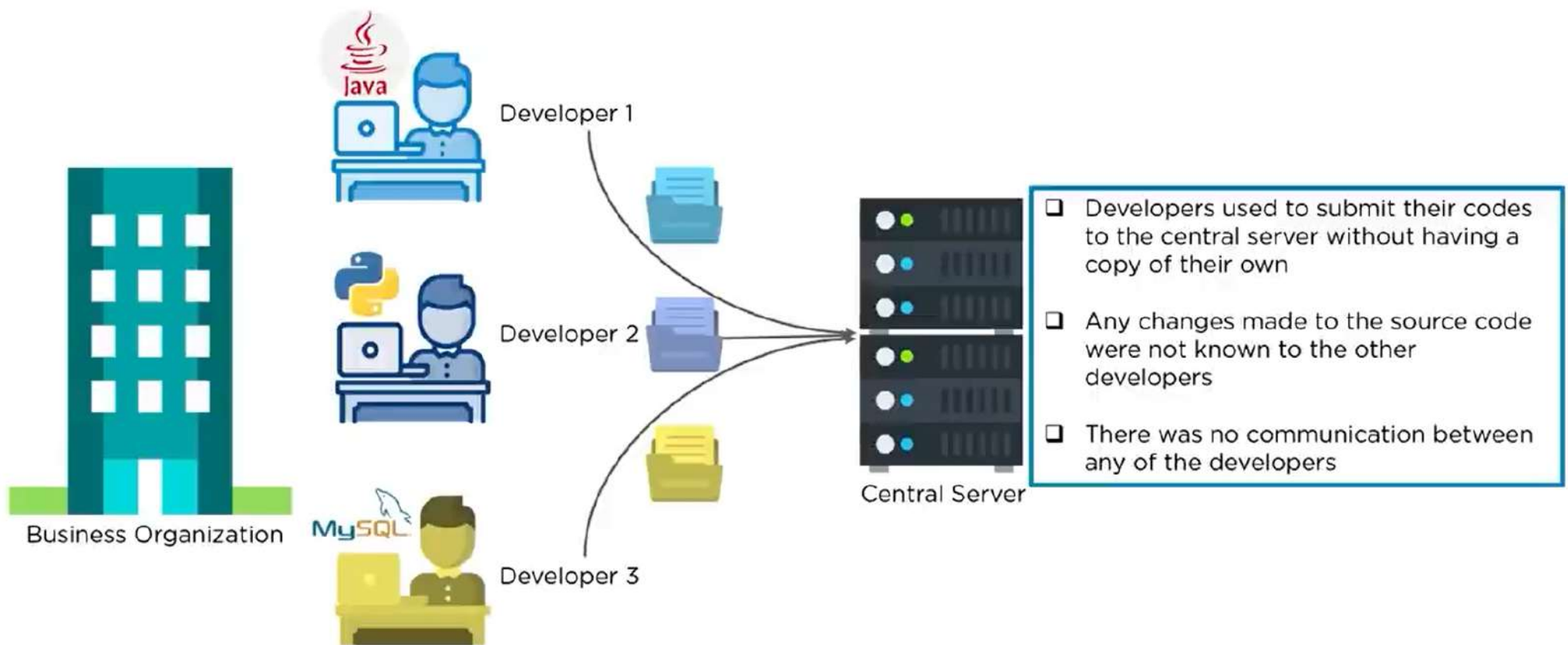