

# CONTAINERD MEETS IPFS



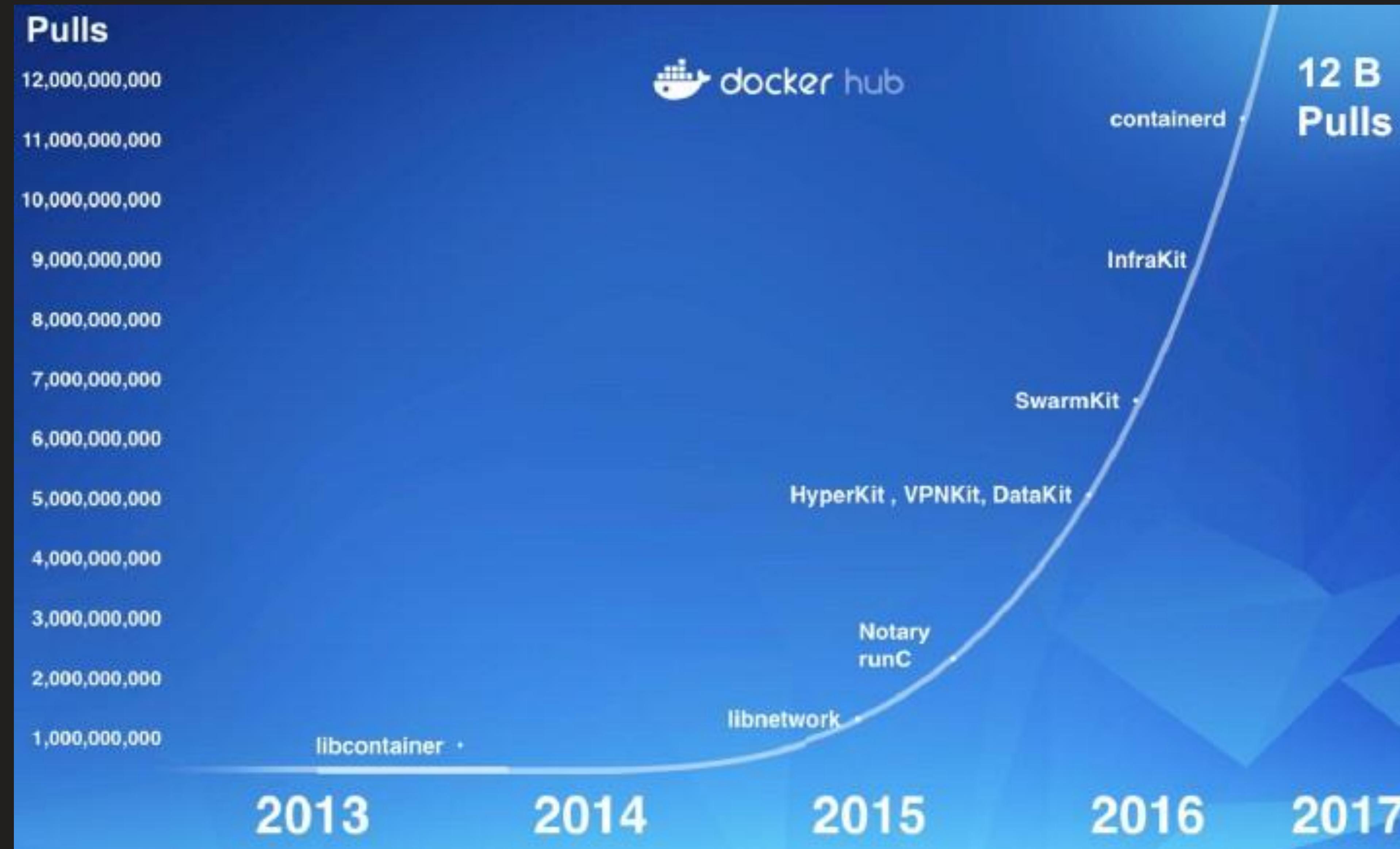
Edgar Lee  
[@hinshun](https://twitter.com/hinshun)

