

# Images Masterclass



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Author & Trainer

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# Two Modules on Images

Images Masterclass

Building New Images



# Overview/ Summary



**Images: Big Picture**

**Image Internals**

**Registries**

**A Few Good Practices**

**Recap**





## More Information

**Getting Started with Docker**

**Nigel Poulton**



**Up Next:**

# **Images: Big Picture**

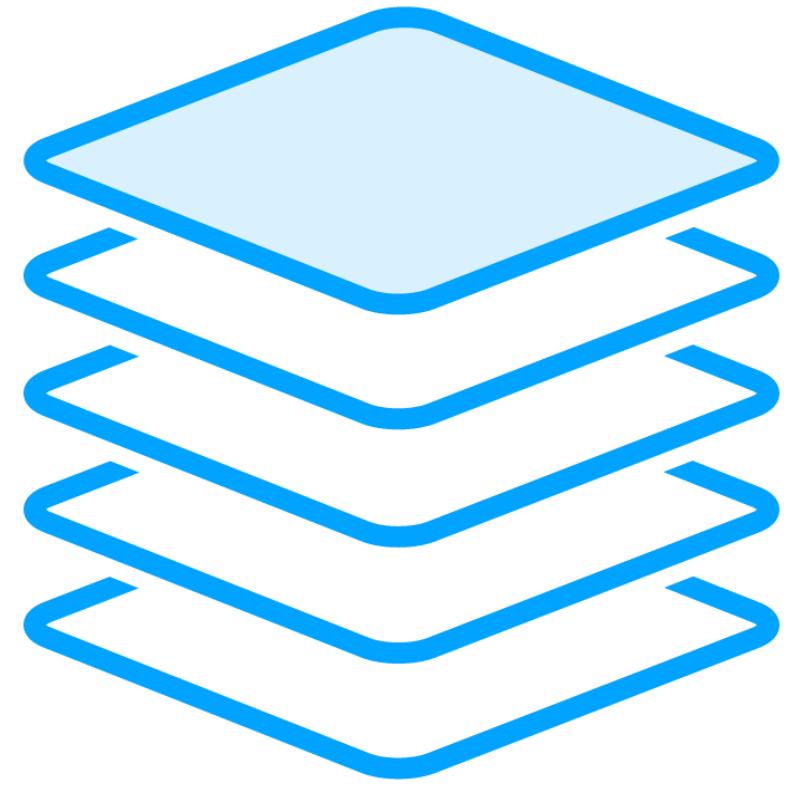
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# Images: Big Picture





**Image**

**Container image**

**Docker image**

**OCI image**



All mean the same thing



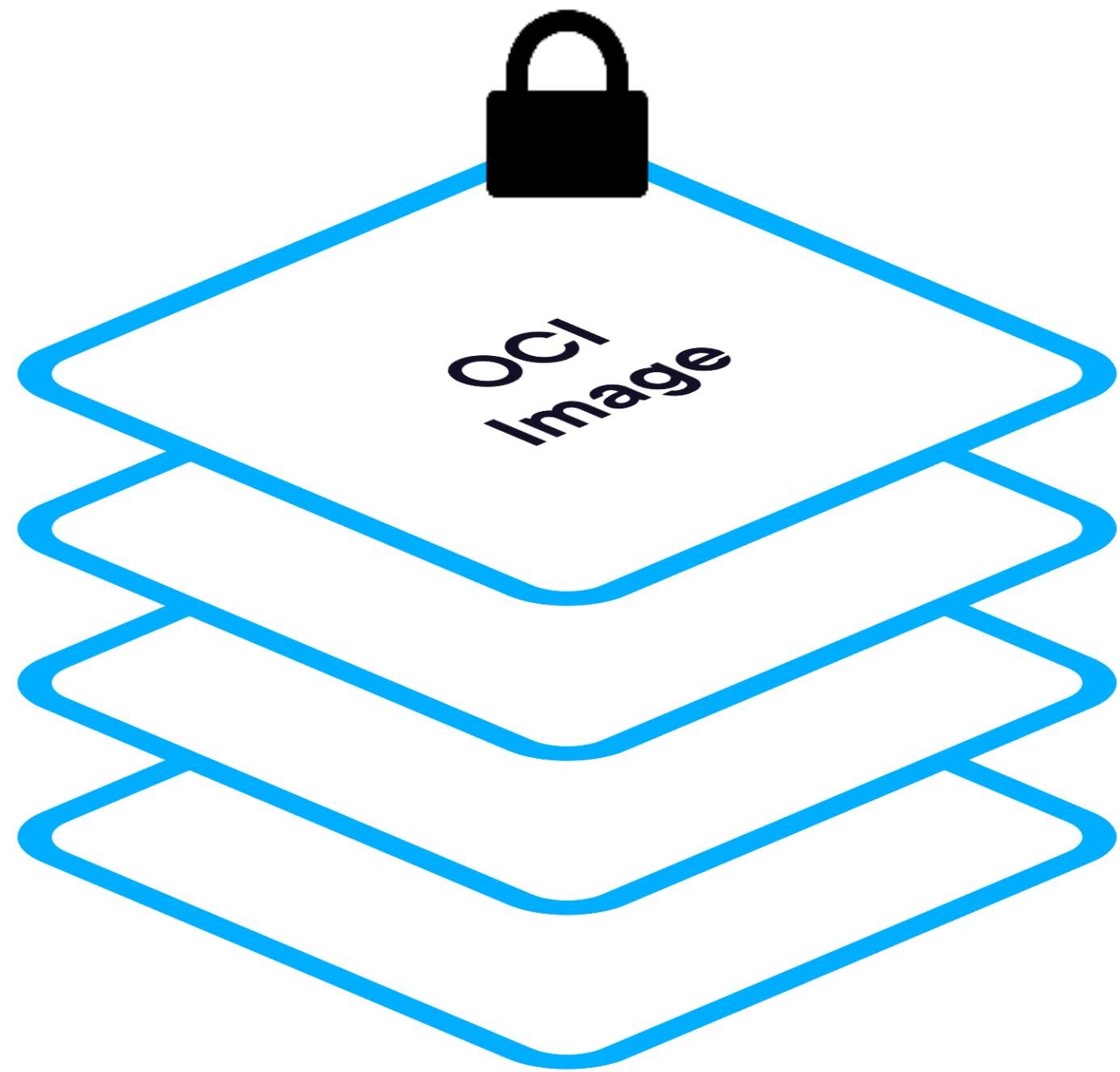
**Base OS**

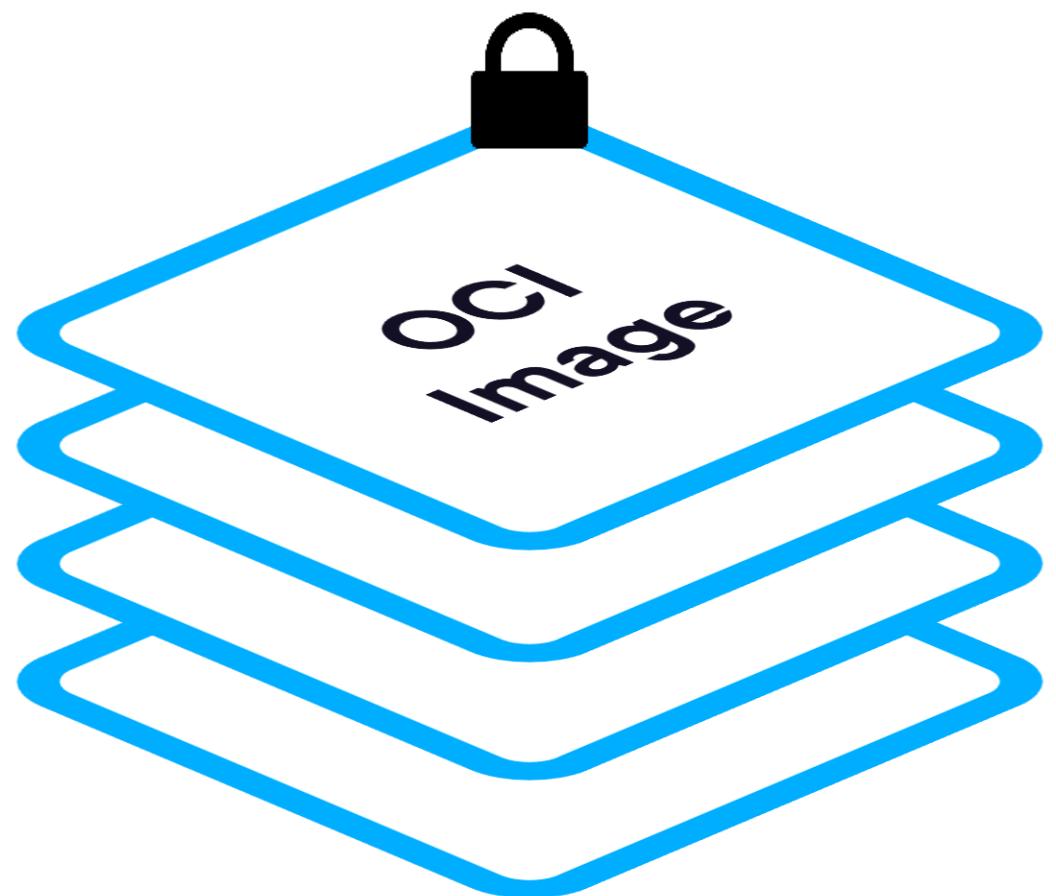
**App**

**Dependencies**

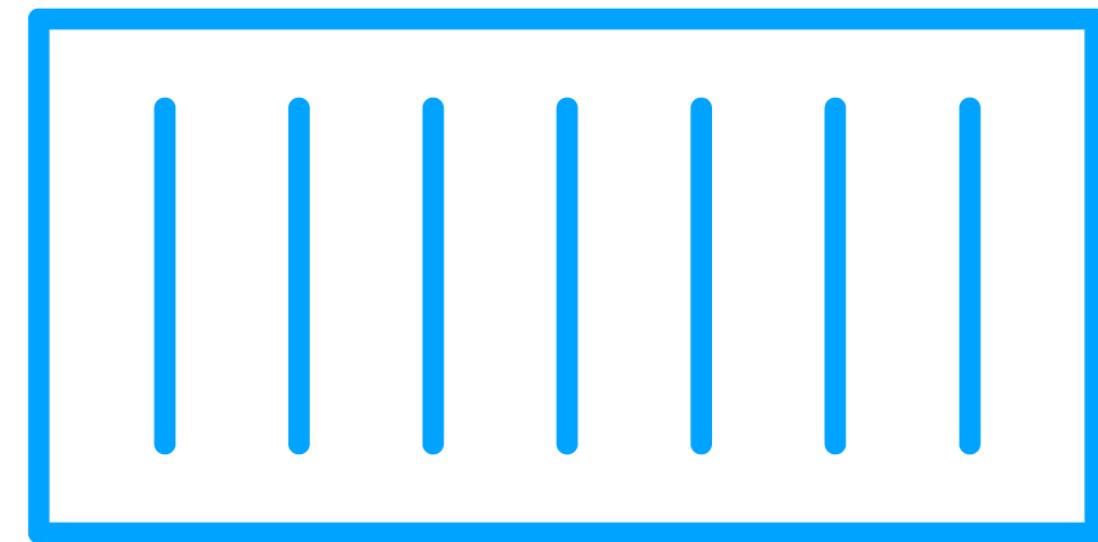
**Config**





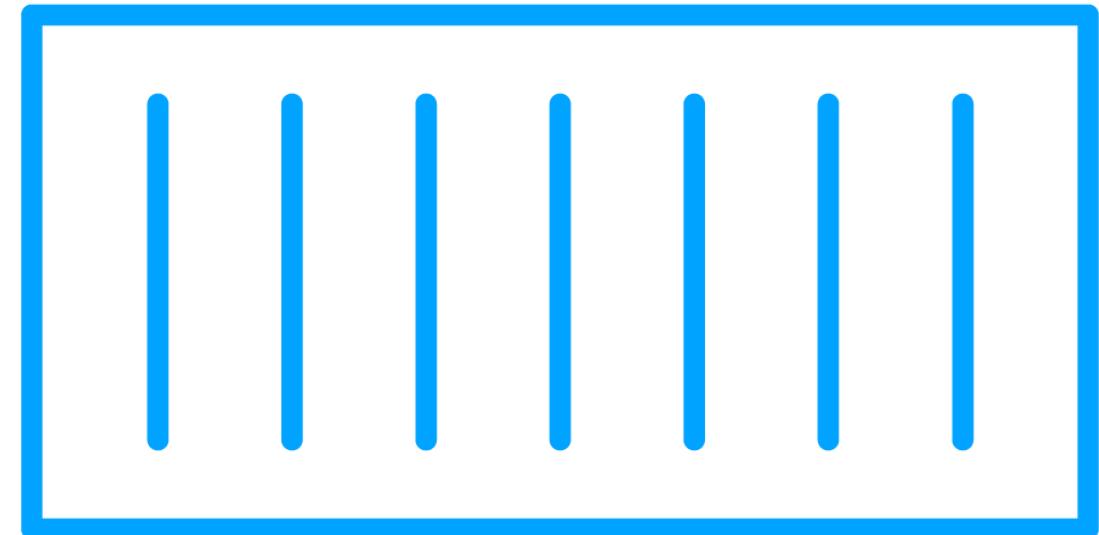
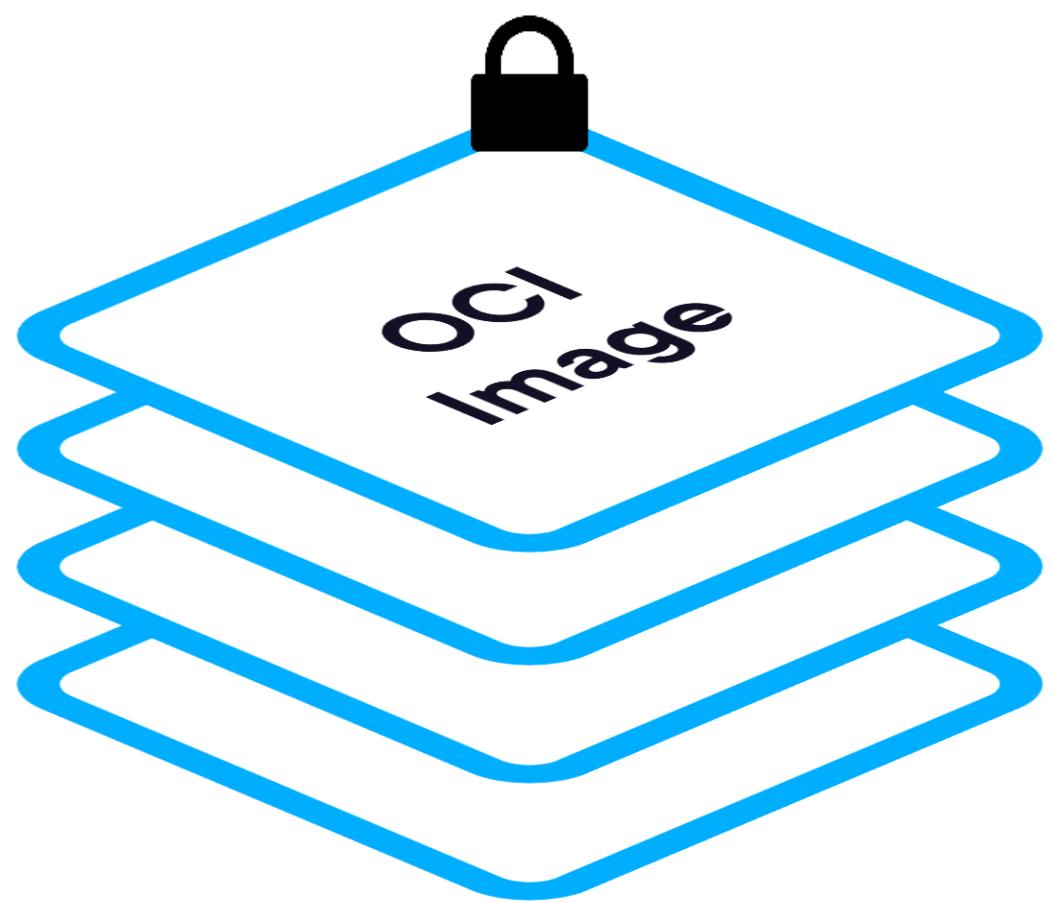


