PUG Challenge Americas

RIVER SIDE software

Beginner's guide to continuous integration

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About the speaker

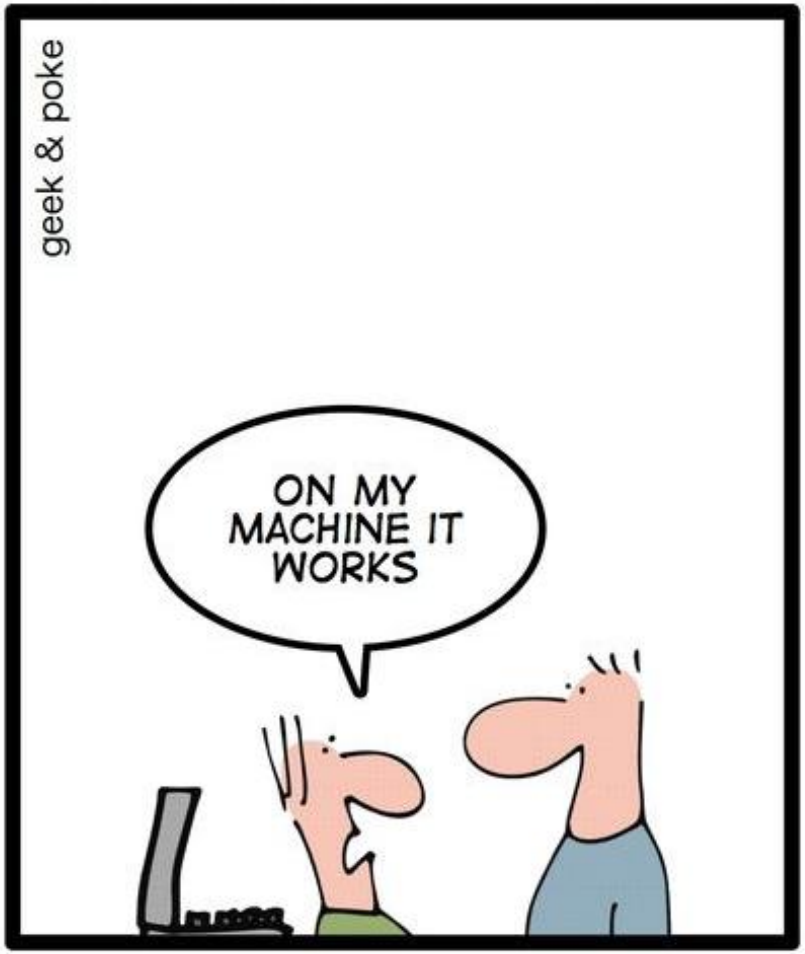
- Working with Progress and Java since 10 years
- Started Riverside Software 5 years ago
- Based in Lyon, France
- Focused on technical expertise and continuous integration in those environments
- Selling WebClient automation solution

WHEN YOU HEAR THIS:

YOU KNOW YOU'RE IN A SOFTWARE PROJECT

JUST IN CASE YOU'RE STILL NOT SURE WHETHER YOU'RE IN A SOFTWARE PROJECT

WAIT UNTIL YOU HEAR THIS:

