git

data model

```
$> git init
$> tree .git/objects
.git/objects
├── info
└── pack

2 directories
```

```
$> touch some-file.txt
$> git add some-file.txt
```

```
$> tree .git/objects
.git/objects
├── e6
│   └── 9de29bb2d1d6434b8b29ae775ad8c2e48c5391
├── info
└── pack

3 directories, 1 file
```

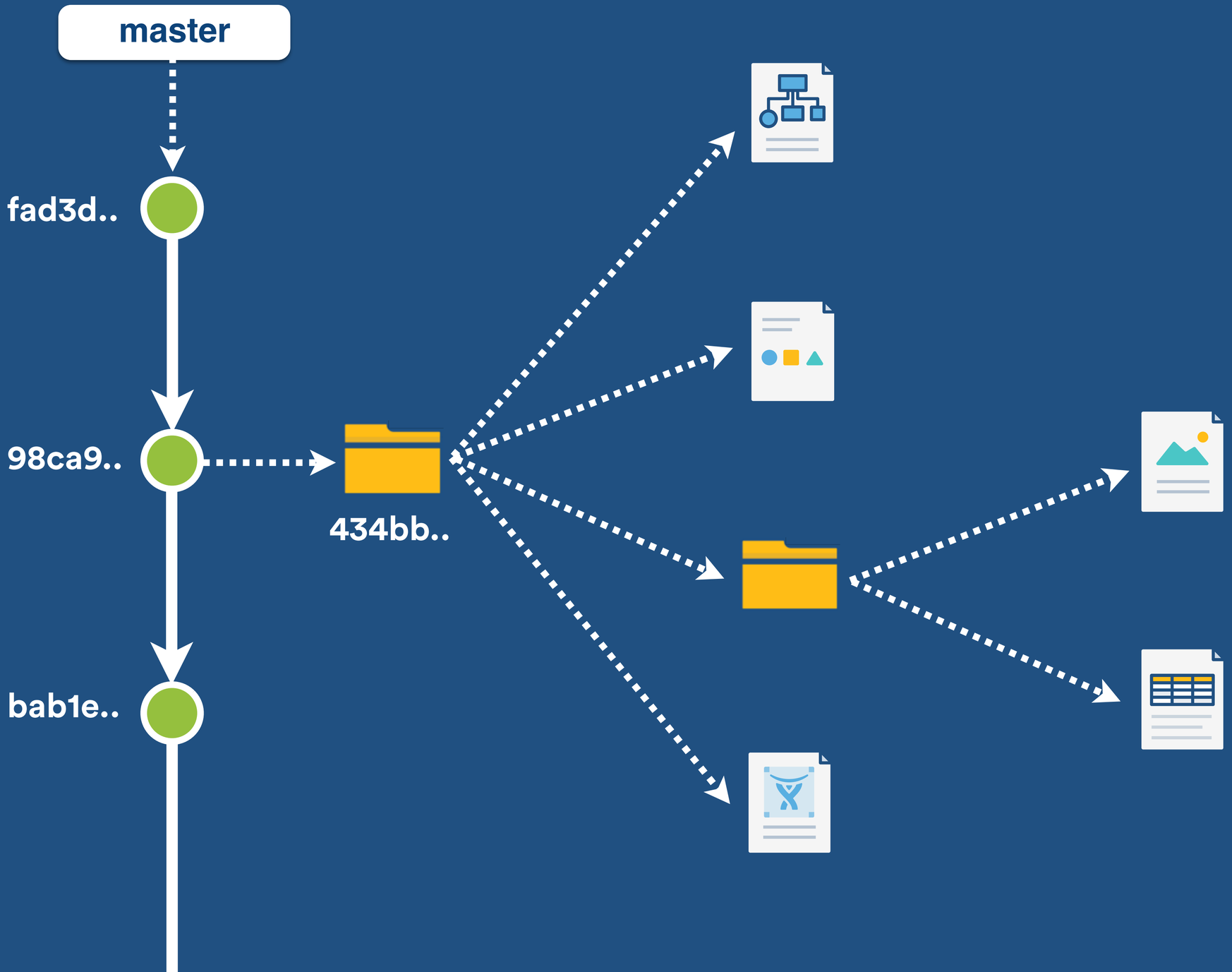
```
$ cat .git/refs/heads/master
```

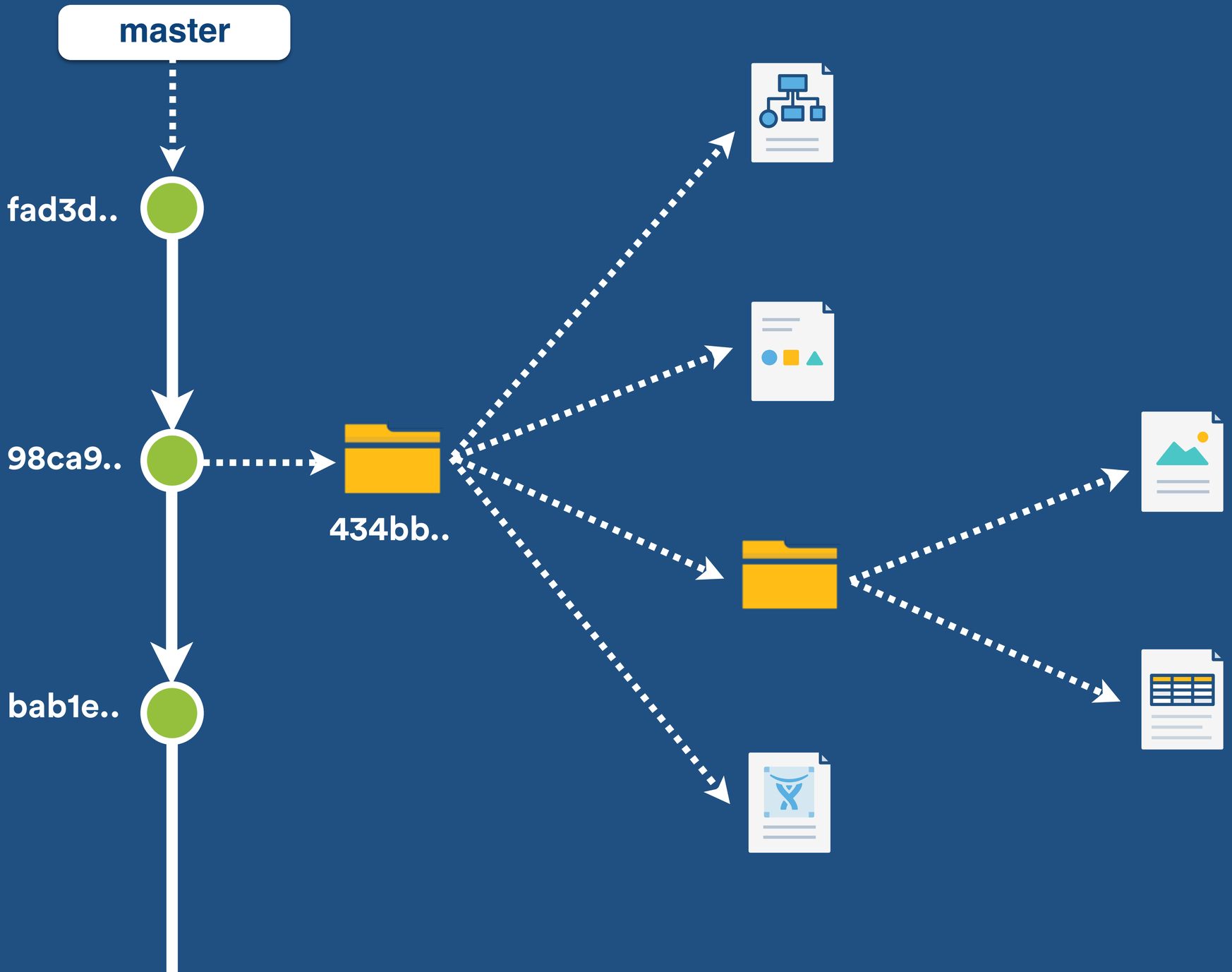
fad3dd41d0cf3d1b6aa2d8ad0549ab2fcb1575d1

