

GIT FUNDAMENTALS

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WHO AM I?

- Paul Broadwith
- Freelance IT Consultant with 25+ Years
- PowerShell, Automation and Active Directory
- Organiser for Scottish PowerShell User Groups and PowerShell & DevOps Fundamentals Group
- Chocolatey Moderator



AGENDA

- What is Git?
- Who is using Git?
- Why you need to use Git
- How does Git work?
- A first Pull Request

SOFTWARE | WHAT YOU'LL NEED



Git Tools



<http://gitforwindows.org/>



```
> choco install git -y
```

SOFTWARE | WHAT YOU'LL NEED



Git Credential Manager For Windows



[https://github.com/Microsoft/
Git-Credential-Manager-for-Windows](https://github.com/Microsoft/Git-Credential-Manager-for-Windows)



```
> choco install git-credential-manager-for-windows -y
```

SOFTWARE | CHOCOLATEY PACKAGE MANAGER



<https://chocolatey.org>

WHAT IS GIT?

WHAT IS GIT | WHAT IS IT?

Wikipedia defines Git as:

Git is a version control system for tracking changes in computer files and coordinating work on those files among multiple people. It is primarily used for source code management in software development, but it can be used to keep track of changes in any set of files. As a distributed revision control system **it is aimed at speed, data integrity**, and support for distributed, non-linear workflows.

<https://en.wikipedia.org/wiki/Git>

WHAT IS GIT | WHAT IS IT?

Which means Git is:

Git is a version control system for tracking changes in computer files. It is aimed at speed and data integrity.

WHO USES GIT?

WHO USES GIT | PROVIDERS & SOFTWARE



GitHub



GitLab



GitBucket



GitStack



WHO USES GIT | WHO IS USING IT?

Software Developers

Coders & Scripters

Writers

Bloggers

Website Designers

Websites

Runbooks

Cookbooks

Continuous Delivery / Continuous Integration Tools

WHO USES GIT | MICROSOFT WINDOWS & GVFS



Windows

As at May 2017 (Using GVFS)

Windows Builds (per day)

