An Introduction To Jenkins

Presented By :
Prashant Sharma
Software Consultant
Knoldus Software LLP

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Agenda

- What is Jenkins - an Introduction.
- What is Continuous Integration.
- Installing and Configuring Jenkins.
- Managing Security.
- Creating a job with Jenkins.
- Hands on CI with Jenkins.
- References.

What is Jenkins - an Introduction

- Jenkins is the leading open source continuous integration tool.
- Jenkins was originally developed as the Hudson project. Hudson's creation started in summer of 2004 at Sun Microsystems.
- In November 2010, an issue arose in the Hudson community with respect to the infrastructure used. Negotiations were held between the principal project contributors and Oracle; a key sticking point was the control of the name "Hudson" itself, which Oracle claimed, and on January 11, 2011, a proposal was made to change the project name from "Hudson" to "Jenkins".

What is Jenkins...

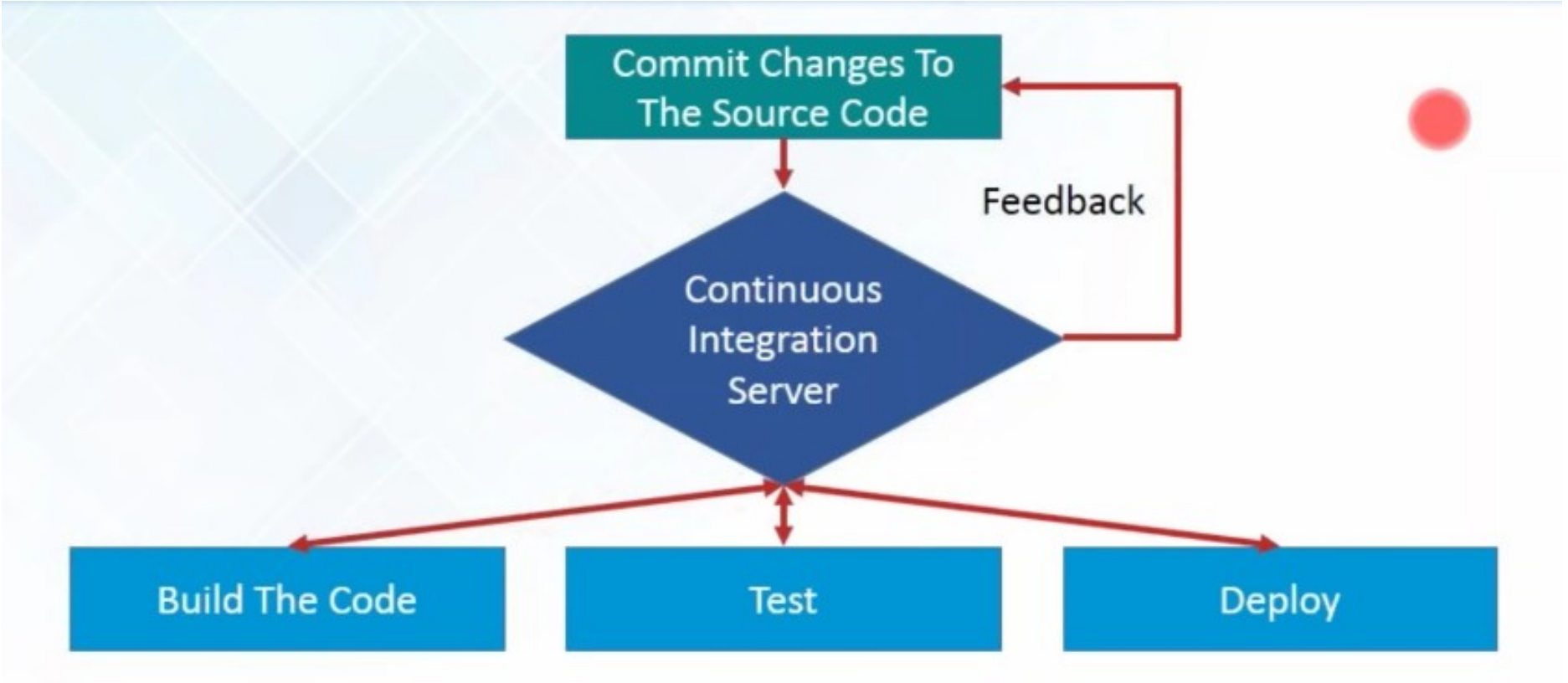
- On February 1, 2011, Oracle said that they intended to continue development of Hudson, and considered Jenkins a fork rather than a rename. As of December 2016, the Jenkins organization on Git Hub had 638 project members and around 1,800 public repositories, compared with Hudson's 32 project members and 17 public repositories.
- Hudson is not maintained anymore, Jenkins is the replacement for it.
- Jenkins builds and tests our software continuously and monitors the execution and status of remote jobs, making it easier for team members and users to regularly obtain the latest stable code.

