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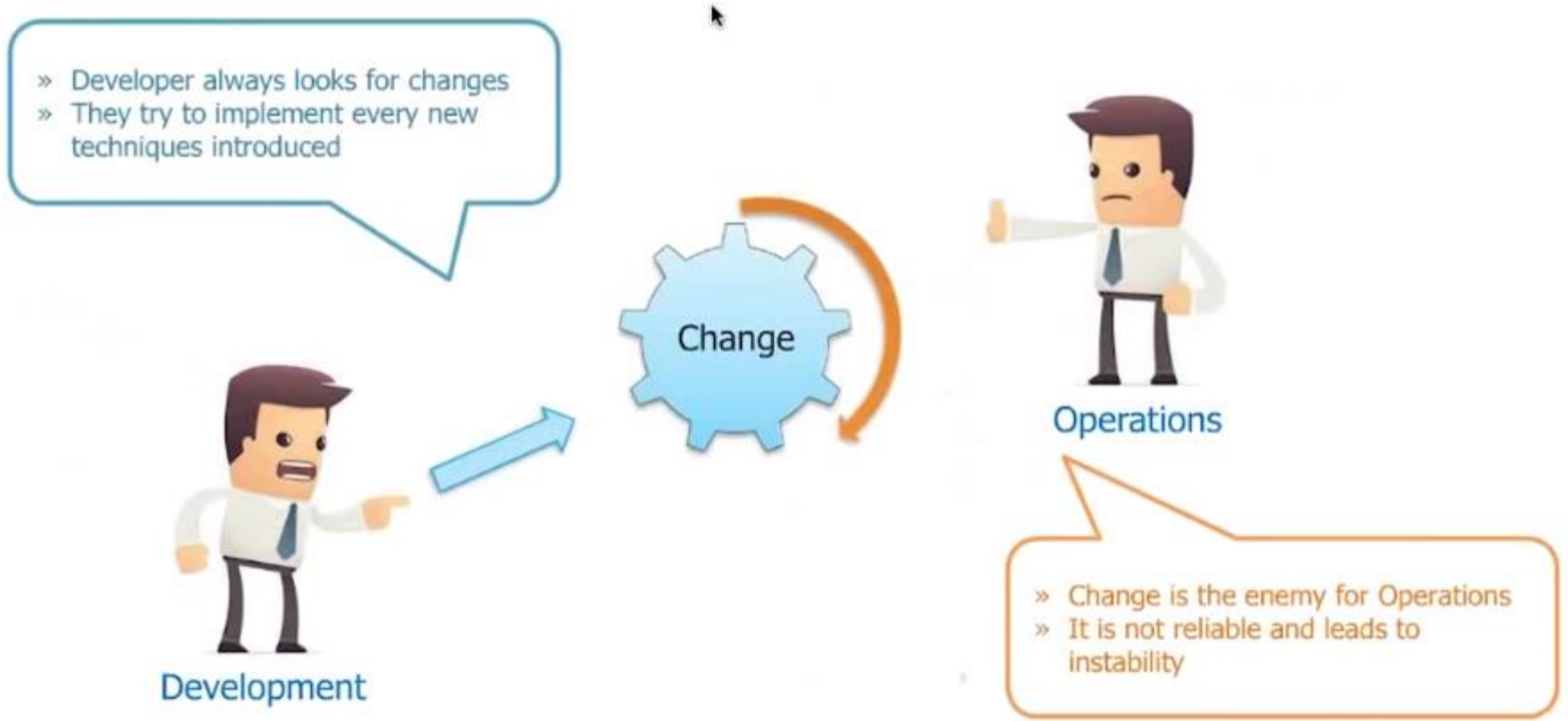
Gold Cloud Platform
Silver Learning

Dev-Ops using Jenkins

Dev-Ops Problem



What is Dev-Ops

DevOps is the practice of operations & development engineers participating together in the entire service lifecycle.

Developers	Operations
• Create change • Add/Modify features • Don’t deploy consistent software	• Create stability • Create or enhance services • Resist change

