JENKINS:
CI / CD AND AUTOMATION

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AGENDA

- **What's Jenkins?**

- **Jenkins Architecture**

- **Installing Jenkins**

WHAT IS JENKINS

Jenkins is an open-source automation tool written in Java with plugins built for various task automation ranging from application build, continuous integration, delivery and deployment, Linux / Windows system administrative tasks etc.

With Jenkins, organizations can accelerate the software development process through automation. Jenkins integrates development life-cycle processes of all kinds, including build, document, test, package, stage, deploy, static analysis, and much more.

You can set up Jenkins to work with any code changes in places like GitHub, BitBucket or GitLab and automatically do a build a with tools like Maven and Gradle. You can integrate with container technology such as Docker and Kubernetes, initiate tests and then take actions like rolling back or rolling forward in production

JENKINS ARCHITECTURE
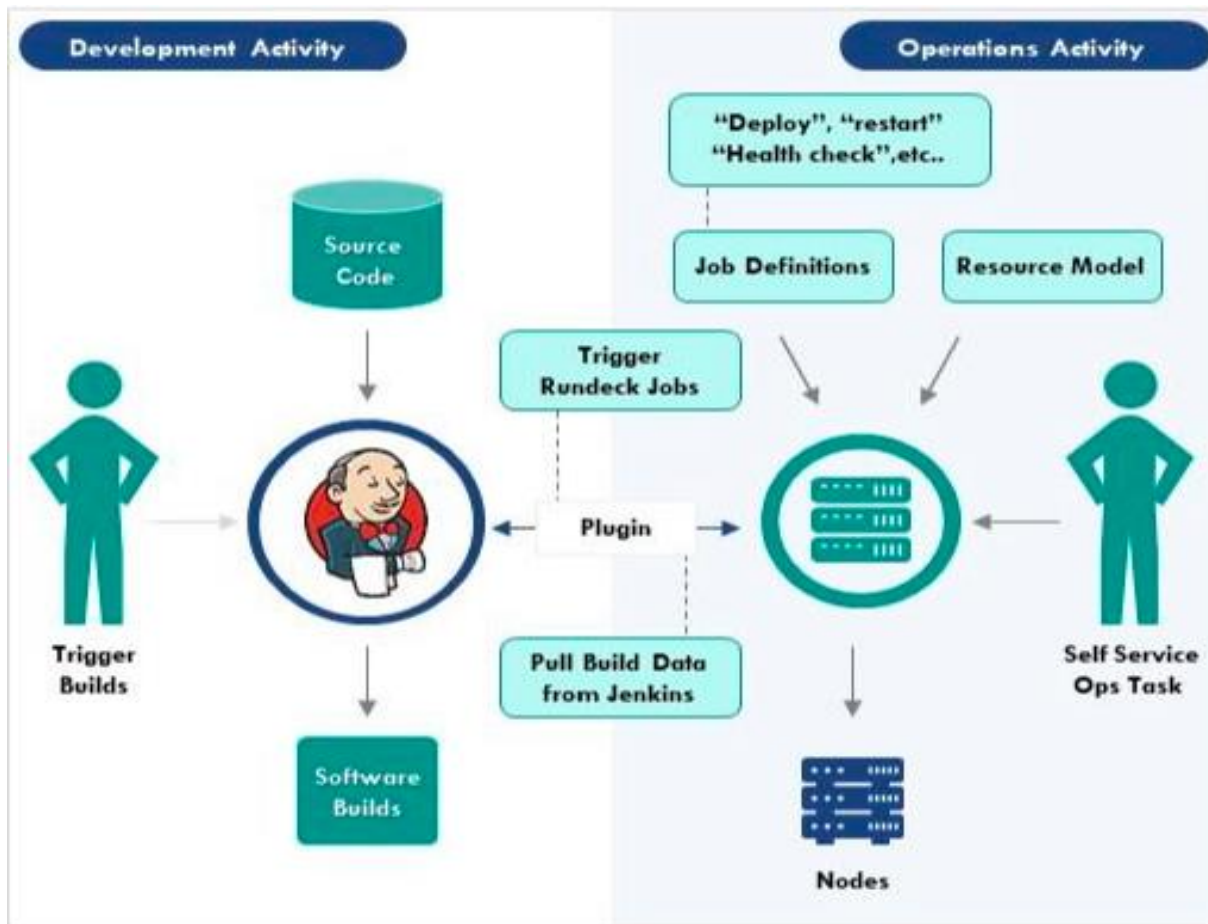
All components part of Jenkins landscape:

Jenkins is a server-based system that runs in servlet container like apache etc.

Jenkins can also be extended in Client – server mode to expand Jenkins capabilities, compute power, enabling more jobs, tasks to be implemented at a time.

JENKINS FEATURES

Easy Installation: Jenkins is Platform Agnostic, self-contained, Java-based program, able to run with packages for Windows, MacOS, Linux etc.

Easy Configuration: Easy configuration with UI orientation that includes error checks and integral facilitate program.

Available Plugins: A very large range of plugins available in central plugin cloud registry.

Extensible: Various plugins allow to extend automation related functionalities of Jenkins.

Active project: Weekly releases allowing new functionalities for testing. Production ready LTS version. Backed by a very large open-source community.

Cloud and Container ready: JenkinsX is a cloud, container ready release allowing apps to be deployed in container based apps.

JENKINS PLUGINS

Plugins in Jenkins are the tools to integrate different tools with each other. Plugin makes it possible to elevate the power of Jenkins.
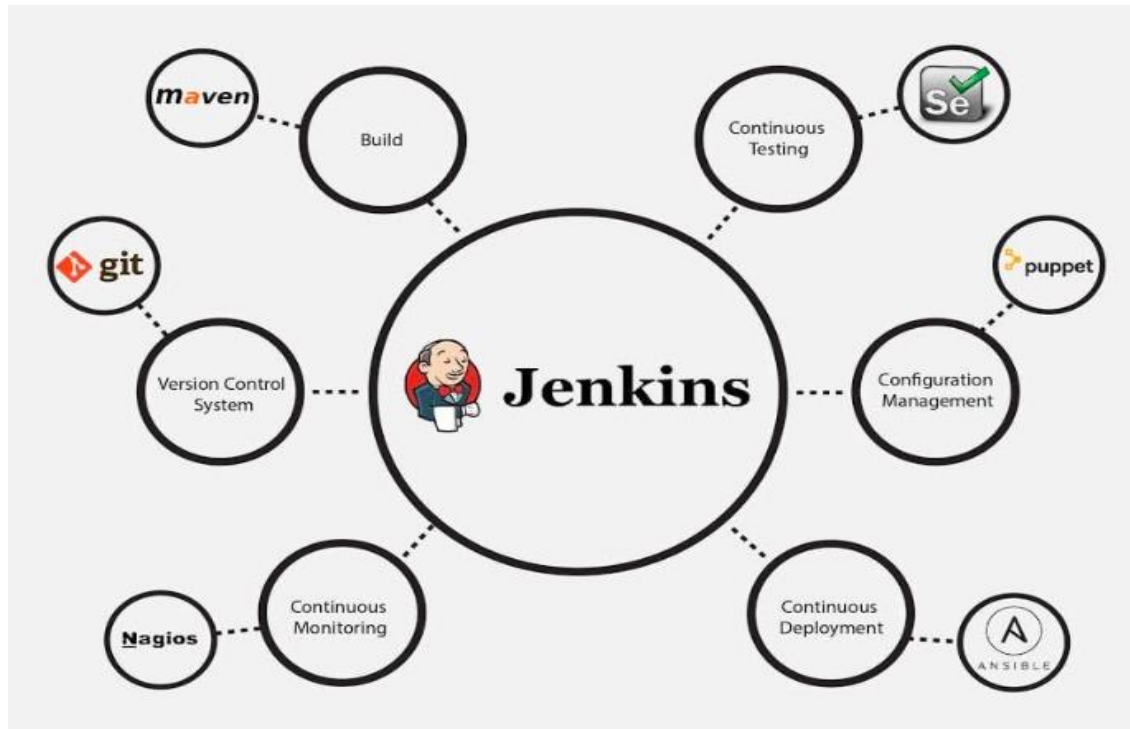
Plugins can be written to enable integrate an enterprise application that might be an in-house application.

