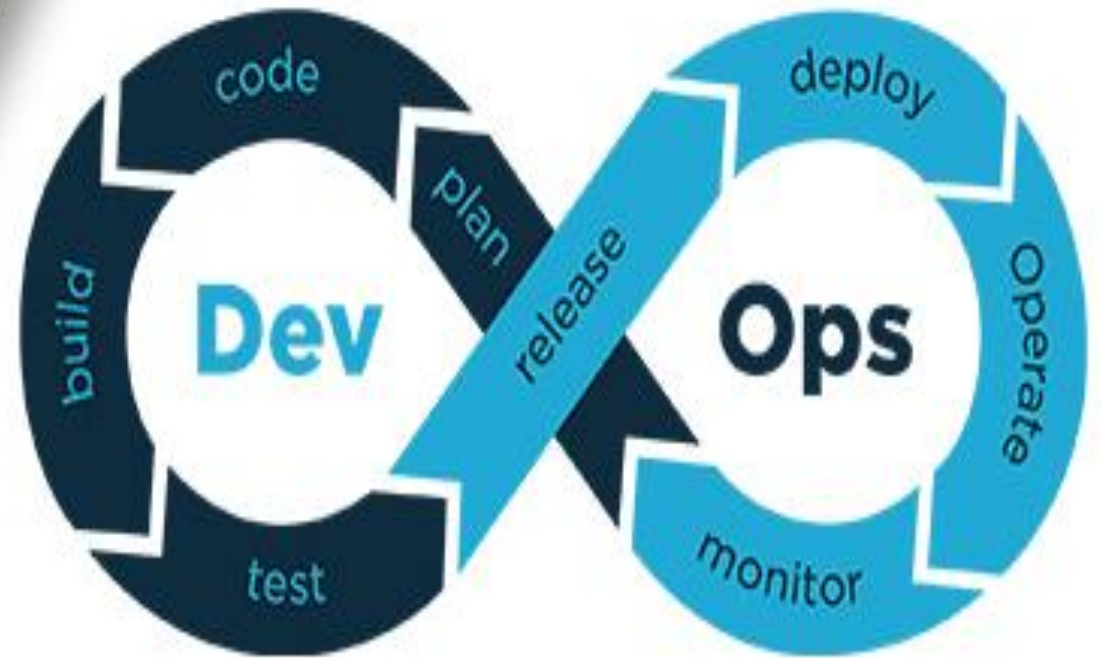


DevOps

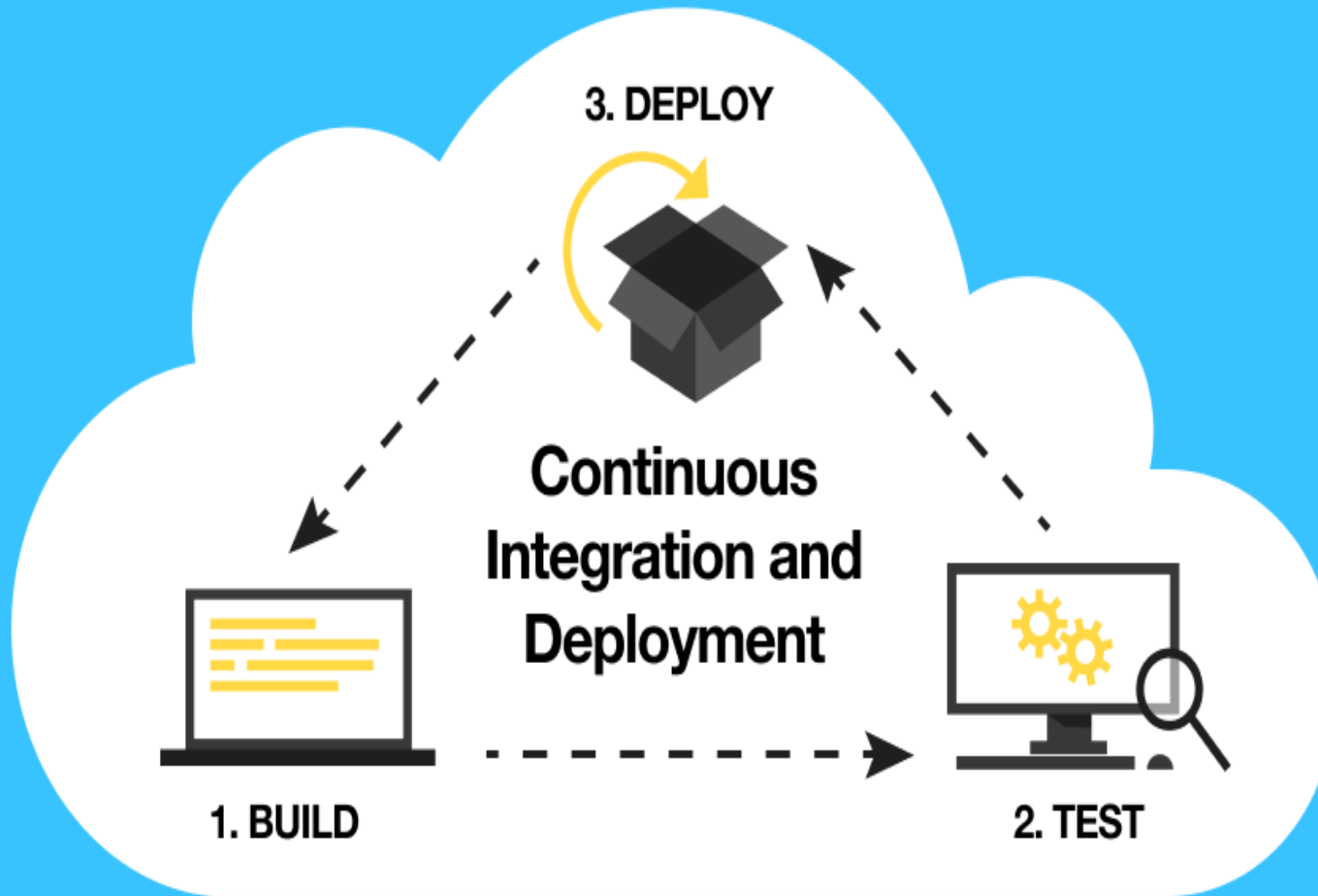
PREPARED BY
ARAVIND KUMAR G.K
Senior DevOps Engineer