1760

Active Branches

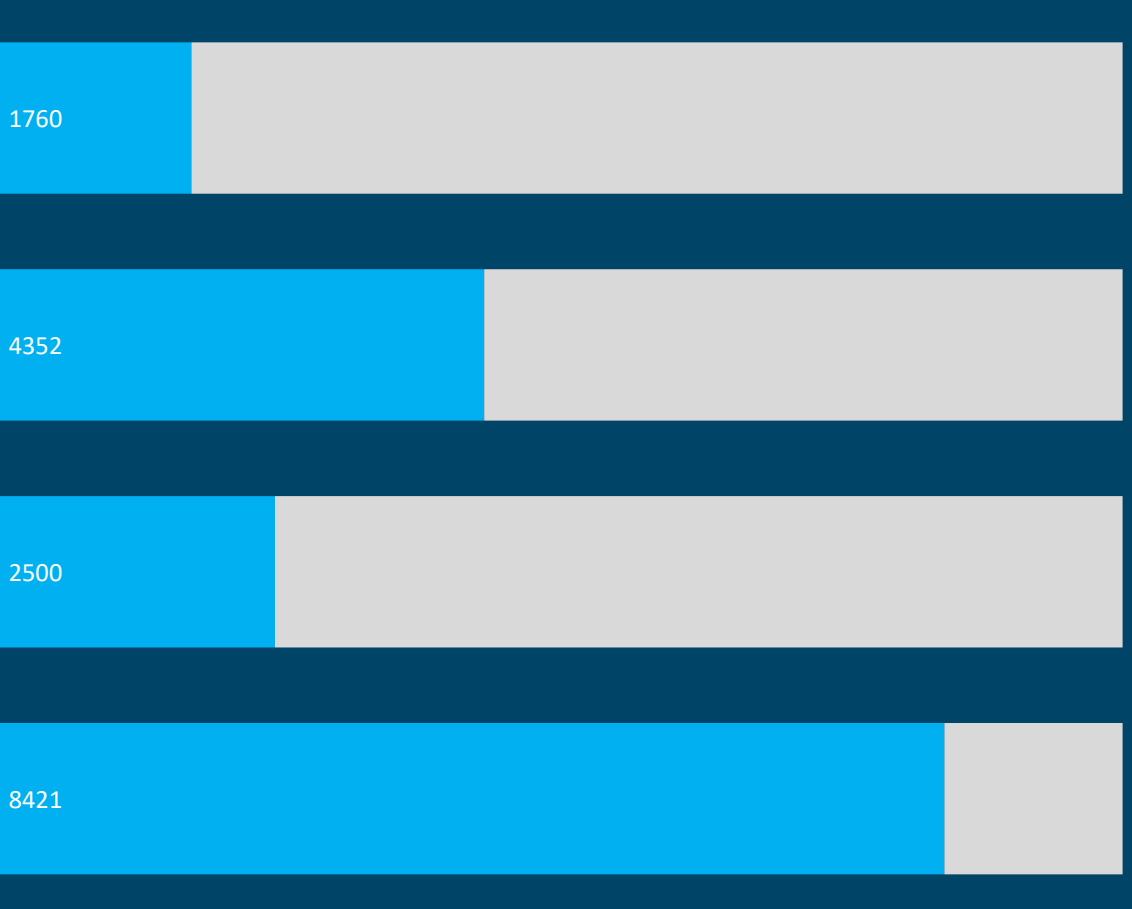
4352

Pull Requests (per day)

2500

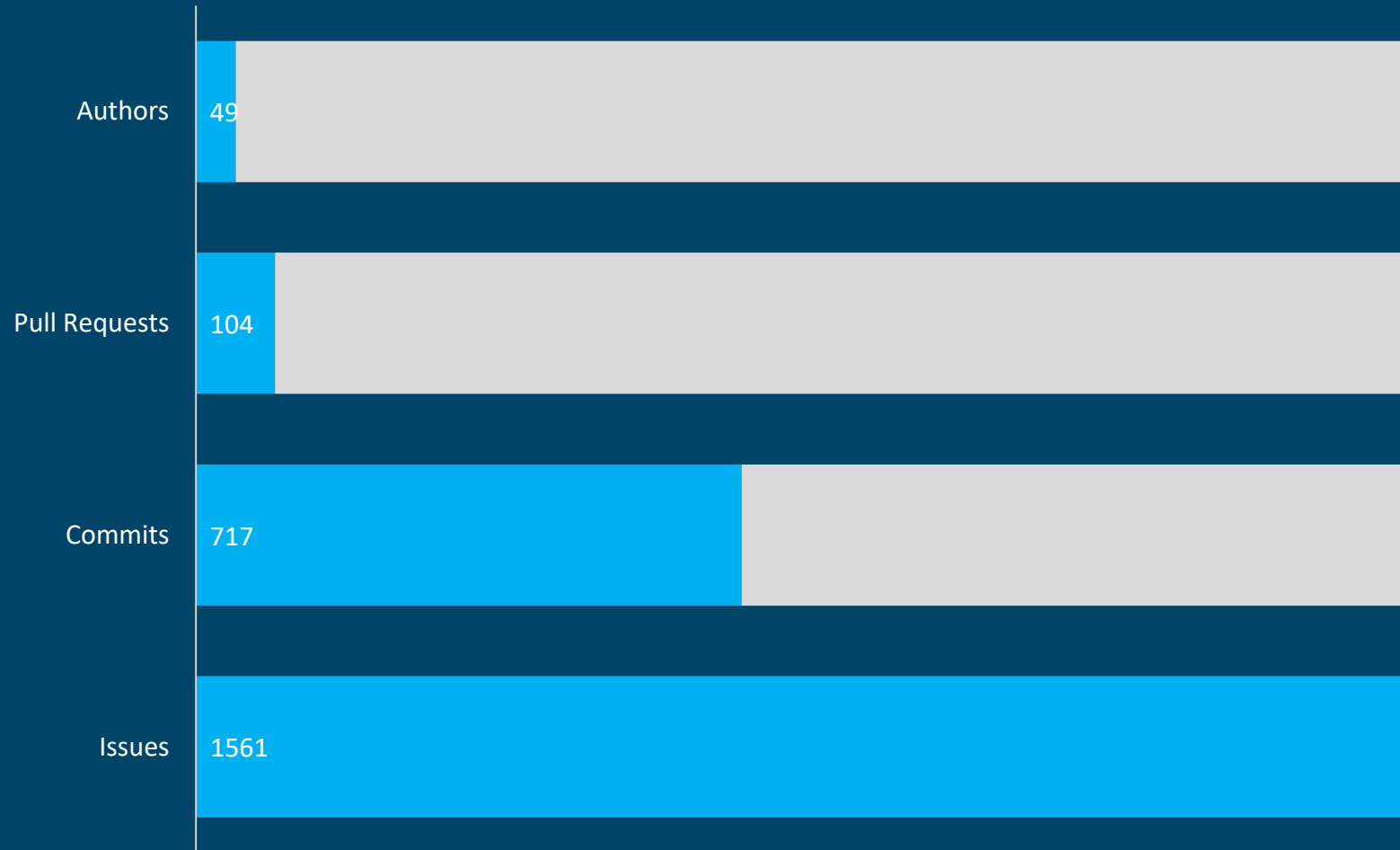
Code Pushes (per day)