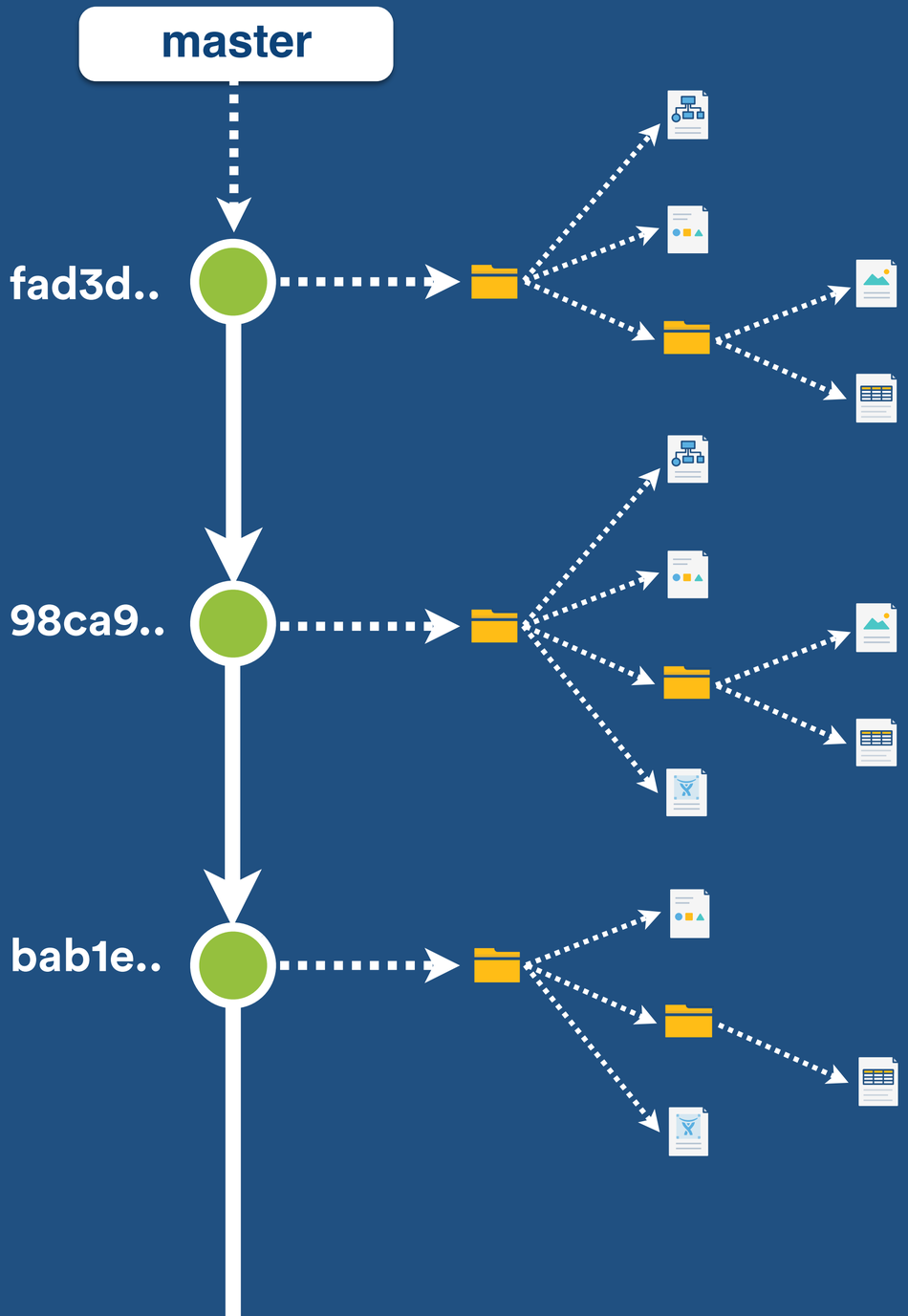
“Directed Acyclic Graph”