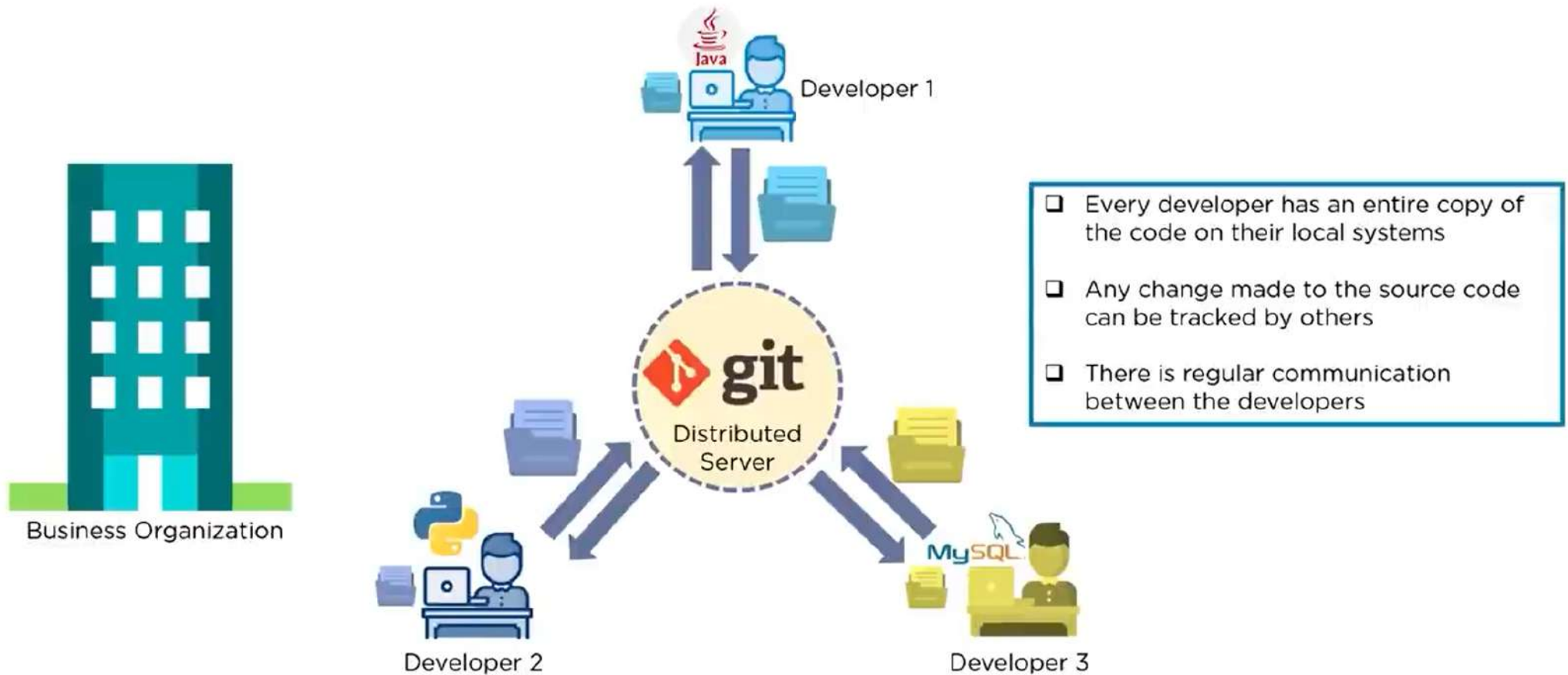# What's in it for you?

