DevOps Bangladesh

Dev Ops

free course

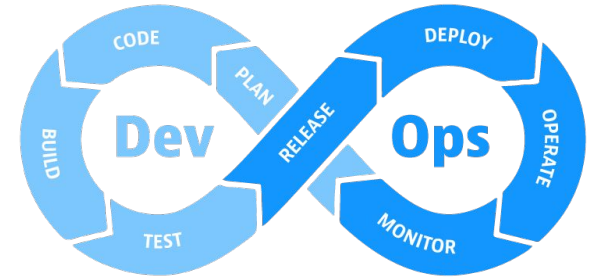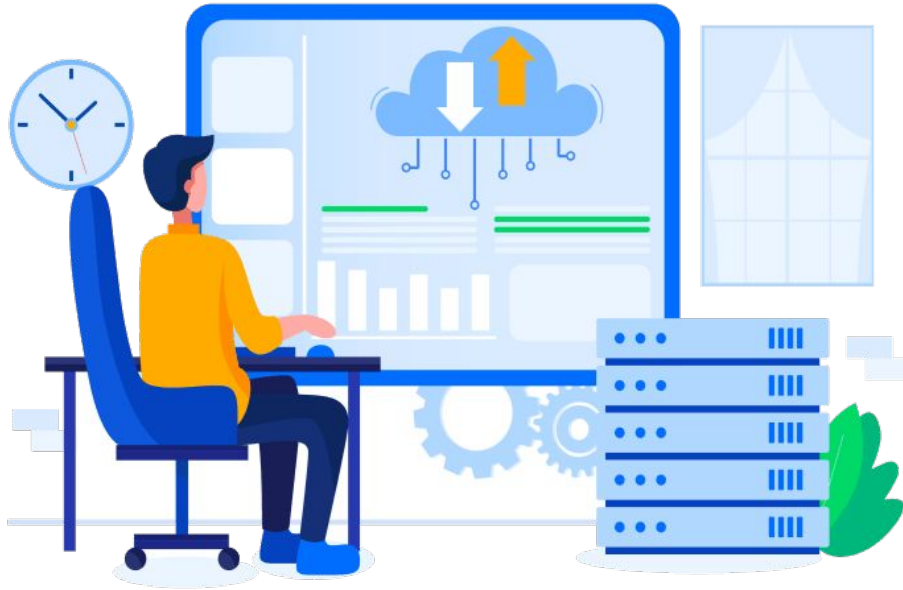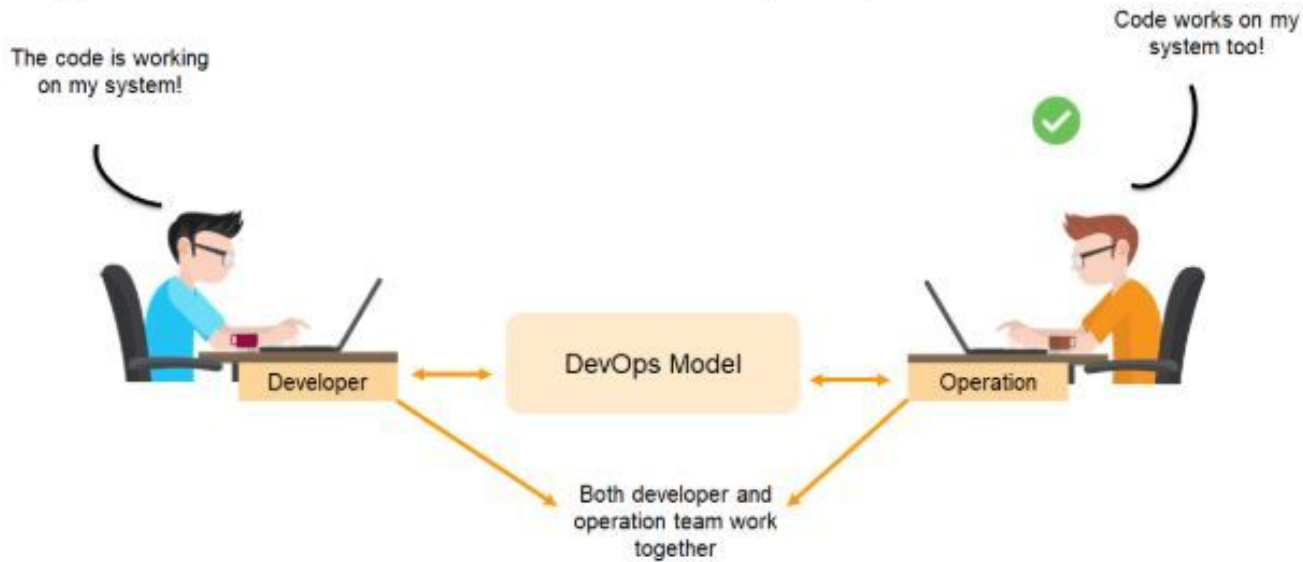groups/devopsgrp