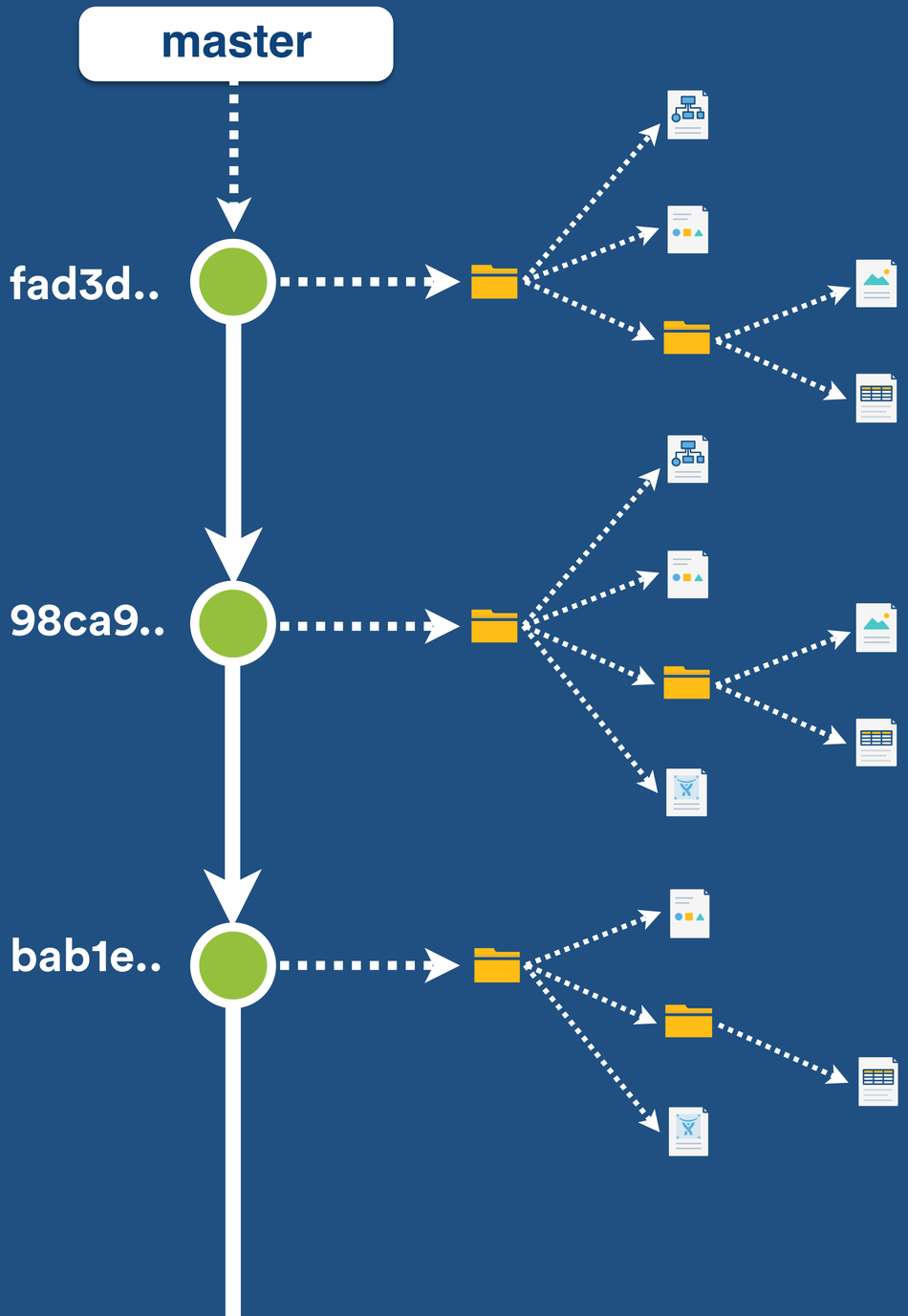
```
$ git cat-file -p 98ca9
```

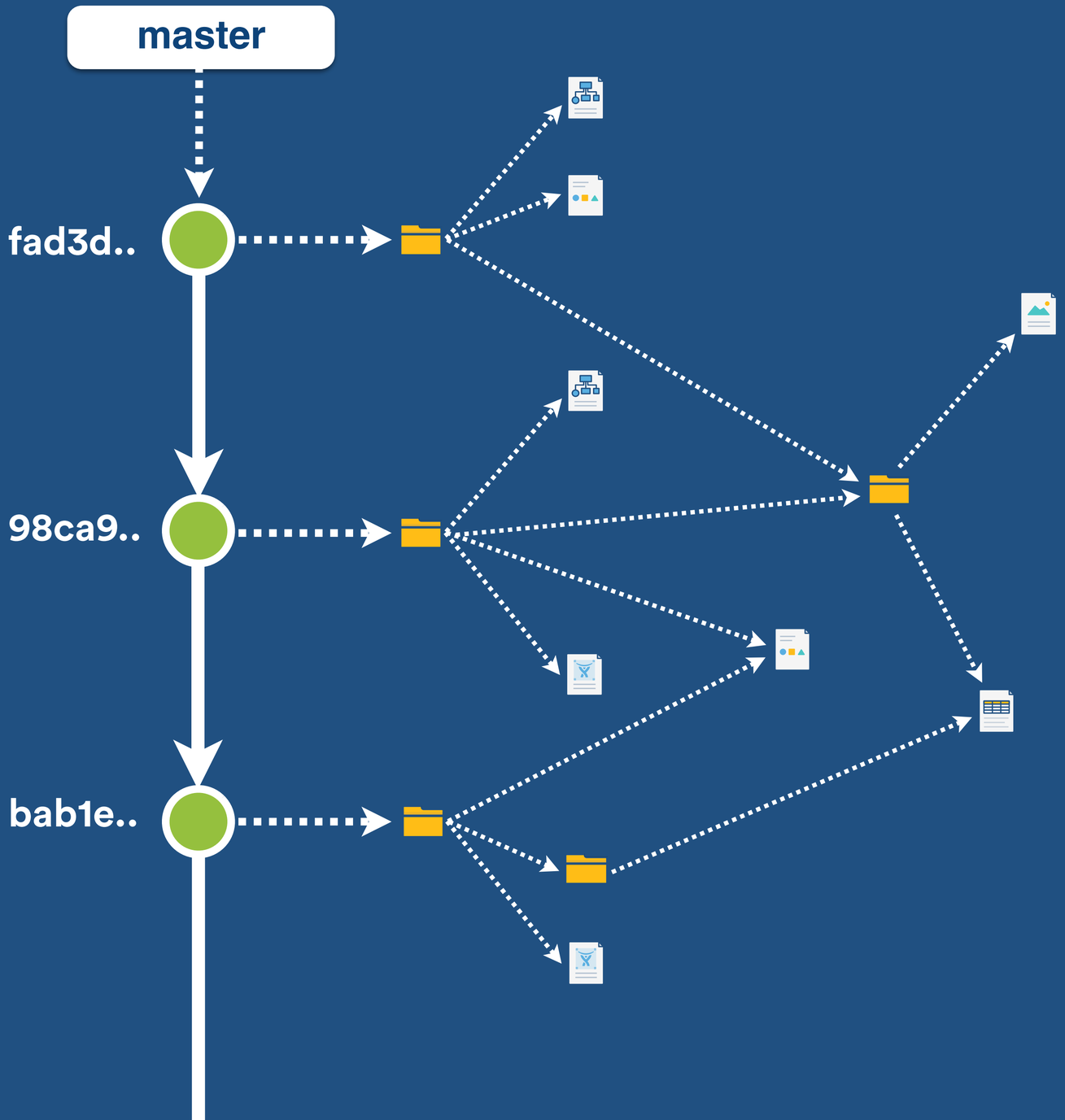
```
parent      bab1e..
tree        434bb..
committer   Tim P <kannonboy@...> 1455209277 -0800
author      Tim P <kannonboy@...> 1455209277 -0800

            My life is my commit message.
```

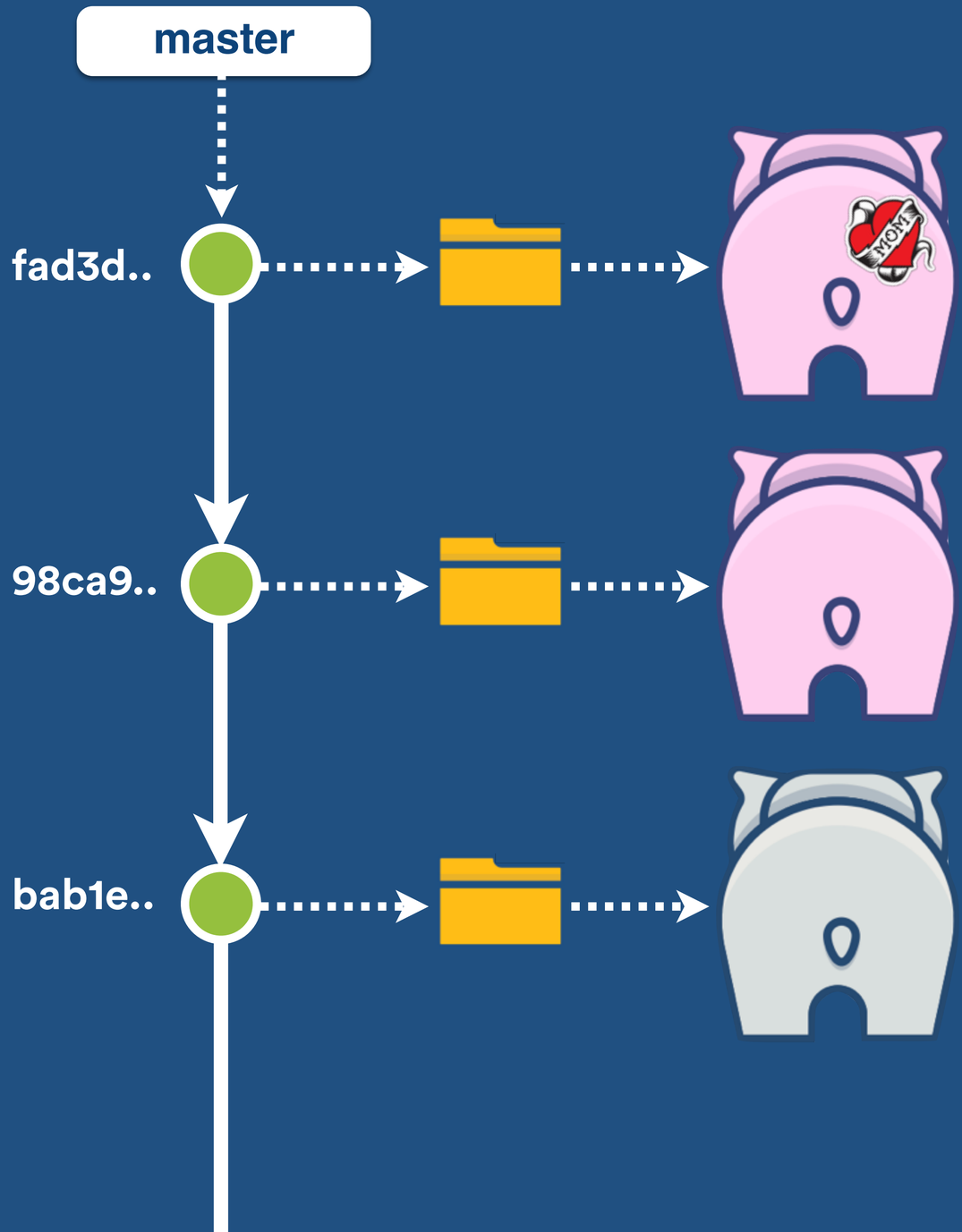

master
fad3d..
98ca9..
434bb..
bab1e..


master
fad3d..
98ca9..
434bb..
bab1e..


master
fad3d..
98ca9..
bab1e..


master
fad3d..
98ca9..
bab1e..