8421



WHO USES GIT | VISUAL STUDIO CODE ON GITHUB

16 December 2017 to 16 January 2018



Visual Studio Code

WHY YOU NEED TO USE GIT

WHY YOU NEED TO USE GIT | 2017 GITHUB USE



1 Billion Commits



47 Million Pull Requests



25.3 Million Active Repositories



24 Million Developers

WHY YOU NEED TO USE GIT | GIT HAS YOUR BACK

Code Backups

Offline or Online Working

Change History Of. Every. Committed. File.

Undo Mistakes

Allow Others To View, Fork, Fix & Submit
Changes To Your Code

Collaborate With Others Wherever They Are

Continuous Delivery / Continuous Integration Tools

Participate in Open Source

WHY YOU NEED TO USE GIT | DON'T HIDE YOUR CODE

You tend to write better code when it's public!

HOW DOES GIT WORK?

HOW DOES GIT WORK | FOUR AND A BIT FUNDAMENTALS OF GIT



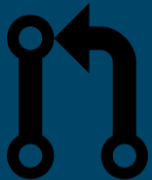
Repositories



Branches



Commits



Pull Requests



Forks

HOW DOES GIT WORK | REPOSITORIES



Repository / Repo – both used

Just a folder where you store your project files



HOW DOES GIT WORK | SPECIAL REPOSITORY FILES



File and folder name patterns that Git should ignore

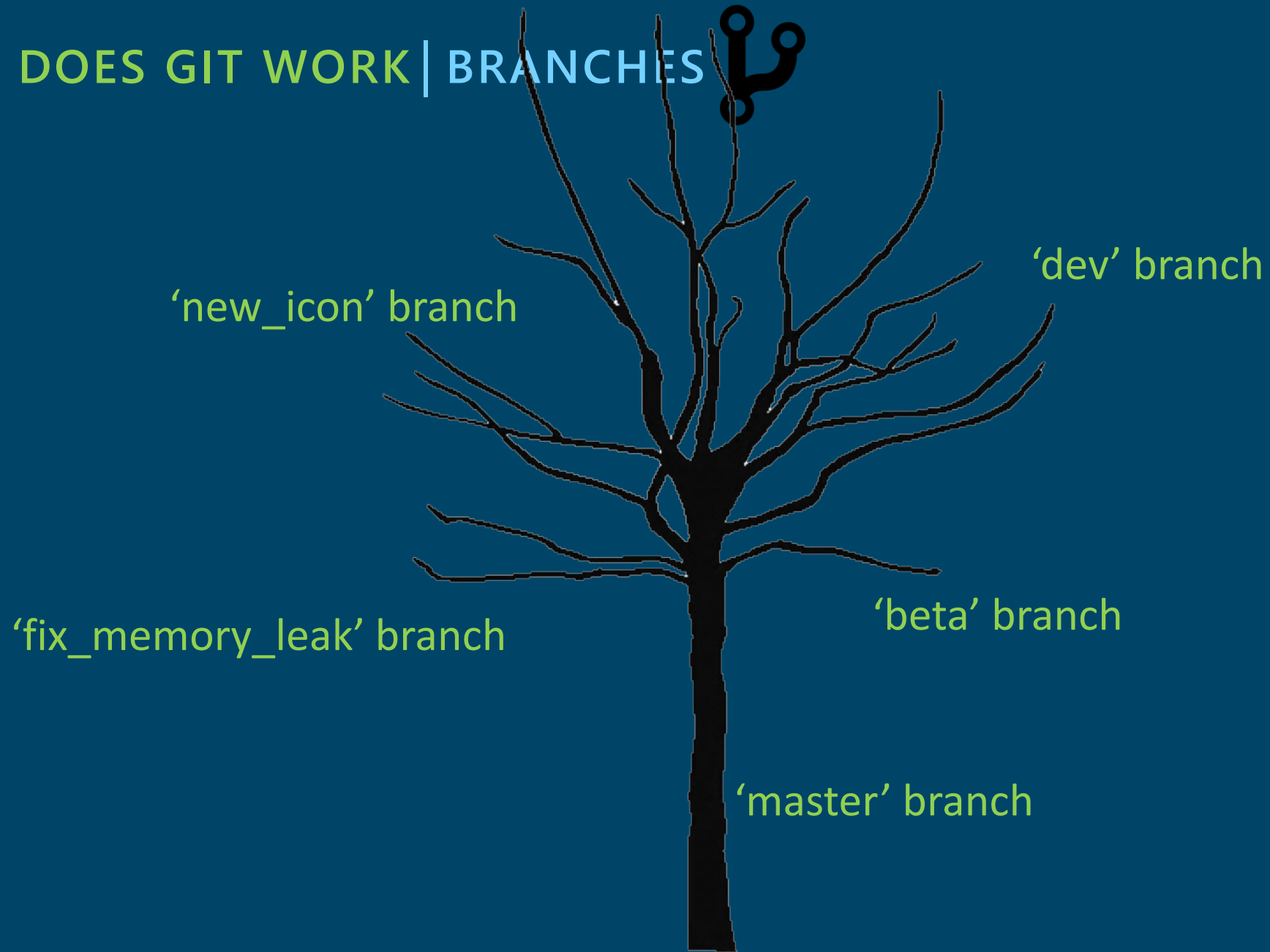
`.gitignore`

History, index, history and other management files for Git

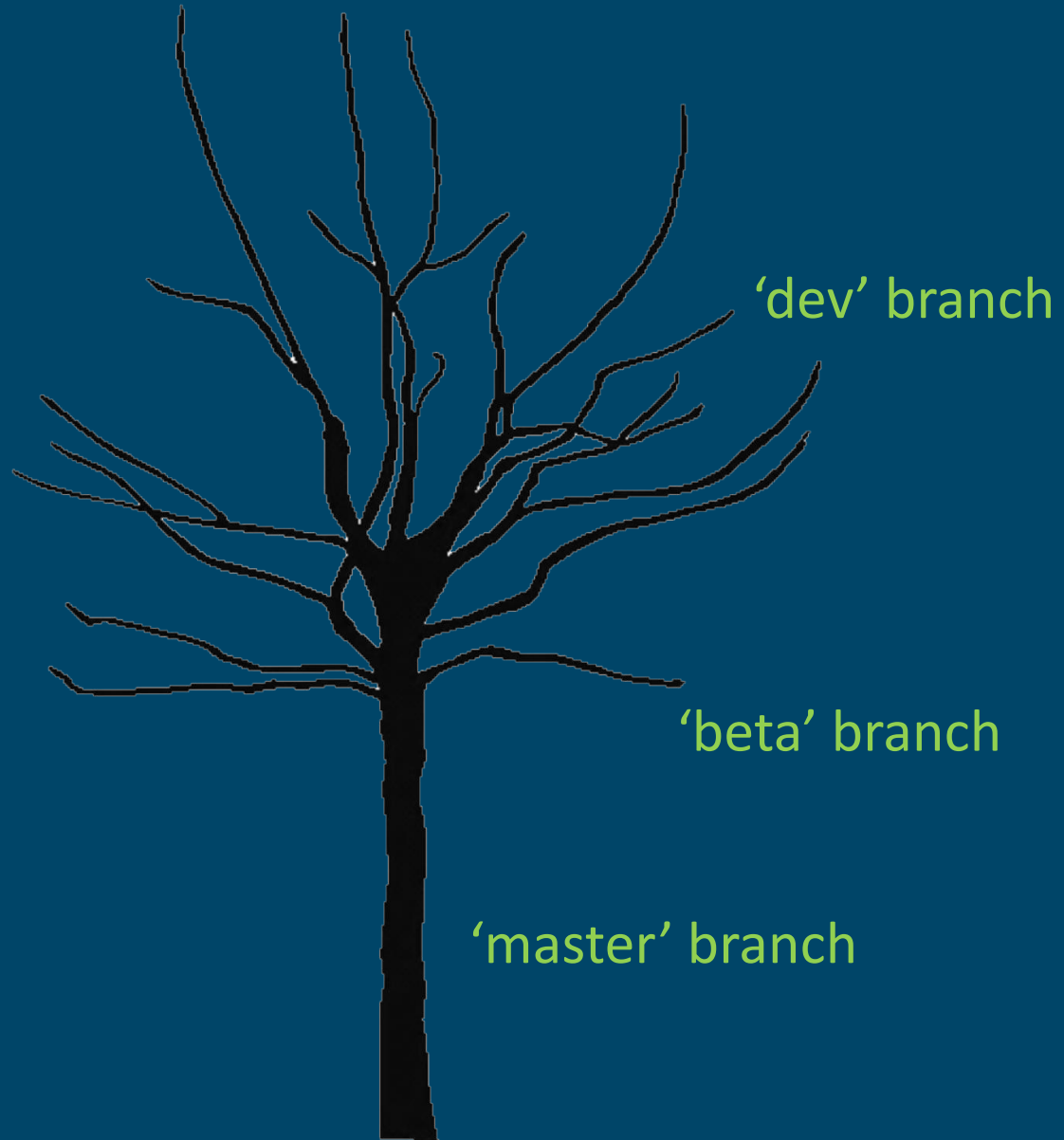


`.git`

HOW DOES GIT WORK | BRANCHES



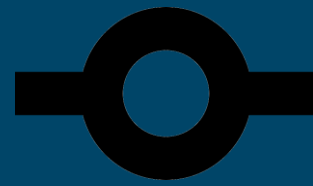
HOW DOES GIT WORK | BRANCHES



Start with a 'master' branch

Snapshot in time of parent

Merge a branch with a pull request



When one or more changes have been applied to a branch, it is called a commit.

HOW DOES GIT WORK | PULL REQUEST



A pull request lets you tell others about a change you have made to a repository.

It allows others to review and discuss those changes before merging, or pulling, them into the repository or branch.

HOW DOES GIT WORK | FORK



Forking a repo is simply creating a **linked** copy of that repo that you can then manage.

The link is important as it allows changes to be pulled from or submitted to the original repo. Without the link it's just a copy of the repo.