What is DevOps ?

❏ **Combination of cultural philosophies, practices, and tools**

❏ **Culture of shared understanding & responsibility between developers and operations**

❏ **A set of recipe that combines software development and IT operations to increase transparency, communication, and collaboration to deliver continuously.**
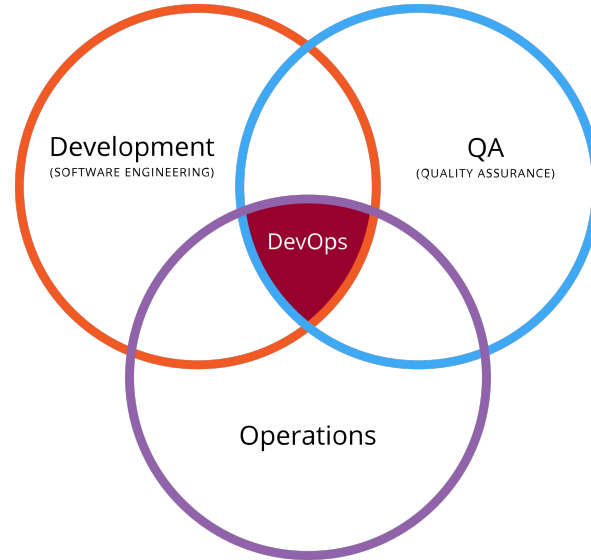
What's DevOps?

| DevOps is a full lifecycle investment | DevOps is a team undertaking | DevOps enables better software development & delivery practices | DevOps accelerates the last mile of continuous delivery |

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How to Start Learning DevOps ?

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Understand the Relationship

Operating System

Basic Networking

- ❏ **Subnetting**
- ❏ **Gateway**
- ❏ **DHCP / NAT**
- ❏ **HTTP**
- ❏ **DNS Name Resolution Concept**

Internet

Servers

135.70.1.0
(Host IP address)   Routers

135.70.2.0
(Network IP address)

135.70.3.0
(Network IP address)

Subnet Mask
(Splits IP addresses into the host and
network addresses)

135.70.2.1
(Device IP address)

135.70.2.2
(Device IP address)

135.70.3.1
(Device IP address)

135.70.3.2
(Device IP address)

Application Clients (End Users)

Application Clients (End Users)

172 . 16 . 254 . 1

10101100 .00010000 .11111110 .00000001

1 byte=8 bits

32 bits (4 x 8), or 4 bytes

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Basic Networking

- ❏ **Firewall - IPTables**
  - ❏ **Incoming/outgoing,**
  - ❏ **Stateful / Non-Stateful ,**
  - ❏ **Layer 3 / Layer 7 Firewalls**
- ❏ **Load balancing Services & Routing Algorithms**
  - ❏ **Round Robin**
  - ❏ **Weighted Round Robin**
  - ❏ **Least Connection**
  - ❏ **Resource Based**

LAN

Firewall

WAN

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Proxy Services

NGINX Part of F5

HAPROXY

Application servers

API gateway
Cache
Load balancer
WAF

Web server
Reverse proxy
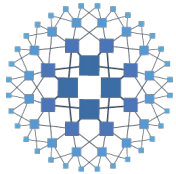
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Programming Language