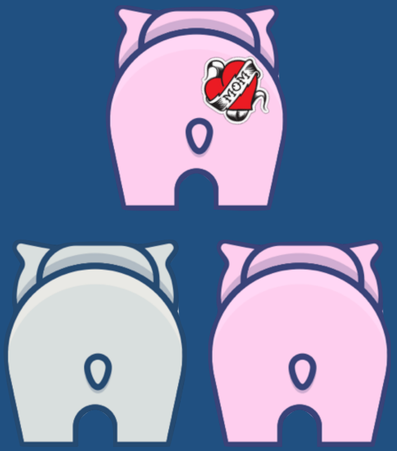

master
fad3d..
98ca9..
bab1e..



150mb

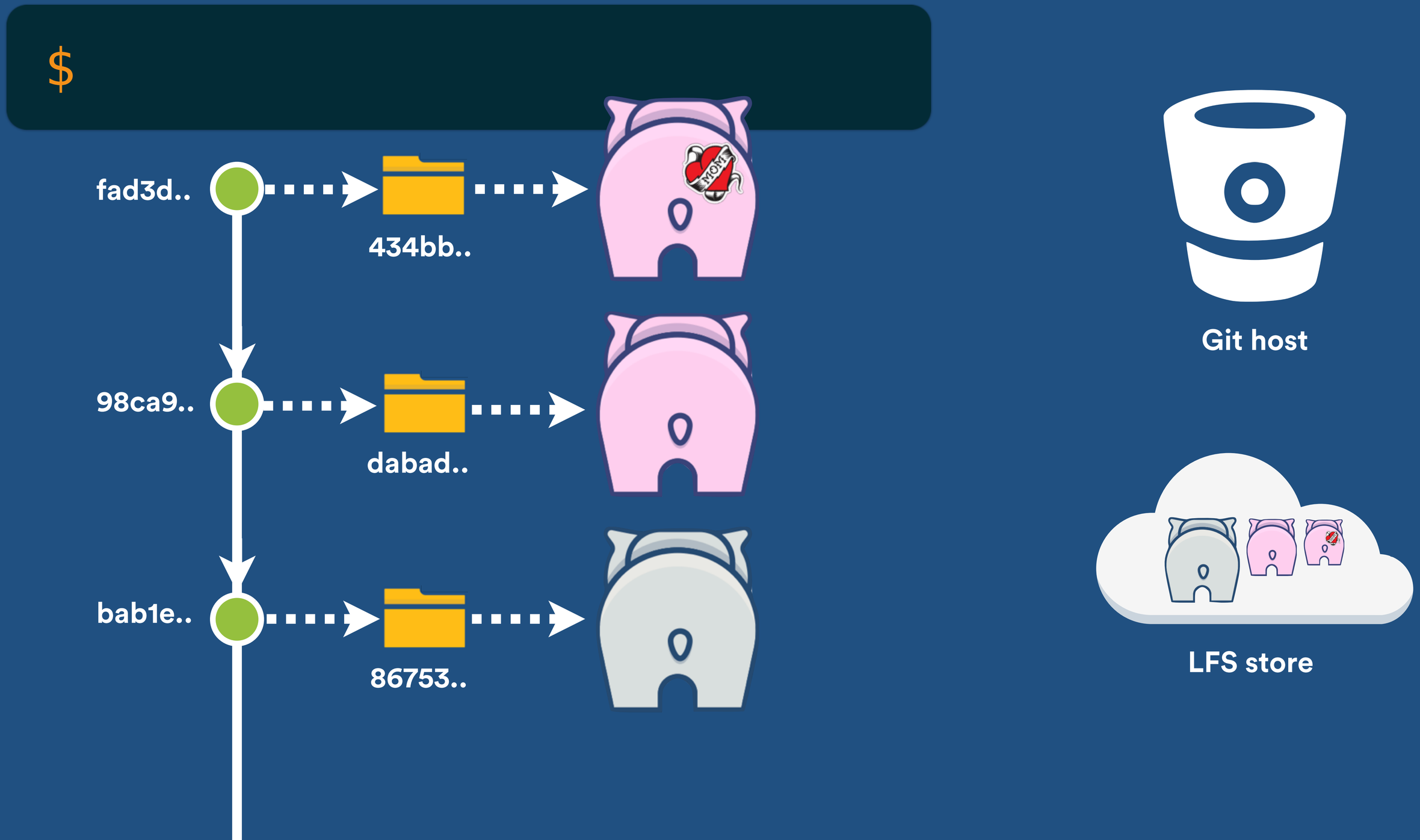
~~100mb~~