- **Git Basics**
- **Installing Git**
- **GitHub**
- **Git vs GitHub**
- **Git Commands**
- **Git Merge Conflict**
- **Git Interview Questions**

Scenario before Git

Business Organization

Developer 1

Developer 2

Developer 3

Central Server

❑ Developers used to submit their codes to the central server without having a copy of their own

❑ Any changes made to the source code were not known to the other developers

❑ There was no communication between any of the developers

Scenario after Git

- Every developer has an entire copy of the code on their local systems
- Any change made to the source code can be tracked by others
- There is regular communication between the developers

What's in it for you?

What is DevOps?

Tools in DevOps

Version Control System

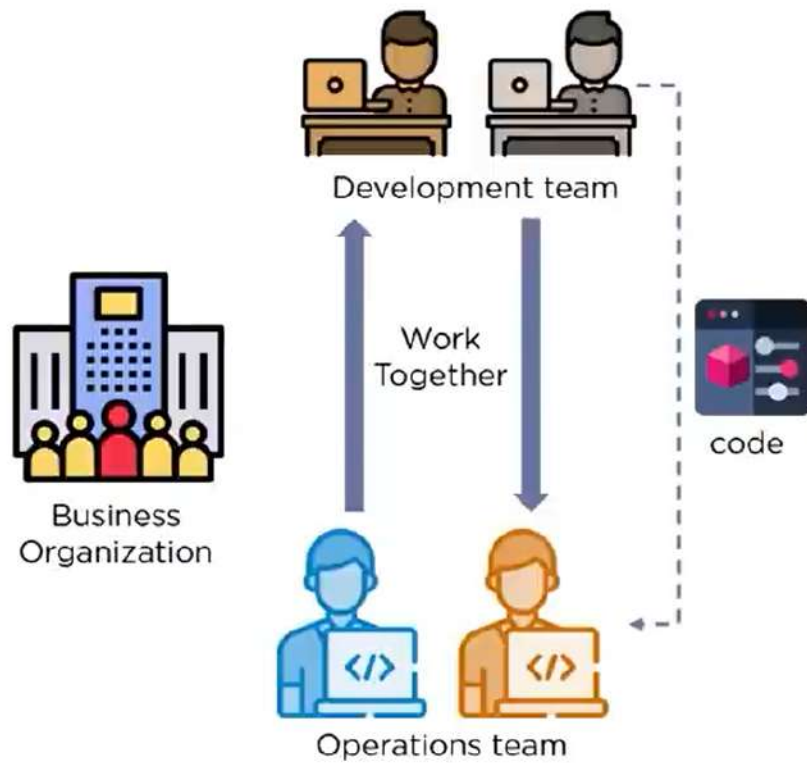Centralized Vs Distributed Version Control System

What is Git?

Features of Git

Workflow of Git

Branch in Git

Commands in Git

Demo on Git

What is DevOps?