THE

C

**PROGRAMMING
LANGUAGE**
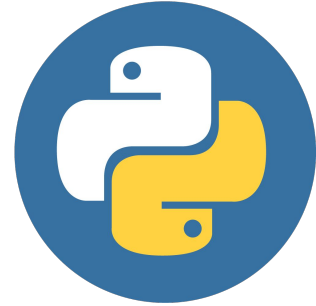
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Version Control System

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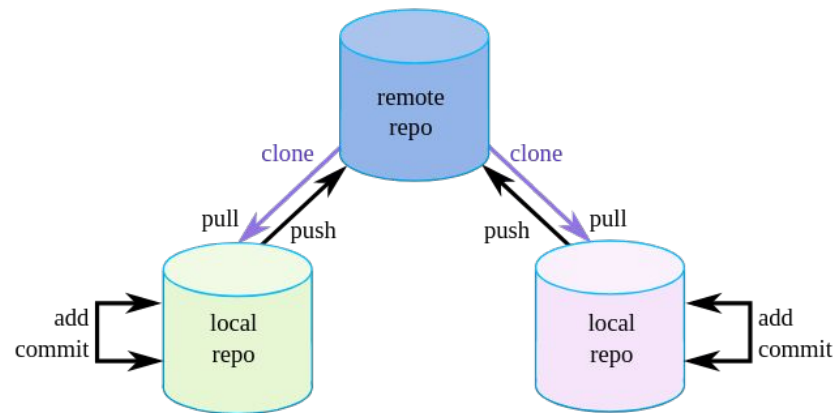
Understanding CICD Pipeline Workflow
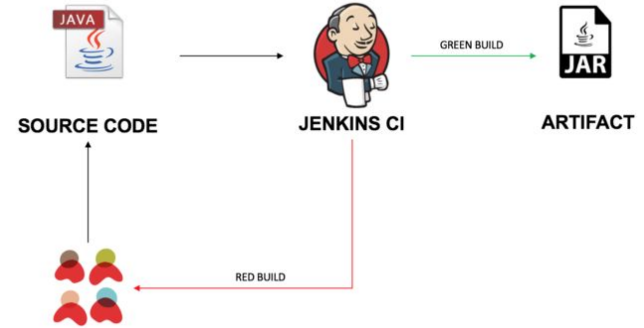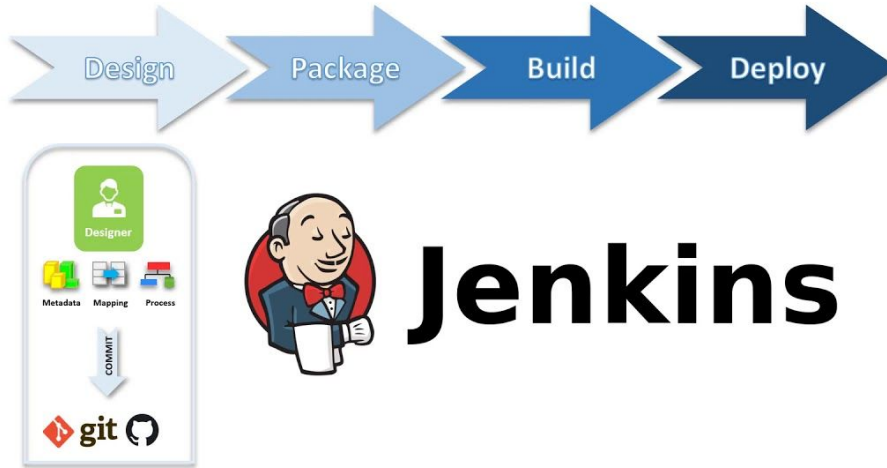
🧰 CICD & Artifactory Tools

Jenkins

The leading open source automation server, Jenkins provides hundreds of plugins to support building, deploying and automating any project.

Artifactory is an intermediary between developers and external resources

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🧰 Project Build Tools

Maven™

❖ **Project Object Model (POM)**

❖ **Extensible With Plugins**

Gradle

❖ **Support Incremental Builds**

❖ **Declarative & Build-By-Convention**

❖ **Mature Ecosystem of Plugins**

❖ **Easy of Migration**

GNU Make

A makefile is useful because **(if properly defined) allows** recompiling only what is needed when you make a change.