What is Continuous Integration

- Continuous Integration is a development practice in which developers are required to commit changes to source code in a shared repository several times a day. Every commit is then build and this allows the teams to detect problems early.
- It then bring following benefits to software development:

1) Catch issues fast and nip them in the bud.
2) Everyone can see what's happening.
3) Automate the build.
4) Continuous Integration leads to Continuous Deployment allowing us to deliver software more rapidly.

What is Continuous Integration...



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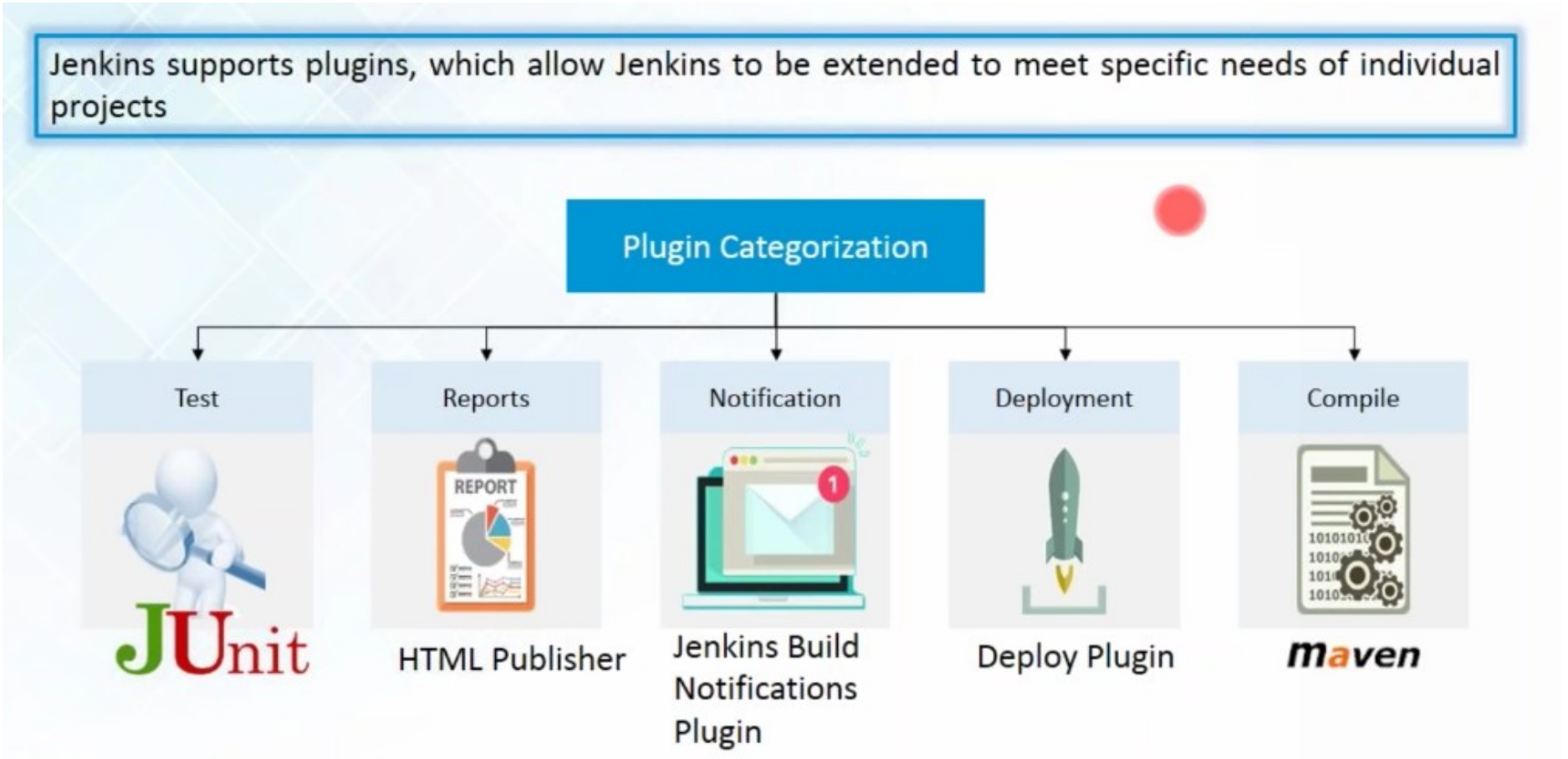
What is Continuous Integration...