- DevOps is a culture that allows Development and Operations team to work together
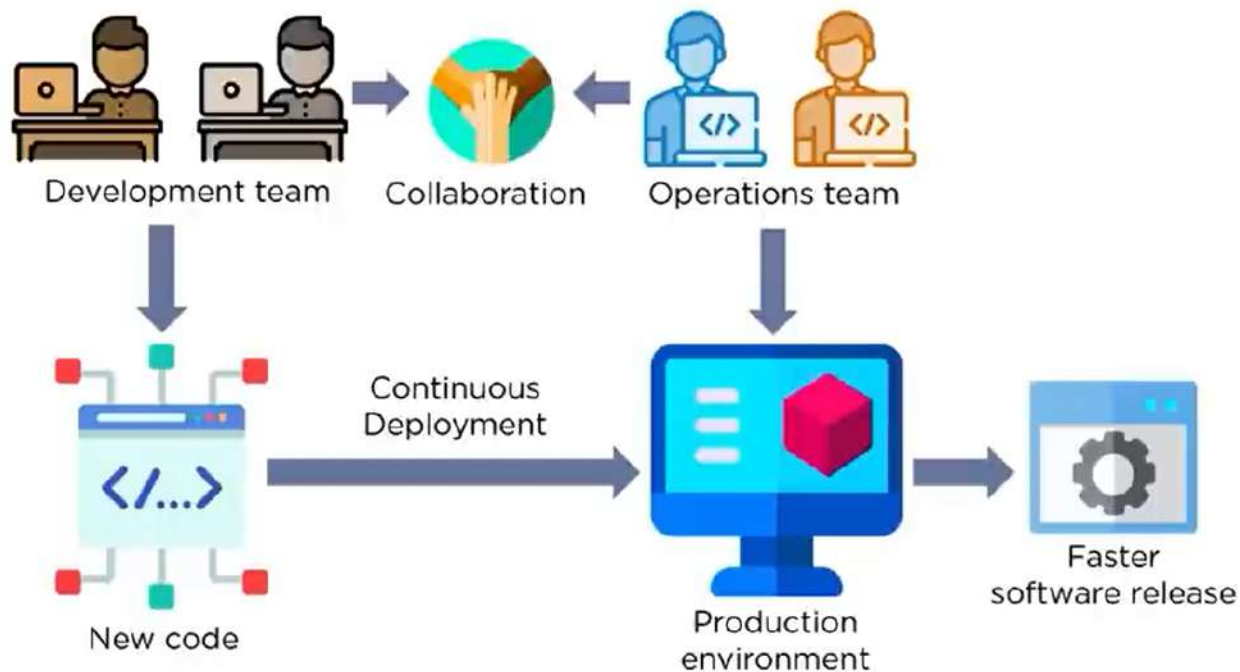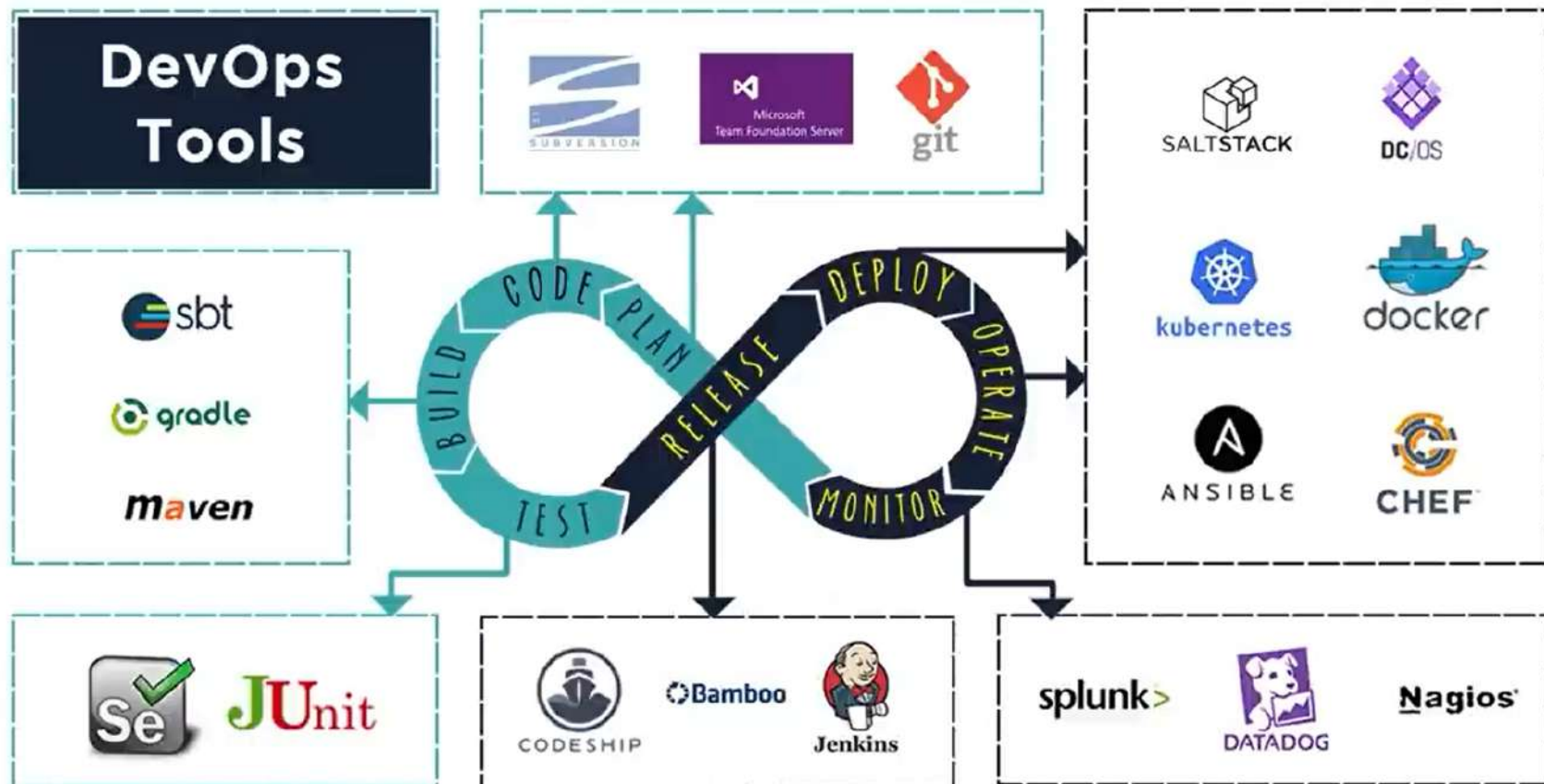
What is DevOps?

Development team

New code

- DevOps is a culture that allows Development and Operations team to work together

- Developers continuously develop and test codes

What is DevOps?