The converged DevOps lifecycle

DevOps Components

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Continuous Integration

- Continuous Build
- Continuous Test
- Code Analysis
- Continuous Feedback

Continuous Delivery

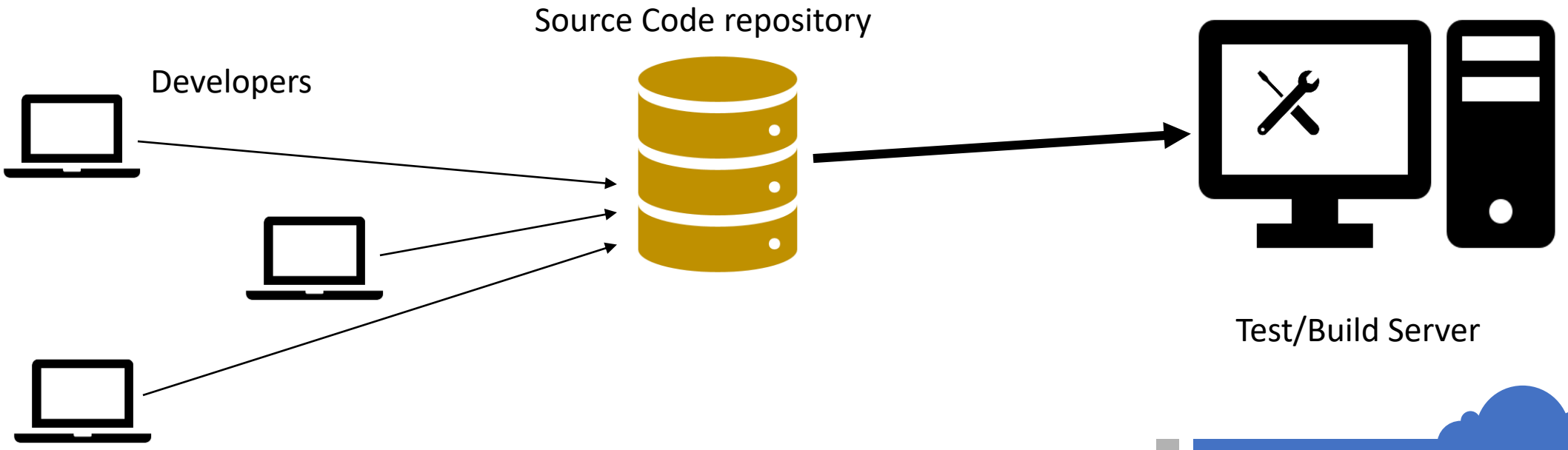
- Publish
- Deploy

Immutable Infrastructure

- Configuration Management
- Infrastructure automation

Continuous Integration

- A Development practice where developer has to integrate code into a shared repository several times.