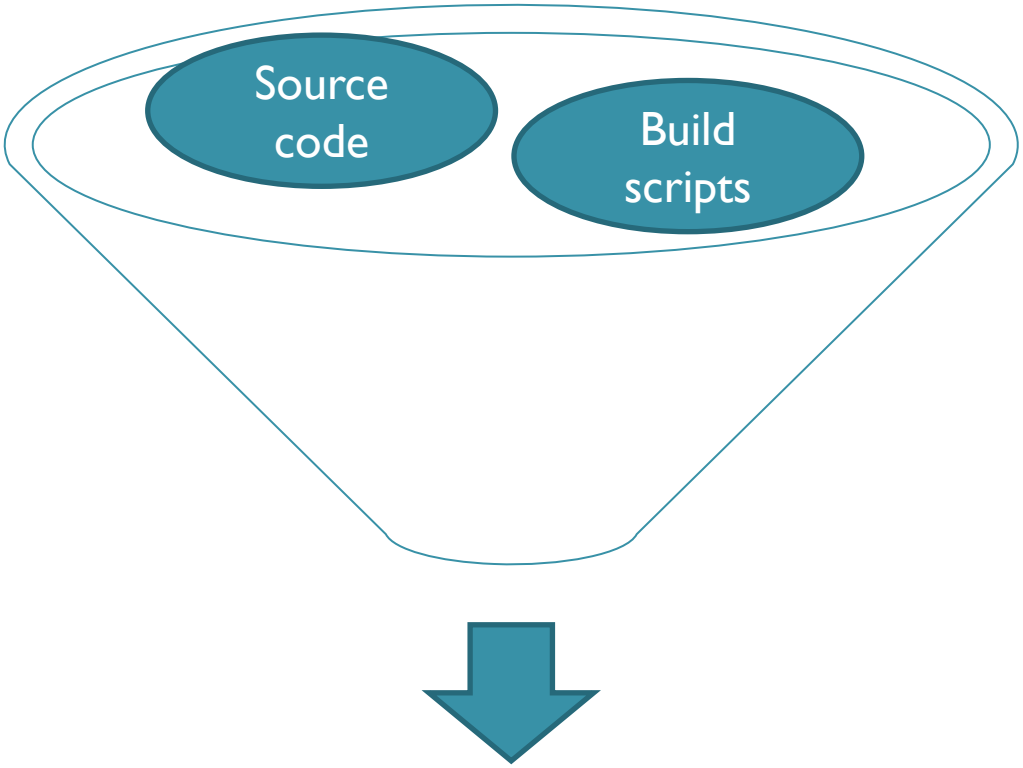


http://geekandpoke.typepad.com

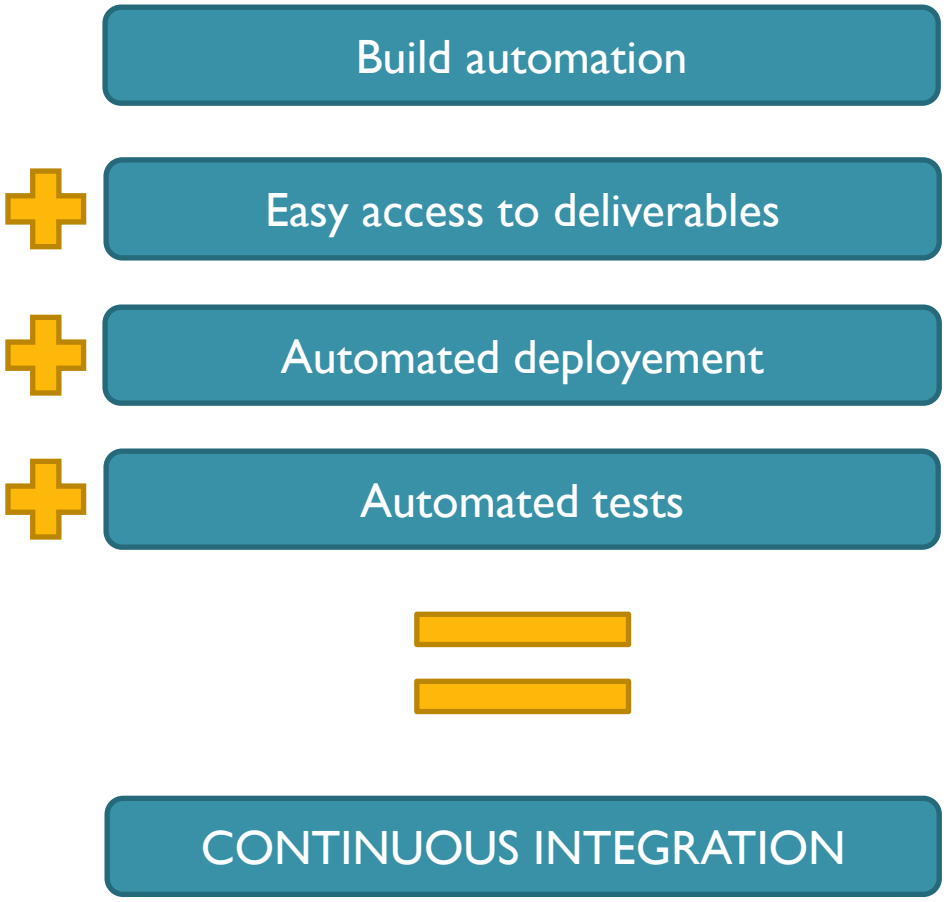
Agenda

- Definitions
- Implementing continuous integration in a few steps
