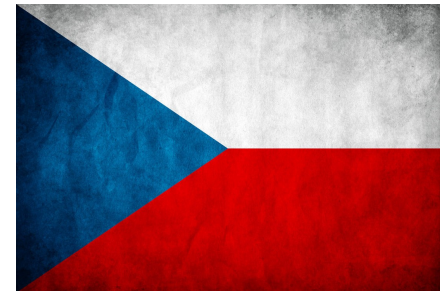


Outline

- What is Continuous Integration?
- What is Jenkins?
- What can we do with both in CERN?

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- What can we do with both in CERN?
- ... and Czech accent.



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- Verify every change.
- Take appropriate action.

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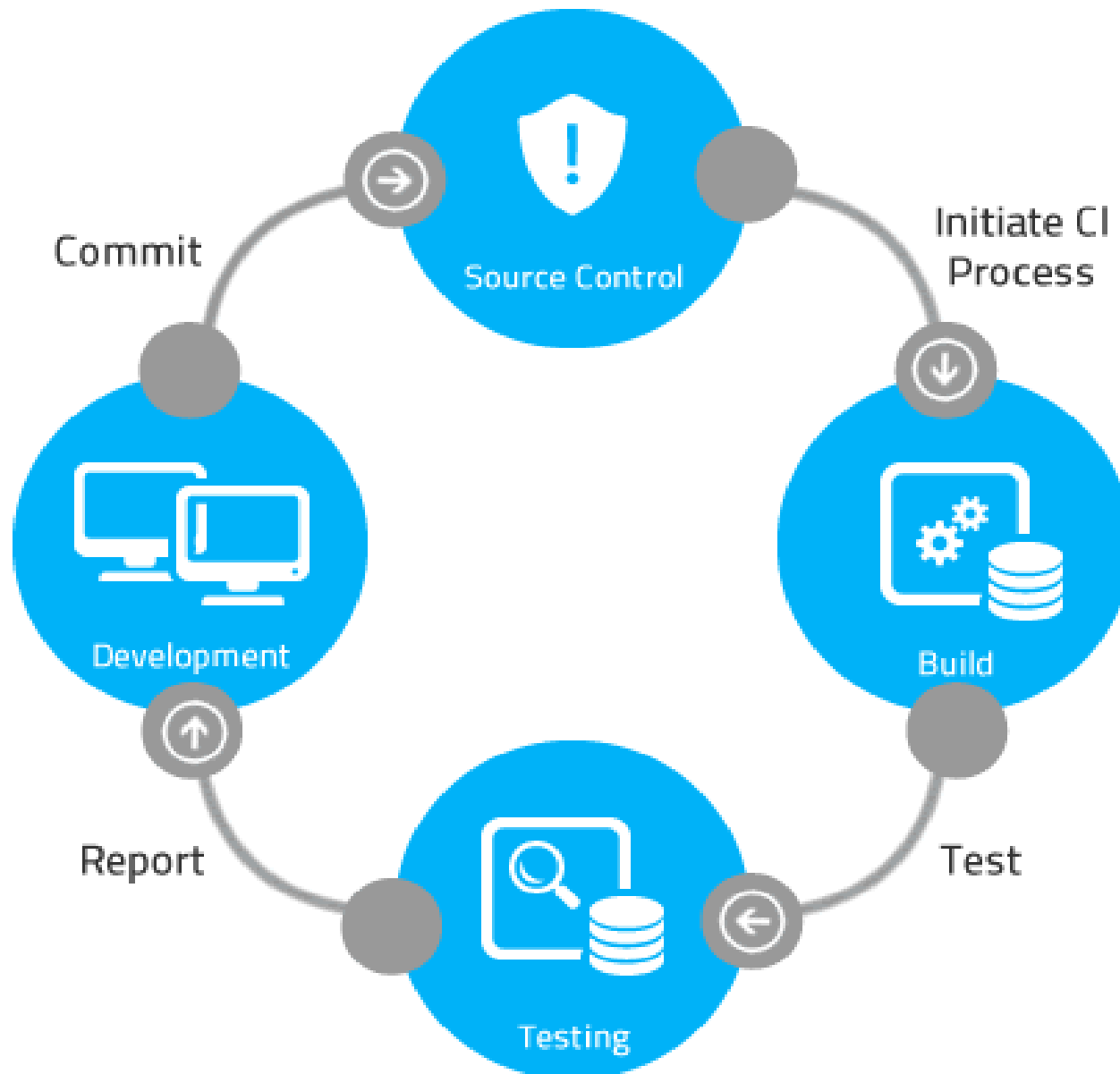


Continuous Integration

- Set up Continuous Integration service.
- Commit changes frequently.
- Verify every change.
- Take appropriate action.