- Each check-in is verified by automated build, helps detect problems early.
- Build tools like Apache maven can be used to perform the automated build [And even run test cases in each build].



Continuous Integration : Benefits

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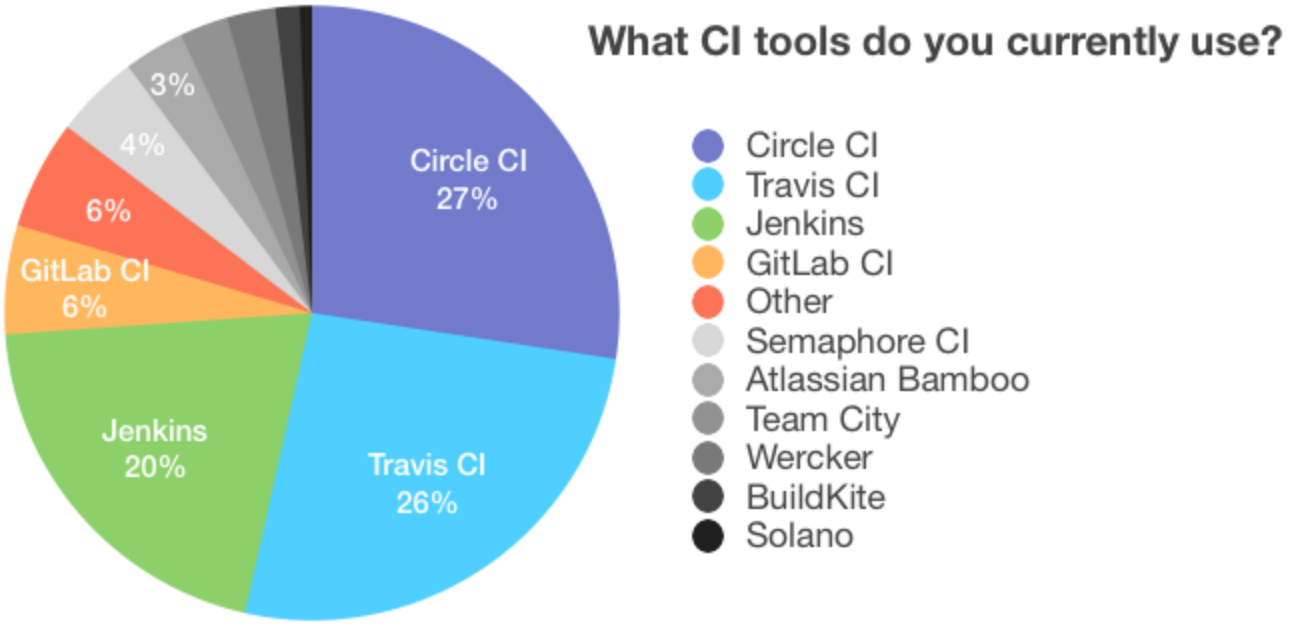
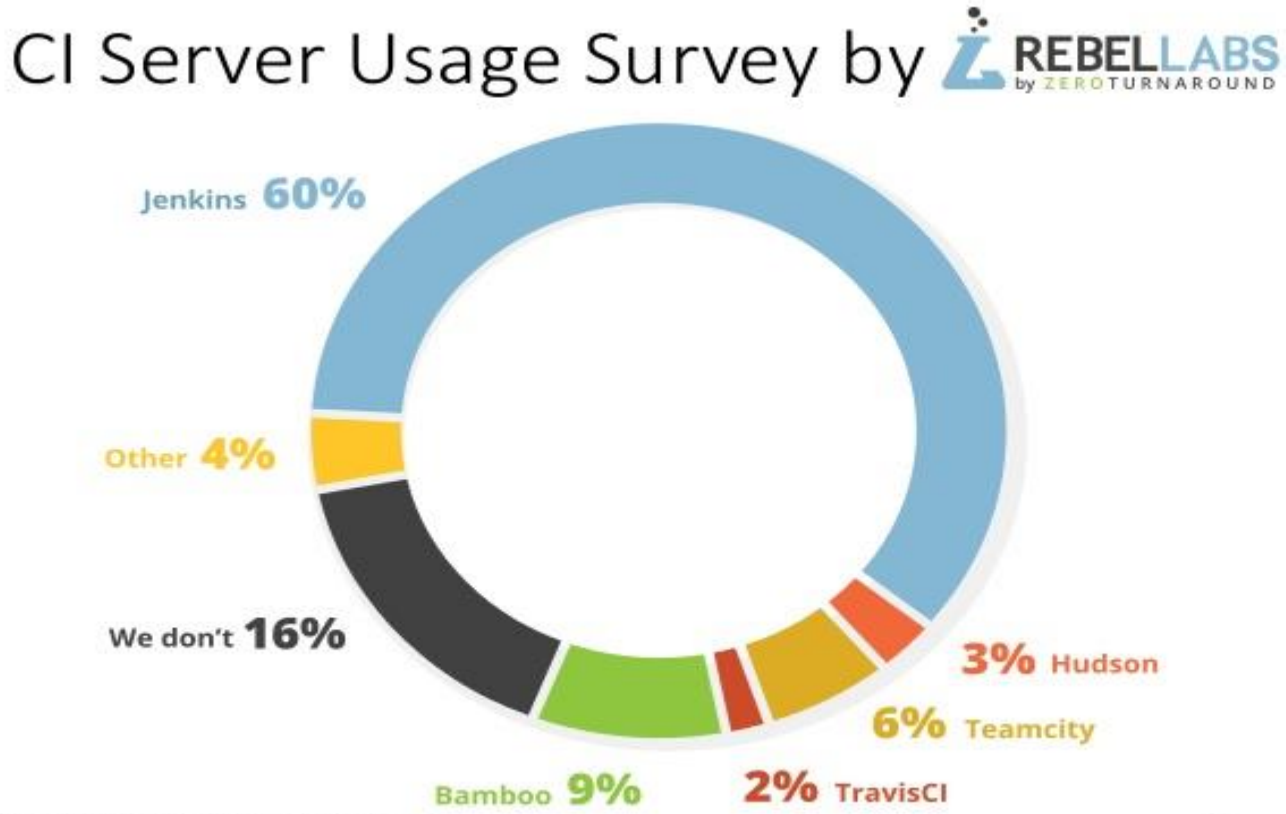
- Catch bugs faster
- All operations transparent to every users
- Build automation
- Faster build cycles
- No wait to check if code working!
- Leads to Continuous Deployment [CD]

