SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

COURSE NAME : 19CS302 AGILE SOFTWARE ENGINEERING

II YEAR /III SEMESTER

Unit 2- Agile Development

Topic 8: Agile-GITHUB

Brain Storming

1. How to control and traceout the different versions of software?

What is a ‘version control system?’

- A way to manage files and directories
- Track changes over time
- Recall previous versions
- ‘source control’ is a subset of a VCS.

Some history of source control…

(1972) Source Code Control System (SCCS)
- closed source, part of UNIX

(1982) Revision Control System(RCS)
- open source

(1986) Concurrent Versions System (CVS)
- open source

(2000) Apache Subversion (SVN)
- open source

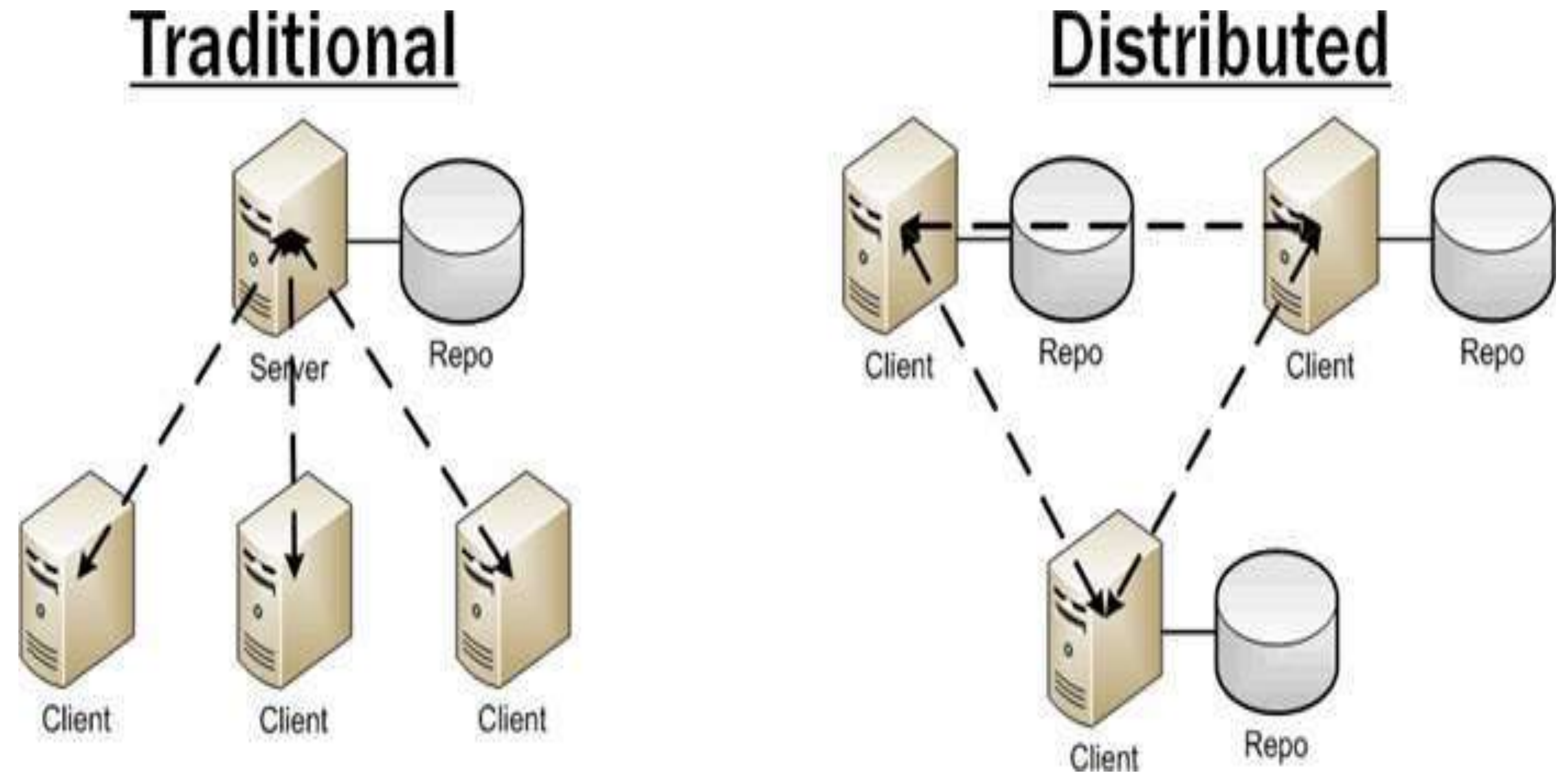
...more history

(2000) BitKeeper SCM

- closed source, proprietary, used with source code management of Linux kernel
- free until 2005
- distributed version control

Distributed version control

- No central server
- Every developer is a client, the server and the repository



What is git?