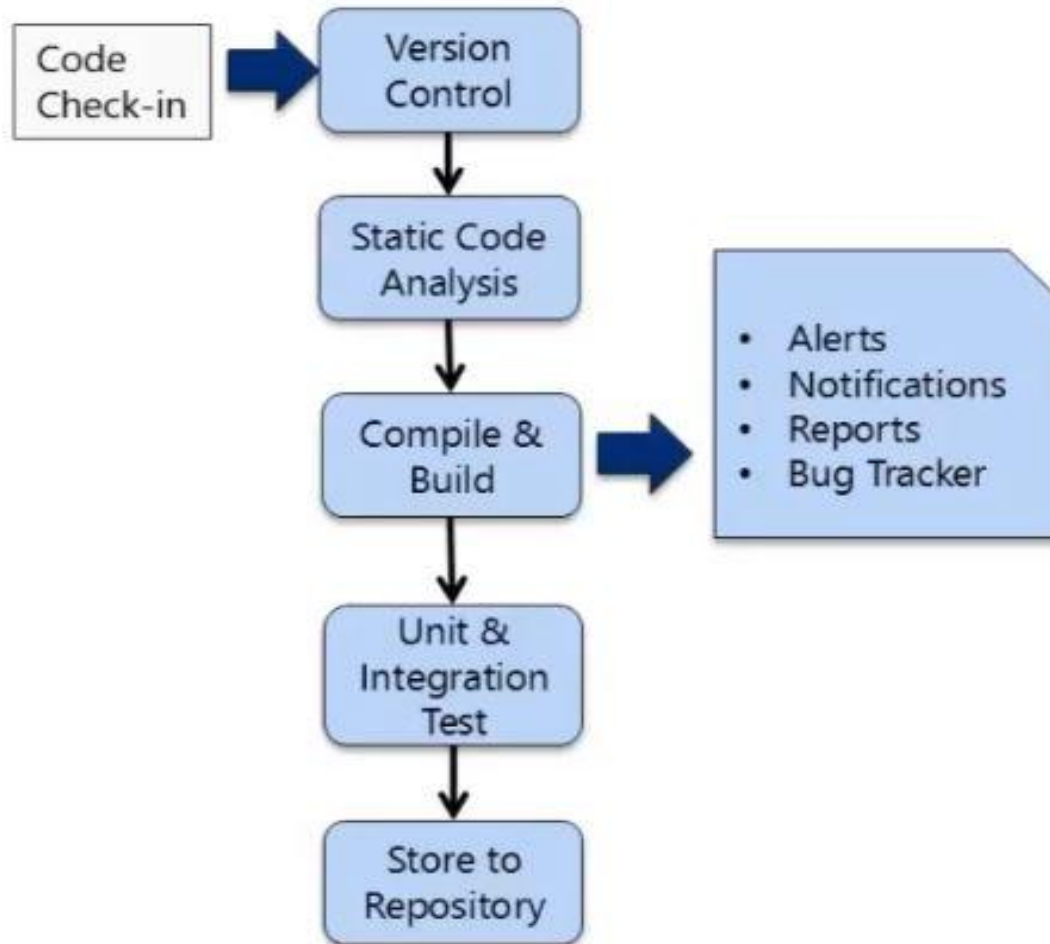
Continuous Integration & Deployment

Agenda

- **Continuous Integration & Deployment**
 - Continuous Integration
 - Continuous Deploy
 - CI/CD Process
 - Jenkins [Hands On Practice]
 - Bamboo
 - Travis
 - Some other CI/CD Tools.



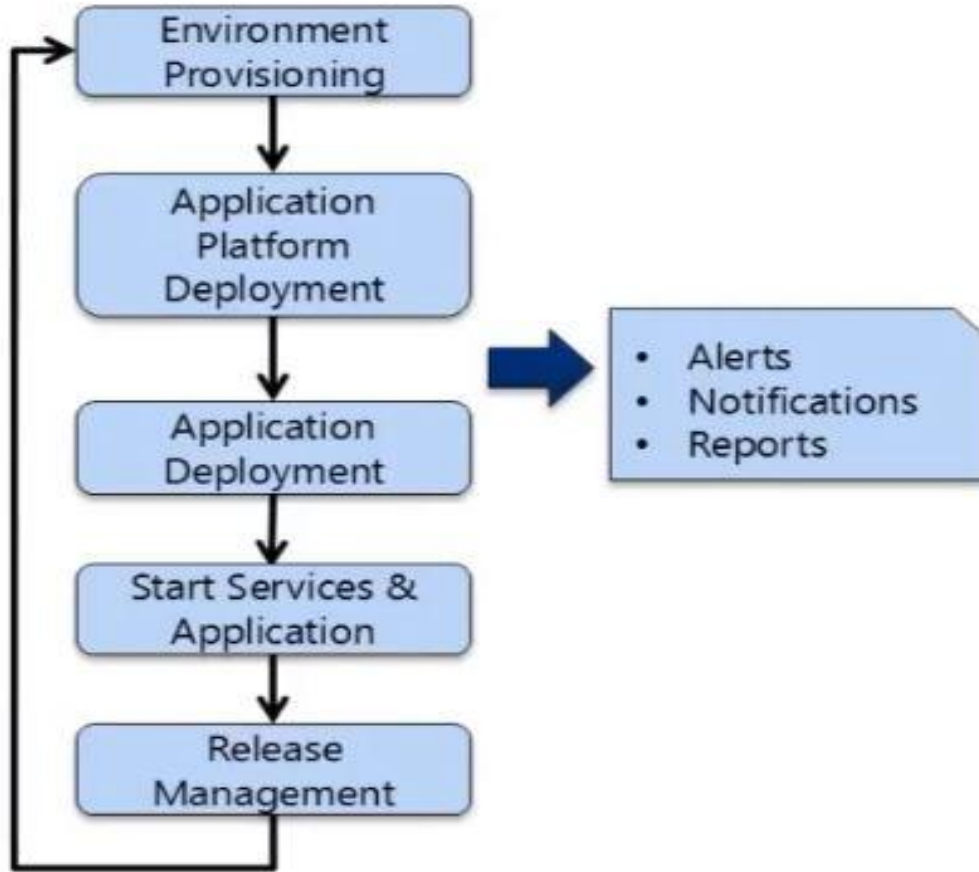
Continuous Integration



Process Area	Options
Source Control	Subversion, Git, Clear case, CVS, Team Foundation Server, Rational Team Concert
Continuous Integration	Jenkins, Hudson , Bamboo, TFS
Artifact Repository	Nexus, Artefactory, Urbancode CodeStation
Bugs/Issue tracker	Jira, Bugzilla, Redmine, LaunchPad, TFS and Version One
Test Automation	Selenium, Junit, NUnit, MSTest

Solution Name	Description
One Click Deploy (Wipro solution)	Provides a ready to use framework to address CI. Can be extended for connectors/adapters & workflows
UrbanCode Build (Partnership)	IBM Tool with a variety of adapters to address CI needs
Cloud Munch (Partnership)	Extensible tool addressing CI steps available on-premise or on-cloud
CloudCLM (Wipro solution)	Provides DevOps for end to end delivery engagements. Not positioned as a standalone DevOps solution.
AgileBase (Wipro solution)	Provides CI downloadable services which can be integrated for Microsoft, Open Source and IBM stack. Orchestrates lifecycle and raises alerts on Code Quality and Test Coverage