**Build time**



**Runtime**





Build time

Runtime

Class

VM template

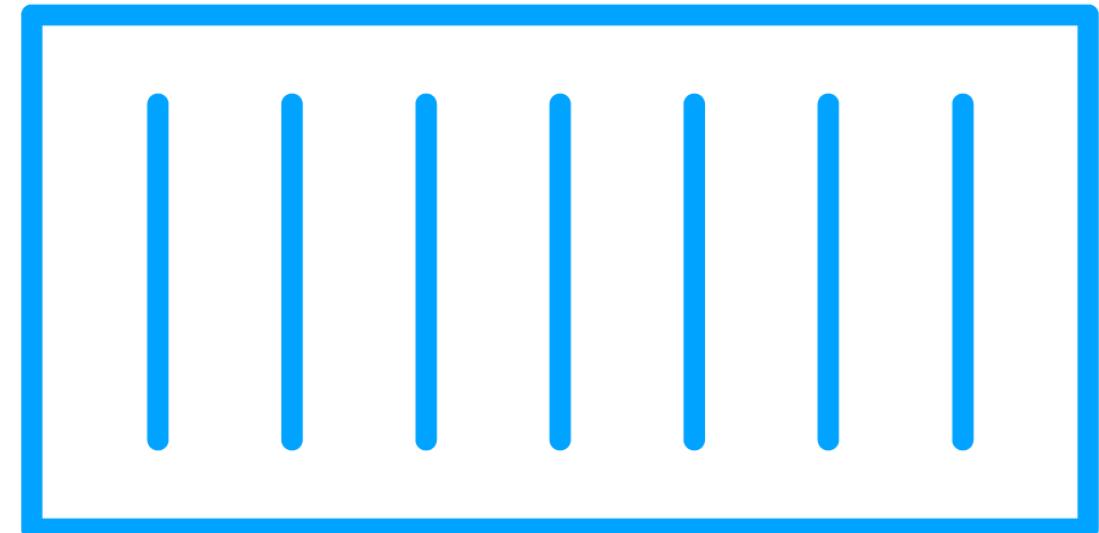
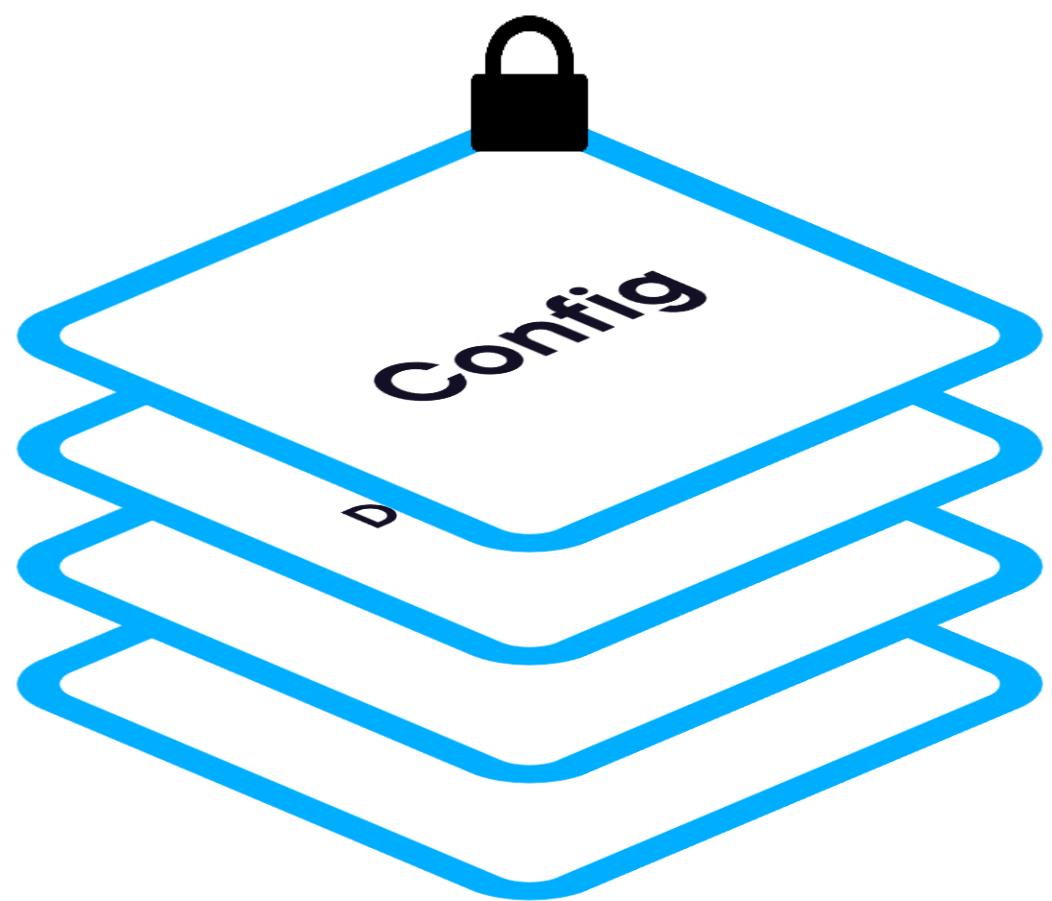
Object