Continuous Integration



Jenkins

- Open source tool written in Java.
- Extensible via plugins.
- Easier to maintain regular builds with history.
- Easier to run basically same build with different configuration.

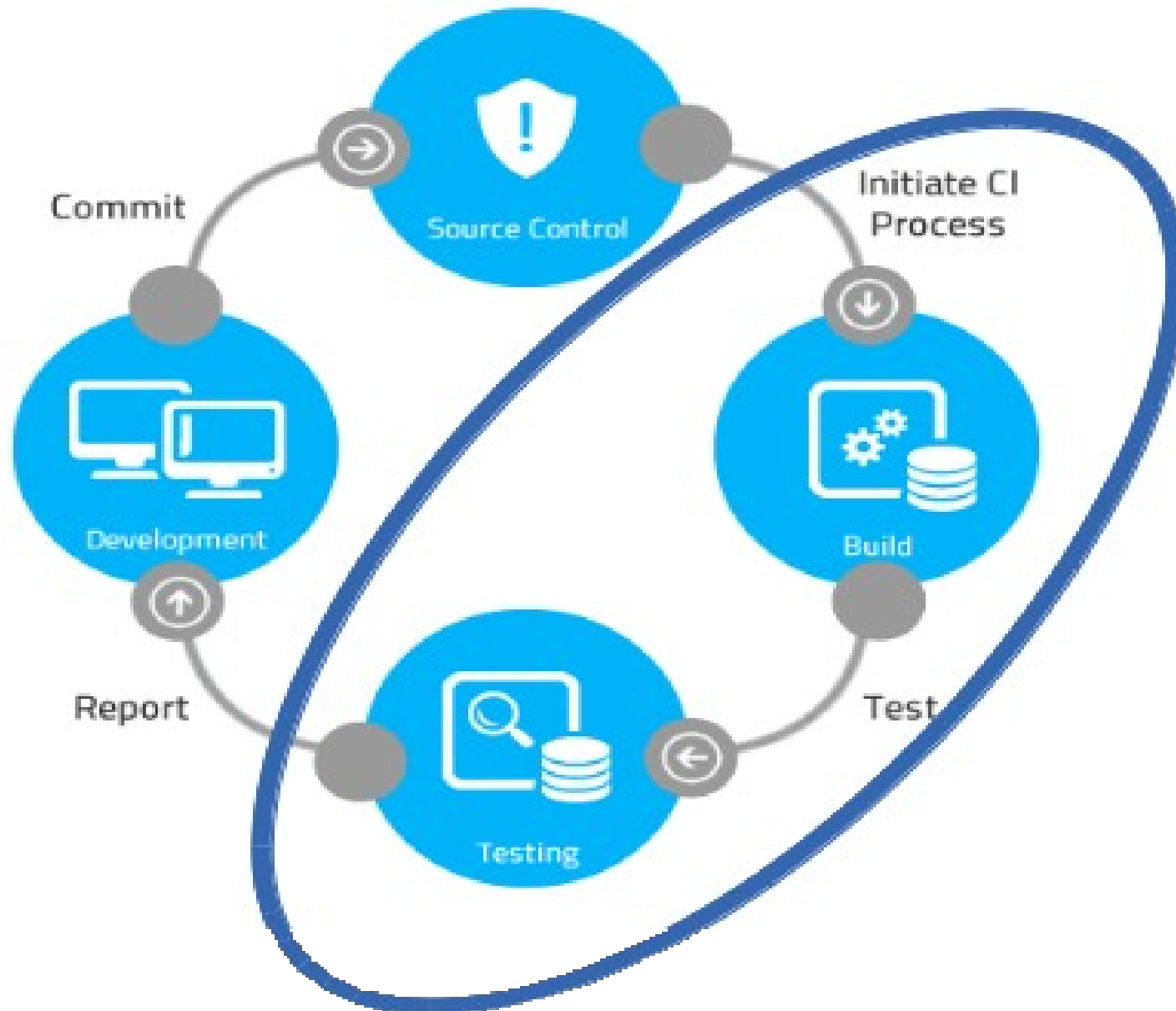


Jenkins

- Open source tool written in Java.
- Extensible via plugins.
- Easier to maintain regular builds with history.
- Easier to run basically same build with different configuration.
- But in the end it is just a smart scheduler.



Jenkins



Continuous Integration in CERN

- Where?

Continuous Integration in CERN

- Where?
- In every software project.