- created by Linus Torvalds, April 2005
- replacement for BitKeeper to manage Linux kernel changes
- a command line version control program
- uses checksums to ensure data integrity
- distributed version control (like BitKeeper)
- cross-platform (including Windows!)
- open source, free

What is Git?

- Git is a Version Control System (VCS) designed to make it easier to have multiple versions of a code base, sometimes across multiple developers or teams
- It allows you to see changes you make to your code and easily revert them.
- It is <u>NOT GITHUB!</u>

Is Git for me?

- People primarily working with source code
- Anyone wanting to track edits (especially changes to text files)
  - review history of changes
  - anyone wanting to share, merge changes
- Anyone not afraid of command line tools

Most popular languages used with Git

- HTML
- CSS
- Javascript
- Python
- ASP
- Scala
- Shell scripts
- PHP
- Ruby
- Ruby on Rails
- Perl
- Java
- C
- C++
- C#
- Objective C
- Haskell
- CoffeeScript
- ActionScript

Not as useful for image, movies, music…and files that must be interpreted (.pdf, .psd, etc.)

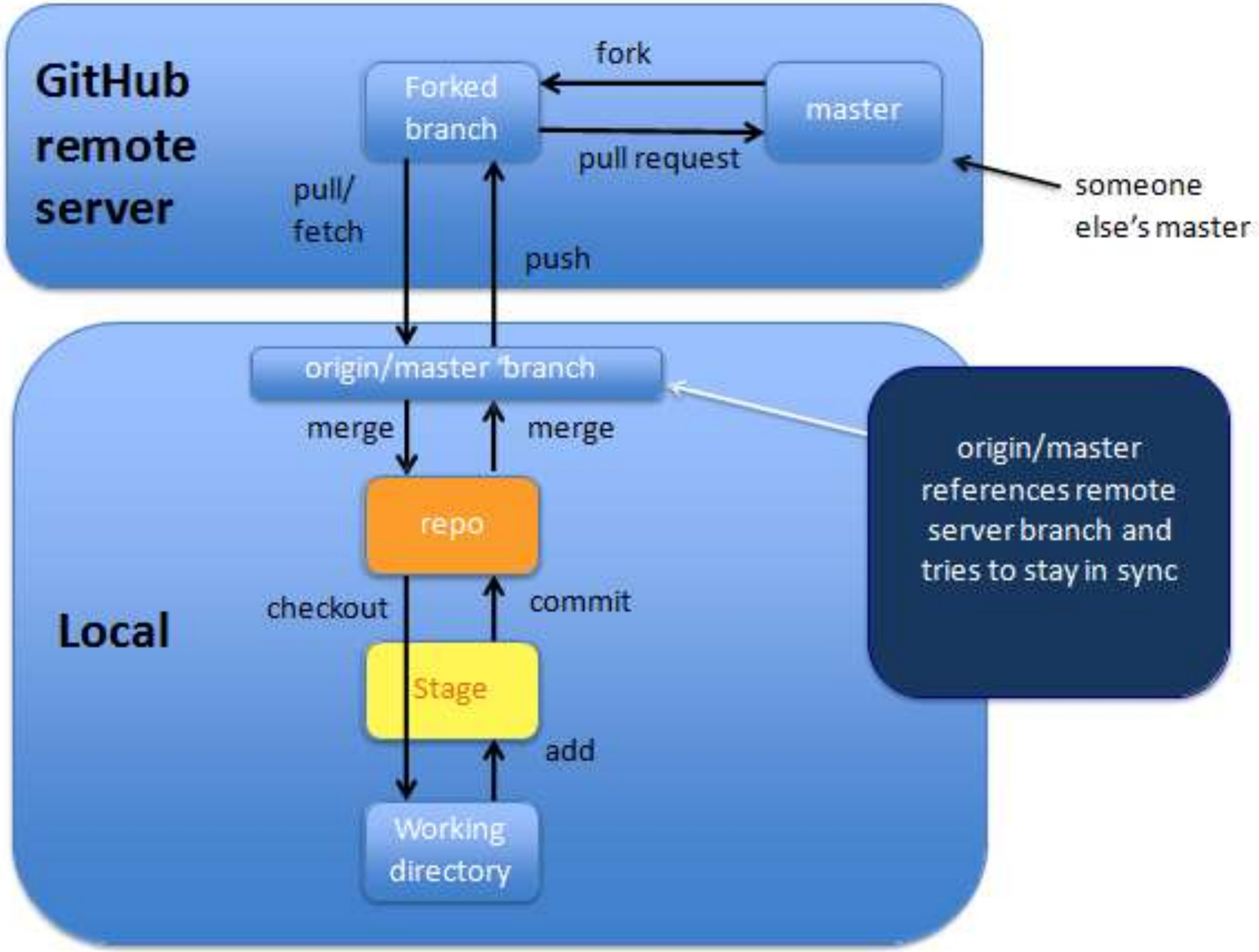
Ok, then what is Github?