IPFS Camp

# Containerd meets IPFS

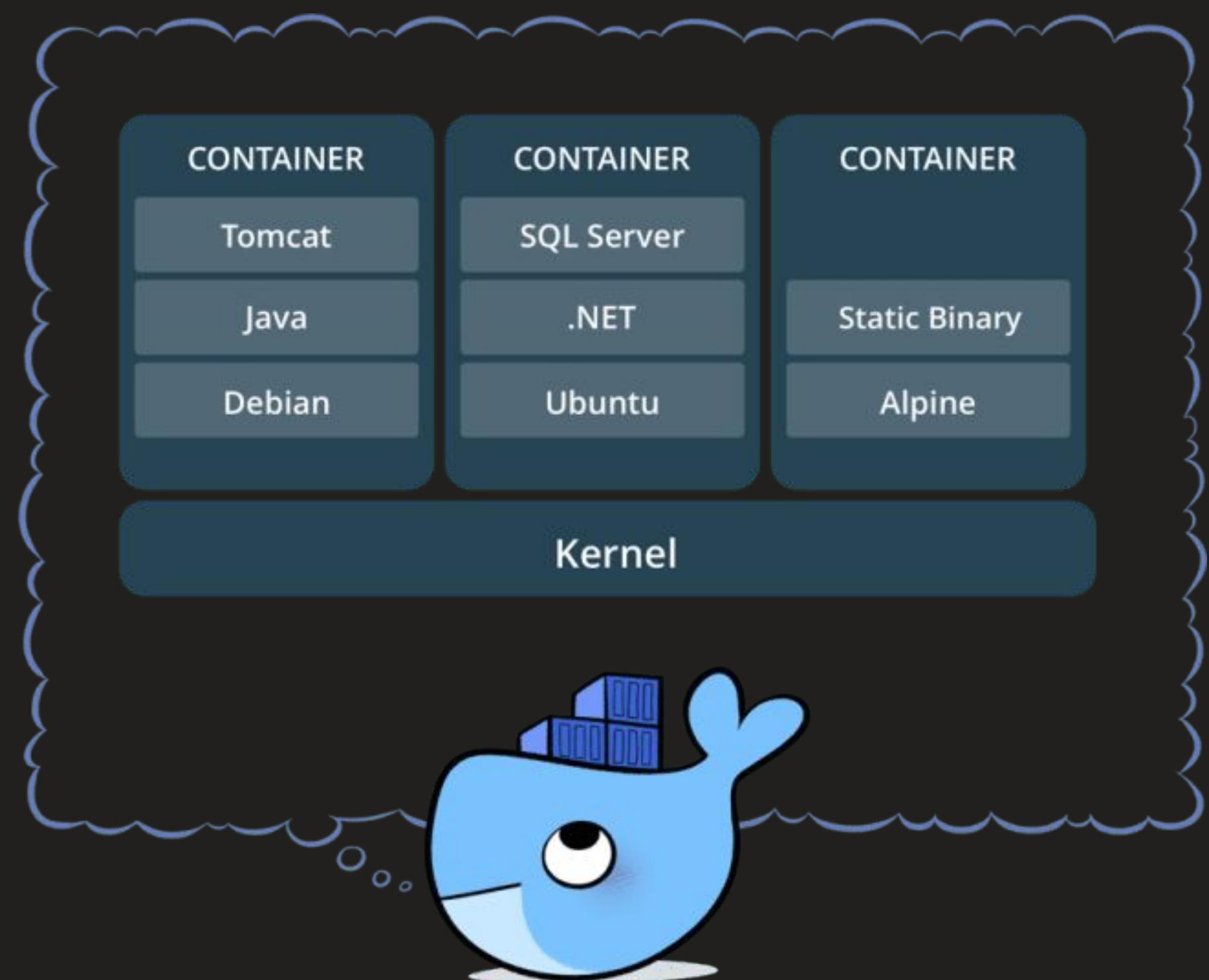
Edgar Lee

NETFLIX



# Containers at scale

- 3 million containers launched per week
- Globally across 7 regions



# What does an image look like?

ubuntu:latest

## Layers

sha256 : 5c27fd37fa

sha256 : 7b8be3b2d2