- Demo

define:build automation



define:continuous integration



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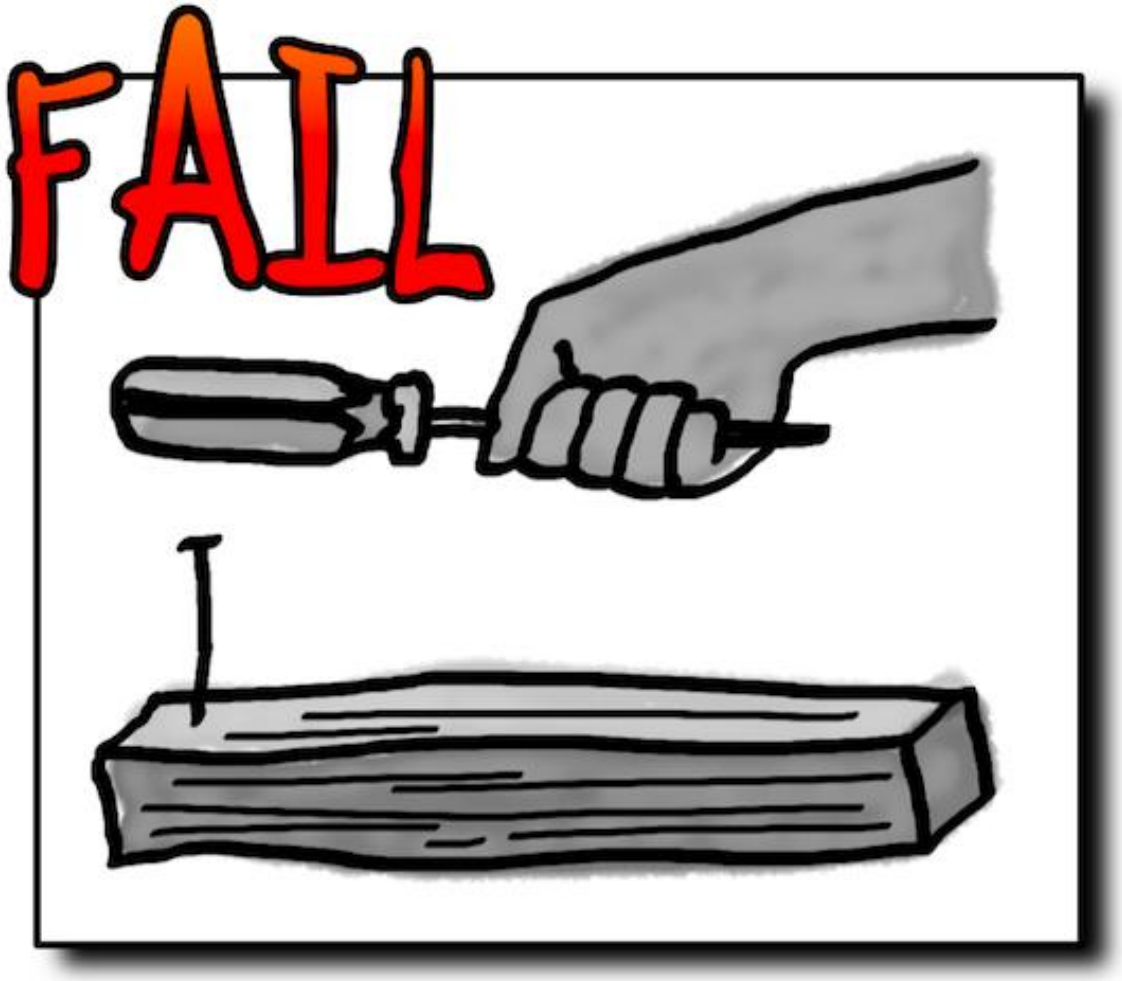
Steps to CI