Development team — Collaboration — Operations team

New code → Continuous Deployment → Production environment → Faster software release

- DevOps is a culture that allows Development and Operations team to work together

- Developers continuously develop and test codes

- There is continuous integration taking place through out the lifecycle

- Operations team continuously deploy the codes to the production environment

- Allows better collaboration, increased trust and faster software releases

Tools is DevOps

Source Code Management Tools

SVN is a centralized version control system

It is distributed under the open source license

It allows you to recover older versions of your data or examine how your data changes

Source Code Management Tools

TFS

TFS is a centralized source control tool like SVN

It is distributed under the Trailware license

TFS is an application lifecycle management solution that does issue tracking and document management
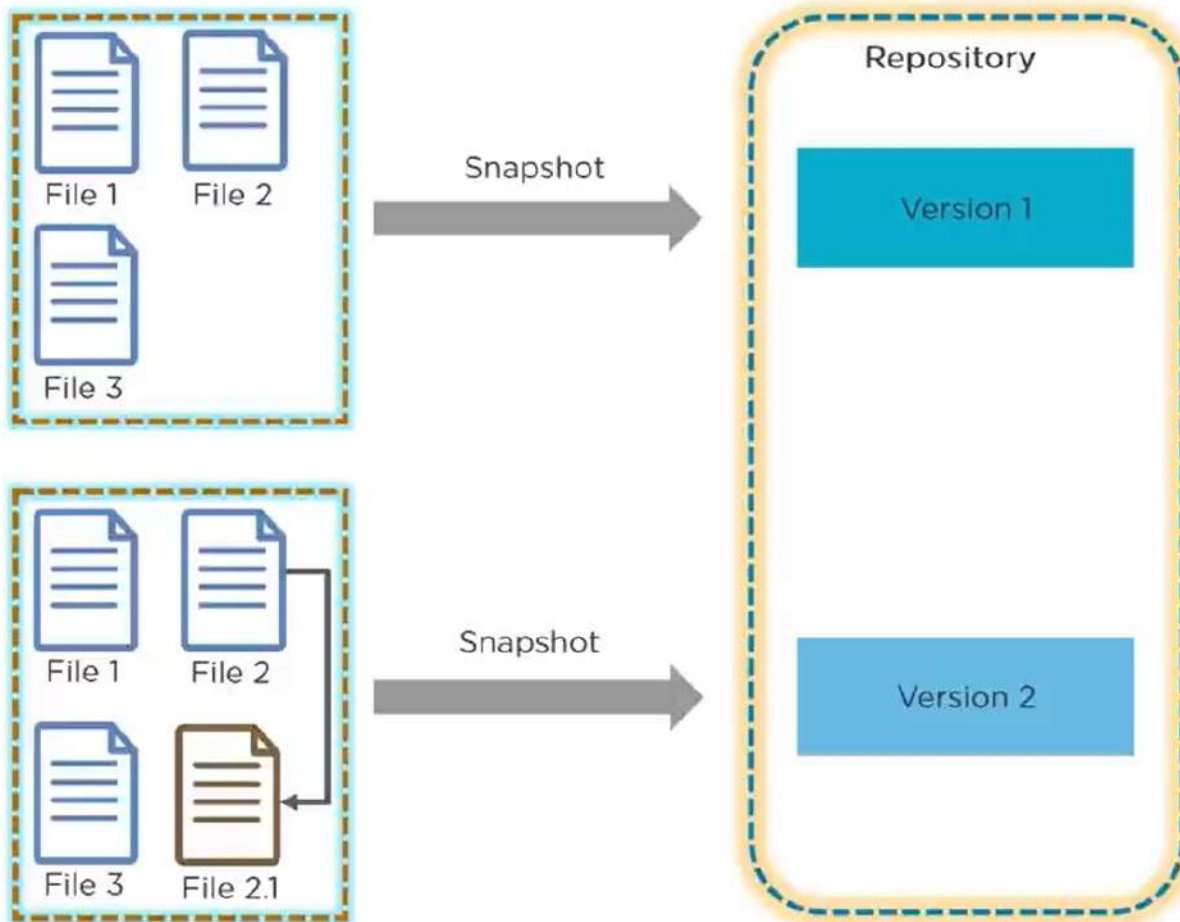
Source Code Management Tools