- “Continuous Integration doesn’t get rid of bugs, but it does make them dramatically easier to find and remove.” - Martin Fowler, chief scientist,ThoughtWorks.
- Jenkins is just a framework, it achieves Continuous Integration by the help of Plugins. It provides support for over 1000 Plugins .

What is Continuous Integration...



Installing and Configuring Jenkins

JDK	JDK 1.7 or above
Memory	2 GB RAM (recommended)
Disk Space	No minimum requirement. However, all builds will be stored on the Jenkins machines, it has to be ensured that sufficient disk space is available for build storage.
Operating System Version	Jenkins can be installed on Windows, Ubuntu/Debian, Red Hat/Fedora/CentOS, Mac OS X, openSUSE, FReeBSD, OpenBSD, Gentoo.
Java Container	The WAR file can be run in any container that supports Servlet 2.4/JSP 2.0 or later.(An example is Tomcat 5).

Installing and Configuring Jenkins...

- Download Jenkins: Open the official website of Jenkins : https://jenkins.io/index.html

  Click on Download Jenkins and download the LTS Release.
- From the command prompt, browse to the directory where the jenkins.war file is present. Run the following command:

  java -jar jenkins.war
- Extraction of the war file is done by an embedded webserver called winstone.
- Jenkins by default runs on port 8080, but we can run it on different port by issuing following command:

  java -jar jenkins.war --httpPort=8181

Installing and Configuring Jenkins...

- Open http://localhost:8080/jenkins to check the Jenkins Dashboard.
- We can now get the Jenkins-git setup enabled by clicking the Manage Jenkins option and then click the Available tab and enter the search keyword ie; git.
- Install the git plugin and restart Jenkins by issuing this command in the browser:

  http://localhost:8080/jenkins/restart

Managing Security

- There can be multiple users that can operate Jenkins for the same set of project holding different responsibility.
- So it is very important to restrict access of users so they can operate on their responsibility in a controlled manner.
- To manage access of users :
- Click on Manage Jenkins from the home page.
- Click on the link Configure global security.
- Under “Access Control” you will see an “Authorisation” label.

Creating a job with Jenkins

- To create a new build job in Jenkins: from the Jenkins Dashboard, Click on “New Item”, Name your project and select project type.
- Next step : setup configurations

  1) Configuring Global Tool Configuration

  Here you can set JDK path, git configurations and Gradle/ Ant or Maven installations as per your project requirement.

  2) Creating or updating(if already created during project creation) project configuration settings which may include General settings, Source code management, build triggers, Pre-steps, Build, Post Steps, Emailing notification regarding build and post build actions as per your project need.

References

- Here's a list of references to get started with Jenkins:

1) https://blog.knoldus.com/2016/11/23/introduction-to-jenkins/
2) https://code.tutsplus.com/tutorials/introduction-to-jenkins-an-op
3) https://www.quora.com/What-is-Jenkins-When-and-why-is-it-us
4) https://www.blazemeter.com/blog/jenkins-vs-other-open-source


Thanks!