Continuous Deploy

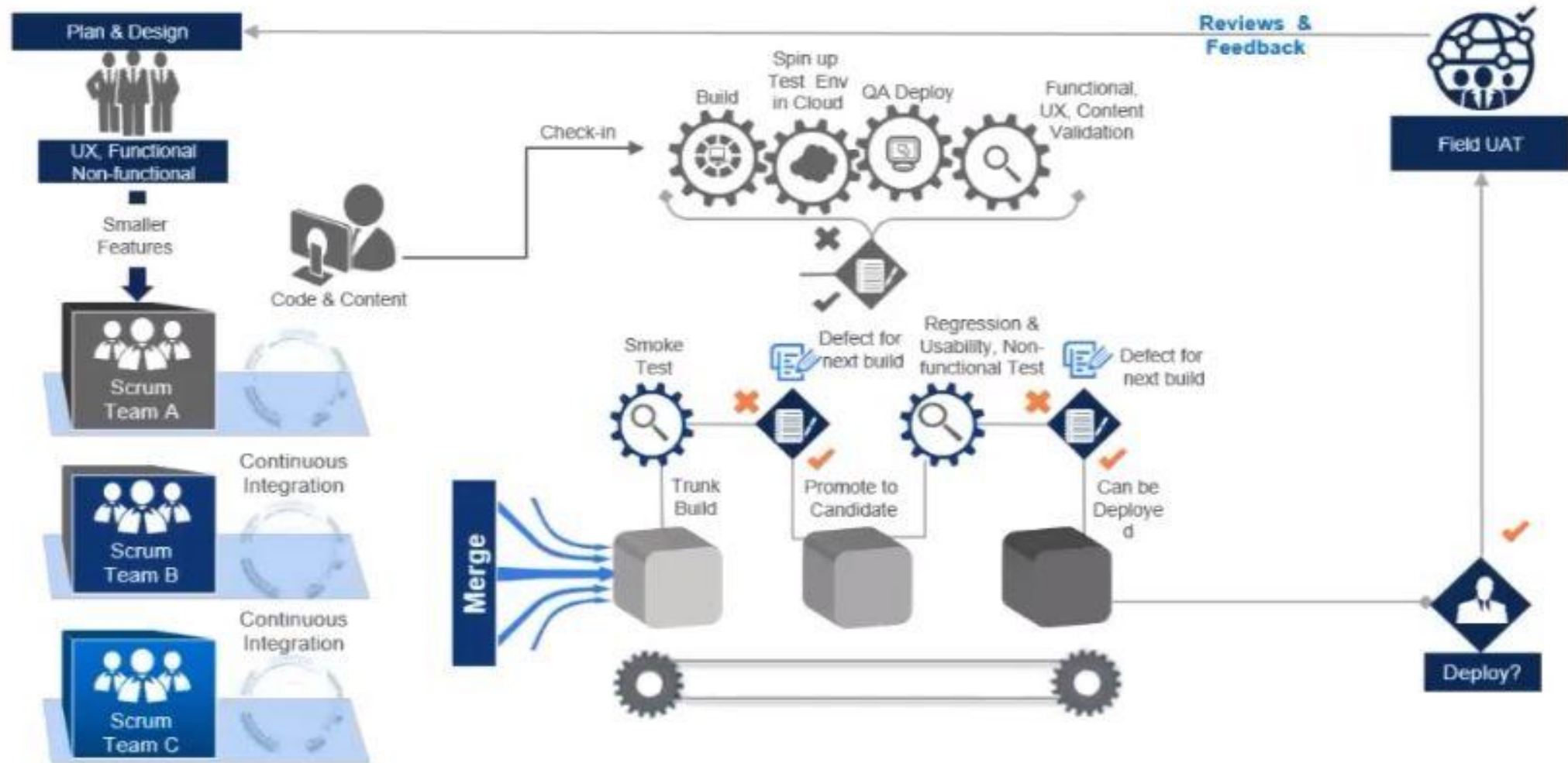


**Iterate for QA, PT,
Pre-prod & Prod
Environments**

Tool Focus	Options
Configuration Management	Puppet, Chef, Ansible, SaltStack, Powershell DSC
Cloud Orchestrator	AWS Cloud Formation, OpenStack Heat, BMC CLM, HP CSA
Cloud Infrastructure	AWS, OpenStack, BMC, Azure IAAS, vCloud, HP Cloud, Azure
Application Deployment	Chef, Glu, Ansible, cloud-formation, HP one-view, Powershell & DSC