Git is a distributed version control tool

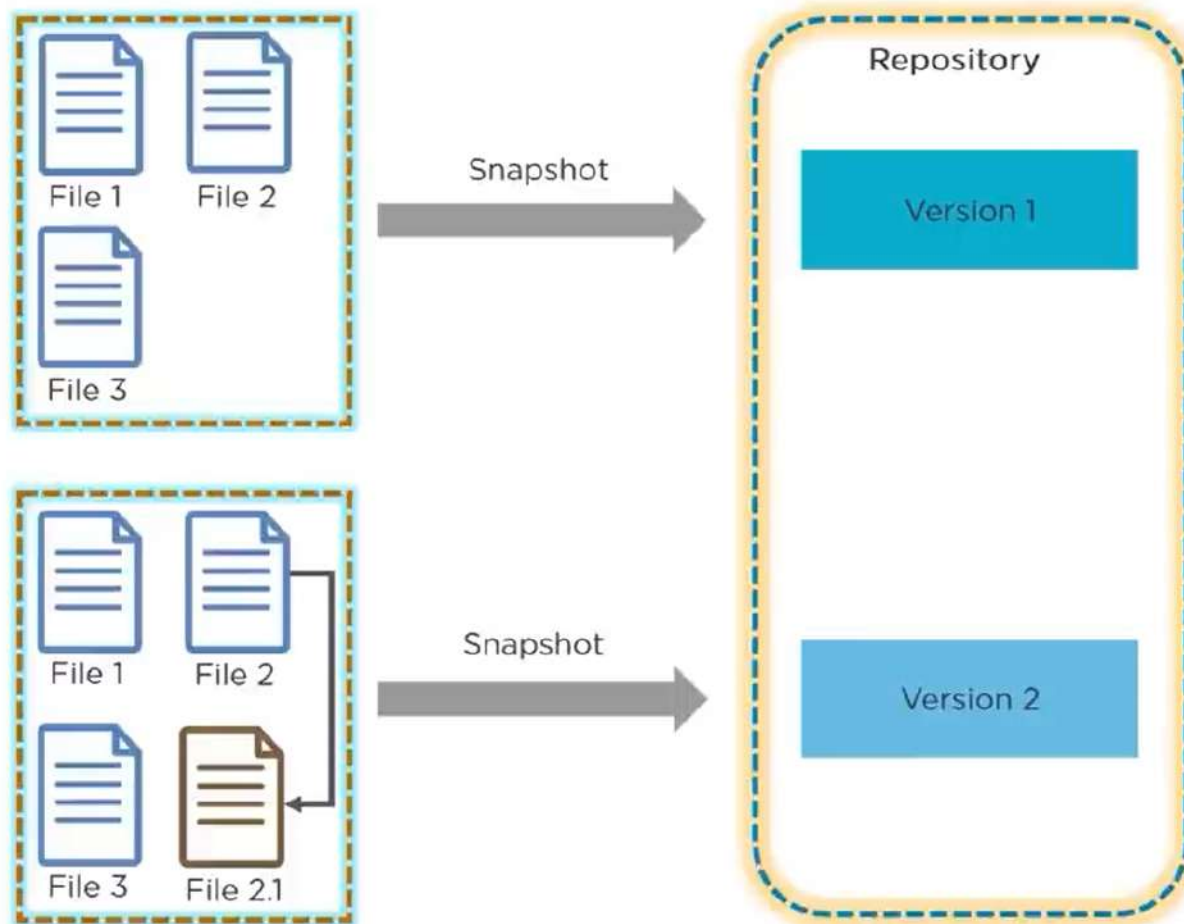It is distributed under the GNU license

Git is a used for maintaining historical and current versions of source code, web pages, etc

Version Control System (VCS)