DEMO

HOW GIT WORKS | GIT TOOLS



HOW GIT WORKS | STAGING



Modify

```
> git status
```

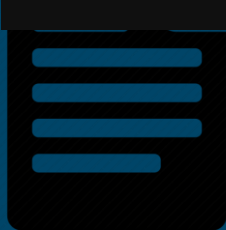


Change source
files



Staging

```
> git add <FILES>
```



Stage changed
files



Commit

```
> git commit -m '<MESSAGE>'
```



Commit
changes

HOW GIT WORKS | PULL



Pull changes down from remote repo

HOW GIT WORKS | PULL



Push

```
> git push
```

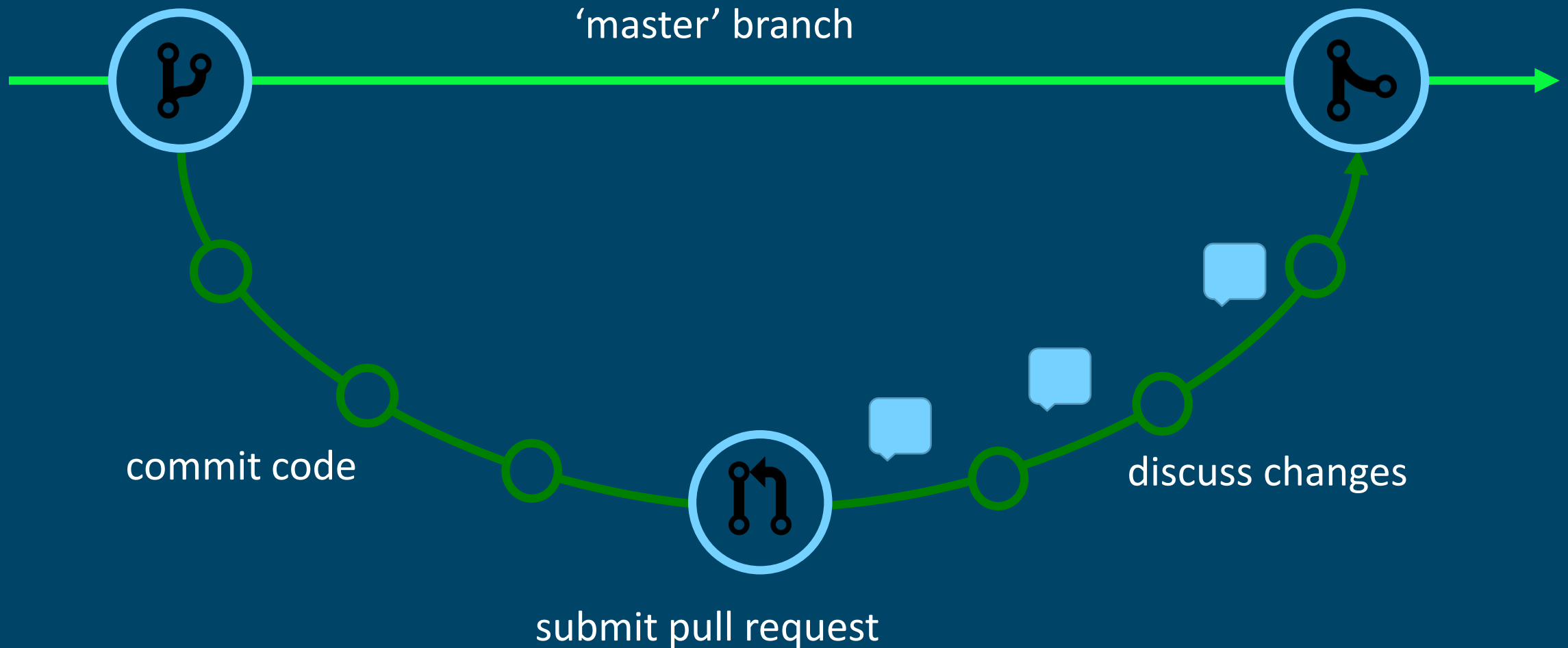
changes to remote repo

DEMO

HOW DOES GIT WORK | FLOW

'dev' branch created from master

'dev' branch merged to master



AGENDA QUESTIONS

- What is Git? Git is a Version Control System
- Who is using Git? EVERYBODY!
- Why you need to use Git To will help you write better code
- How does Git work? GUI and command line
- A first Pull Request You're AWESOME!

Congratulations!

You're now a Git!

QUESTIONS?

RESOURCES

Learn Git in your browser: <https://try.github.io>

Documentation and community: <https://git-scm.com>

Git Cheat Sheet: <https://education.github.com/git-cheat-sheet-education.pdf>

Think Like A Git: <http://think-like-a-git.net/>

HOW TO CONTACT ME

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