Running VM

~

~





Build time

Runtime

Class

VM template

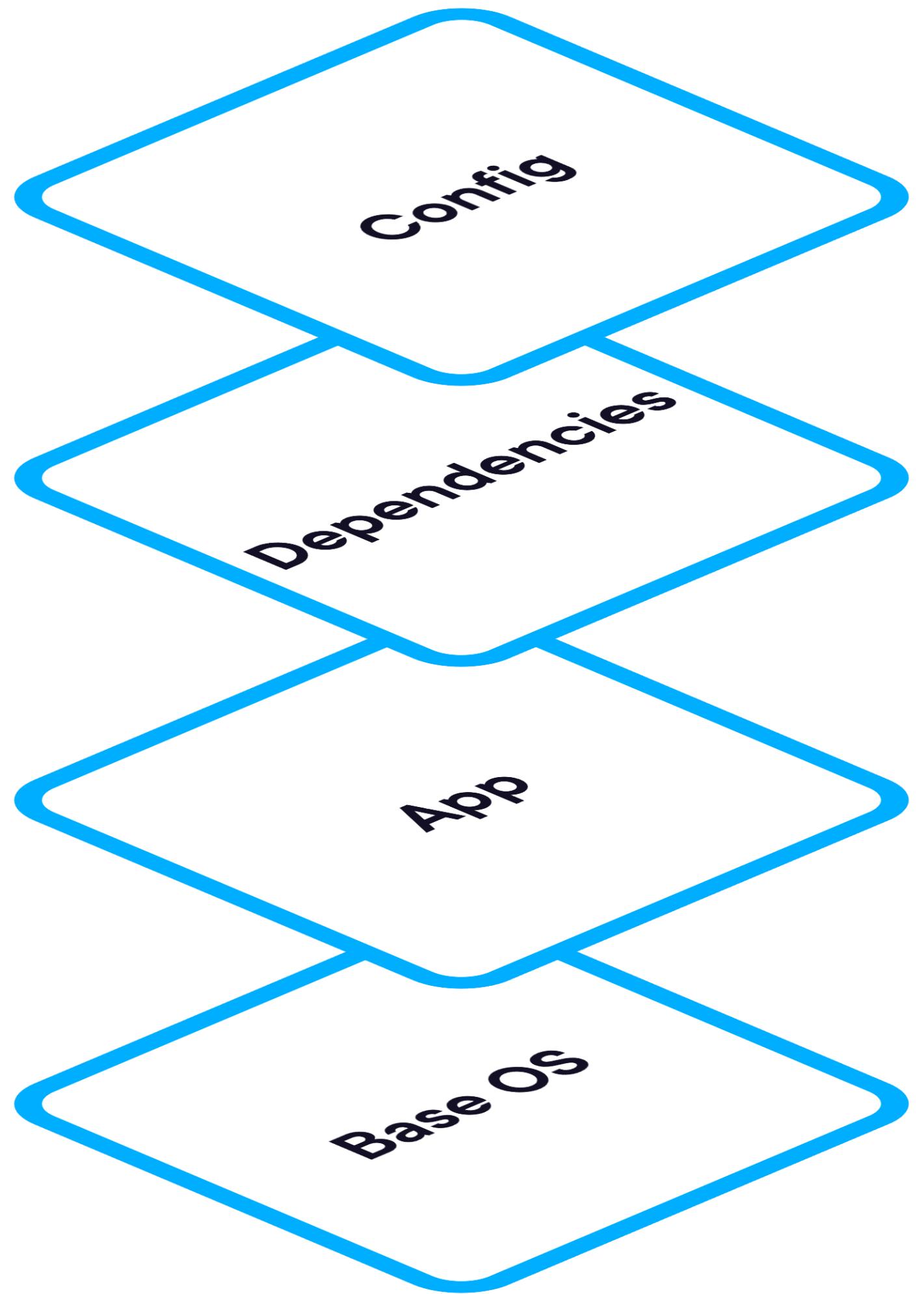
Object

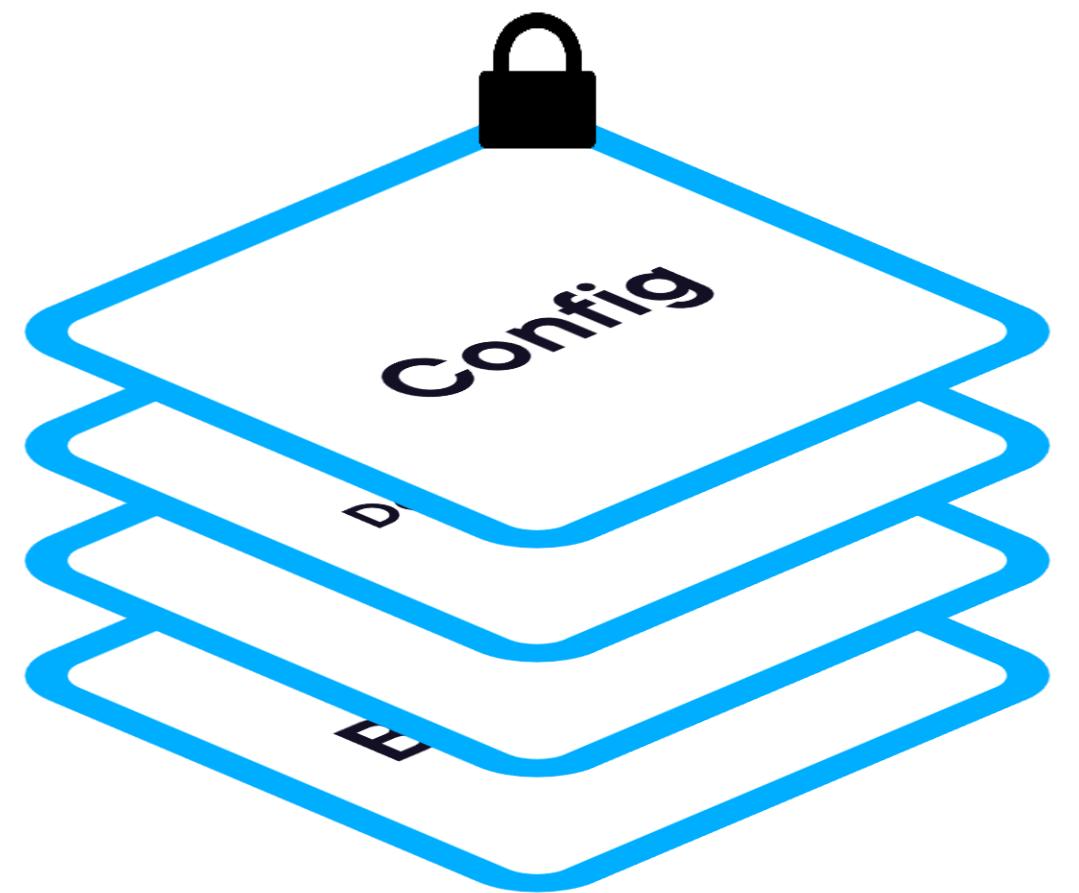
Running VM

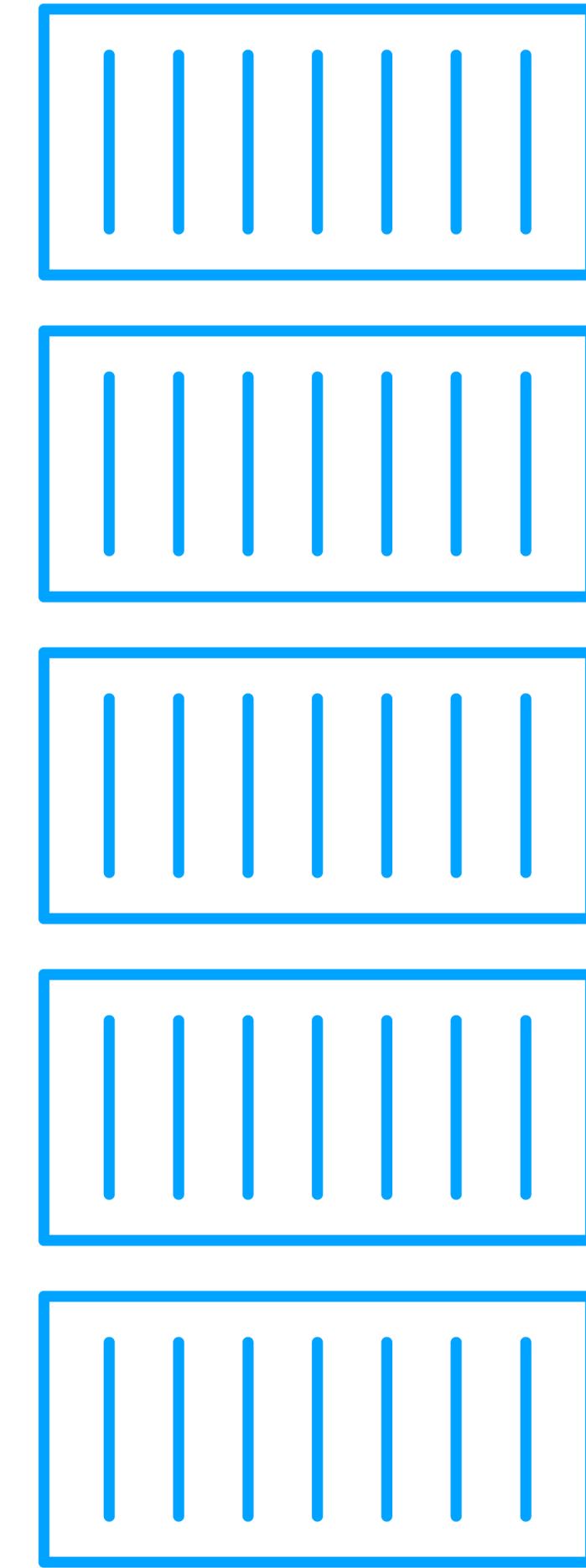
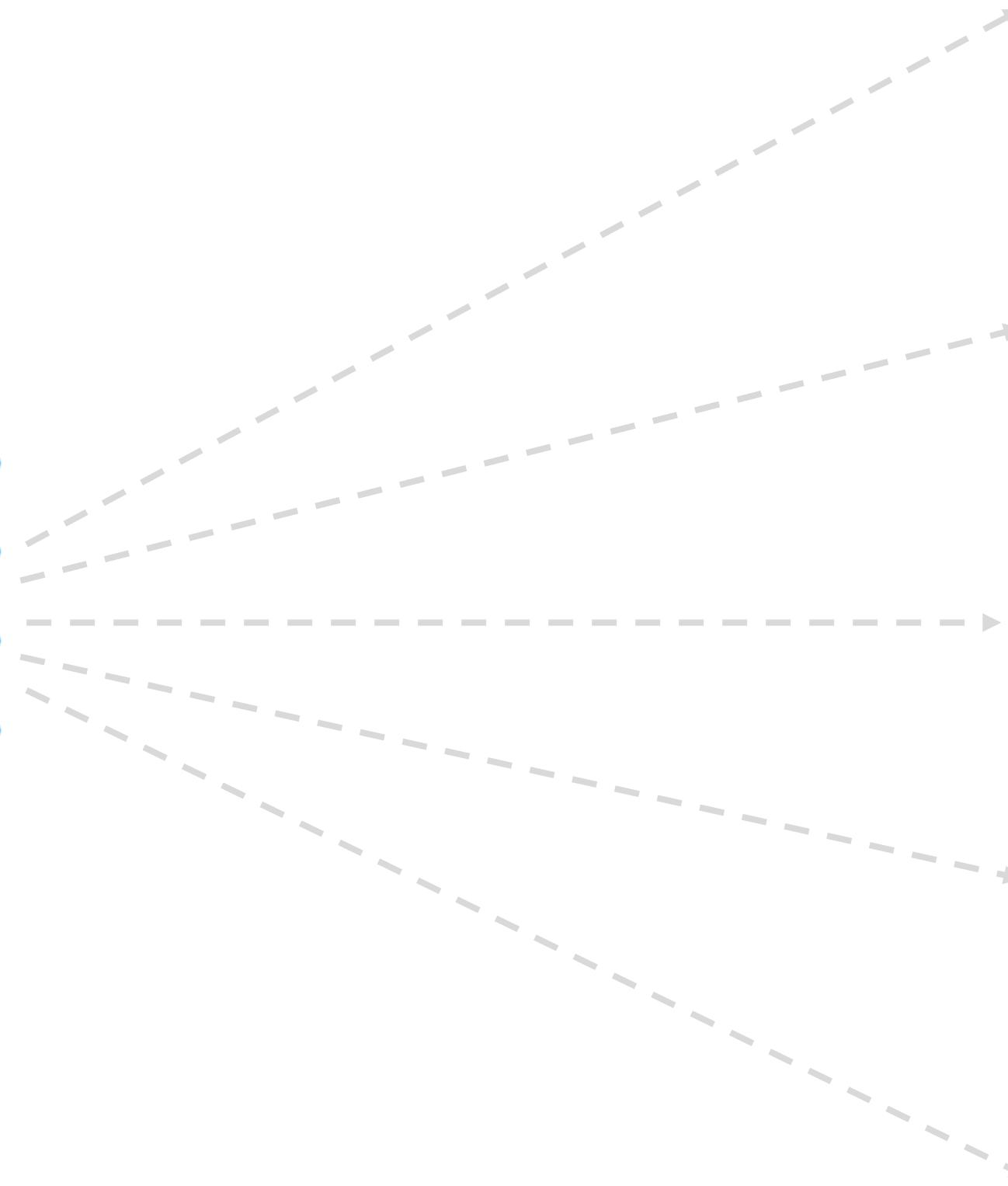
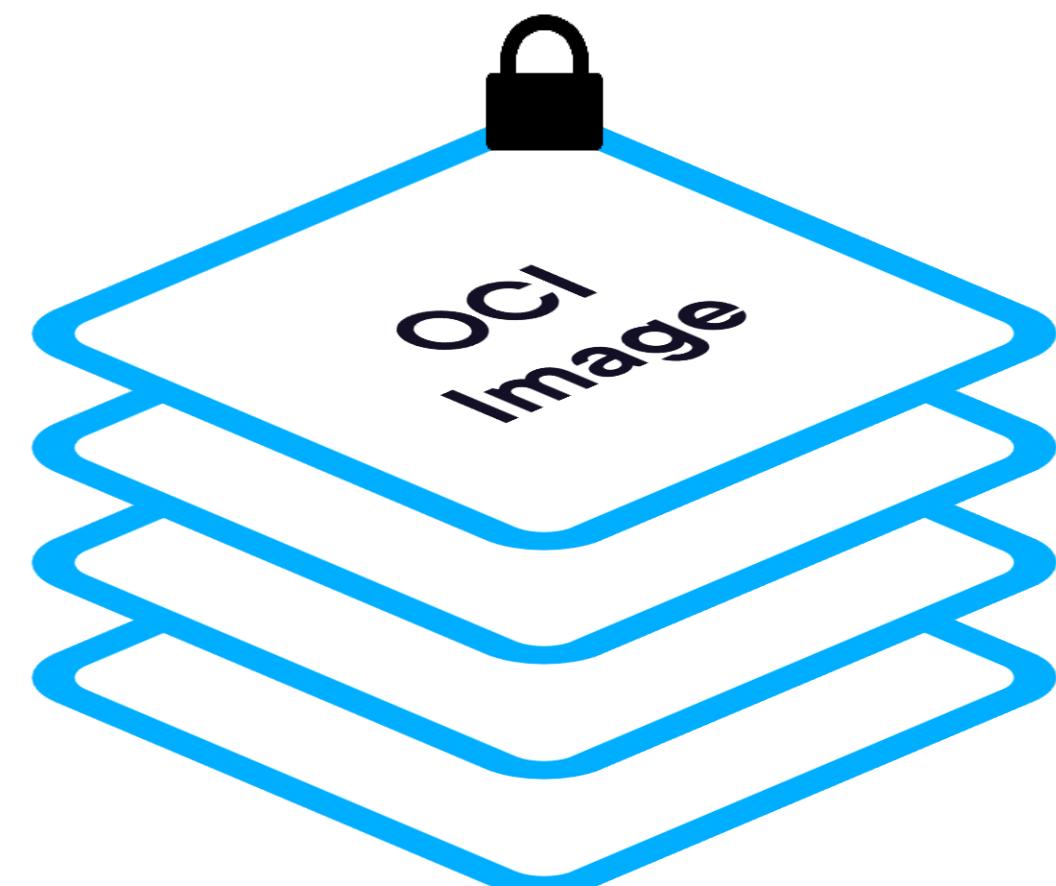
~