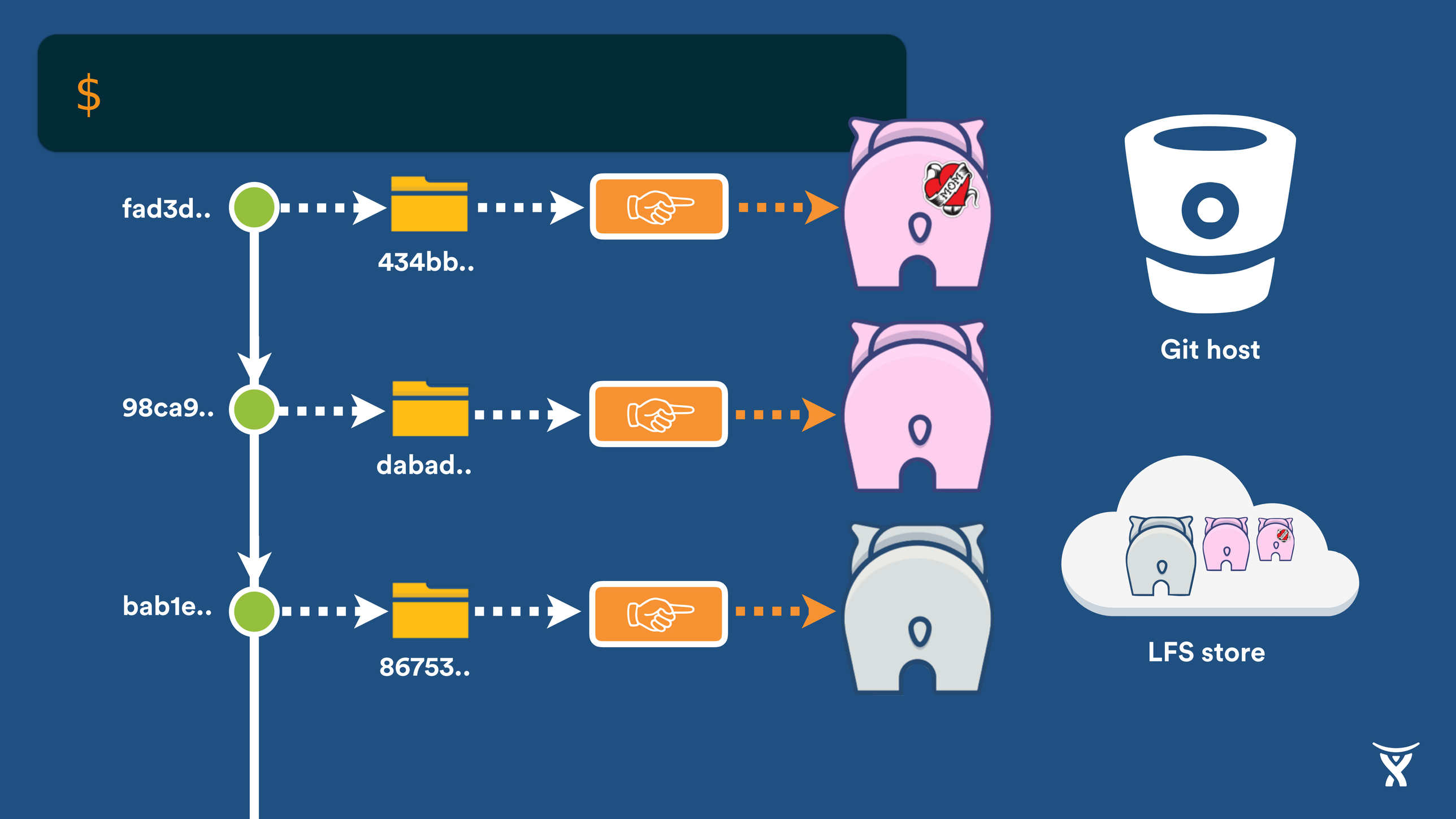
~~50mb~~

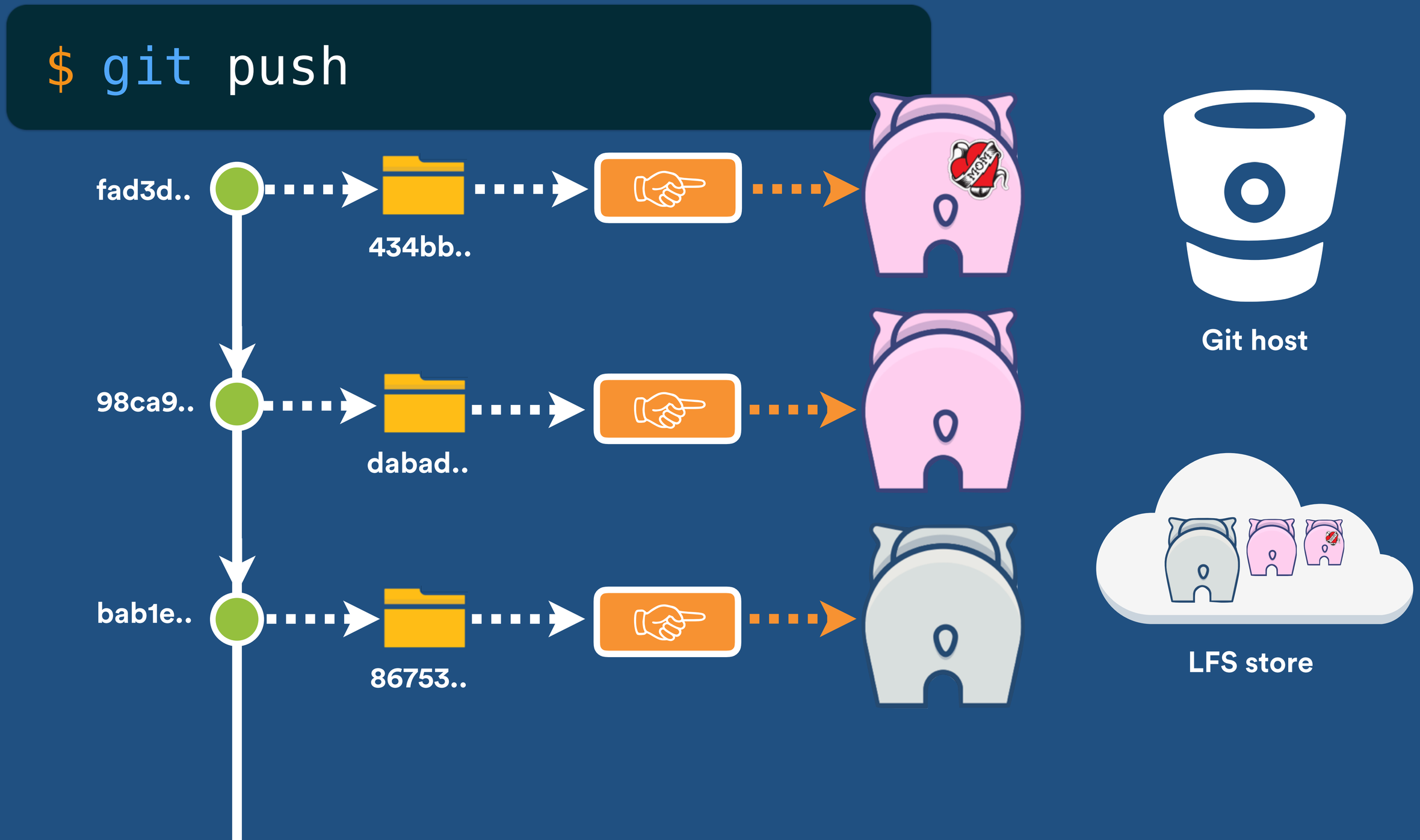

MOM

Git LFS

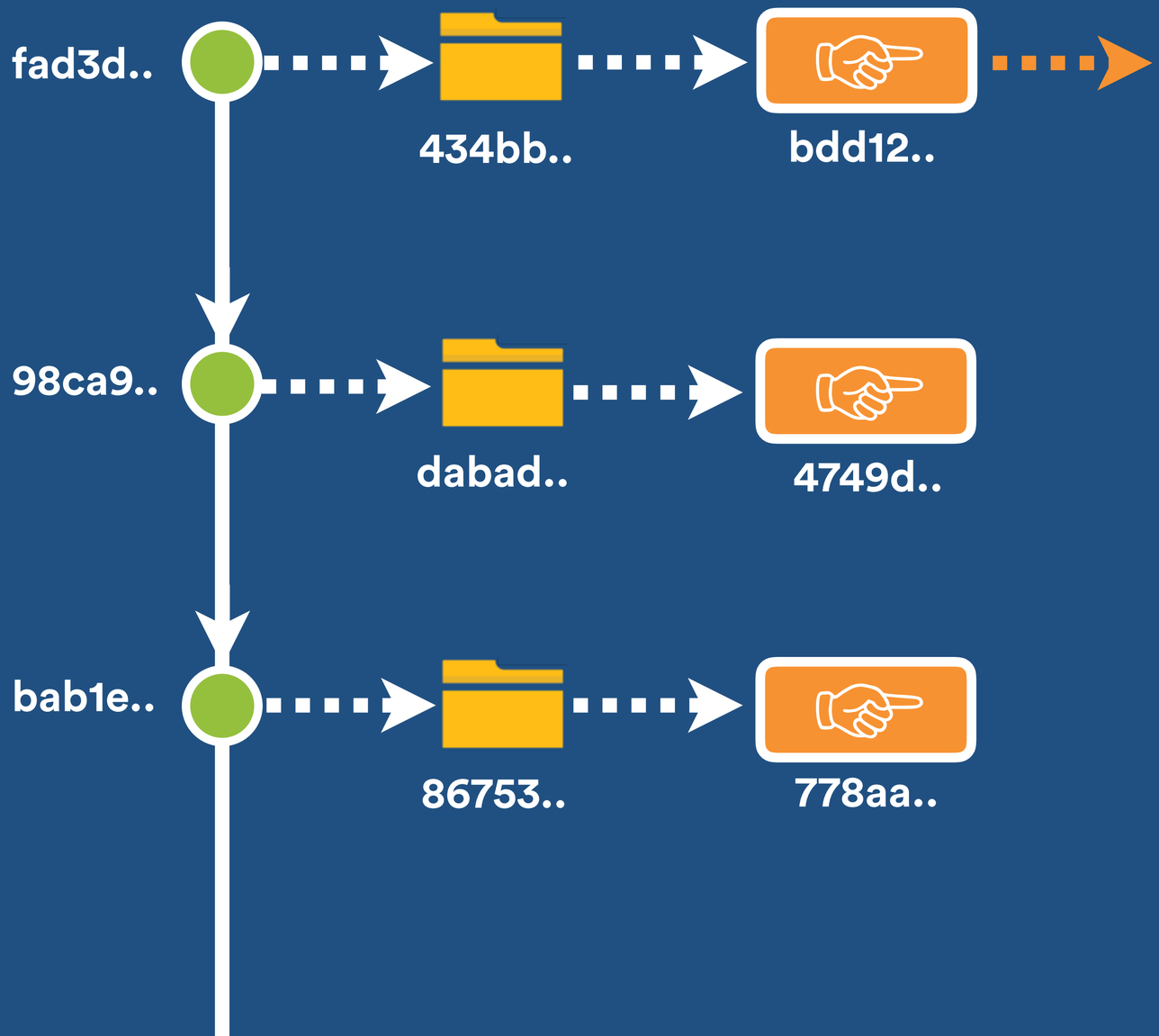
(Large File Storage)