Solution Name	Description
One Click Deploy (Wipro solution)	Application deployment – VM, Docker Containers. Environment provisioning needs to be done outside the tool
UrbanCode Deploy with Patterns (Partnership)	IBM Tool that addresses this space, provisions environments & configures server via built-in adapters
Cloud Munch (Partnership)	Environment provisioning to Application startup
Digital services hub (Wipro solution)	Solution for cloud brokerage, provisioning, deployment and metering/monitoring
AgileBase (Wipro solution)	Automates environment provisioning on Azure Release Management – Automated & customized on uDeploy, Microsoft Release Manager and RunDeck.

CI-CD Model

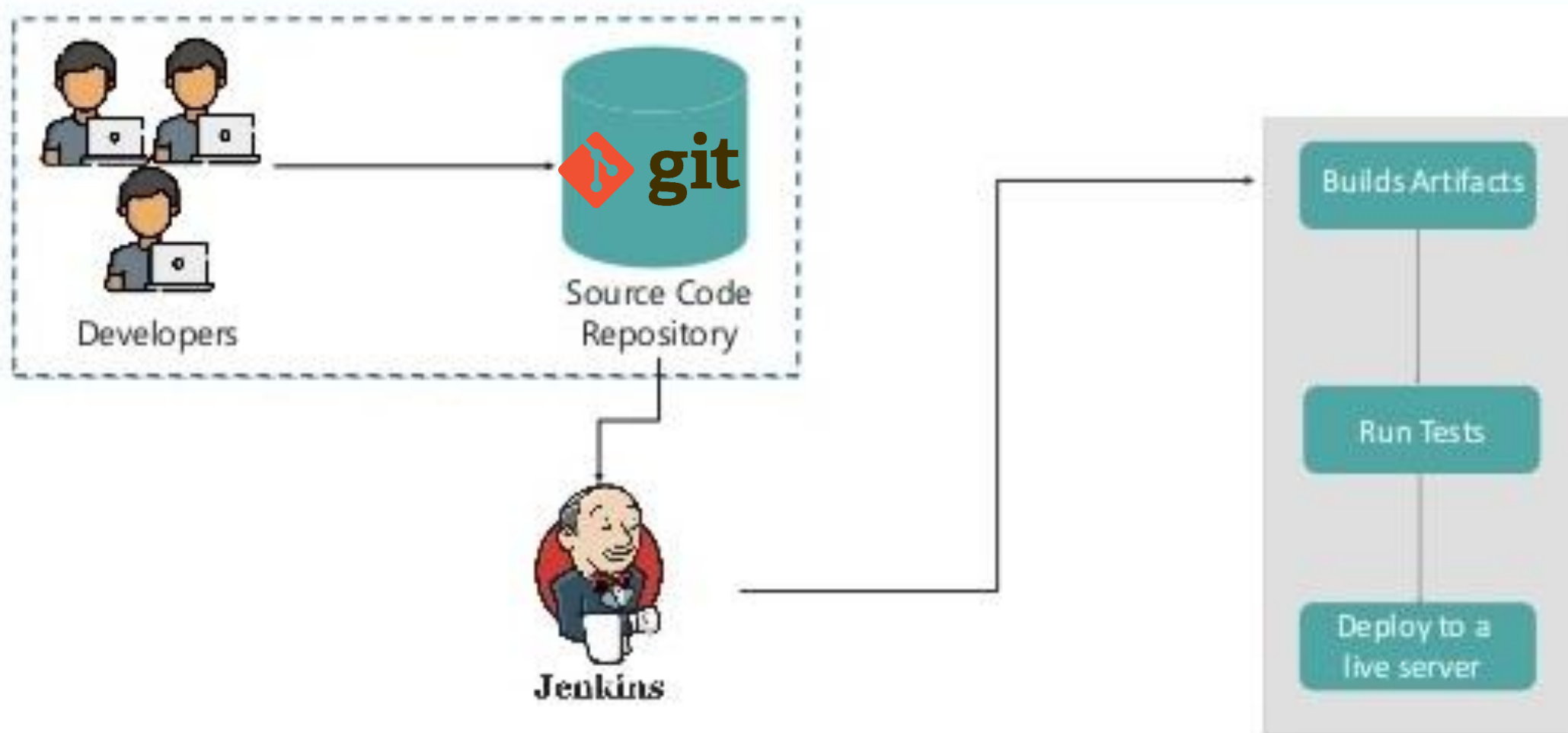




Jenkins

- Jenkins is a powerful application that allows continuous integration and continuous delivery of projects, regardless of the platform you are working on.
- It is a free source that can handle any kind of build or continuous integration.
- You can integrate Jenkins with a number of testing and deployment technologies.
- Jenkins is a Java-based tool, which means you only need Java Runtime Environment to operate it. Hence, Jenkins can be installed on any operating system where Java runs.

