Network Monitoring, Management and Automation

Git Overview

npNOG 5

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What is Git?

- an open source distributed version control system
- for tracking changes in source code during software development
- is designed for coordinating work among programmers
- but it can be used to track changes in any set of files
- developped by Linus Torvalds to support the development of the linux kernel
- its goals include speed, data integrity, and support for distributed, non-linear workflows
- a few other popular version control systems include:
  - RCS
  - CVS
  - Subversion
  - Mercurial
  - Bitkeeper (proprietary, led Linus to create Git)

What is Version Control?

Three basic principles:

- Keep a record and history of changes
- Give public access to the information
- Maintain different versions from the same data set

What types of data?

- Source code
- **Documentation**
- **Configuration files**
- Generally, any type of data...

What is GitHub?

- www.github.com
- largest web-based git repository hosting service
  - hosts `remote repositories`
- allows for collaboraton with anyone online
- adds extra functionality on top of git
  - UI
  - documentation
  - bug tracking
  - feature requests
  - pull requests
  - and more
- alternatives
  - GitLab
  - Bitbucket
  - Gitea
  - Gogs
  - more

Your first time with git and github

- Get a github account.
- Download and install git.
- Set up git with your user name and email.

```
$ git config --global user.name "Your name here"
$ git config --global user.email "your_email@example.com"
```

- Set up ssh on your computer
- Paste your ssh public key into your github account settings.
  - Go to your github Account Settings
  - Click “SSH Keys” on the left.
  - Click “Add SSH Key” on the right.
  - Add a label (like “My laptop”) and paste the public key into the big text box.
  - In a terminal/shell, type the following to test it:

```
$ ssh -T git@github.com
```

  - If it says something like the following, it worked:

```
Hi username! You've successfully authenticated, but Github does not provide shell access.
```

Routine use of git and github

- create repository

```
$ git init .
```

- clone git remote repository to local working project directory

```
$ git clone git@github.com:username/repo
```

- add all file in project directory into git

```
$ git add .
```

- add specific file named 'Readme.md' into repository

```
$ git add Readme.md
```

- commit changes into repository

```
$ git commit -am "Added Readme.md file"
```

- get git status

```
git status
```

- push changes to remote repository

```
$ git push origin master
```

Connect it to github

- Create a local git repository
- Go to github
- Log in to your account
- Click the new repository button in the top-right. You'll have an option there to initialize the repository with a README file, but don't.
- Click the "Create repository" button.

Now, follow the second set of instructions, "Push an existing repository..."

```
$ git remote add origin git@github.com:username/new_repo
$ git push -u origin master
```