$
fad3d..
434bb..
98ca9..
dabad..
bab1e..
86753..
MOM
Git host
LFS store

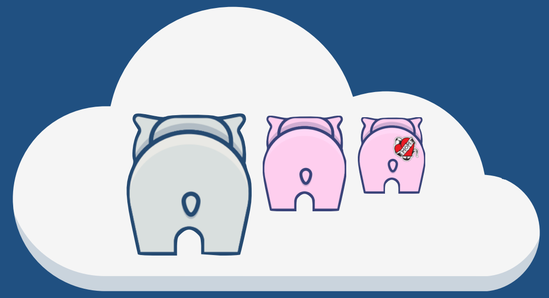

$
fad3d..
434bb..
98ca9..
dabad..
bab1e..
86753..
Git host
LFS store


$ git push
fad3d..
434bb..
98ca9..
dabad..
bab1e..
86753..
Git host
LFS store

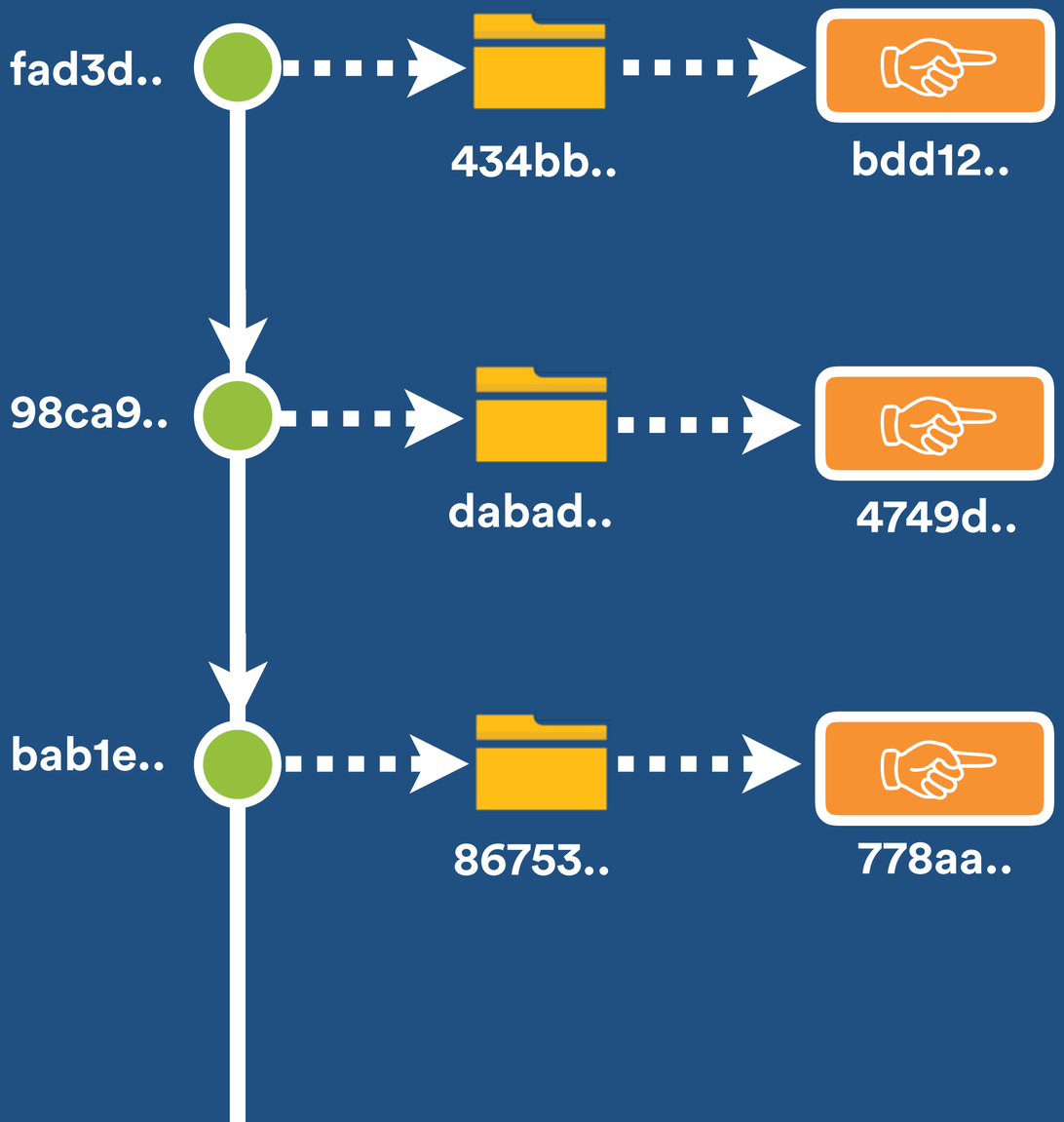
```
$ git pull
```



Git host



LFS store




```
$ git cat-file -p 4749d
```

git lfs pointer --file=bigfile

version	https://git-lfs.github.com/spec/v1
oid	sha256:325ddfb...
size	29342295

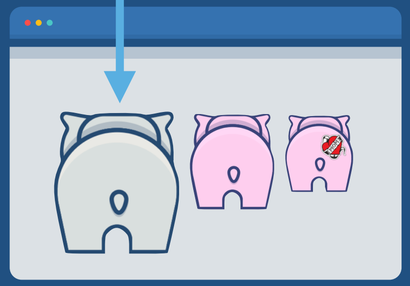
dev

```
$ git add
```

Work tree

massive_video.mp4

Clean filter
(git-lfs clean)