1. SCM setup
2. Build automation
3. CI tool setup
4. Automated deployment
5. Automated tests

Use the right tools



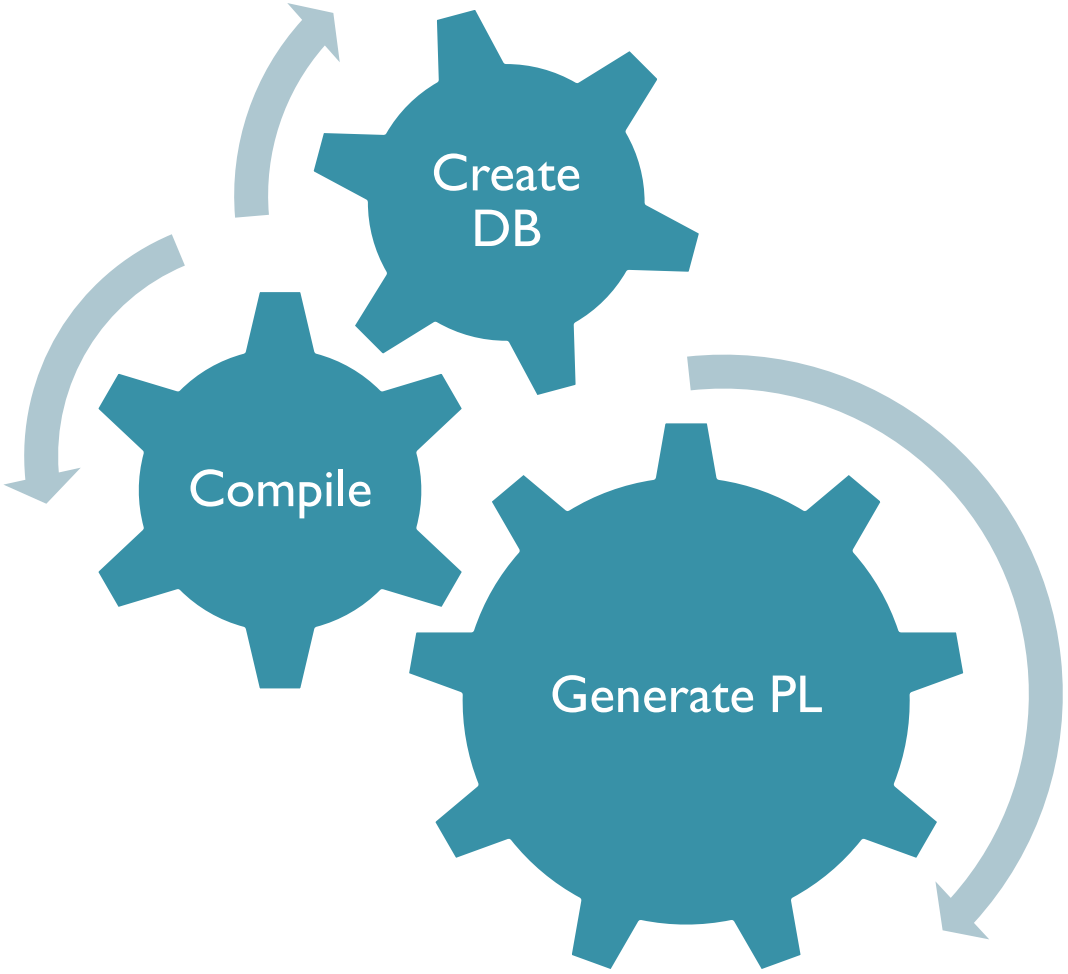
Step 1 : code repositories

- Client / Server :
  - CVS / SVN
  - ClearCase
  - Perforce
  - VSS
- Distributed
  - Mercurial
  - Git
  - BitKeeper

Step 1 : code repositories

- If you can generate something, don't store it in your SCM
  - It will be part of your build script
- Separate requirements and dependencies
  - OpenEdge is a requirement, pdf_include is a dependency
- Don't forget database versioning
- Commit as much as possible, using branches if necessary
- Associate a bugtracker to your SCM

Step 2 : Build automation



Step 2 : Build automation

- Many tools involved during this process

- OE procedures
- Shell scripts

- Ant + PCT for OpenEdge tasks

Step 2 : Build automation

```
<PCTCreateBase dbName="ged" destDir="${db}"
   codepage="utf" schemaFile="db/schema1.df,db/schema2.df"
   structFile="db/struct.st" blockSize="4"
   dlcHome="${DLC}" />


<PCTRun procedure="src/initDb.p" paramFile="conf/param.pf"
     dlcHome="${DLC}" cpstream="utf-8">
  <PCTConnection dbName="ged" dbDir="${db}" singleUser="yes" />
  <PCTConnection dbName="cust" dbDir="${db}" singleUser="yes" />
</PCTRun>
```