Continuous Integration in CERN

- Where?
- In every software project.
- Like ROOT, Geant4, CernVM, CernVM-FS ...

Geant 4



Example – LCG externals

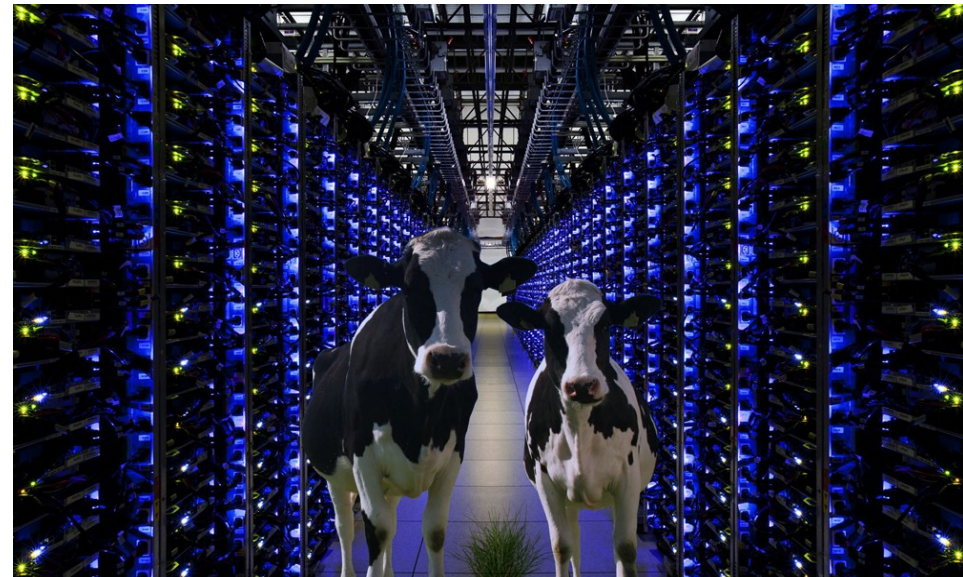
- Different compilers: gcc, icc
- Different architectures: x86, x86_64
- Different branches: Experimental, Release, Preview

Example – LCG externals

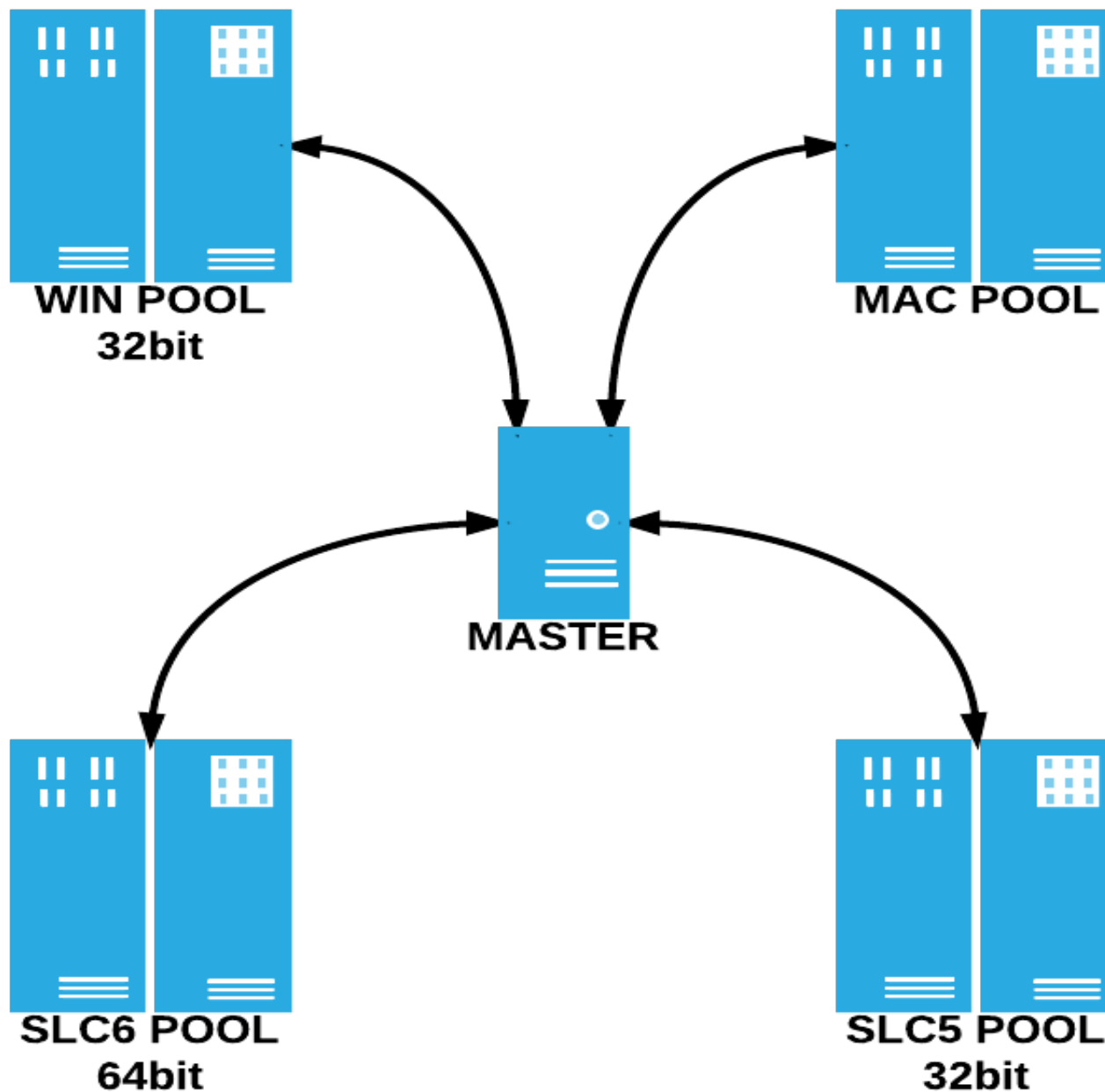
- Different compilers: gcc, icc
- Different architectures: x86, x86_64
- Different branches: Experimental, Release, Preview
- How to build all these possibilities?