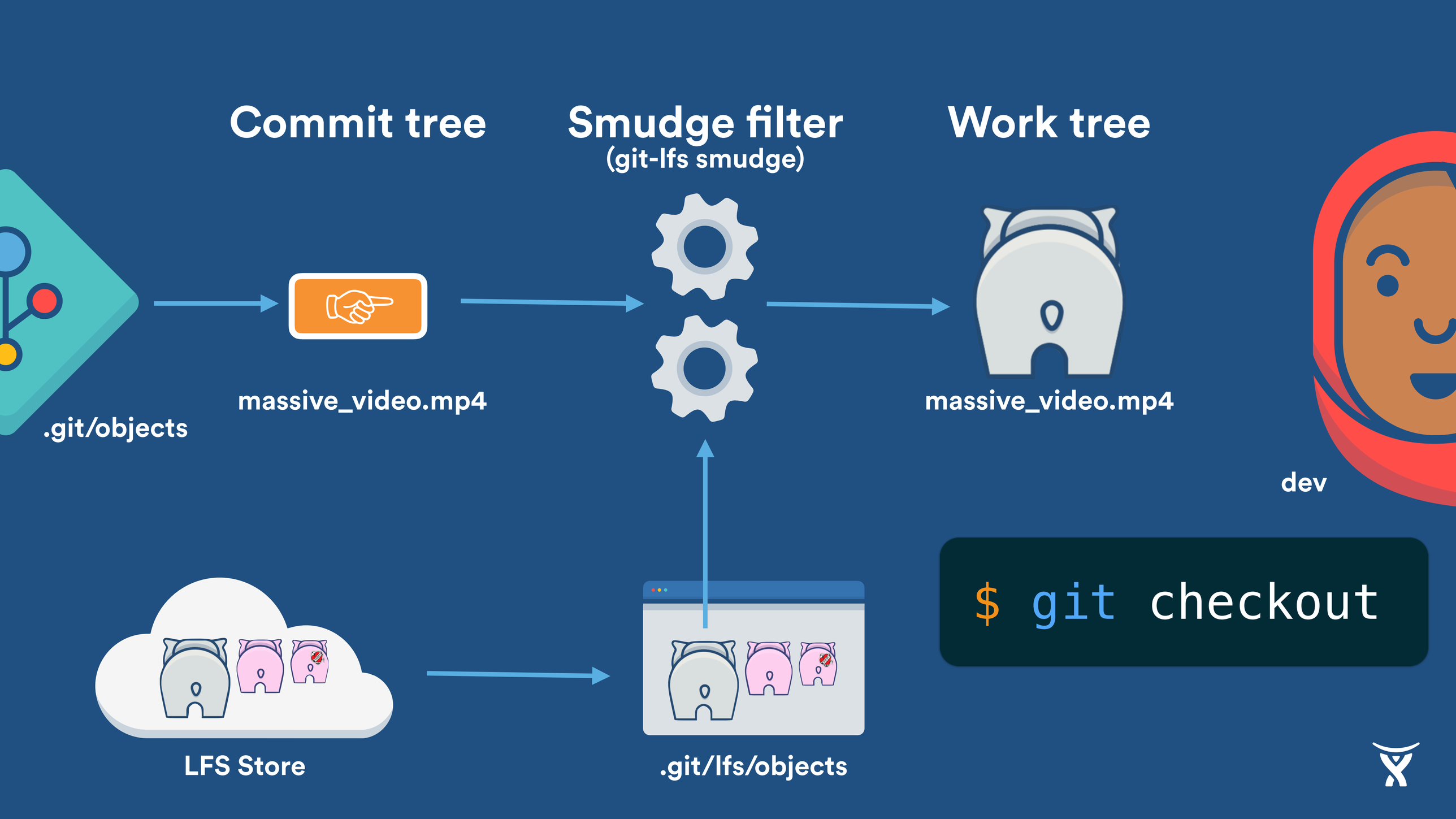


.git/lfs/objects

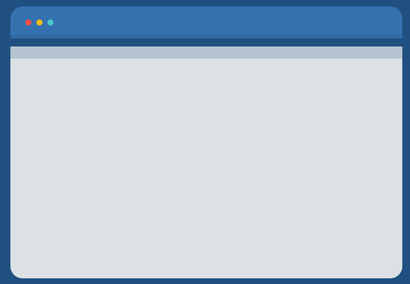
Index

massive_video.mp4

.git/objects

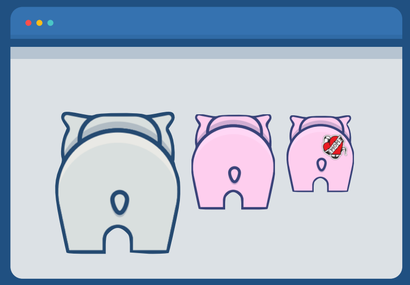

Commit tree
Smudge filter
(git-lfs smudge)
Work tree
.git/objects
massive_video.mp4
massive_video.mp4
dev
$ git checkout
LFS Store
.git/lfs/objects

git push / pull

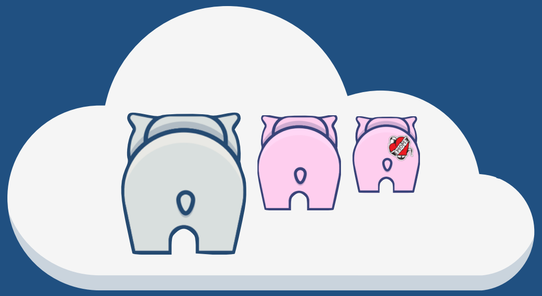


.git/objects

Hosted repo



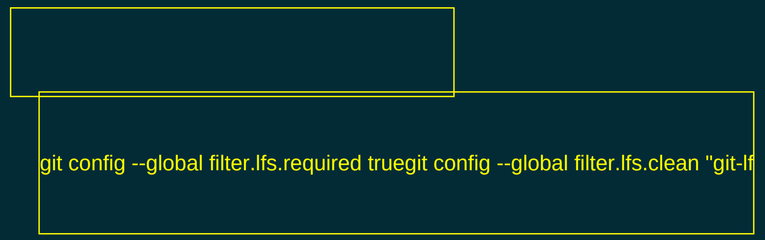
.git/lfs/objects



LFS store

```
$ brew install git-lfs

$ git lfs install
```

```
$ cat ~/.gitconfig

[filter "lfs"]
        clean = git-lfs clean %f
        smudge = git-lfs smudge %f
        required = true
```



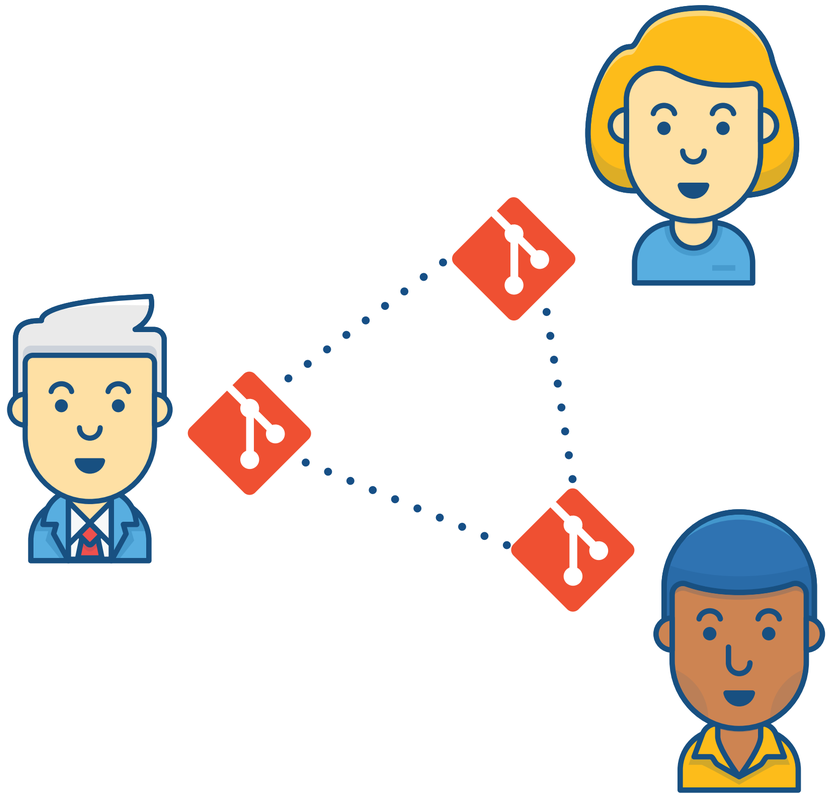
```
$ git lfs track “*.mp4”

$ cat .gitattributes

*.mp4 filter=lfs diff=lfs merge=lfs -text
```

Developer

(INCLUDES DESIGNER, TESTER, ...)

@kit3bus

Teach why "Large" files are a problem!