Step 2 : Build automation

```
<PCTCompile destDir="${build}" graphicalMode="true"
dlcHome="${DLC}" md5="false" minSize="false" cpinternal="iso8859-
15" cpstream="iso8859-15" inputChars="16384" debugListing="true">
    <fileset dir="src/core" includes="**/*.p,**/*.w" />
    <fileset dir="src/module1" includes="**/*.p,**/*.w" />
    <fileset dir="src/oo" includes="**/*.cls />
    <PCTConnection dbName="ged" dbDir="${db}" />
    <PCTConnection dbName="cust" dbDir="${db}" />
    <propath>
      <pathelement location="src/core" />
      <pathelement location="src/oo" />
    </propath>
</PCTCompile>
```

Step 2 : Build automation

- **Use common build tools**

- Check for requirements
- Download dependencies
- Use variables as much as possible
- Use different folders for build objects

Step 3 : CI Servers

- Many products, but same functionalities :
  - Define and trigger jobs
  - Store deliverables (keeping history)…
  - And make them easily available
  - Keep users informed of build results
- Server choice :
  - Free or not (support subscription)
  - Integration with your tools
  - Plugins

Step 3 : CI Servers, some names

- Cruise control
- Hudson / Jenkins
- Teamcity (JetBrains)
- Bamboo (Atlassian)

Step 3 – A few tips

- Always use a clean server
- Use distributed jobs
- Define a job for every product and every environment (branches / clones)
- Keep deliverables only for production jobs. Keep only a dozen for integration
- Only send alerts for failures !

Step 4 : Deployment

- Use only what have been generated during the build process
- But remember requirements…
- Always deploy to a clean server
- Every deliverable generated by the CI server should be deployed

Using virtualization

- Available in VMWare ESX
- Clones, snapshots and remote execution are your friends !
- Define clean VM for every target OS
- Define snapshots to be able to improve configuration
- New clone for a new job
- Remote execution to execute deployment

Step 5 : tests

- Unit testing
- User interface testing
- API testing
- Regression testing
- Load testing
- Security testing

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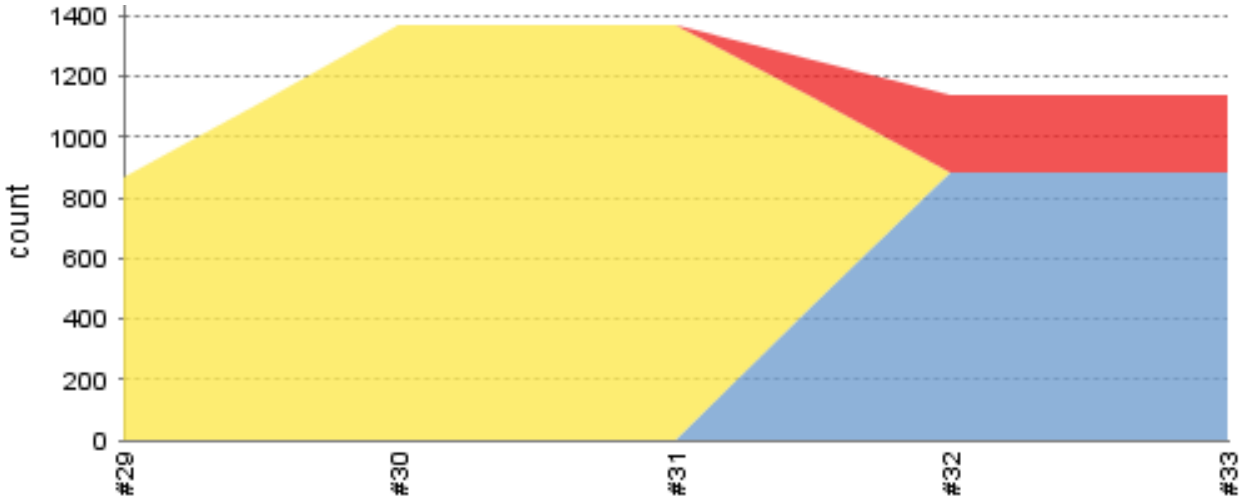
Proparse – PCT – Prolint – Jenkins

Jenkins



Proparse – PCT – Prolint – Jenkins

- New PCT task to generate AST tree for every source file
- Use old ProLint procedures or new Java Lint tasks
- Generates XML output
- Result is presented in Jenkins :
  - Drill-down warnings by source file, category, priority, …
  - Display warnings trend
  - View highlighted source code

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Questions ?

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- Ant : http://ant.apache.org
- PCT : http://pct.rssw.eu
- Hudson : http://hudson-ci.org
- Jenkins : http://jenkins-ci.org

- And contact me directly (g.querret@riverside-software.fr) if you want additional informations