sha256 : eabf12760a

sha256 : 140c063842

# What does an image look like?

ubuntu:latest



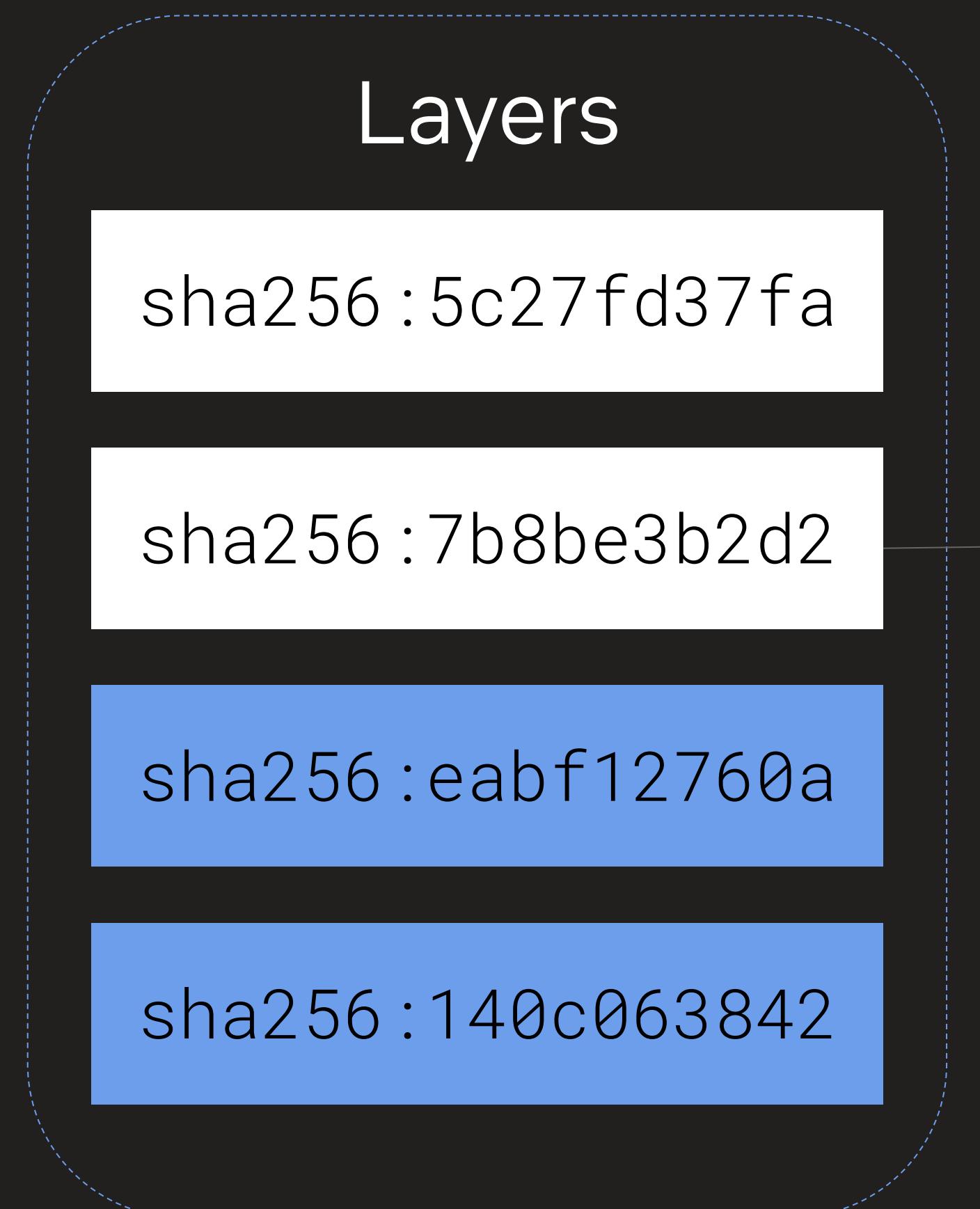
untar

/bin  
/bin/cat

/dev  
/etc  
/etc/os-release

# What does an image look like?

ubuntu:latest

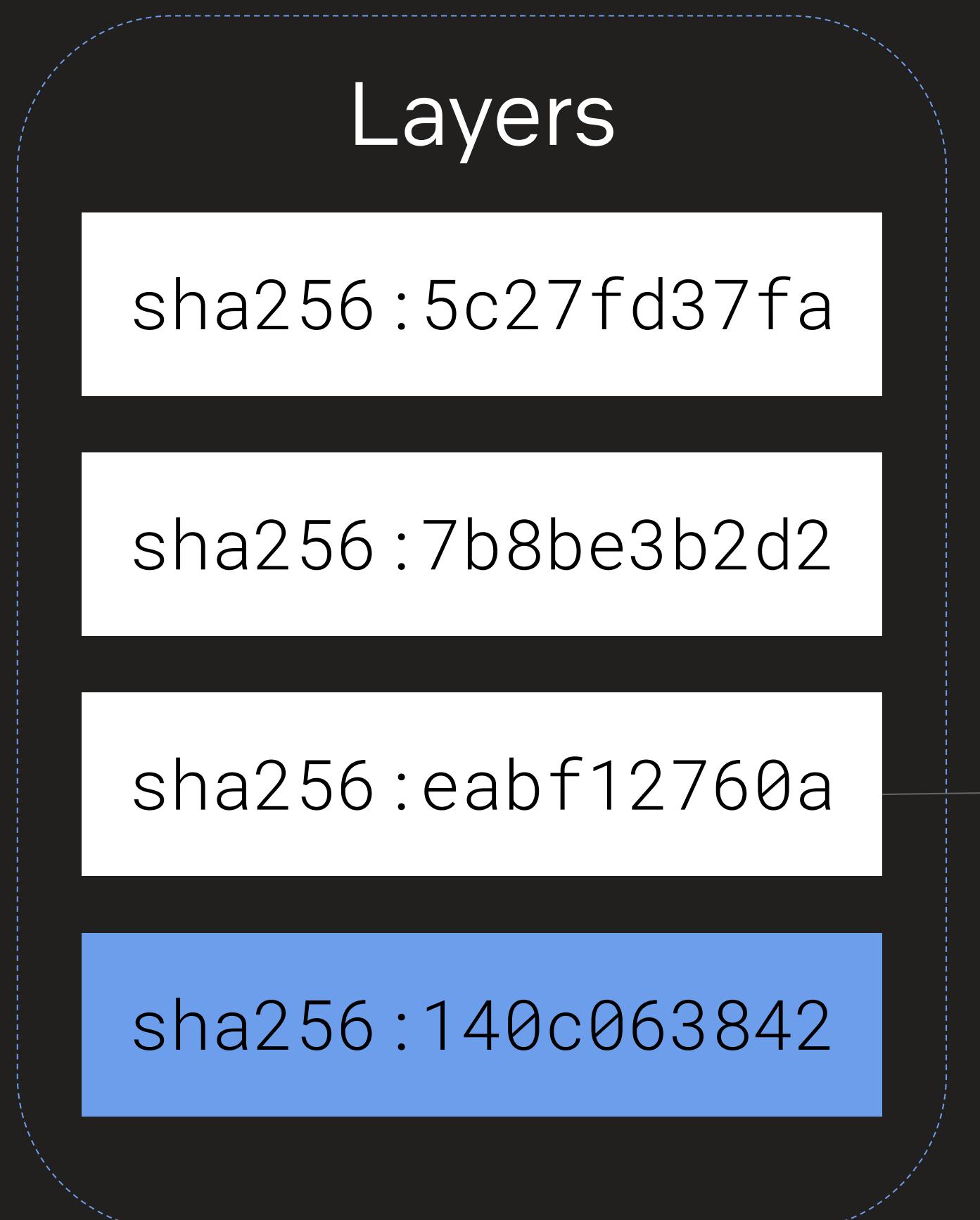