- **Github.com** is a website that hosts git repositories on a remote server
- Hosting repositories on Github facilitates the sharing of codebases among teams by providing a GUI to easily fork or clone repos to a local machine
- By pushing your repositories to Github, you will pretty much automatically create your own developer portfolio as well!

Ok, then what is Github?

- **a platform to host git code repositories**
- http://github.com
- launched in 2008
- most popular Git host allows users to collaborate on projects from anywhere
- GitHub makes git social!
- Free to start

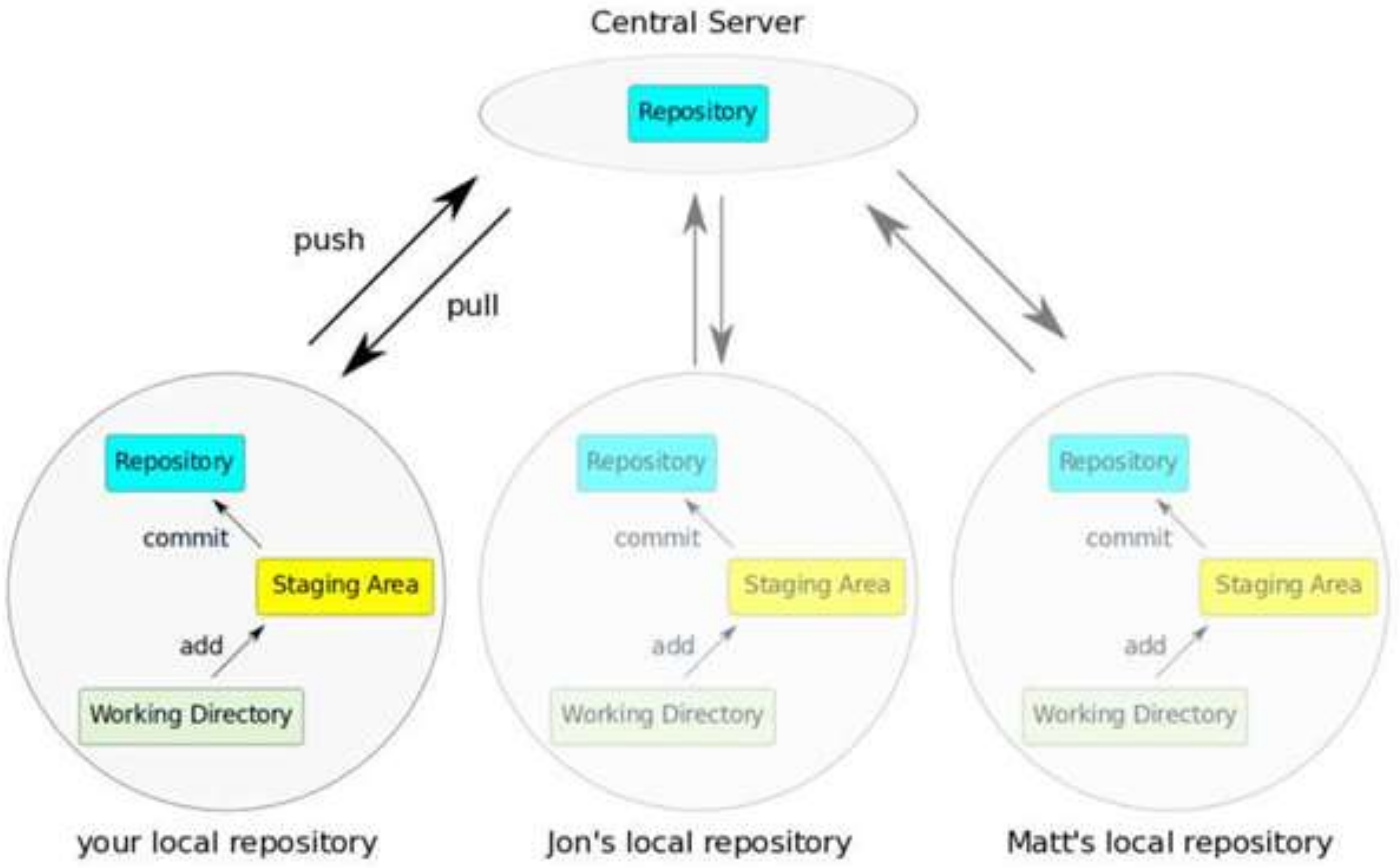
Github-Workflow



origin/master references remote server branch and tries to stay in sync

Important to remember

•Sometimes developers choose to place repo on GitHub as a centralized place where everyone commits changes, but it doesn’t have to be on GitHub.


Central Server
Repository
push
pull
Repository
commit
Staging Area
add
Working Directory
your local repository
Repository
commit
Staging Area
add
Working Directory
Jon's local repository
Repository
commit
Staging Area
add
Working Directory
Matt's local repository

How does git work?

- Can be complicated at first, but there are a few key concepts
- Important git terminology in following slides are blue

Key Concepts: Snapshots

- The way git keeps track of your code history
- Essentially records what all your files look like at a given point in time
- You decide when to take a snapshot, and of what files
- Have the ability to go back to visit any snapshot
- Your snapshots from later on will stay around, too

Key Concepts: Commit

- The act of creating a snapshot
- Can be a noun or verb
  - “I commited code”
  - “I just made a new commit”
- Essentially, a project is made up of a bunch of commits

Key Concepts: Commit

- Commits contain three pieces of information:

1. Information about how the files changed from previously
2. A reference to the commit that came before it
   - Called the "parent commit"
3. A hash code name
   - Will look something like:

     fb2d2ec5069fc6776c80b3ad6b7cbde3cade4e

Key Concepts: Repositories

- Often shortened to 'repo'
- A collection of all the files and the history of those files
  - Consists of all your commits
  - Place where all your hard work is stored

Key Concepts: Repositories

- Can live on a local machine or on a remote server (GitHub!)
- The act of copying a repository from a remote server is called cloning
- Cloning from a remote server allows teams to work together

Key Concepts: Repositories

- The process of downloading commits that don’t exist on your machine from a remote repository is called pulling changes
- The process of adding your local changes to the remote repository is called pushing changes

Key Concepts: Branches

- All commits in git live on some branch
- But there can be many, many branches
- The main branch in a project is called the master branch

Key Concepts: Branching off of the master branch

- The start of a branch points to a specific commit
- When you want to make any changes to your project you make a new branch based on a commit

Key Concepts: How do you make a commit anyway?

- There are a lot of 'states' and 'places' a file can be
- Local on your computer: the 'working directory'
- When a file is ready to be put in a commit you add it onto the 'index' or 'staging'
  - Staging is the new preferred term – but you can see both 'index' and 'staging' being used

Key Concepts: How do you make a commit anyway?

- The process:
  - Make some changes to a file
  - Use the ‘git add’ command to put the file onto the staging environment
  - Use the ‘git commit’ command to create a new commit’

Assessment 1

1. List out the Agile Testing methods?

Ans : ______________________________

2. List out the Phases in Agile SDLC?

Ans : ______________________________

References

1. Roger S.Pressman, Software engineering- A practitioner‘s Approach, 10th Edition, McGraw-Hill, 2017.
2. Ken Schawber, Mike “Agile Software Development with Scrum” Pearson Education, 2nd Edition, 2015.

Thank You