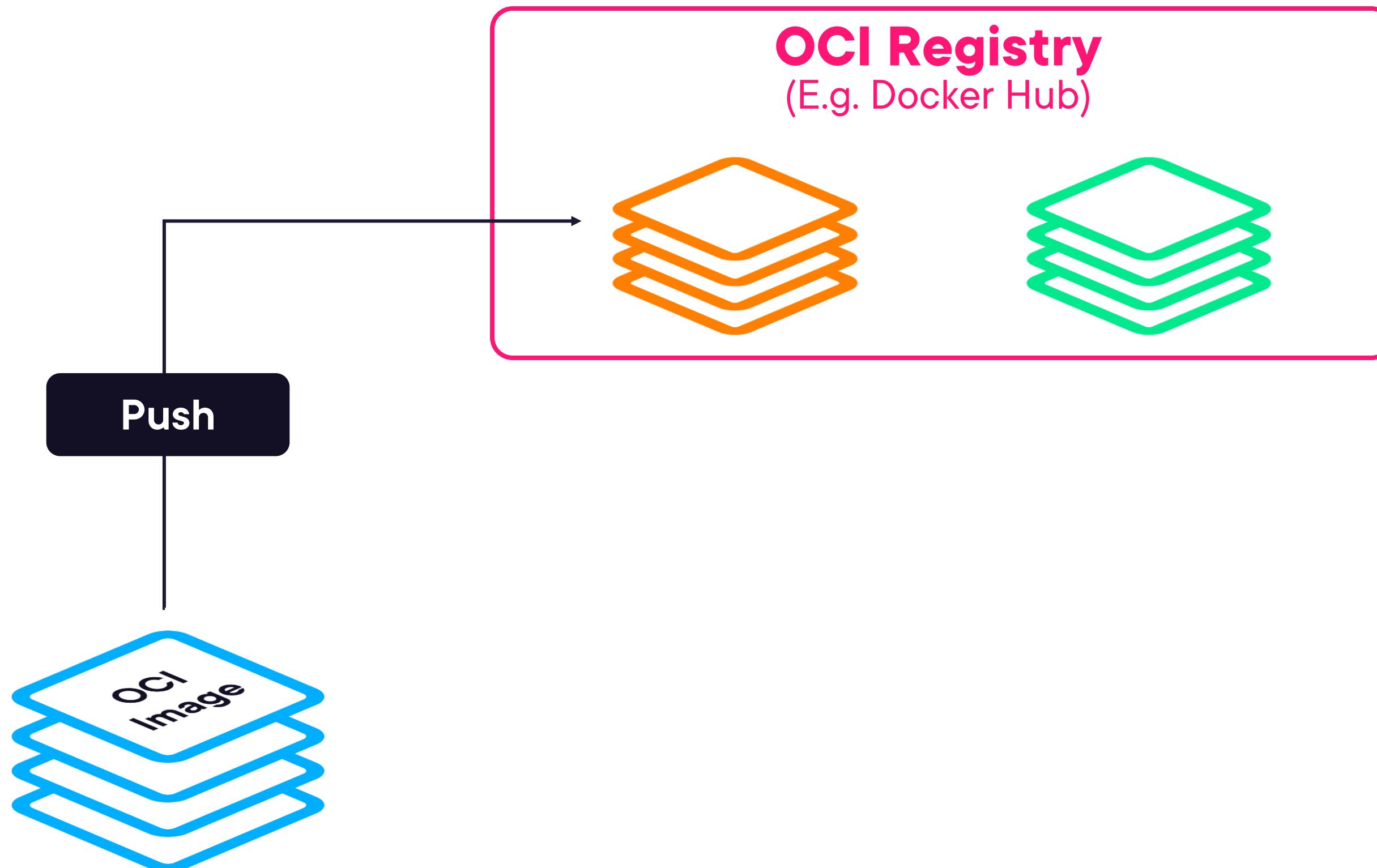
~

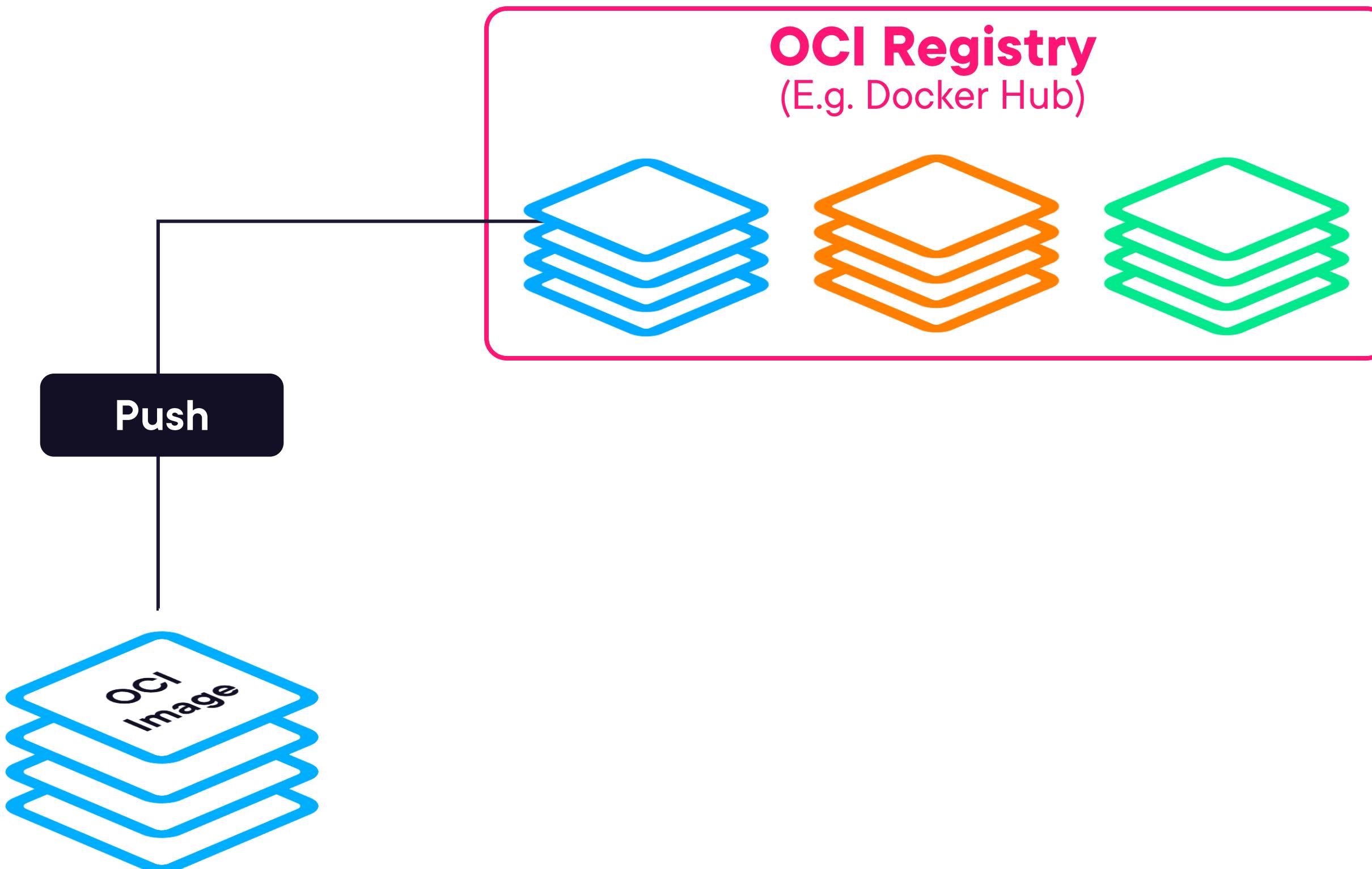


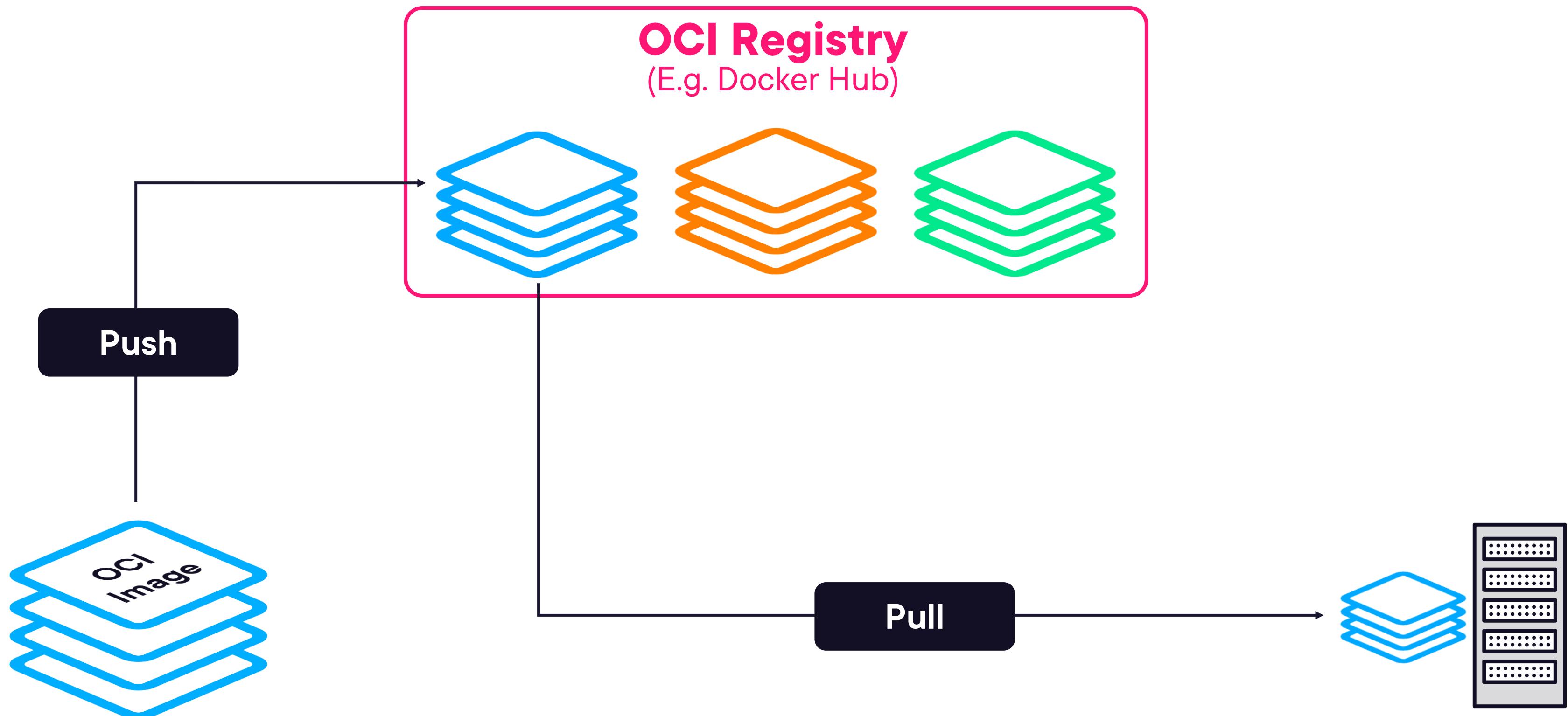


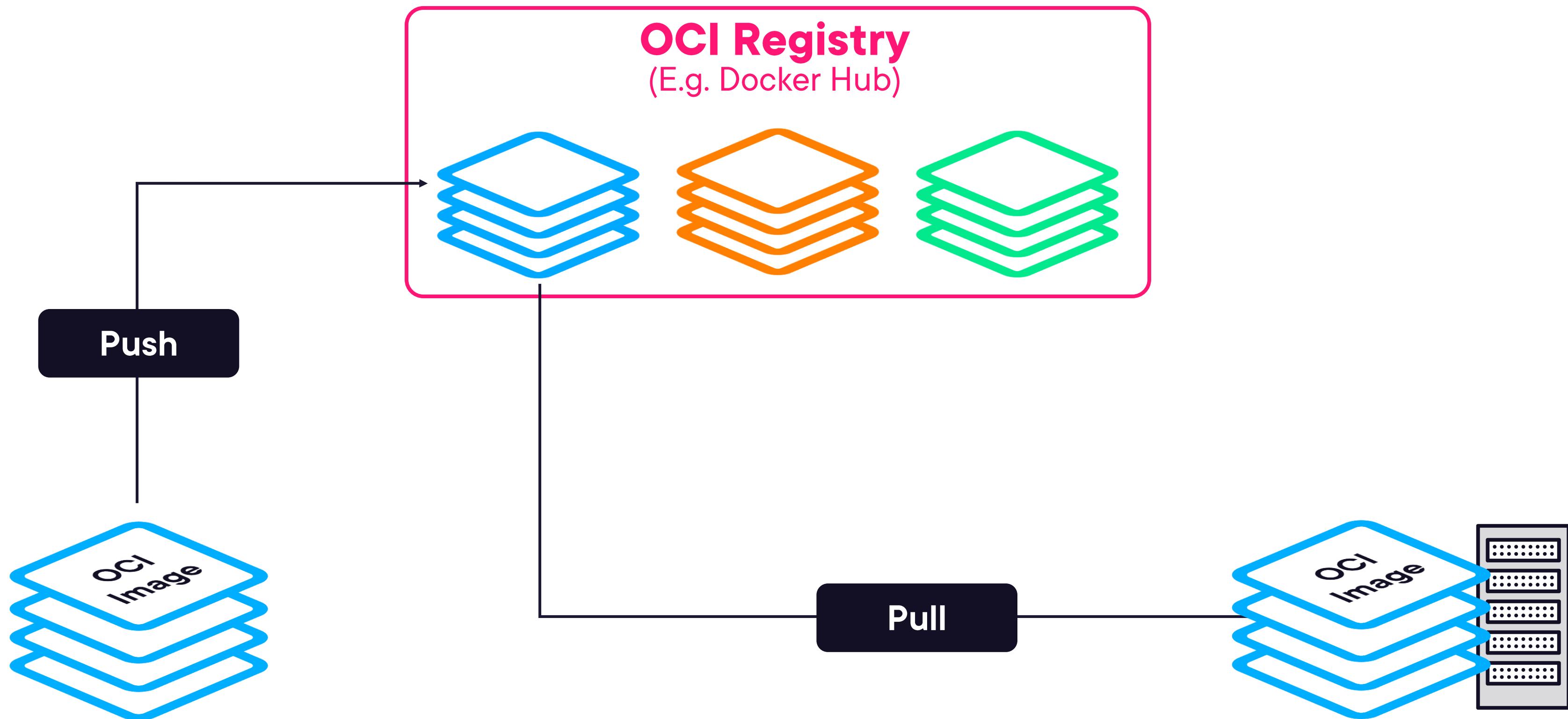


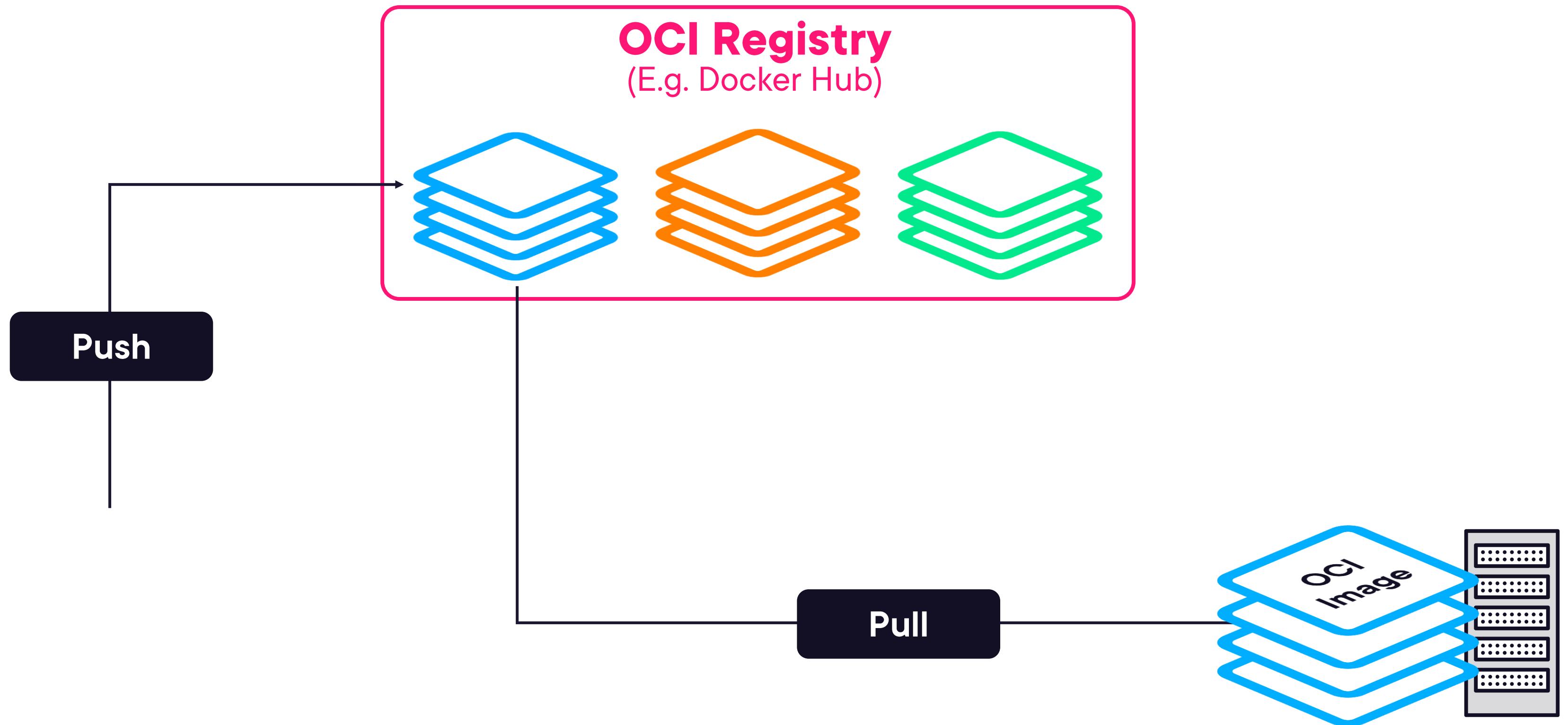


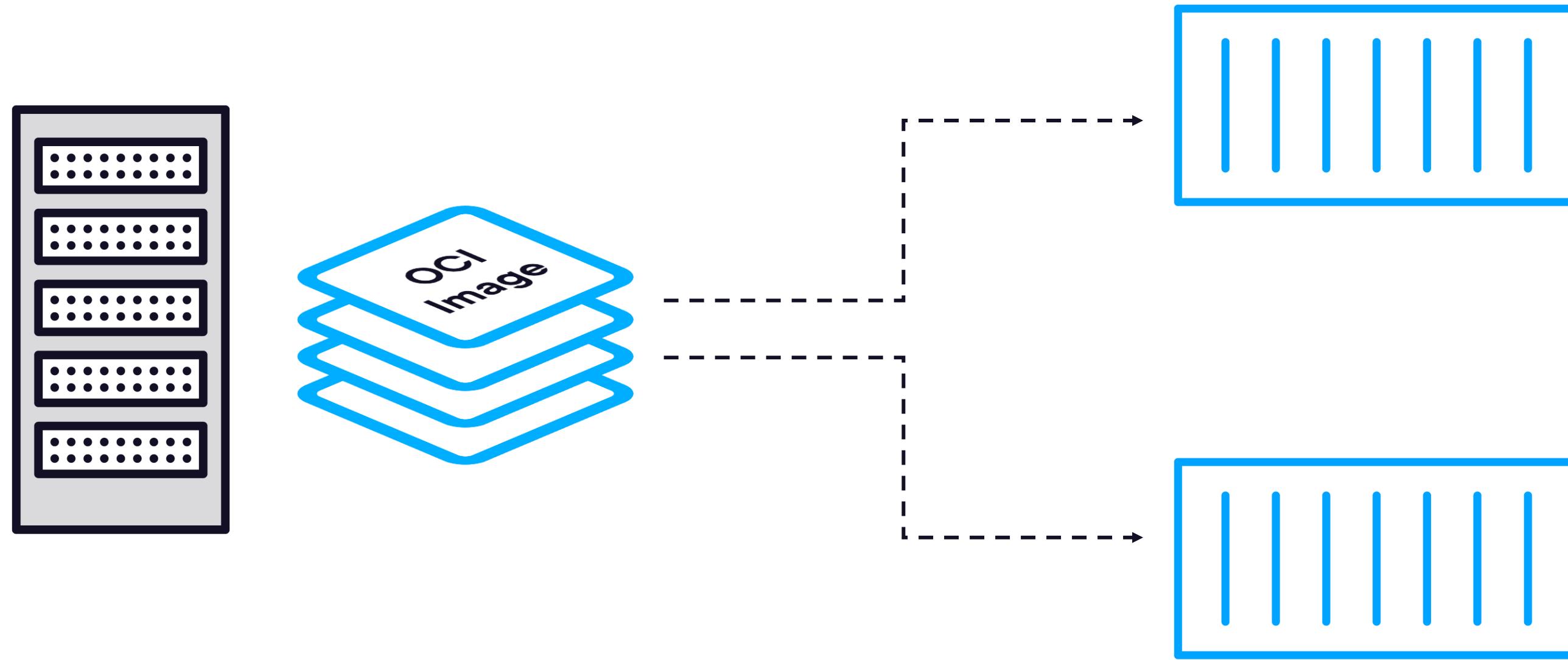


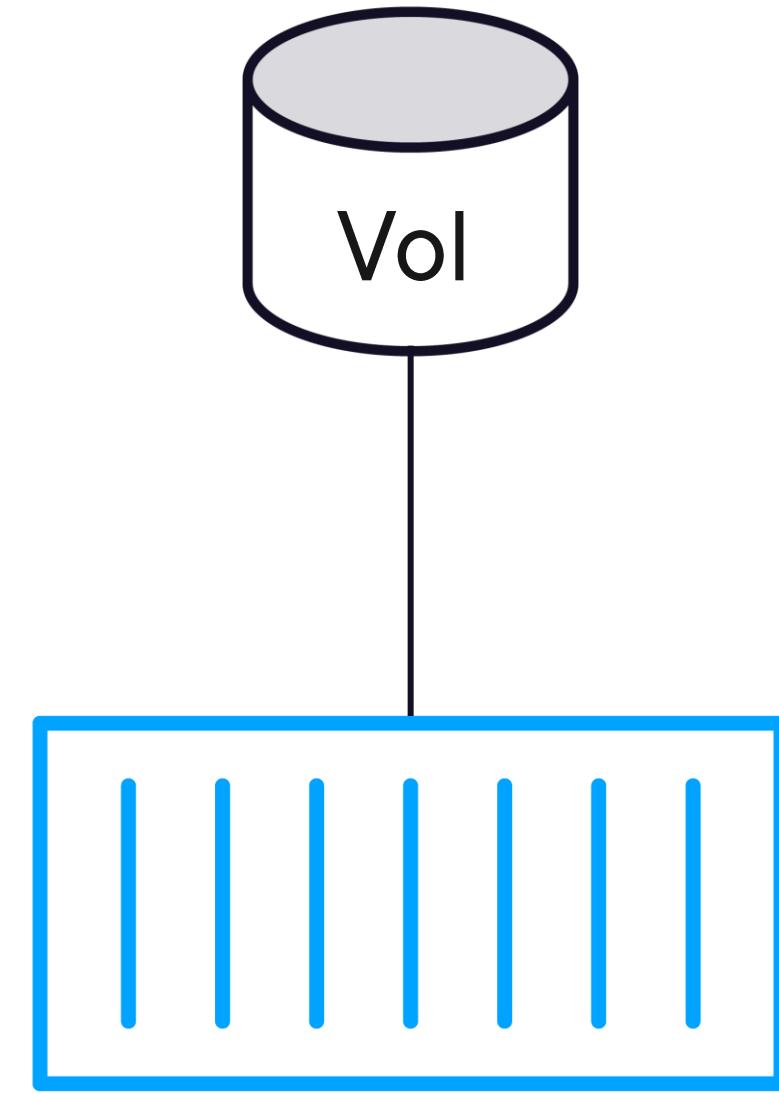




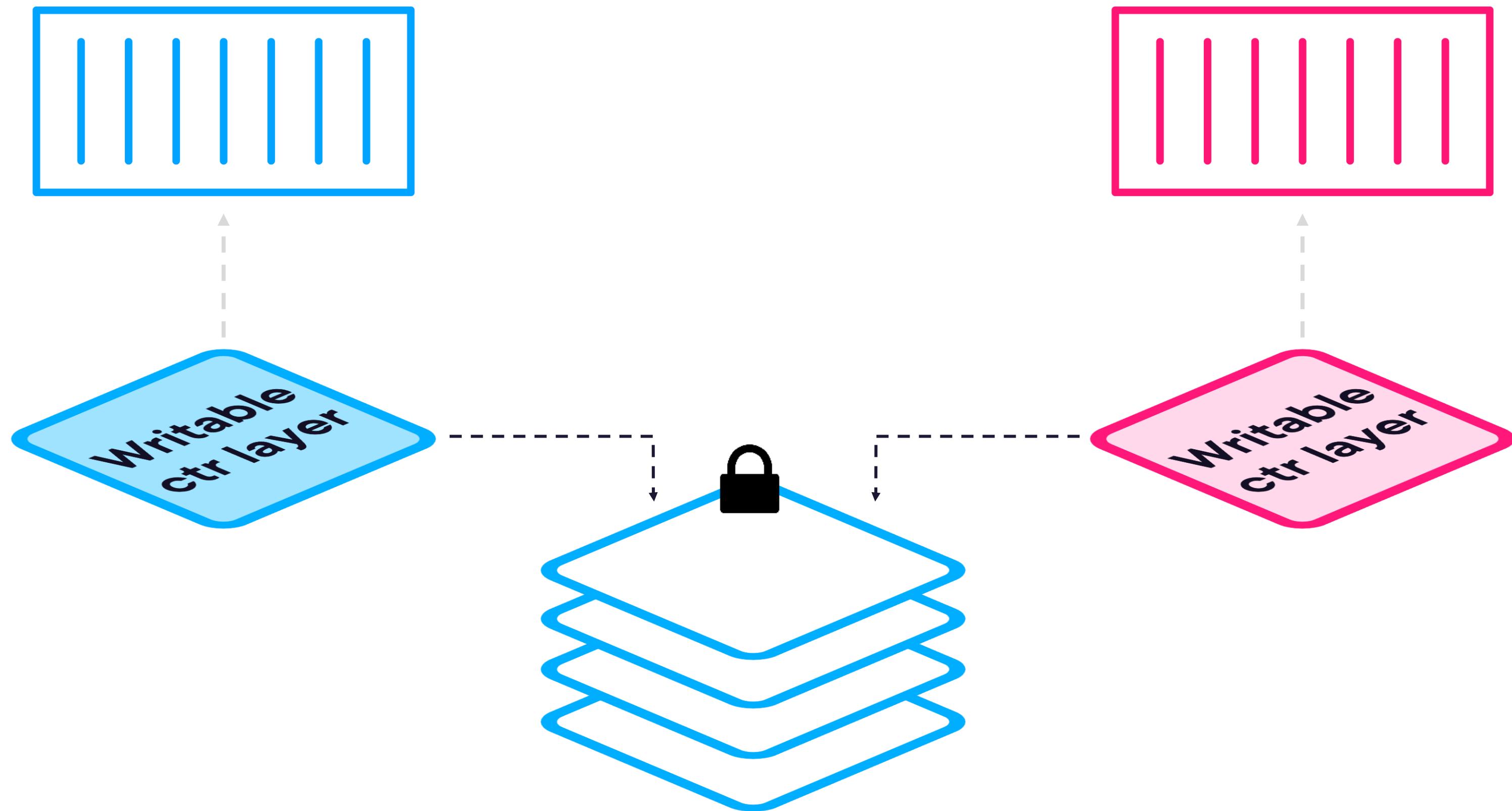