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🧰 Configuration Management Tools

❖ **Write Infrastructure As Code (IaC)**

❖ **Keep Identical Environment**

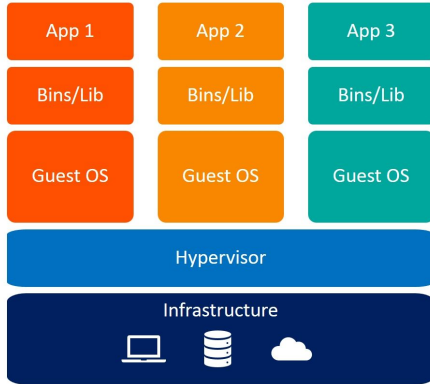❖ **Automate Infrastructure Building**

❖ **Can be use Multiple Times**

CHEF™

ANSIBLE

puppet

HashiCorp Terraform

AWS CloudFormation

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Orchestration Tools

App 1	App 2	App 3
Bins/Lib	Bins/Lib	Bins/Lib
Guest OS	Guest OS	Guest OS
Hypervisor		
Infrastructure		

Virtual Machines

App 1	App 2	App 3
Bins/Lib	Bins/Lib	Bins/Lib
Container Engine		
Operating System		
Infrastructure		

Containers

Linux
KVM

VAGRANT

KUBERNETES — DOCKER / DOCKER / DOCKER
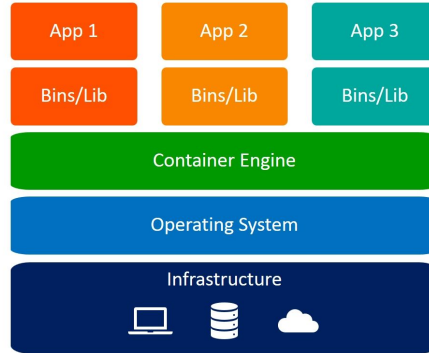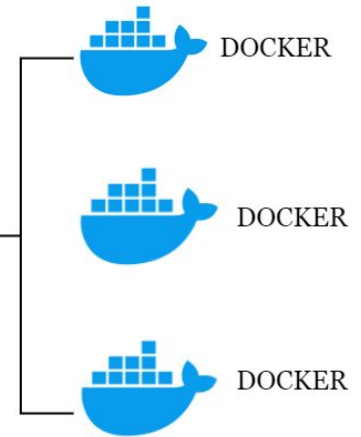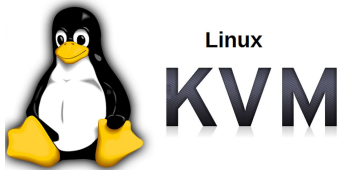
❑ **Container & Image Management**