Continuous Integration Tools



* As per servey done by Heroku (Customers using Cloud Solutions)
https://blog.heroku.com/building-tools-for-developers-heroku-ci

Continuous Integration Tools



Java Tools and Technologies Landscape Report 2016
https://zeroturnaround.com/rebellabs/java-tools-and-technologies-landscape-2016/

Continuous Integration Tools

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CI SERVERS:

- Jenkins
- Hudson
- Bamboo
- TeamCity
- cruisecontrol
- Travis

BUILD AUTOMATION TOOLS:

- Maven
- gradle
- MAKE
- RAKE

ARTIFACT REPOSITORIES:

- Nexus
- artifactory
- archiva

TEST FRAMEWORKS:

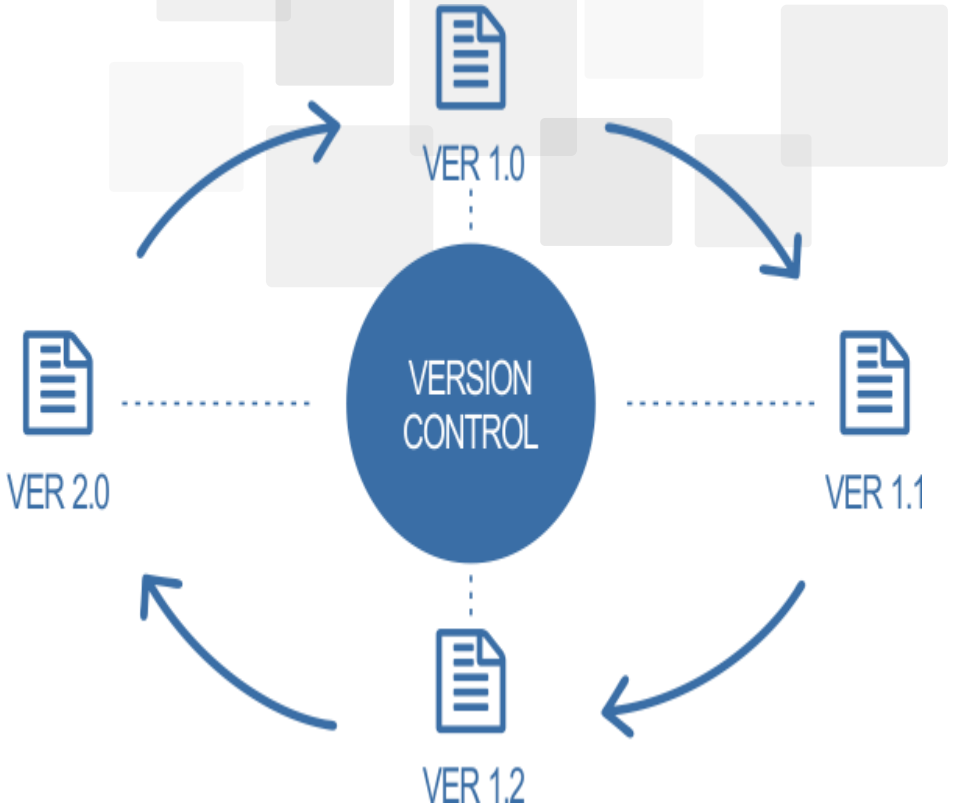
- JUnit
- TestNG
- Selenium

CODE ANALYSIS:

- sonar

Source Code Management / Version Control System

- Maintain multiple revisions (versions) for your source code.
- Allow a quick revert to older revisions (versions).
- Allows maintaining multiple branches.
- Provide collaboration between developers through “Continuous Integration”



git

SUBVERSION

mercurial

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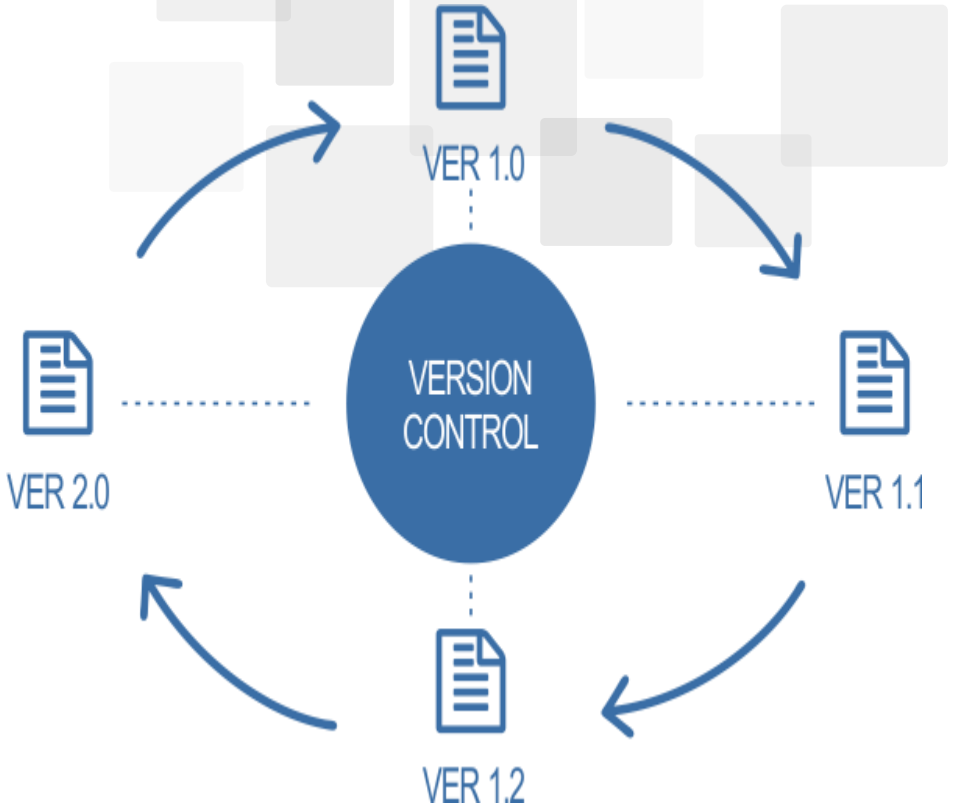