Repository

Snapshot

Version 1

Snapshot

Version 2

File 1   File 2
File 3

File 1   File 2
File 3   File 2.1

- The diagram shows there are 3 files in the local system

- A snapshot of these files are stored in the remote repository as Version 1

- Now, there has been some changes to file 2 and is updated to file 2.1. This change is stored as Version 2 in the repository
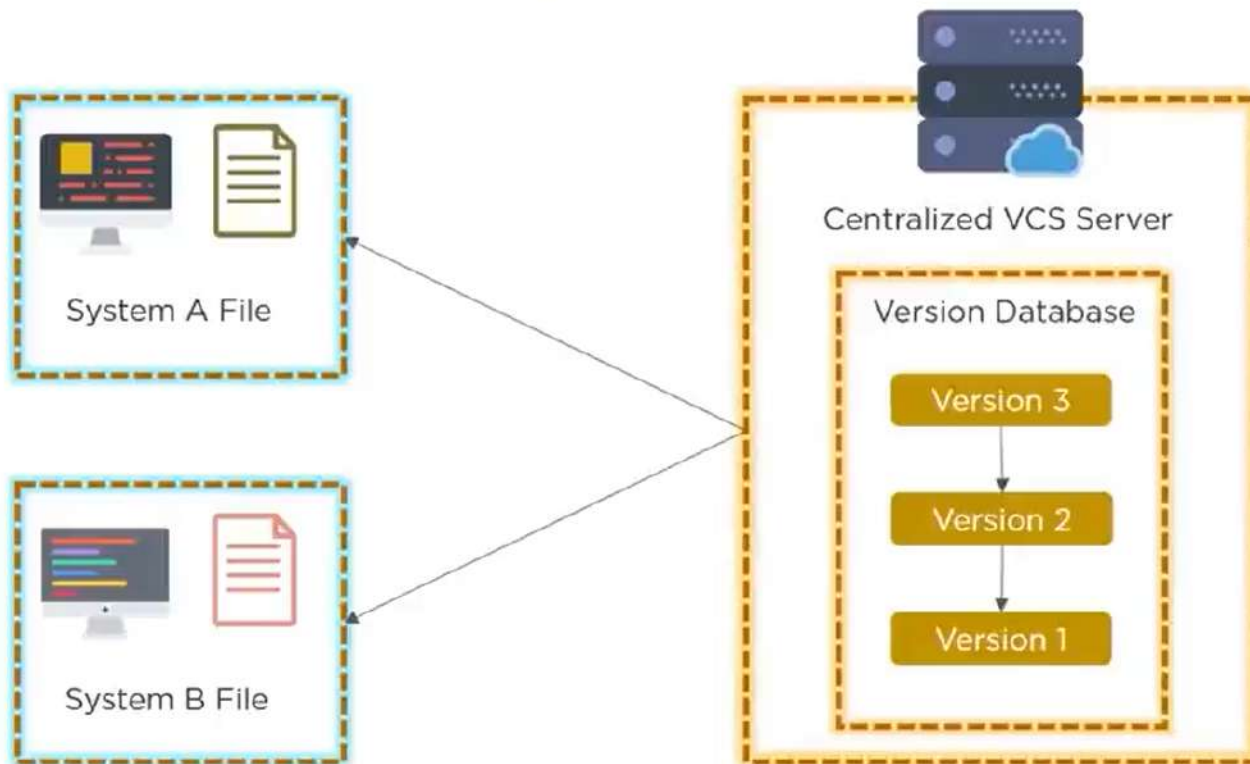
Version Control System (VCS)

- The diagram shows there are 3 files in the local system

- A snapshot of these files are stored in the remote repository as Version 1

- Now, there has been some changes to file 2 and is updated to file 2.1. This change is stored as Version 2 in the repository

- VCS allows you to track the history of a collection of files

- Each version captures a snapshot of the files at a certain point in time and the VCS allows you to switch between these versions

Centralized Version Control System

Centralized Version Control System

Centralized VCS Server

System A File

System B File

Version Database

Version 3

Version 2

Version 1

- It uses a central server to store all the files

- Every operation is performed directly on the repository

- All the versions of the file are stored on the Central VCS server

- In case the central server crashes, entire data of the project will be lost. Hence, Distributed VCS was introduced

Distributed Version Control System

Distributed Version Control System

Distributed Version Control System

System A file

Version Database
- Version 3
- Version 2
- Version 1

System B file

Version Database
- Version 3
- Version 2
- Version 1

Distributed VCS Server

Version Database
- Version 3
- Version 2
- Version 1

- Every programmer has a copy of all the versions of the code on their local system

- Distributed VCS moves from the client-server approach of Central VCS to peer-to-peer approach

- They can update their local repositories with new data from the central server and changes gets reflected to the main repository

- Git is one such Distributed VCS tool