How Jenkins Works?



Jenkins Features

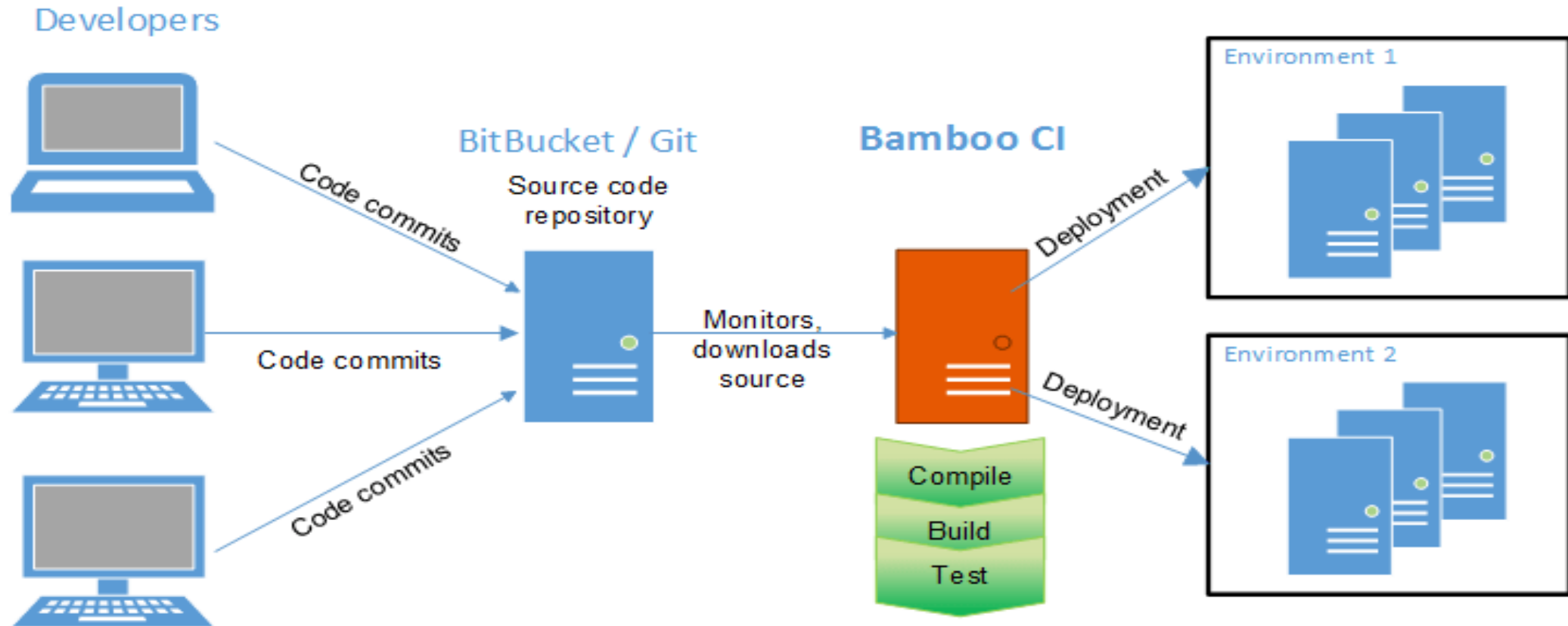
- Easy to install, upgrade, and configure
- Distributed Builds
- Monitoring external jobs
- More than 600 plugins to customize your Jenkins environment
- Over 1000+ public repositories on Github, 500+ contributors, strong commit activity
- Support for various authentication methods, version control systems, notification, etc.
- Jenkins provides remote access API and its functionalities.
- Provide Powerful CI/CD tool for big projects
- It supports various job models like Freestyle, Pipeline, etc.,
- Allows developers to add their extensions
- Compatible with Docker, Libvirt, Kubernetes, and many other programs