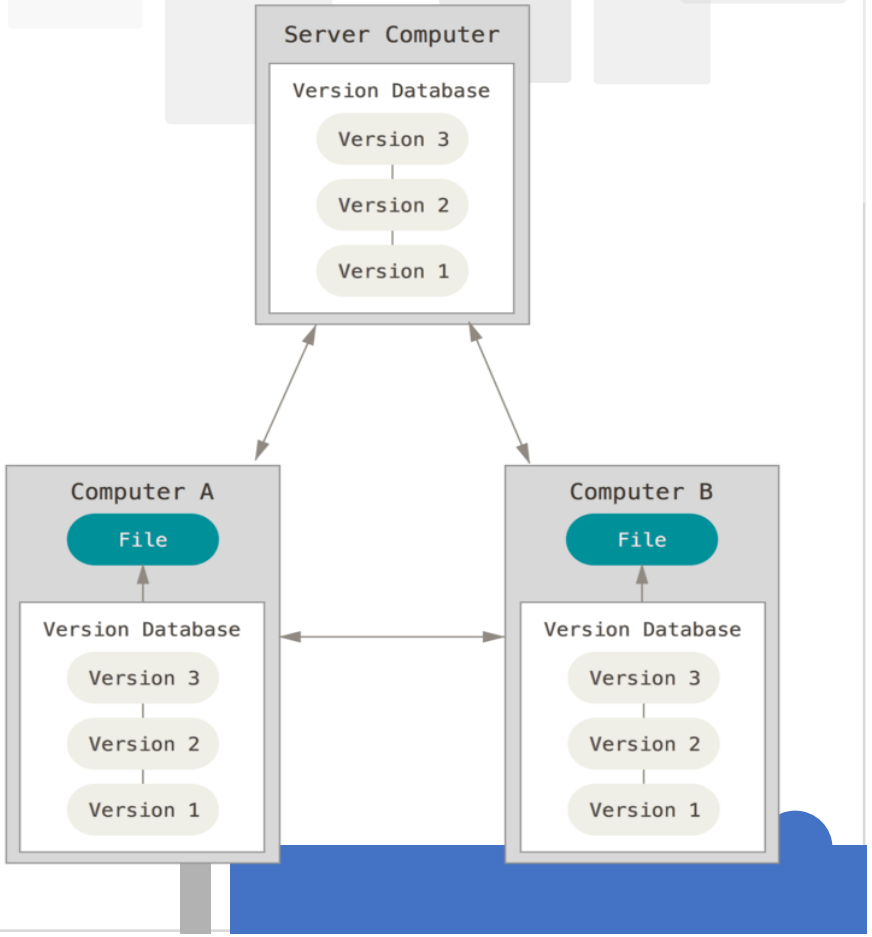
git

SUBVERSION

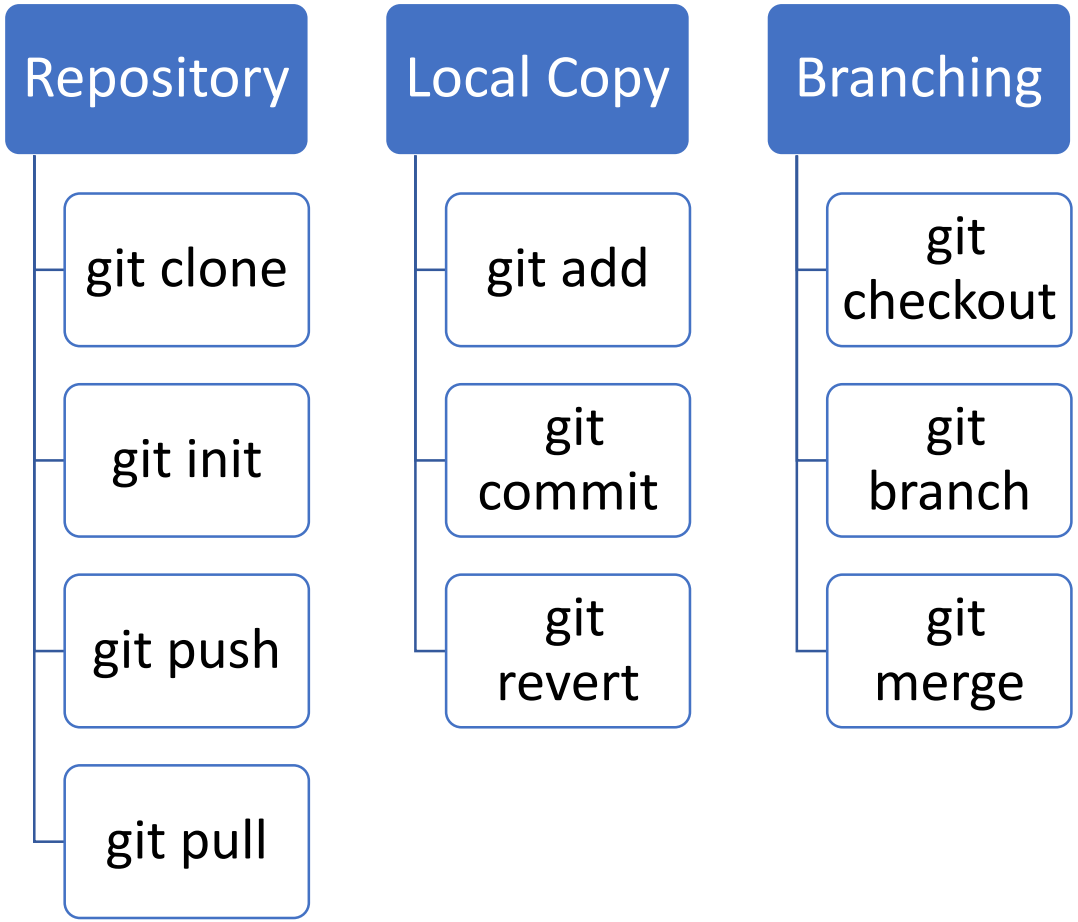
mercurial

Overview of Git

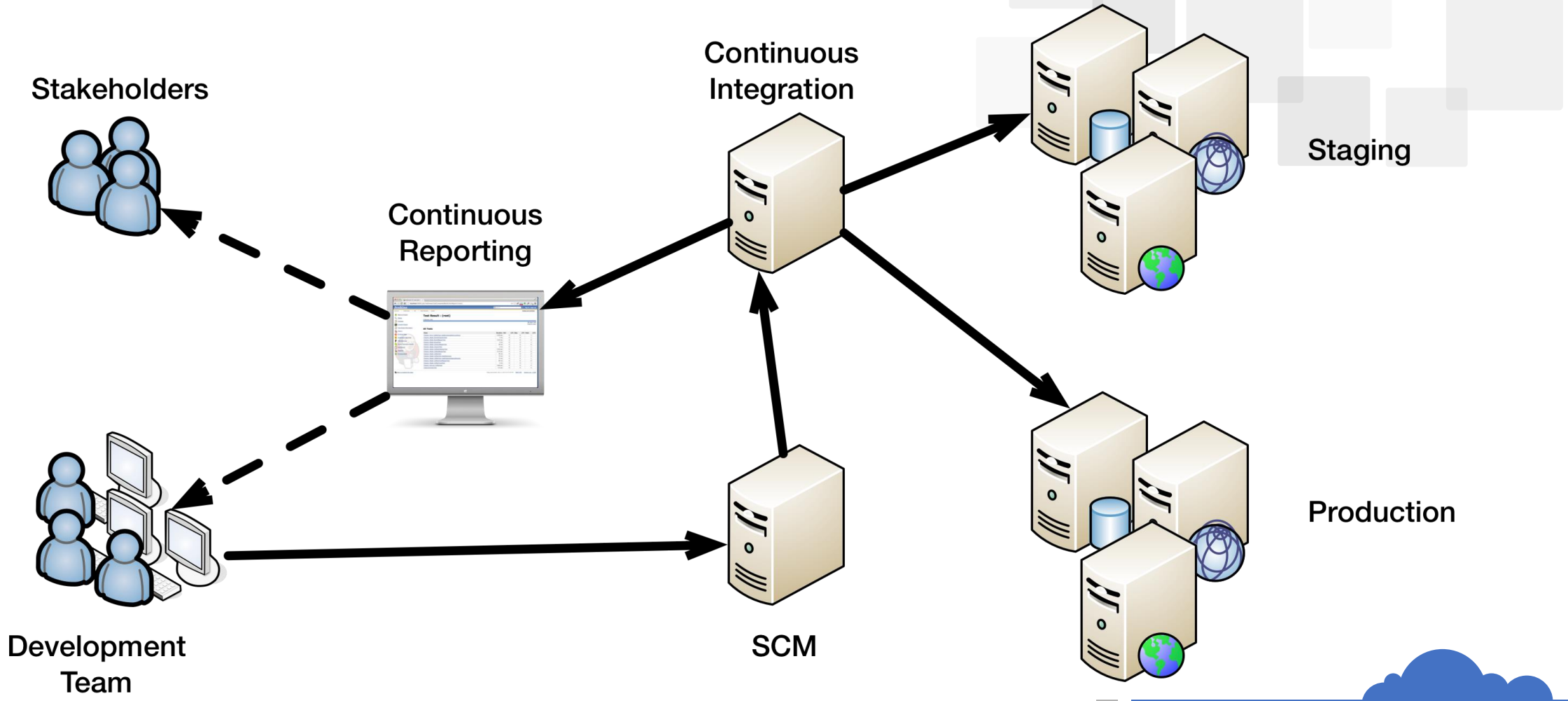
- An Open source distributed version control system designed for speed and efficiency.
- A Distributed nature makes entire version history available to everyone.
- Allows team to work offline.
- Uses snapshots to record revisions/version.
- Most popular SCM in open source community.