❑ **Docker Networking**

❑ **Persistem Volume**

❑ **Dockerfile & Docker Compose**

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Cloud Providers

Azure

Google Cloud

LOW COST
FLEXIBILITY
PRODUCTIVITY
COLLABORATION
SECURITY
BENEFITS OF CLOUD COMPUTING
SOFTWARE UPDATE
DATA LOST PREVENTION
MOBILITY
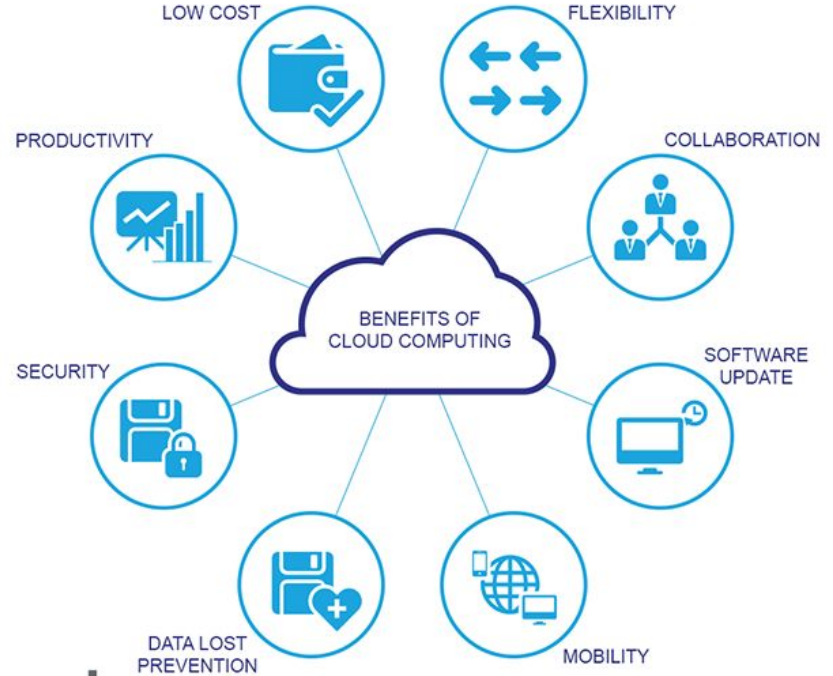
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🧰 Monitoring Tools

Nagios®

ZABBIX
MONITORING SYSTEM

Prometheus

Grafana

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Log Management Tools

② **Data Processing**

③ **Storage**

④ **Visualize**

① **log**

logstash

elasticsearch

kibana

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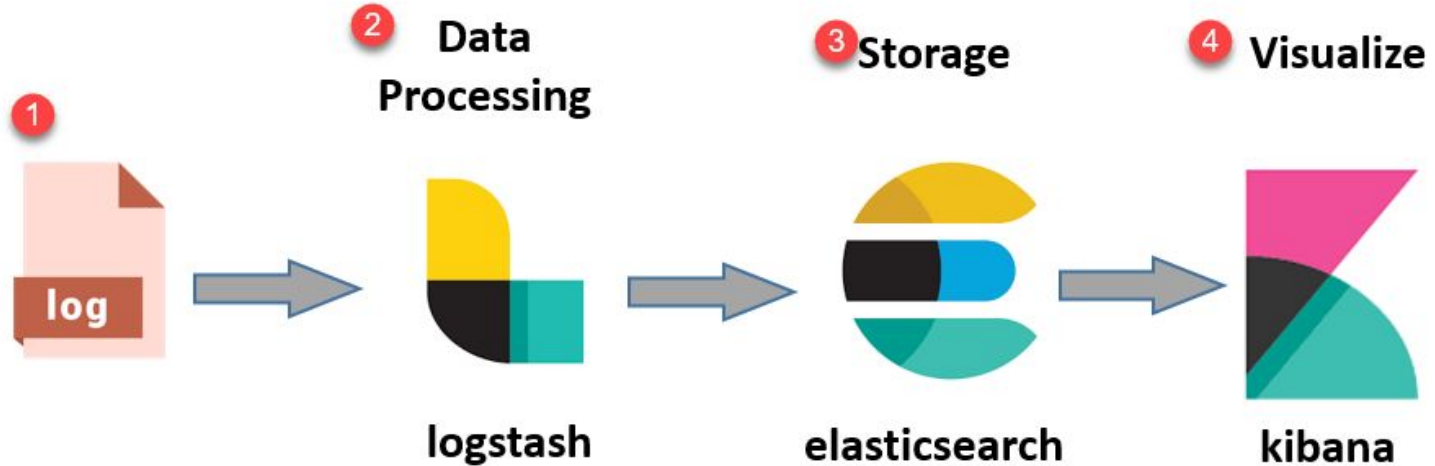
TestNG is an automation testing framework

Testing Tools

APACHE JMeter™

- ❖ **Performance & Load testing**
- ❖ **Multithreading Framework**
- ❖ **Data Analysis & Visualization**
- ❖ **Compatible with HTTP/S**
  SOAP/REST, FTP, JDBC , LDAP,
  Message-Oriented-Middleware
  (MOM), POP3 , IMAP & SMTP