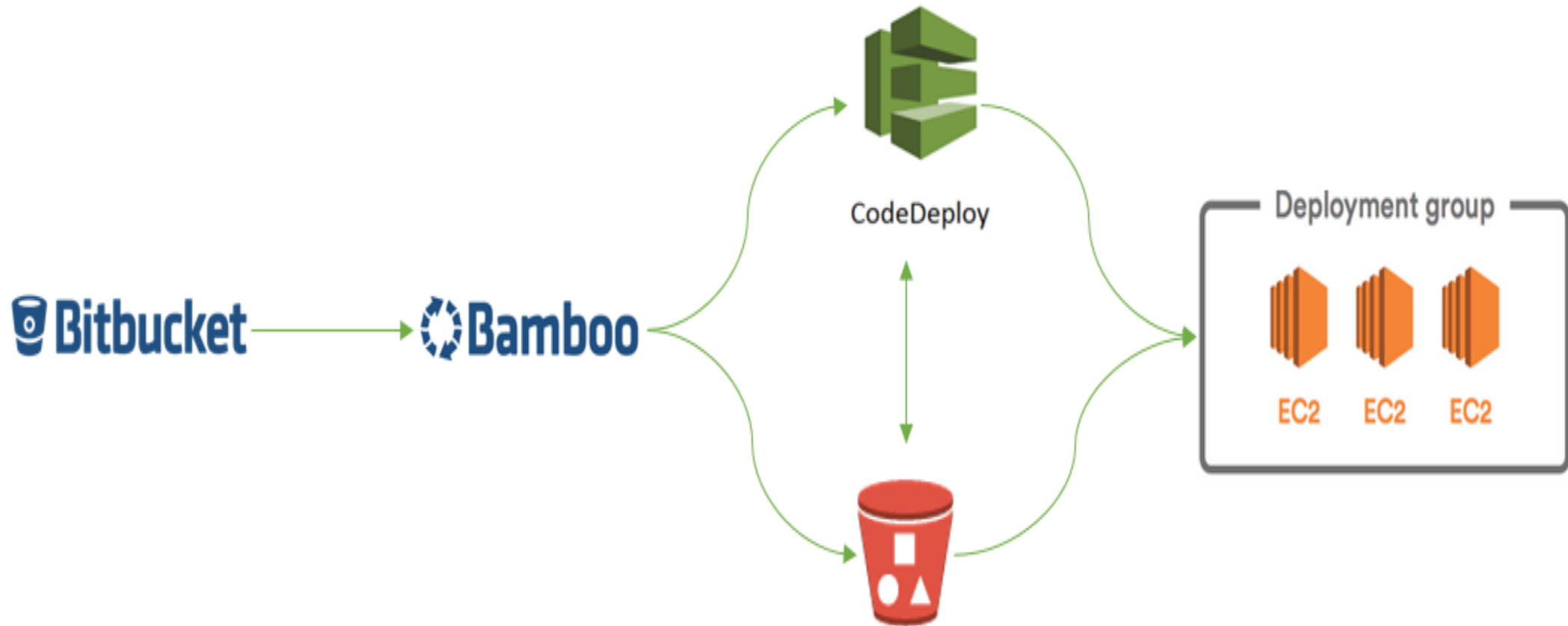
- Bamboo is a CI/CD server from Atlassian.
- Like other CI/CD servers, Bamboo allows developers to automatically build, integrate, and test source code, then prepare the app for deployment.
- Bamboo also works seamlessly with Atlassian's other tools like Jira (project management) and Hipchat (team communication).

How Bamboo Works

Bamboo Continuous Integration: Simplified Topology



Bamboo with AWS services



Why Bamboo

	BAMBOO	JENKINS
Built-in Git branching workflows	✓	✗
Built-in deployment Projects	✓	✗
Built-in Jira Software integration	✓	✗
Built-in Bitbucket Server integration	✓	✗
REST APIs	✓	✓
Test Automation	✓	⚠
Easy Enterprise-grade permissions	✓	⚠