Dealing with many configurations

- By computing power and smart configuration!
- Having pools of build machines.
 - Pets vs Cattle
- Braining up your configuration scripts.

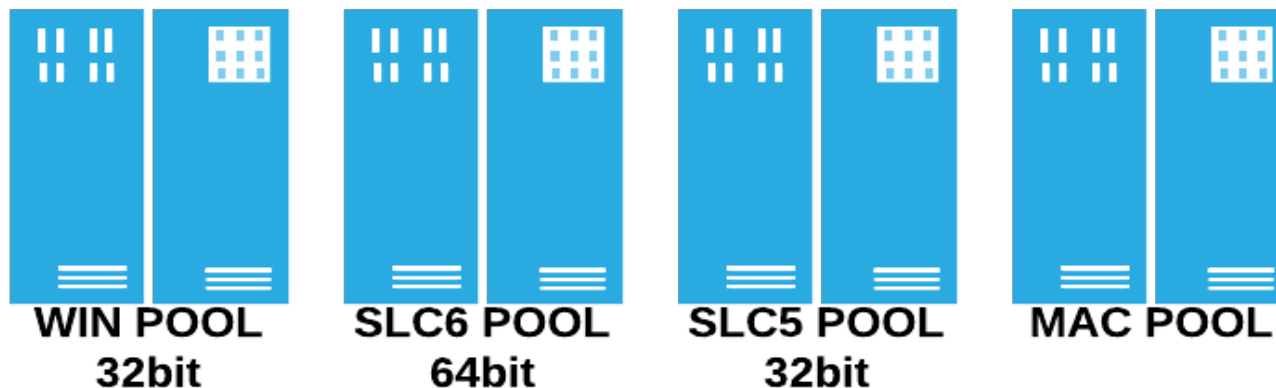


Build infrastructure









Bring these ideas to Jenkins

- Create pools.
- Separate the environment from building process.
 - Put environment settings to one place (script).



Bring these ideas to Jenkins

- Identify the 'real variables'.
 - You have to specify them manually.
- Put these variables to configuration axes.
 - Exclude unwanted combinations.
- Let Jenkins do its job!
- Gather results.

Configuration Matrix	linux.rh.5	linux.rh.6
gcc-3.4.6		
gcc-4.5.3		
gcc-4.6.3		

Summary

- Continuous Integration
 - Generally good principle, but comes with a price.
 - Not only building, but also testing.
- Jenkins
 - Helps with menial tasks.
 - Does not solve your CI within single click.

What to do next

- Study!
- **Continuous Integration:**

Martin Fowler's article

<http://martinfowler.com/articles/continuousIntegration.html>

Paul Duvall: Continuous Integration
ISBN 987-0-321-33638-5

- **Continuous Delivery:**

Jez Humble, David Farley: Continuous Delivery
ISBN 978-0-321-60191-9