Selenium WebDriver

- ❖ **Testing Framework For Web Application**
- ❖ **Support Multiple Language**

TestNG

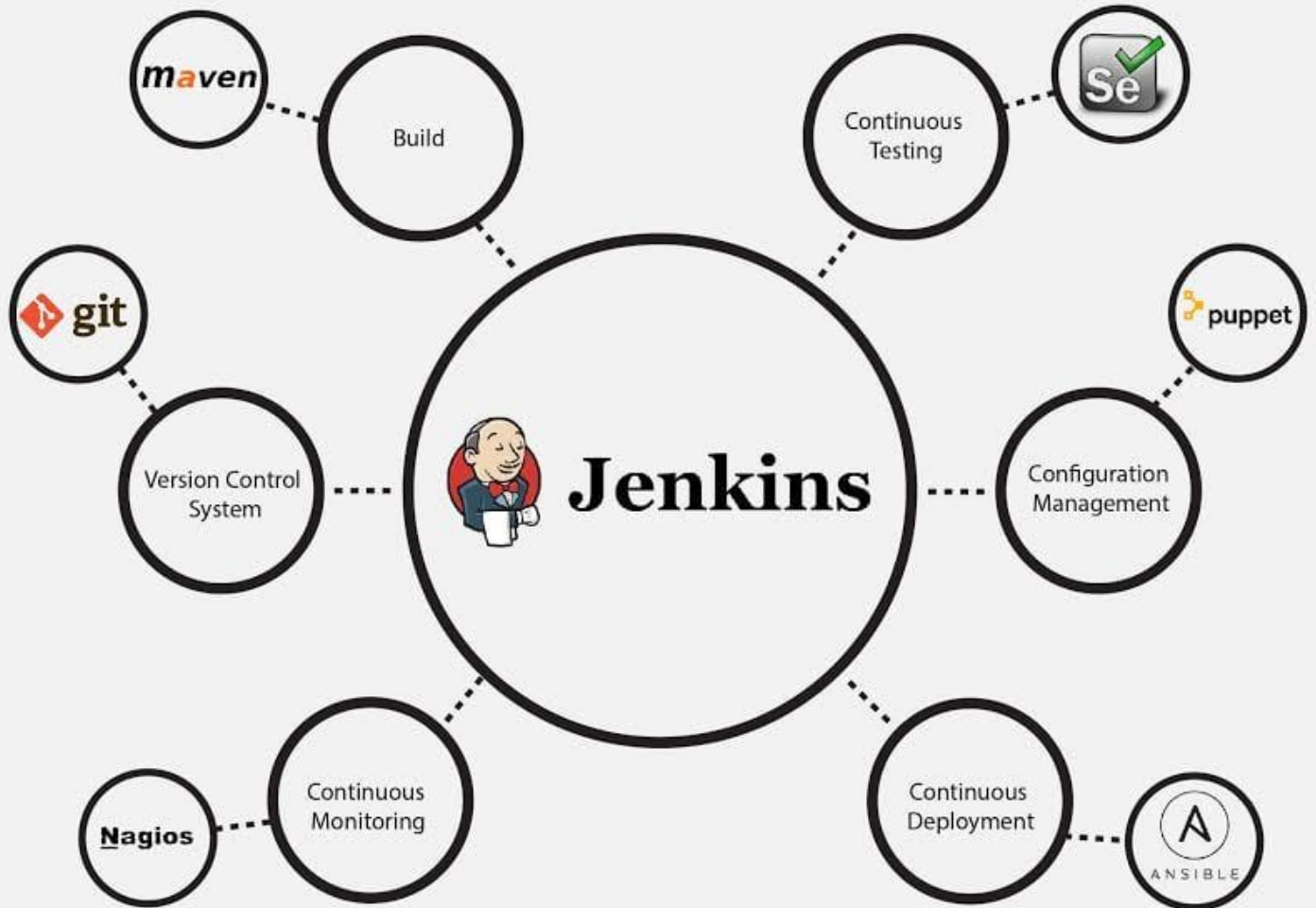- ❖ **TestNG is an automation testing framework**
- ❖ **Support Java Application inspired by JUnit**

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Quick Overview

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