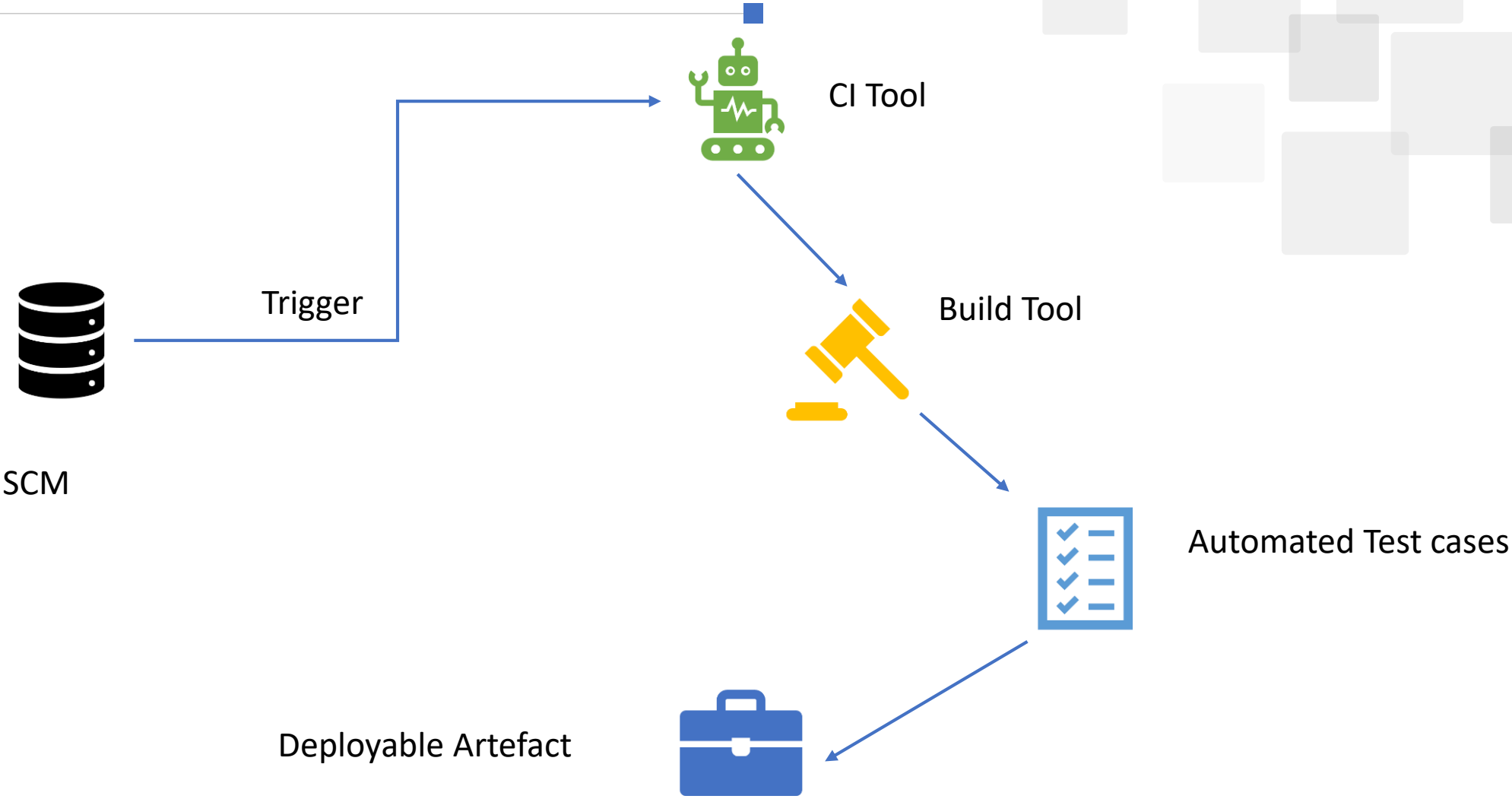
GIT Cheat sheet



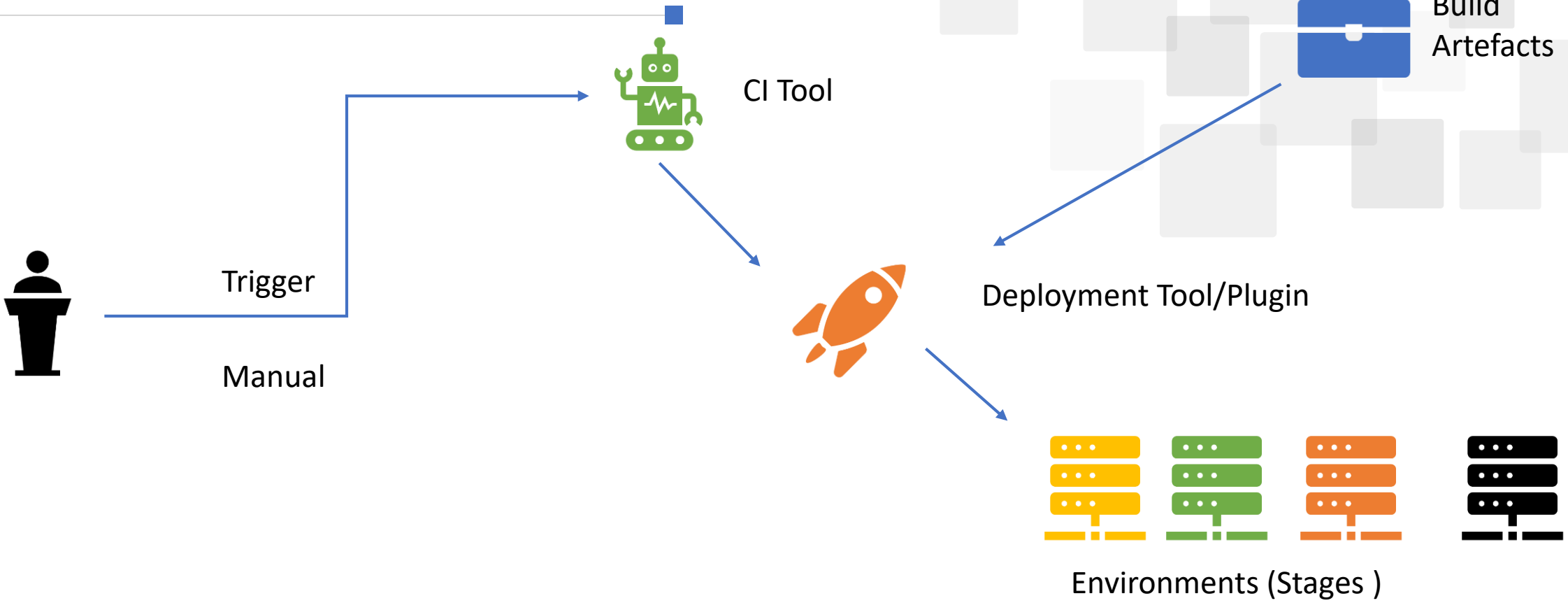
DevOps Work Flow



DevOps Work flows : Continuous Integration (CI)



DevOps Work flows : Continuous Deployment



Introduction to Jenkins

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- Cross – platform CI tool
- Lots of Official and Third party plugins available
- Configurable service hooks for GitHub

Jenkins plug-ins

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SCM

- Git Plugin
- GitHub Plugin
- CVS Plugin
- SVN Plugin
- And more..

Build

- Apache ANT
- Apache Maven
- MSBuild
- And More…

Other

- Publish over FTP
- Pipeline plug-in
- Server Deployers

Jenkins integration with GIT

- Pull code from Git Server [Local or remote]
- Pull code from GitHub repositories
- PollSCM to detect commits
- GitHub service hook to trigger build

Jenkins integration with Other SCM

- Pull code from SVN
- Pull code from CVS
- PollSCM to detect commits in SCM

Build & Release