untar

/bin  
/bin/cat  
/bin/ls  
/dev  
/etc  
/etc/os-release  
/home

# What does an image look like?

ubuntu:latest

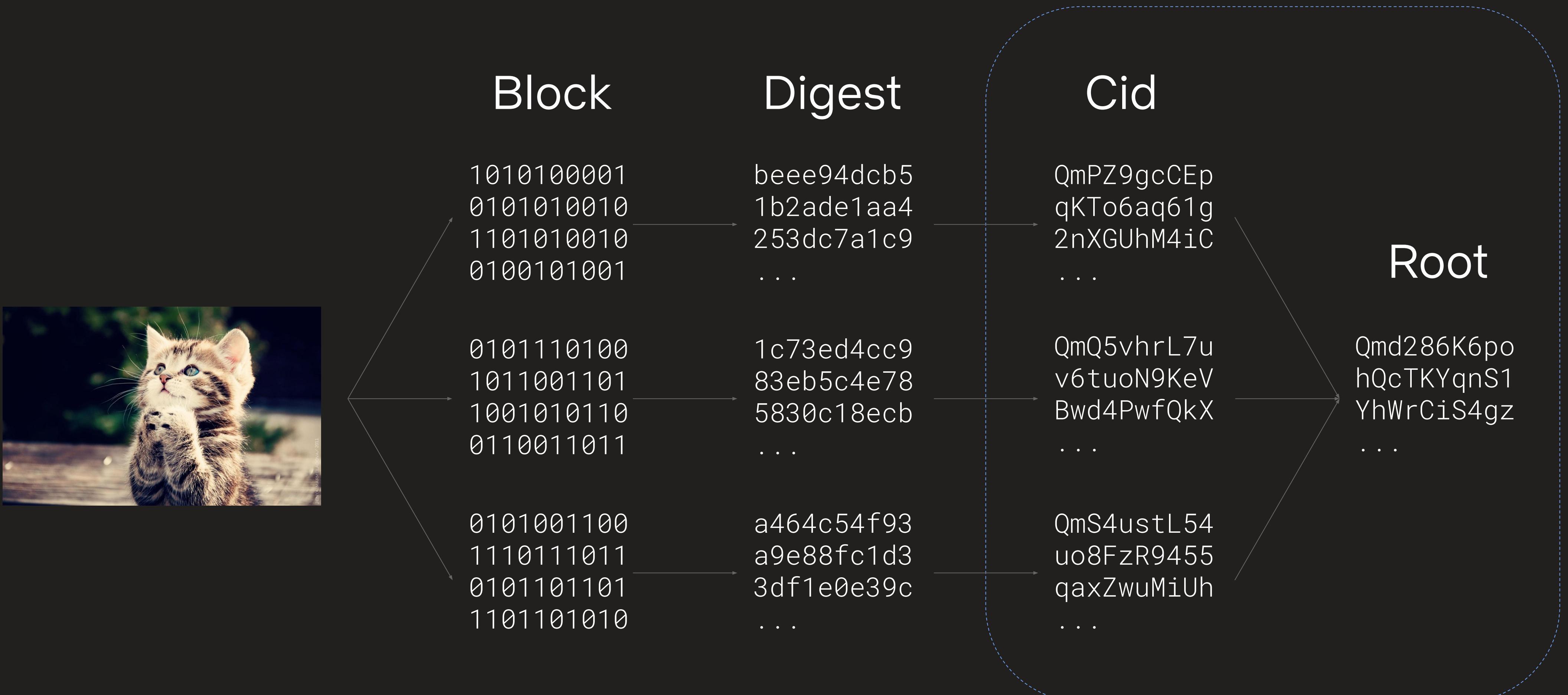


untar

/bin  
/bin/cat  
/bin/ls  
/dev  
/etc  
/etc/os-release  
/home  
/home/root

# Adding files to IPFS

Stored as Merkle DAG



# Containers meets IPFS

ubuntu:latest

Layers

sha256 : 5c27fd37fa

sha256 : 7b8be3b2d2

sha256 : eabf12760a

sha256 : 140c063842

Cid

QmPZ9gcCEp  
qKT06aq61g  
2nXGUhM4ic  
...

QmQ5vhrL7u  
v6tuoN9KeV  
Bwd4PwfQkX  
...

QmS4ustL54  
uo8FzR9455  
qaxZwuMiUh  
...