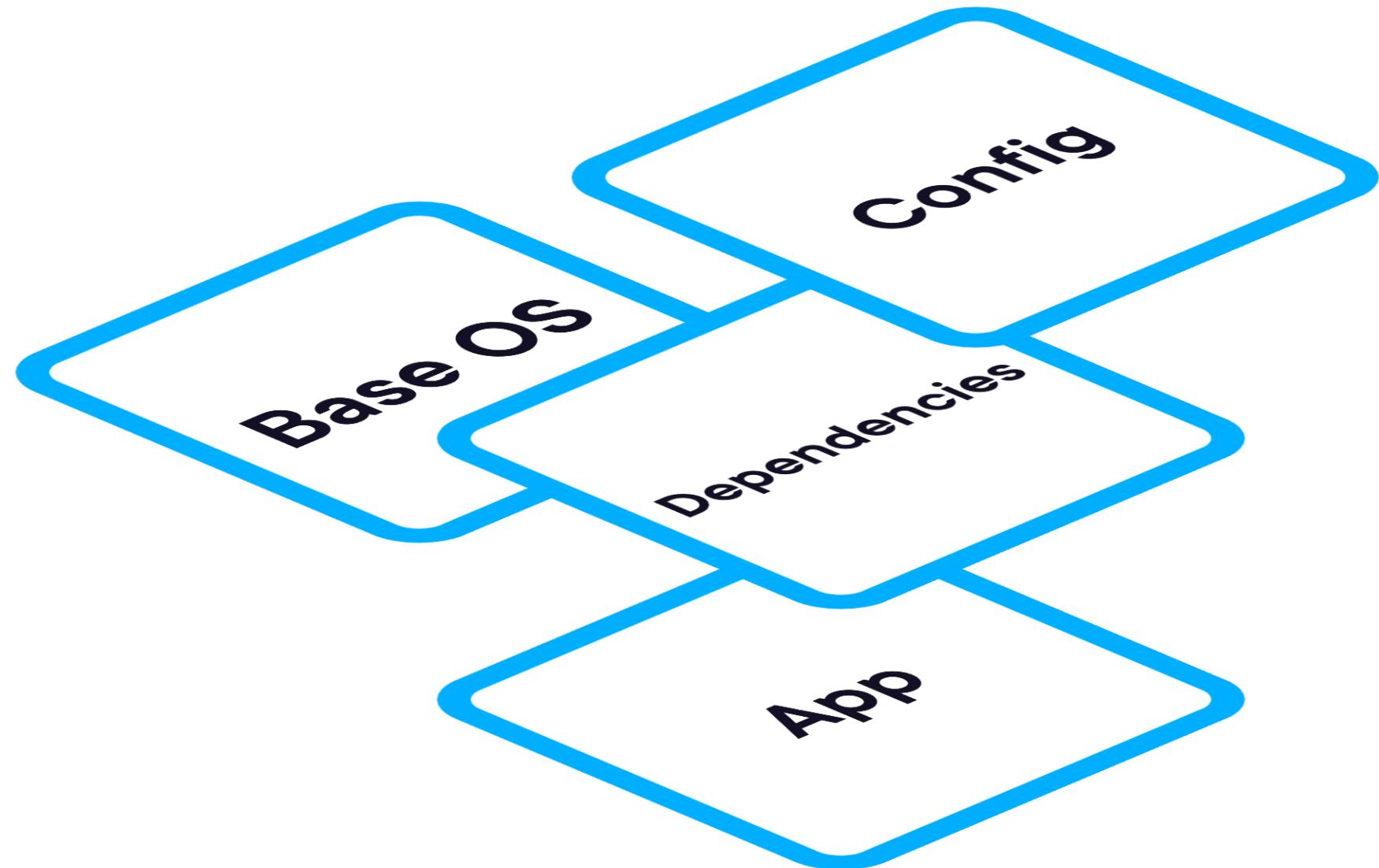


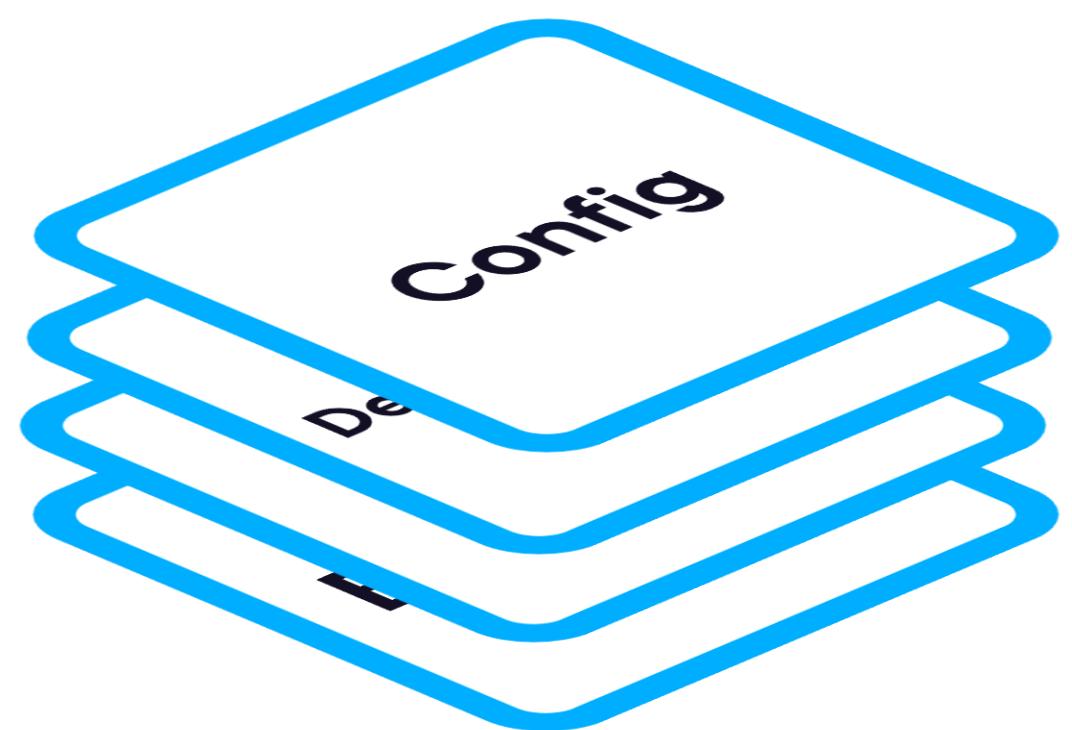


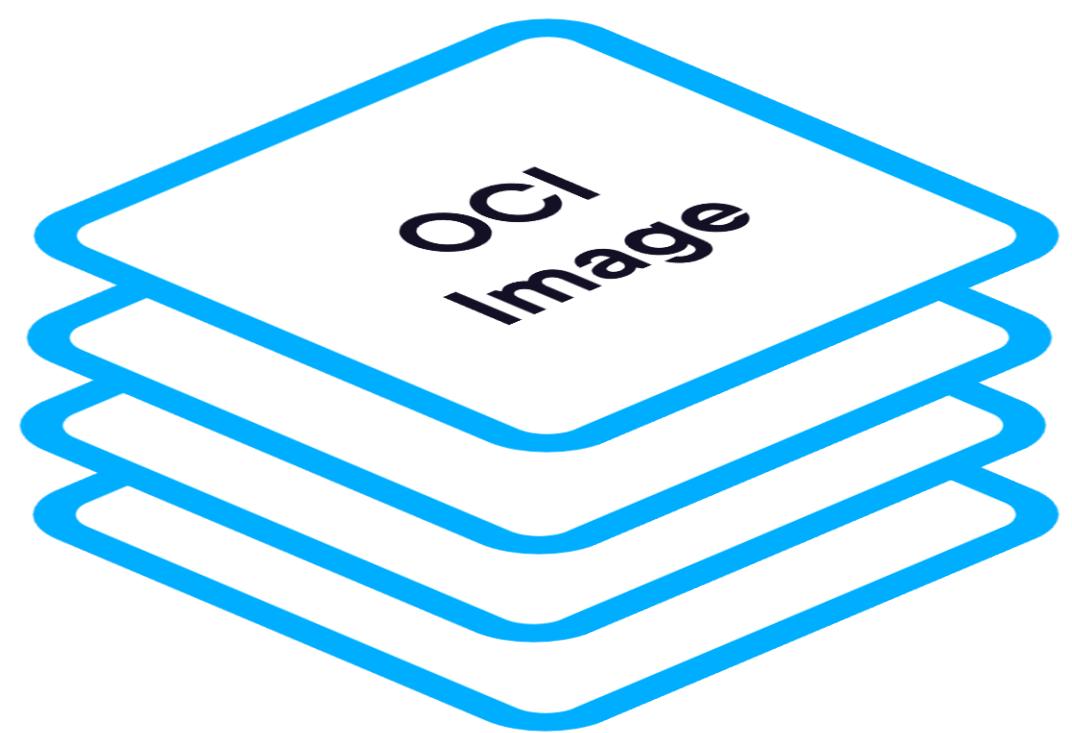


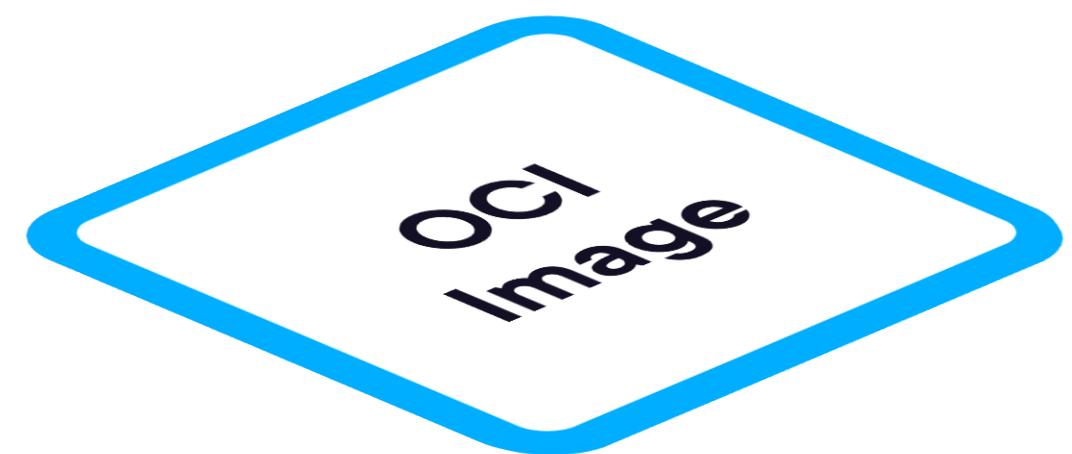
# Image Internals

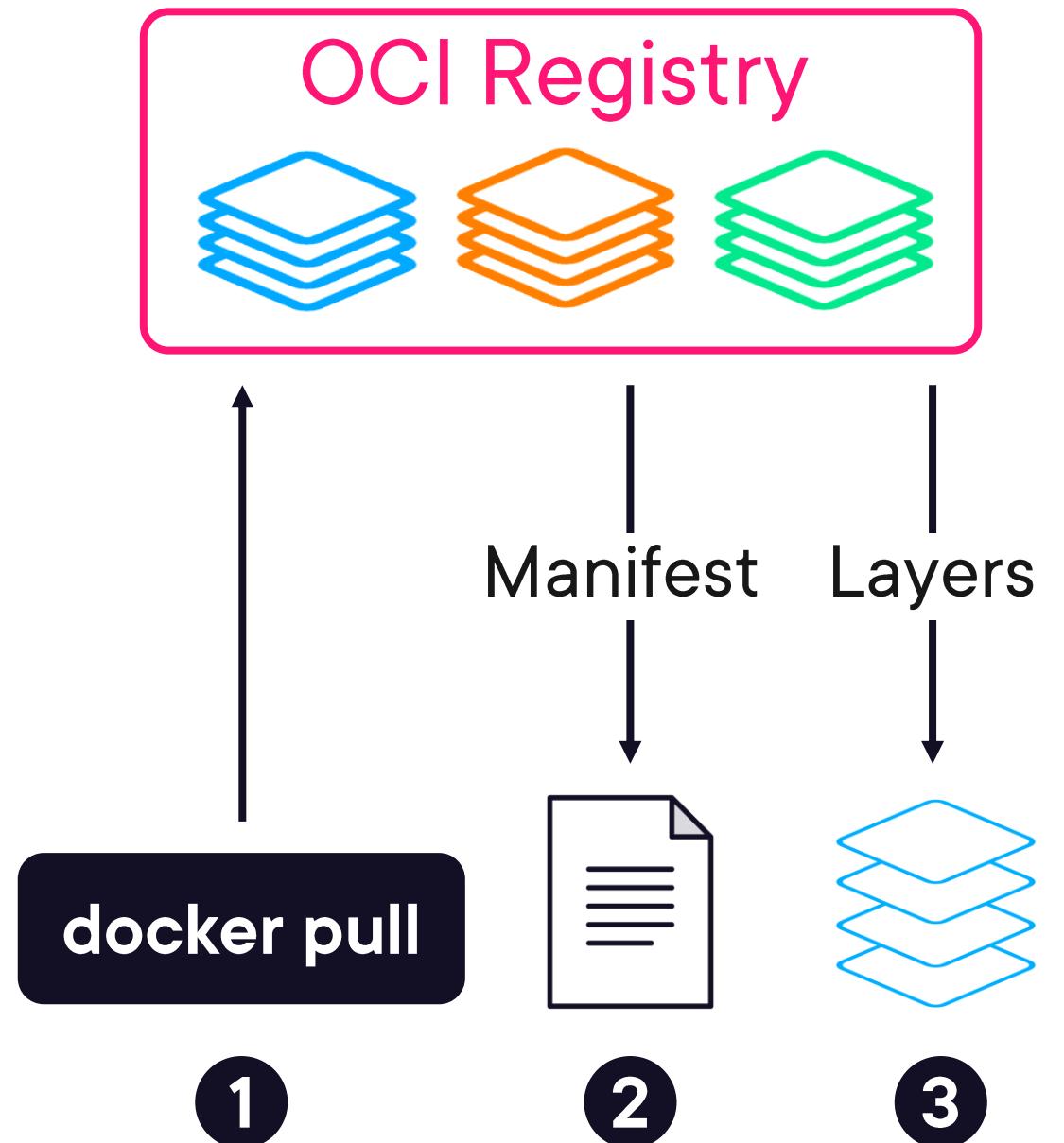












## Fat Manifest

```
digest: sha256:cc59a7f  
arch: arm  
os: linux
```

```
digest: sha256:6e30a30  
arch: amd64  
os: linux
```

```
digest: sha256:9f9a8dd  
arch: s390x  
os: linux
```

## Manifest

```
platform: {  
    arch: amd64,  
    os: linux  
}  
...  
layers:  
    digest: sha256:648e...  
    ...  
    digest: sha256:3b63...  
    ...  
    digest: sha256:af4c...  
    ...
```

sha256 : af4cd59cb295cd

sha256 : 3b637010cd4d70

sha256 : 648e0aadf75ac2

...