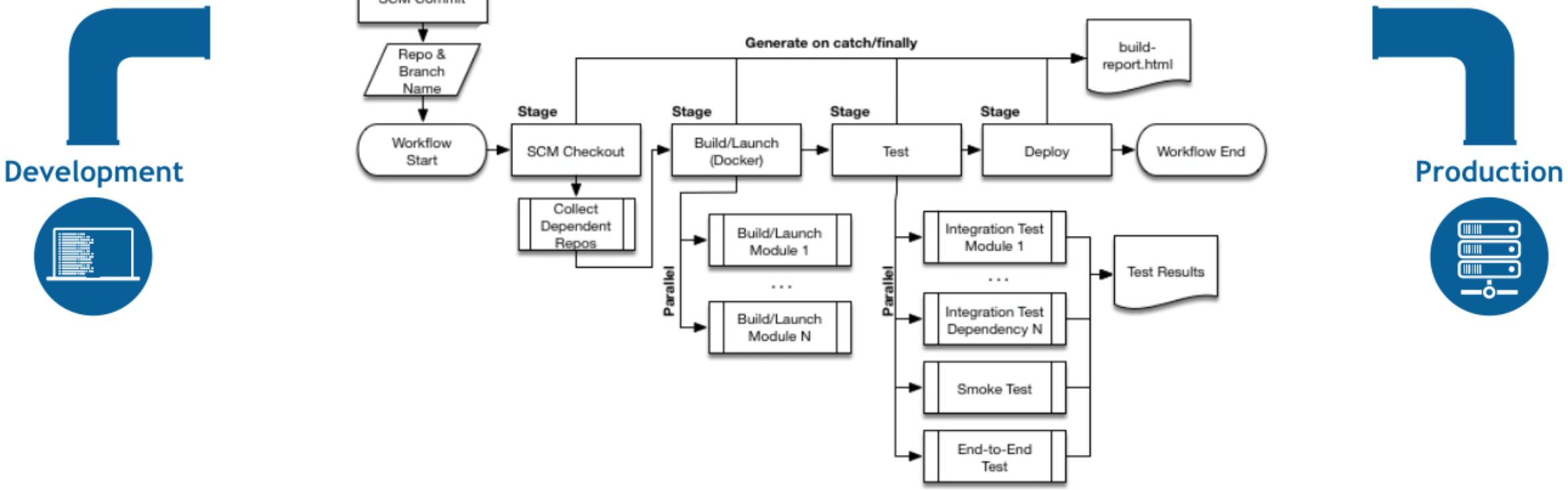
- Build configuration contains
  - SCM Configuration
  - Build Triggers
  - Build Environment
  - Post build actions
- Build Tools supported
  - Apache Maven
  - Apache Ant
  - MS Build
  - Gradle
  - Docker Build
  - Gulp & Grunt

Jenkins Demo

Demonstrating Continuous Integration of Java Web Application

Development Environment:	Java
Server Runtime	Apache Tomcat
Build Tool	Apache ANT
Code Repository	GitHub

Jenkins Pipeline



Jenkins Pipeline

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Jenkinsfile (Declarative Pipeline)

```
pipeline {
    agent any 1
    stages {
        stage('Build') { 2
            steps {
                // 3
            }
        }
        stage('Test') { 4
            steps {
                // 5
            }
        }
        stage('Deploy') { 6
            steps {
                // 7
            }
        }
    }
}
```

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Thank You

Get in Touch with Us

www.synergetics-india.com