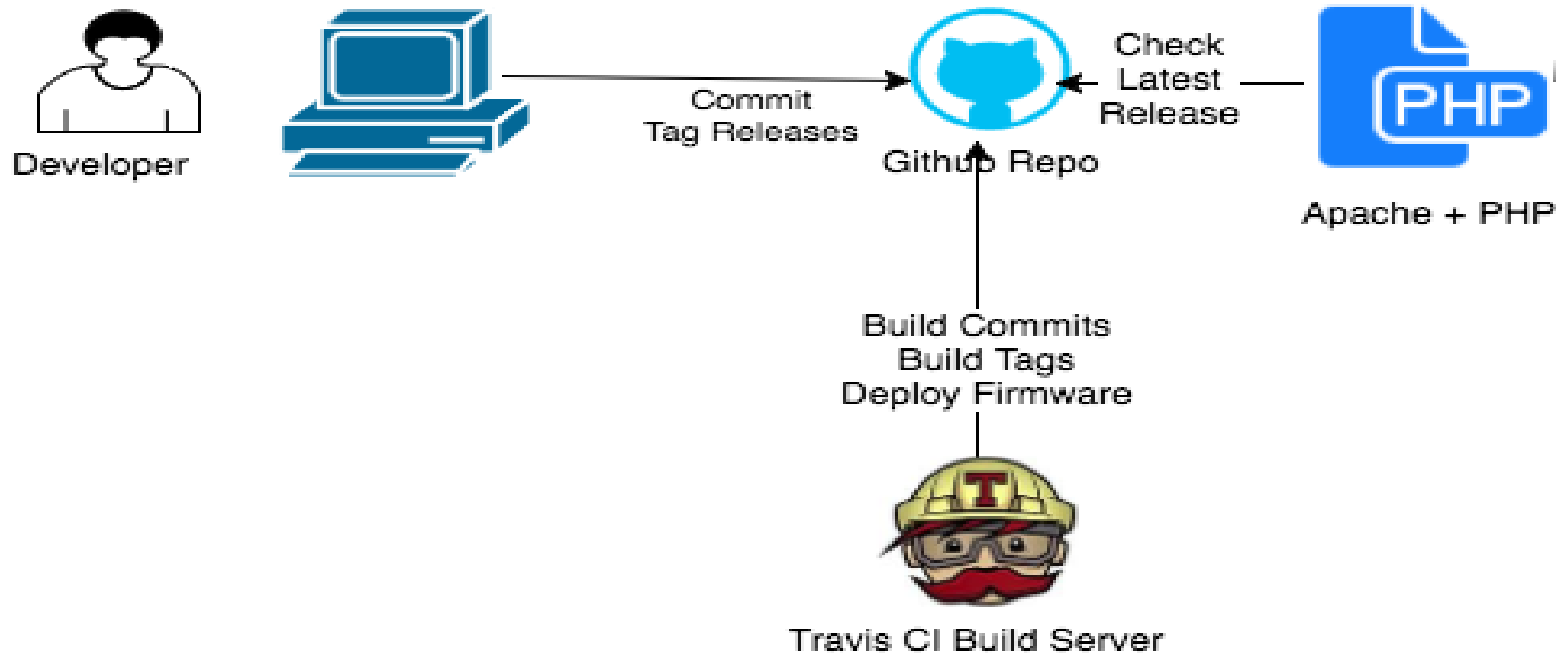
✓ Supported ⚠ Supported through plugins ✗ Not supported



Travis CI

- Travis CI was the first CI as a Service tool.
- It introduced a new approach to building code in the cloud.
- This CI tool allows the user to sign up, link their repository, build, as well as test their apps.
- Travis CI tool can easily integrate with the common cloud repositories like GitHub and Bitbucket.
- It offers many automated CI options which cut out the need for a dedicated server as the Travis CI server is hosted in the cloud.
- This allows you to test in different environments, on various machines, running on different Operating Systems.
- Travis CI is free for open source projects. For commercial projects, you need to purchase an enterprise plan.

How Travis Work



Travis CI Features

- Automatic integration with GitHub
- Repository access to build pull requests
- Support for 21 languages like Android, C, C#, C++, Java, JavaScript (with Node.js), Perl, PHP, Python, R, Ruby, etc
- Pre-installed build & test tools
- Available services - databases, message queues, etc.
- Deployment to multiple cloud services
- Encrypt secure environment variables or files
- Virtual machines recreated after every build
- CLI client and API for scripting
- Comes with free cloud-based hosting which does not require maintenance or administration.

Some famous CI Tools



Jenkins



Azure DevOps



Bamboo



AppVeyor



TeamCity



circleci



Travis CI



SEMAPHORE

	Jenkins	Bamboo	Travis
Open Source	Yes	No	Yes
Plugins	Yes (Lots of them)	Expensive	Few
Support	Yes (Being Open Source helps)	Not Much (Small user community)	No
Easy Usage	No (The plugins help)	Yes	Yes
Atlassian Product Integration	Yes	Yes	Yes
Repo Support	All	All	Github



Hands On Practice

- Jenkins
- Jenkins Tool and Plugins Installation
- User Management and Security
- Creating New plan
- Automating Build and Deployment [php site]
- Automating Build and Deployment [.Net site]
- Unit Testing

THANK YOU
ANY QUESTIONS?