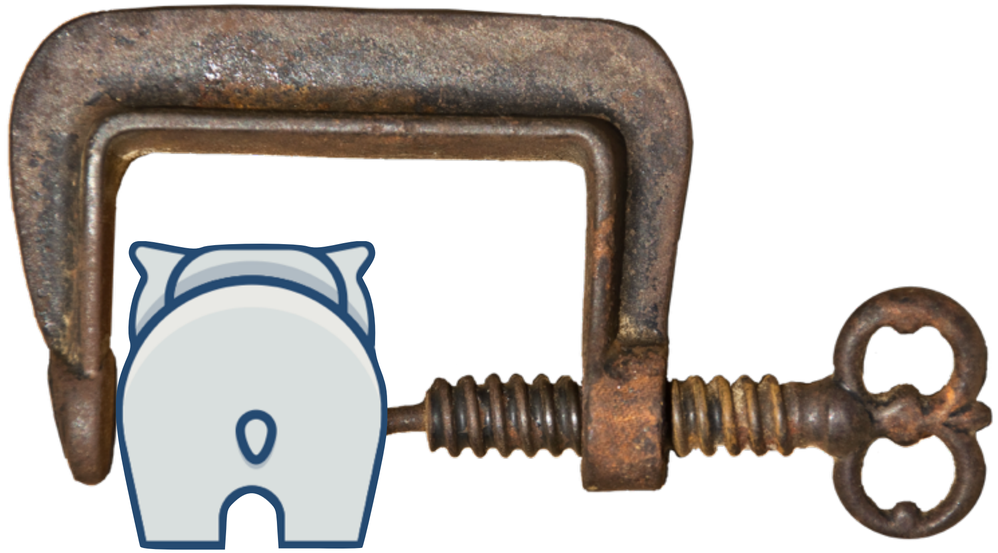
All history is local.

Good for source files.

Problem for large files.

@kit3bus

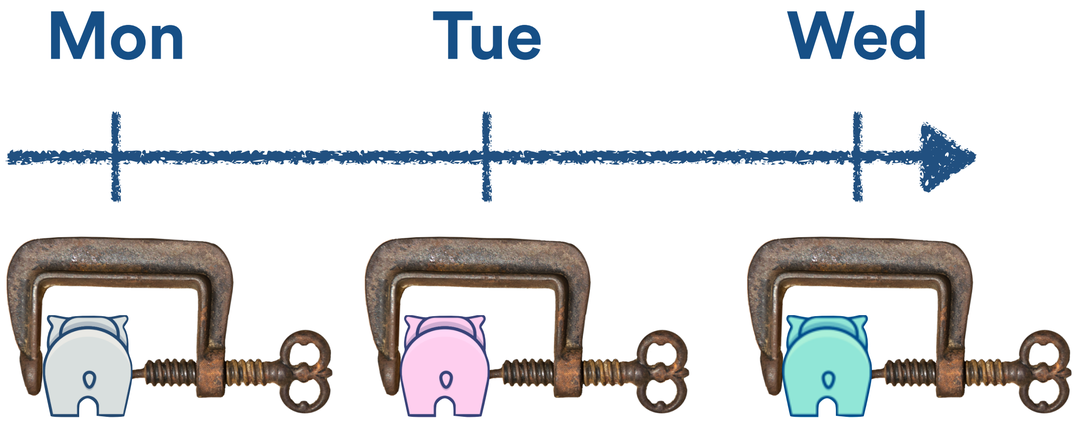
What is a "problematic" file?



Files that do not compress well...

@kit3bus

What is a "problematic" file?



... and change frequently.

@kit3bus

What is a "problematic" file?

Files smaller than 500kb are OK.

@kit3bus

How to track Git LFS files?

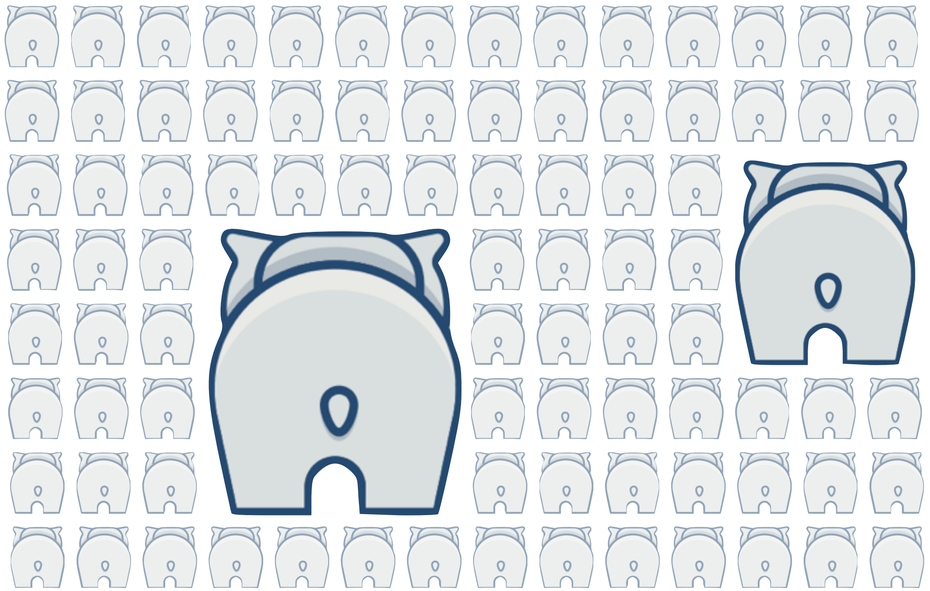
```
git lfs track "*.png"
```

How to track Git LFS files?

@kit3bus

How to track Git LFS files?

git lfs track "/big/*"



e.g. /big/elephant.png

@kit3bus

How to track Git LFS files?

@kit3bus

Less than 1000 files in LFS are OK.

Up to 70x speed improvement pending!

Git LFS Gotchas

Case sensitive:

git lfs track "*.png"

Case in-sensitive:

git lfs track "*.[pP][nN][gG]"

Git LFS Gotchas

No line ending conversions on LFS files!

@kit3bus

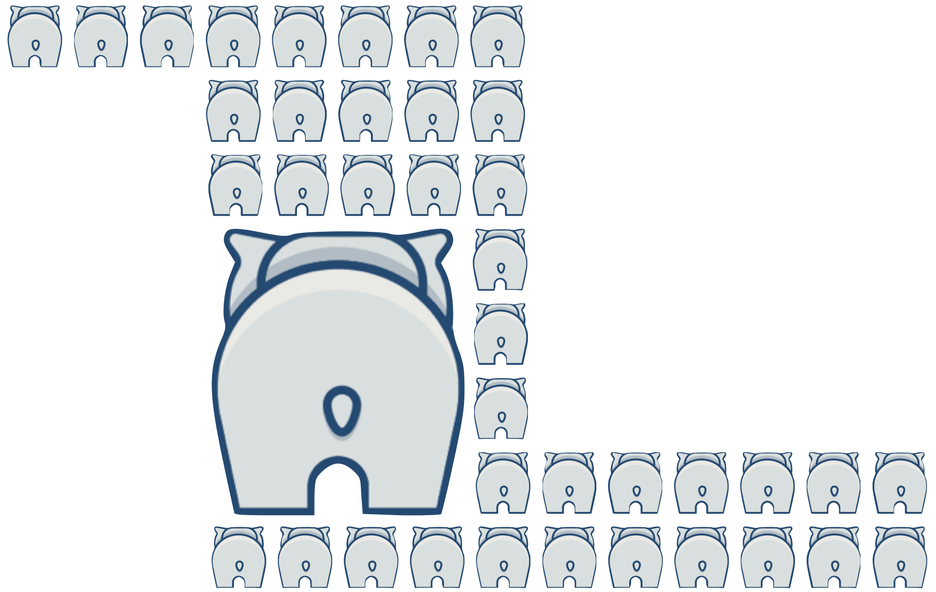
Git LFS
Tips & Tricks

Setup your Git credential helper (or use SSH)!

Watch out for the "administrator" shell!

@kit3bus

Git LFS
Tips & Tricks

@kit3bus

Use Git Sparse Checkout if you have too many LFS files!