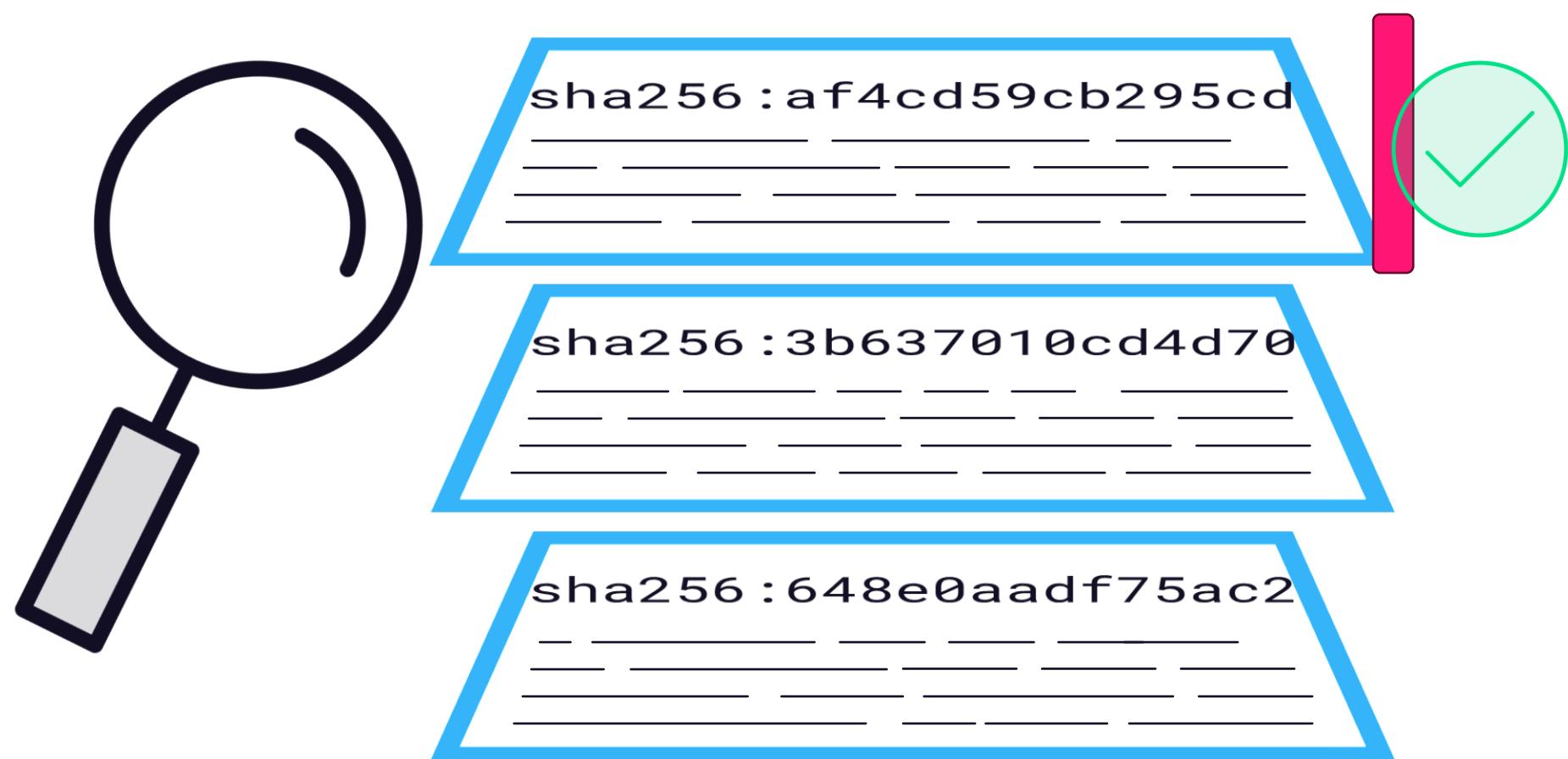
**sha256 : af4cd59cb295cd**

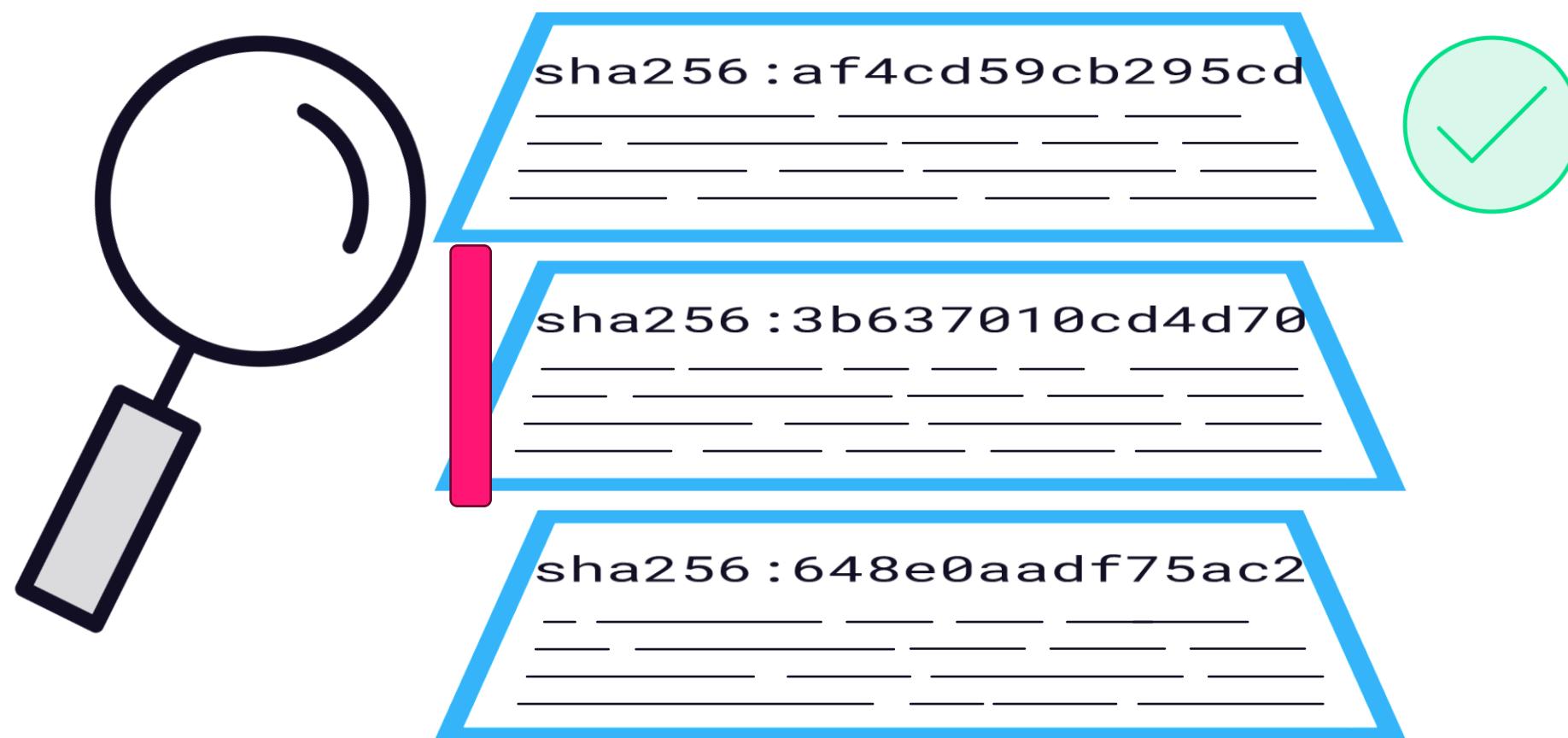
**sha256 : 3b637010cd4d70**

**sha256 : 648e0aadf75ac2**

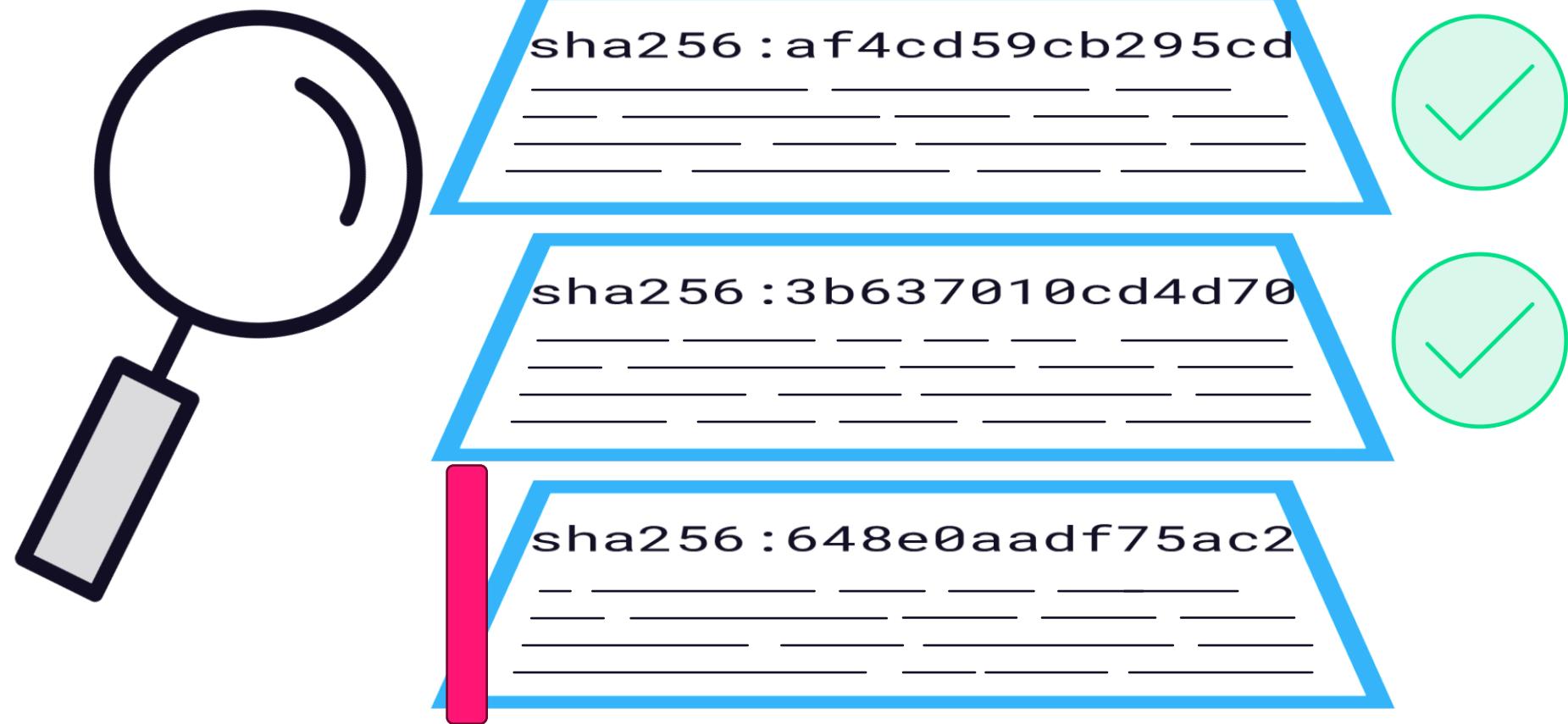






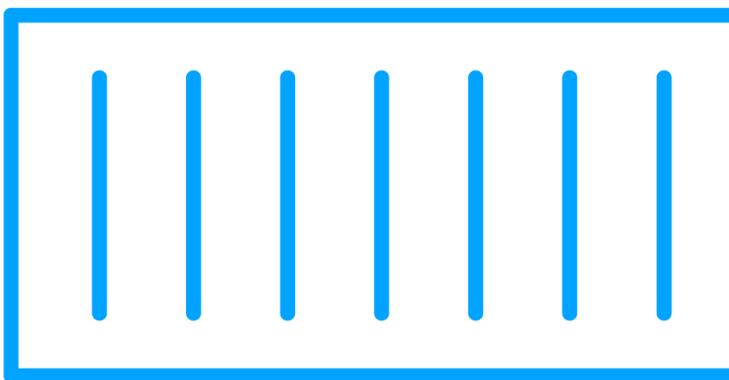






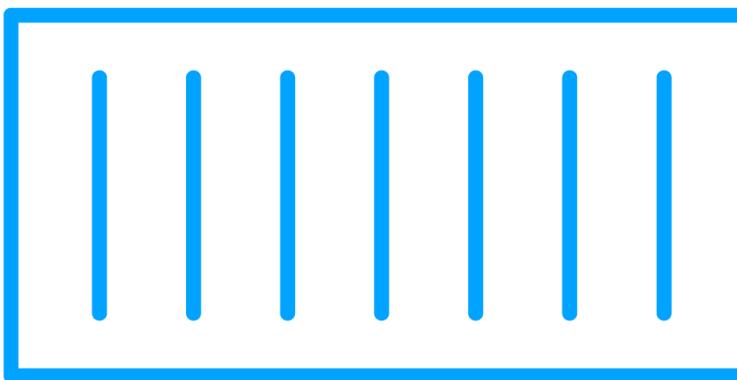


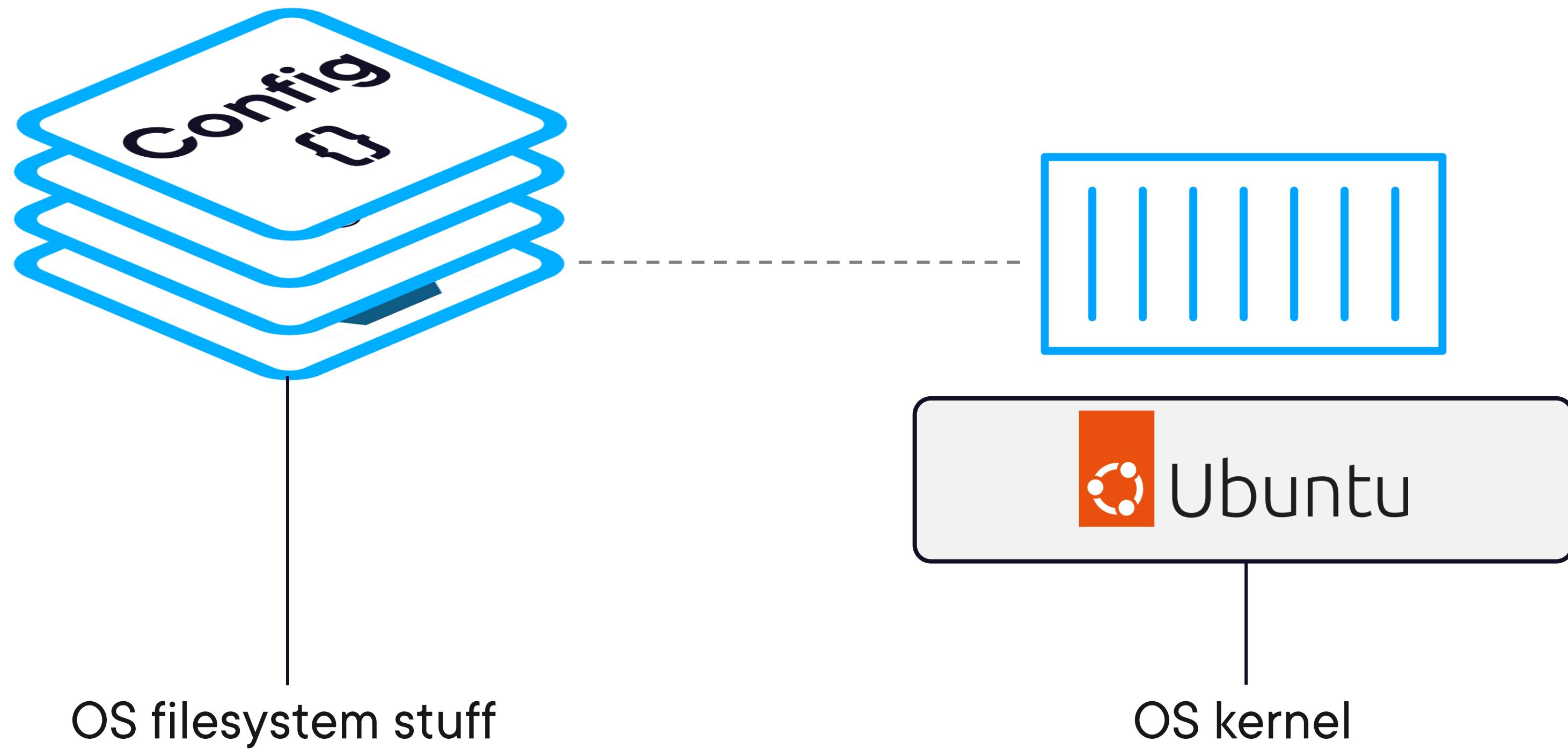


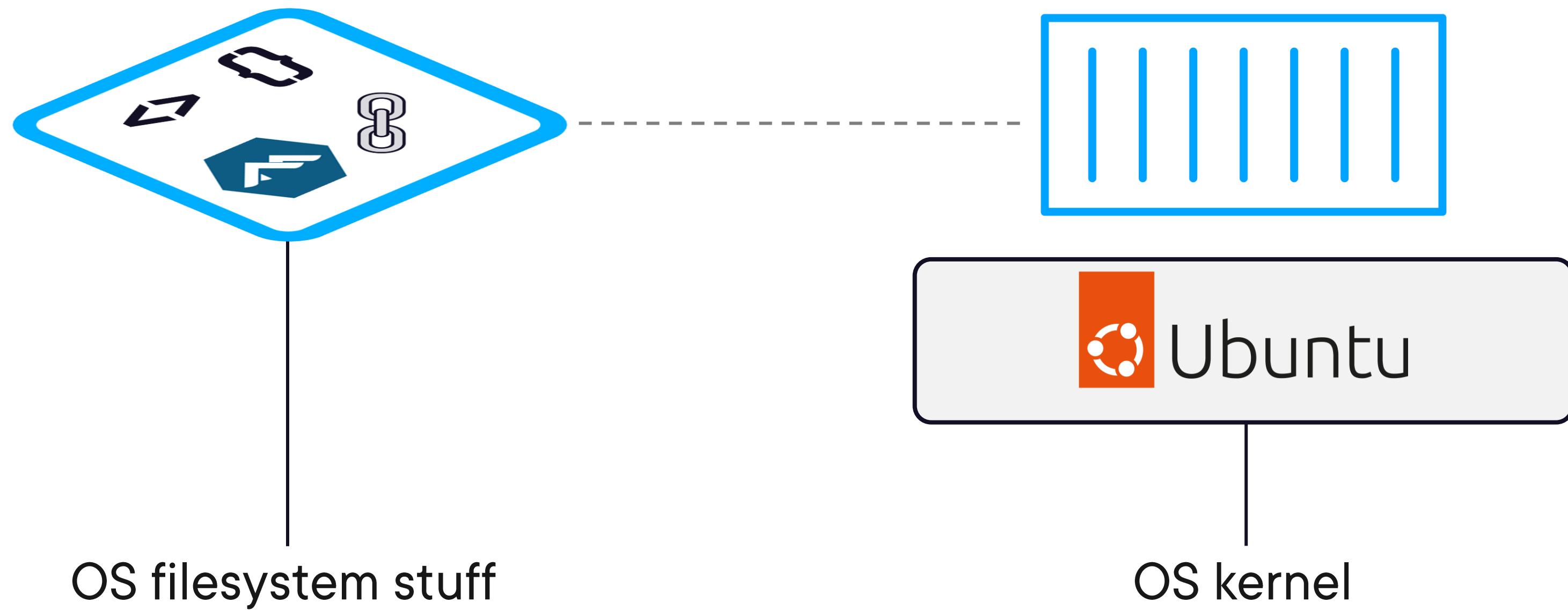




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**Up Next:**