https://wiki.jenkins-ci.org

This is the official URL for information on Jenkins Plugin

PLUGIN CATEGORIES

Source code Plugins : GIT , Mercurial, TFS

Trigger Plugin:

- **GITHUB** pull request:
- **Join**: (different jobs / projects can be configured to run together, one after other etc.),
- **Locks** and **Latches**:

**Build Tool Plugins**: Copy artifacts, Fitness, MSBuild, Promoted build MSTest runner, NANT, MAVEN, PowerShell.

Wrapper Plugin: automated start and stop of a function upon certain action completion etc.

Notifier Plugins: HipChat, IRC, Twitter, Jabber… helps to send notifications.

**Reporting plugin:** Cobertura (code coverage), Findbugs, MSTest, PMD, etc.

CONTINUOUS INTEGRATION

Continuous integration is software development practice in which team members integrate their work frequently, leading multiple integrations per day. Each integration helps to reveals integrations errors in build success / failures as quickly as possible. This helps in significantly reducing integration problems and delivery timeline
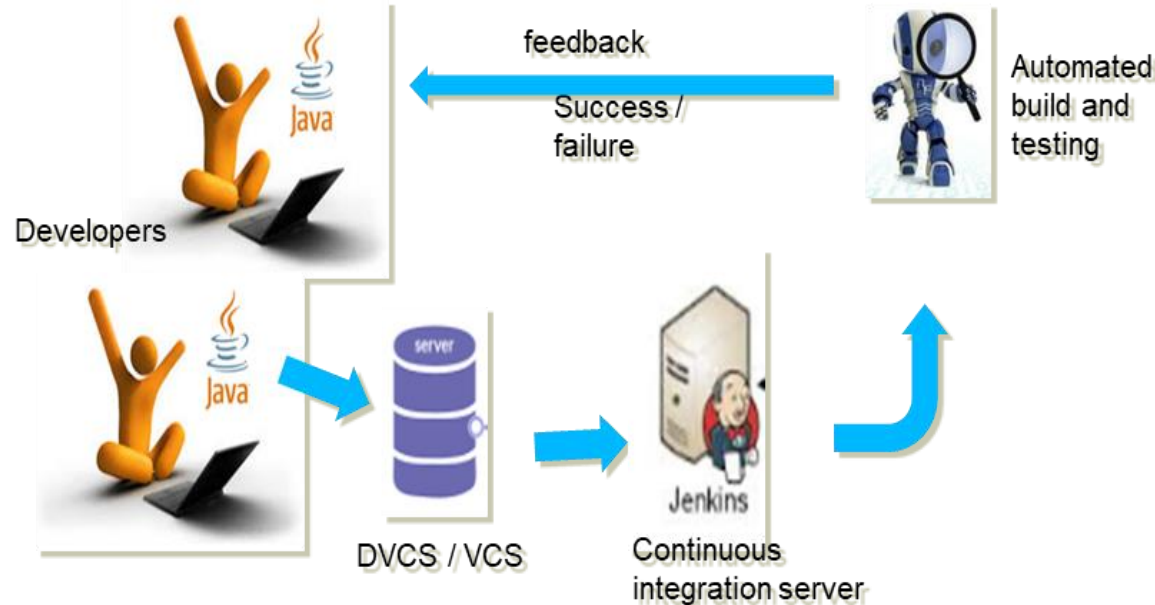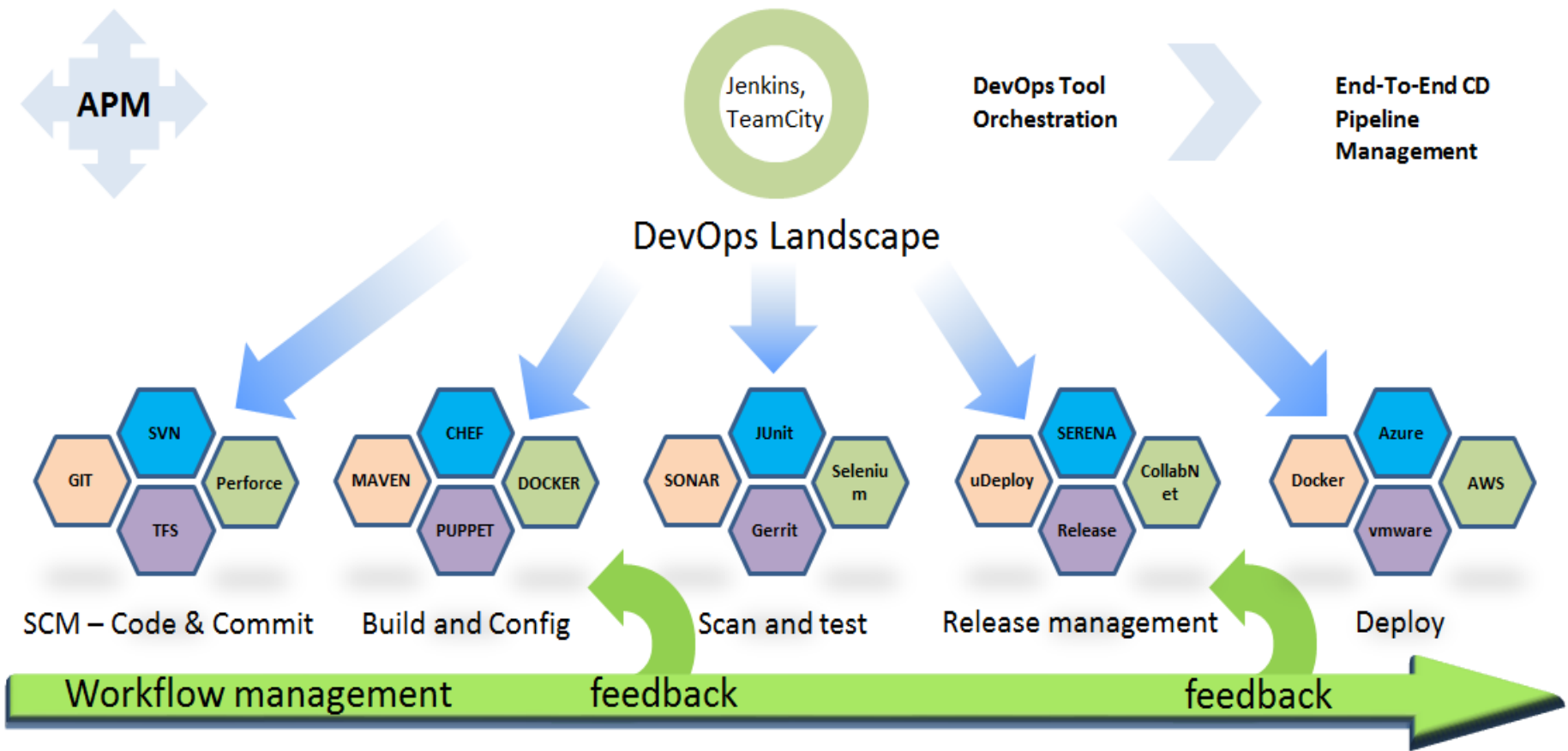
CONTINUOUS DELIVERY AND DEPLOYMENT
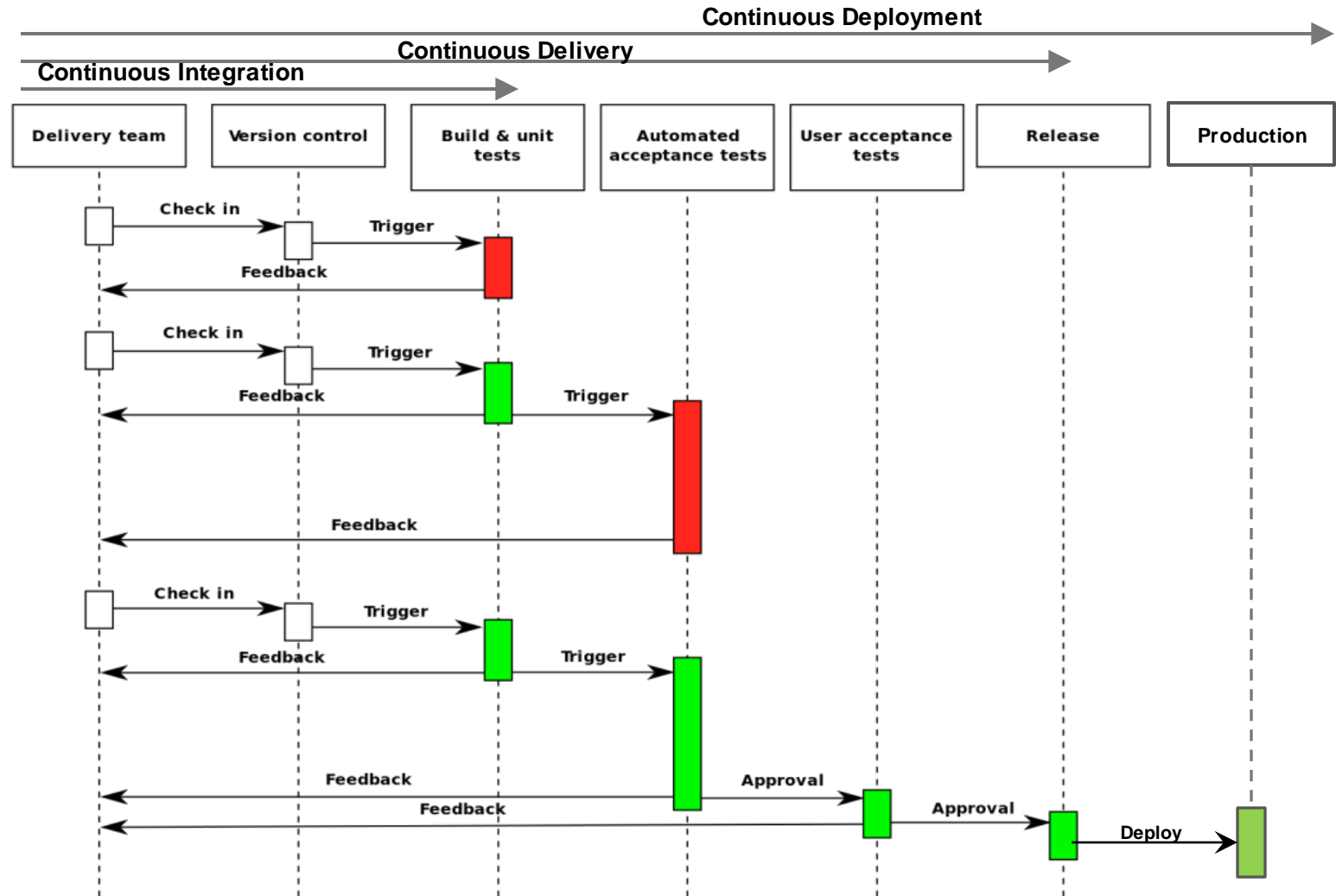
JENKINS TOOL LANDSCAPE

THANKS YOU