Root

Qmd286K6po  
hQcTKYqnS1  
YhWrCiS4gz  
...

ubuntu:p2p

Layers

sha256 : 3862d8962d

sha256 : 64547a1b95

sha256 : 7b8be3b2d2

sha256 : 5c27fd37fa

# Sharding

ubuntu:p2p

## Layers

sha256 :3862d8962d

sha256 :64547a1b95

sha256 :7b8be3b2d2

sha256 :5c27fd37fa

~33% bytes

QmPZ9gcCEp  
qKTo6aq61g

QmQ5vhrL7u  
v6tuoN9KeV

QmS4ustL54  
uo8FzR9455

QmPZ9gcCEp  
qKTo6aq61g

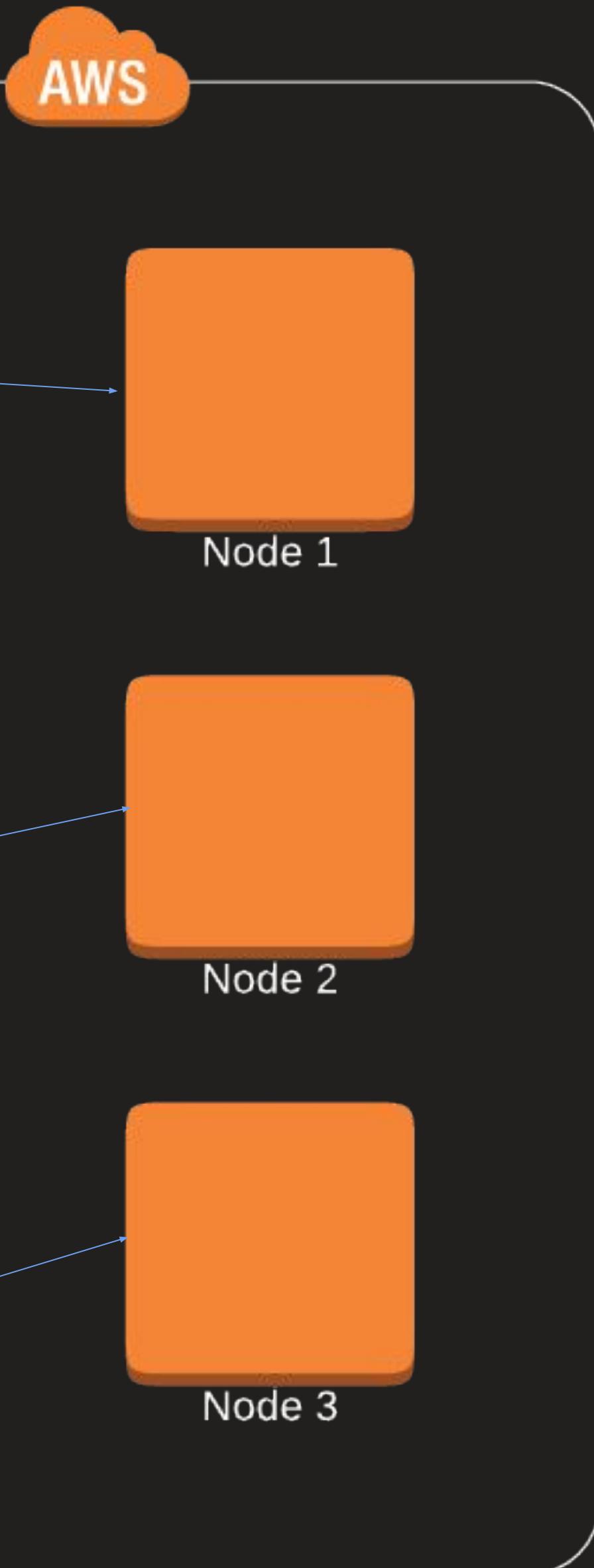
QmQ5vhrL7u  
v6tuoN9KeV

QmS4ustL54  
uo8FzR9455

QmPZ9gcCEp  
qKTo6aq61g

QmQ5vhrL7u  
v6tuoN9KeV

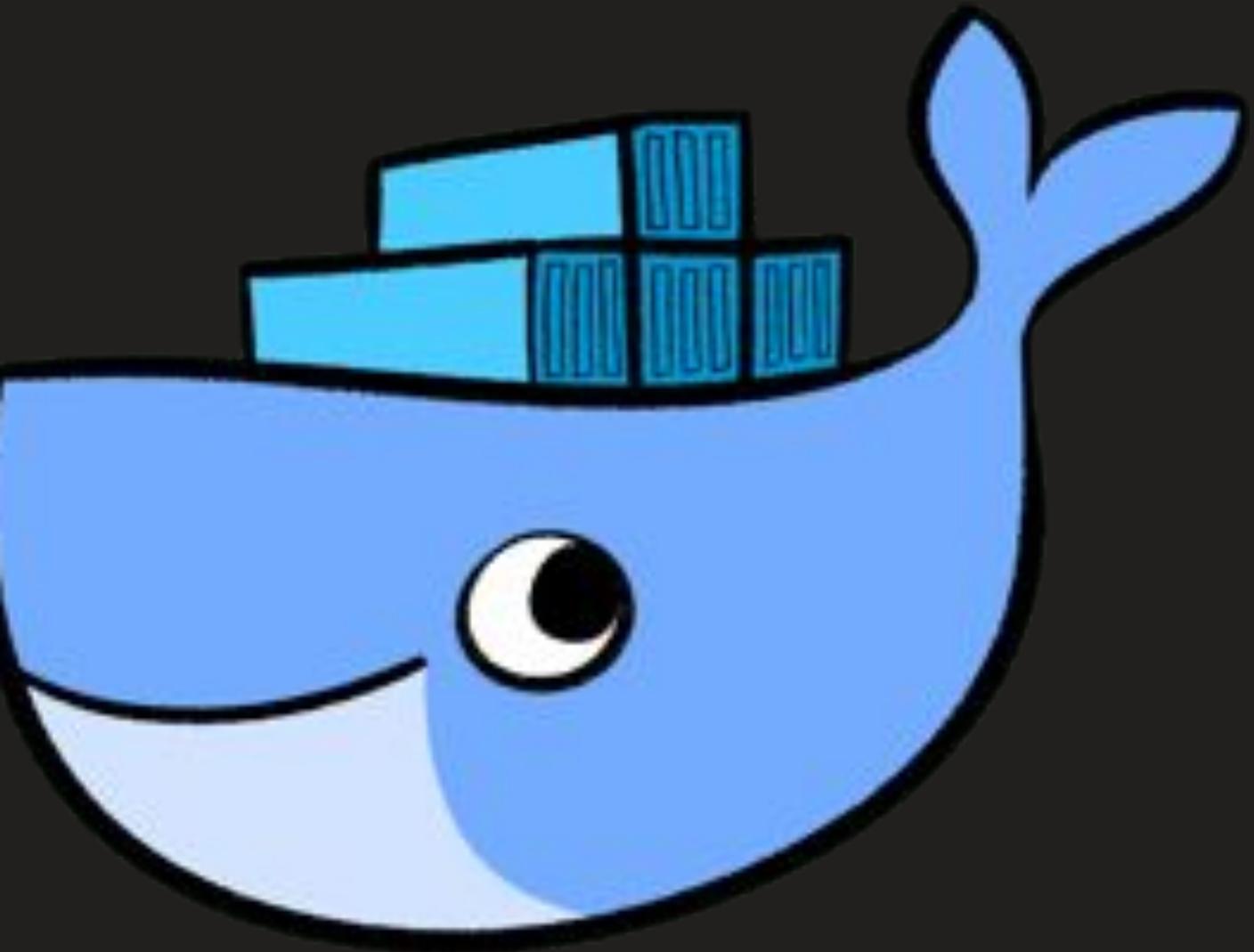
pin





# Summary

- Containers already use content addressable storage
- IPFS has an opportunity to greatly improve distribution



# What's next?

/bin

/bin/cat

/etc

/etc/os-release

**METADATA**

```
drwxr-xr-x 796kB /bin
Lrwxrwxrwx 0B /bin/cat
drwxr-xr-x 0B /etc
-rw-r--r-- 162B /etc/os-
```

FUSE

QmPZ9gcCEp  
qKTo6aq61g

QmQ5vhrL7u  
v6tuoN9KeV

QmS4ustL54  
uo8FzR9455

QmPZ9gcCEp  
qKTo6aq61g

QmQ5vhrL7u  
v6tuoN9KeV

QmS4ustL54  
uo8FzR9455

QmPZ9gcCEp  
qKTo6aq61g

QmQ5vhrL7u  
v6tuoN9KeV



# Thank you!