# **Registries**

---

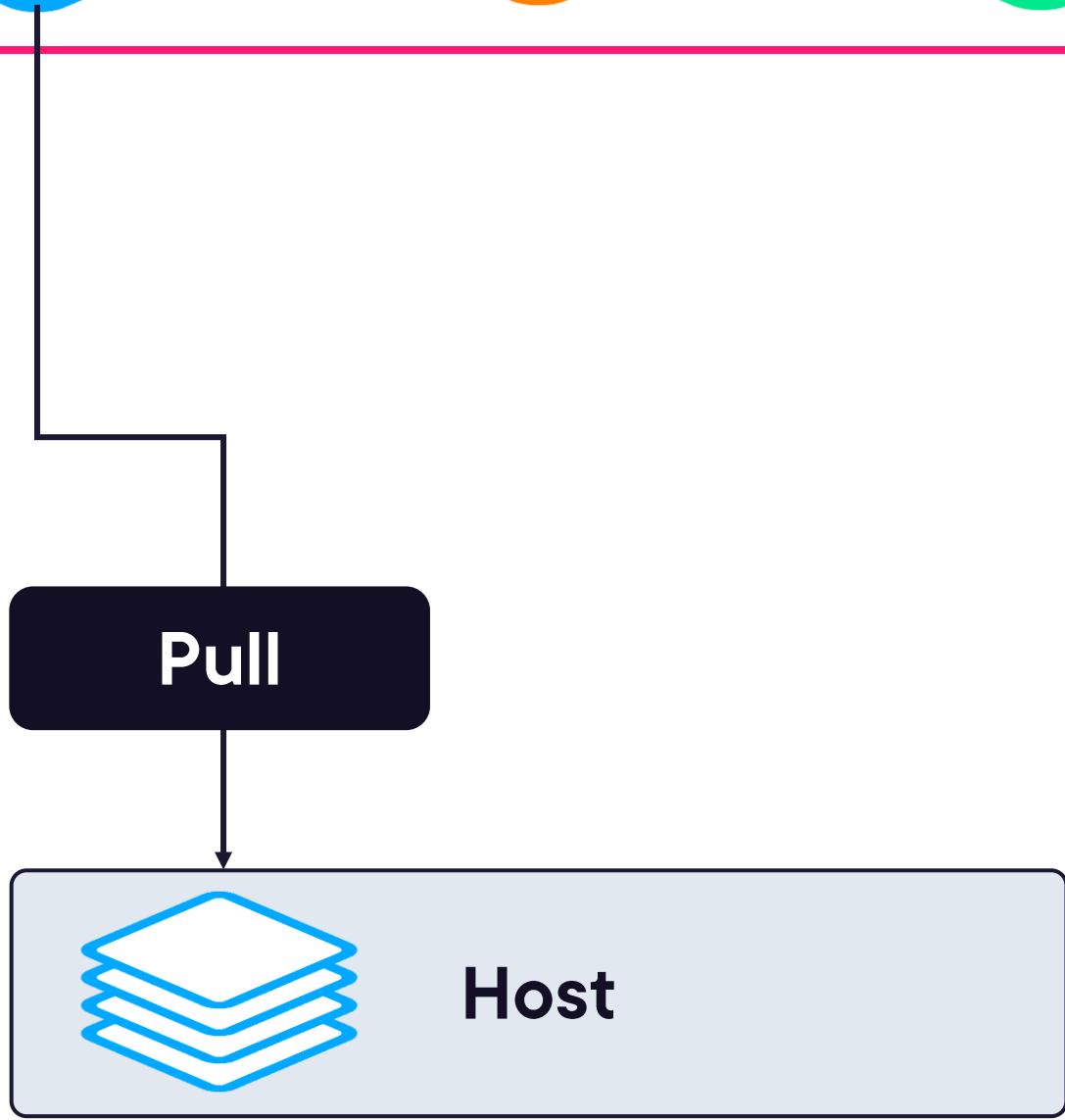
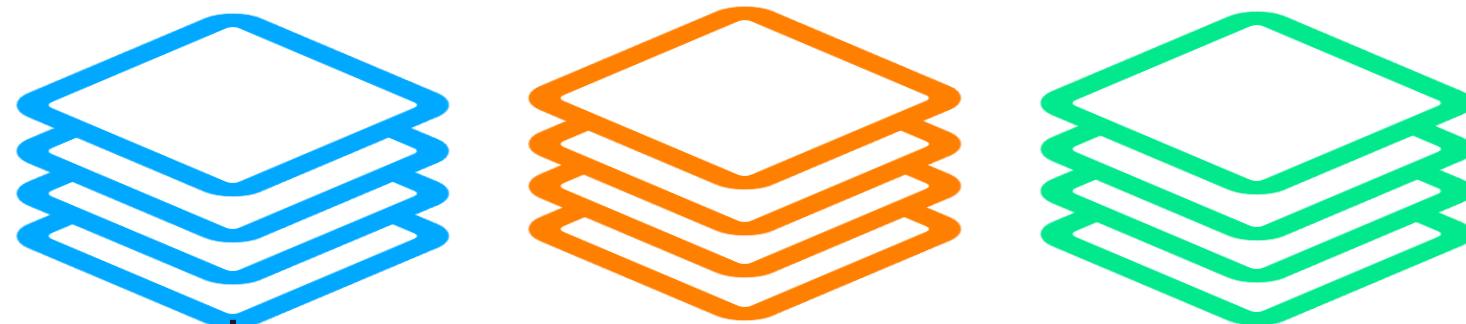


# Registries

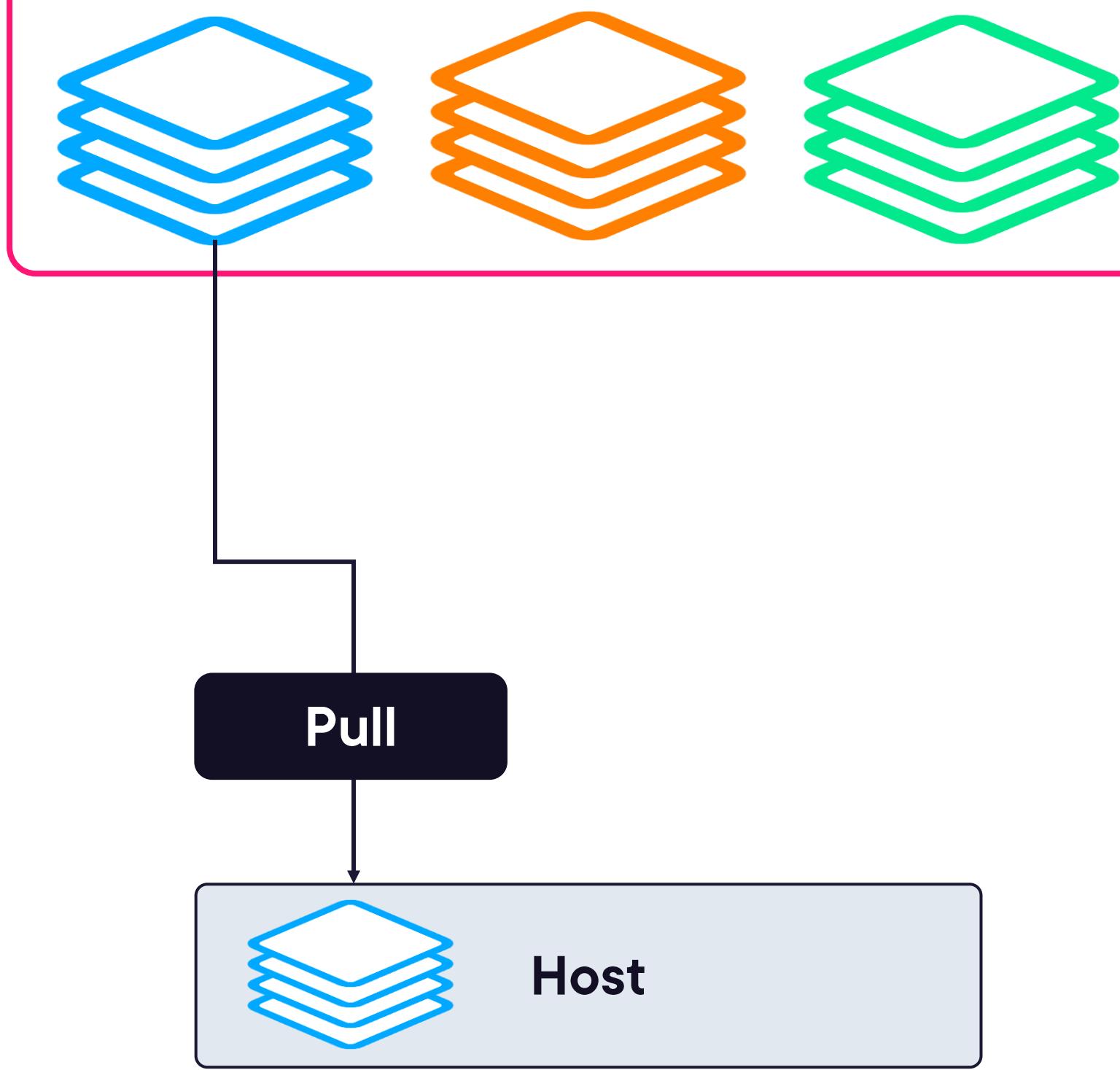


# OCI Registry

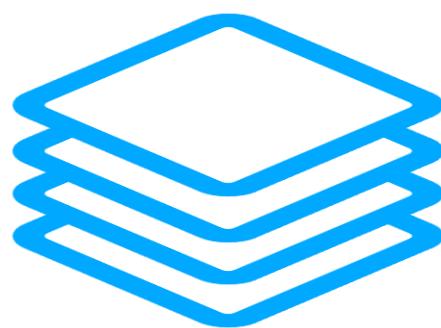
(E.g. Docker Hub)



# OCI Registry

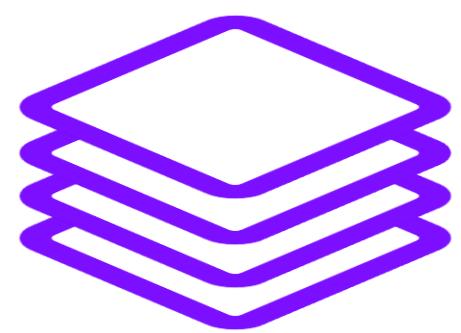


## OCI Registry



Public

## OCI Registry

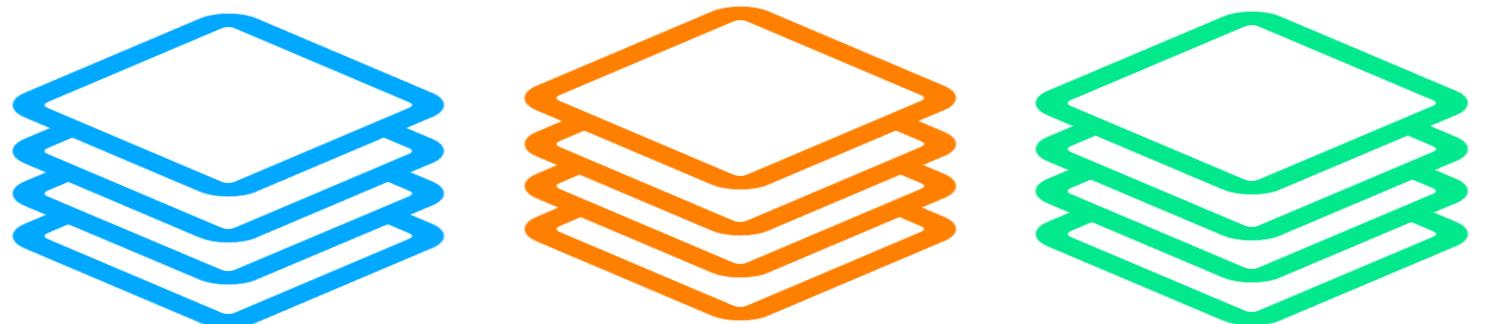


Private

Host

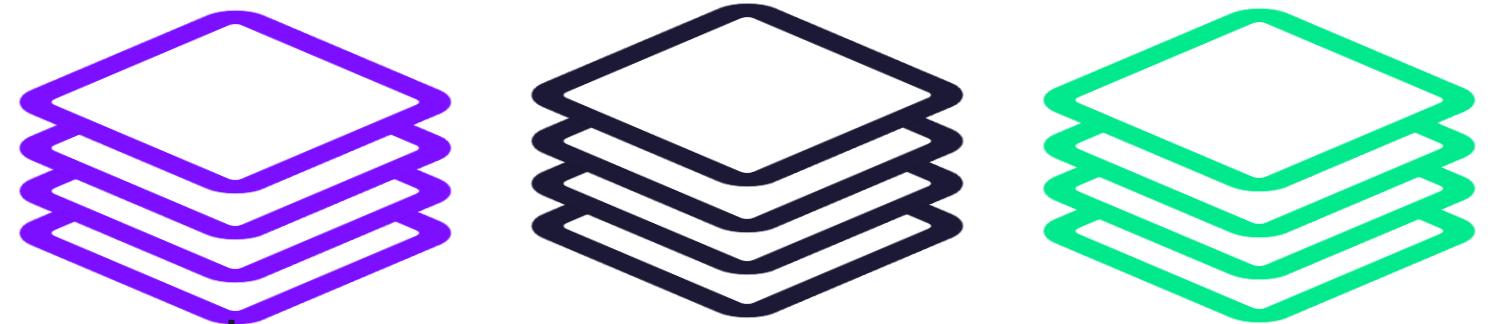


## OCI Registry



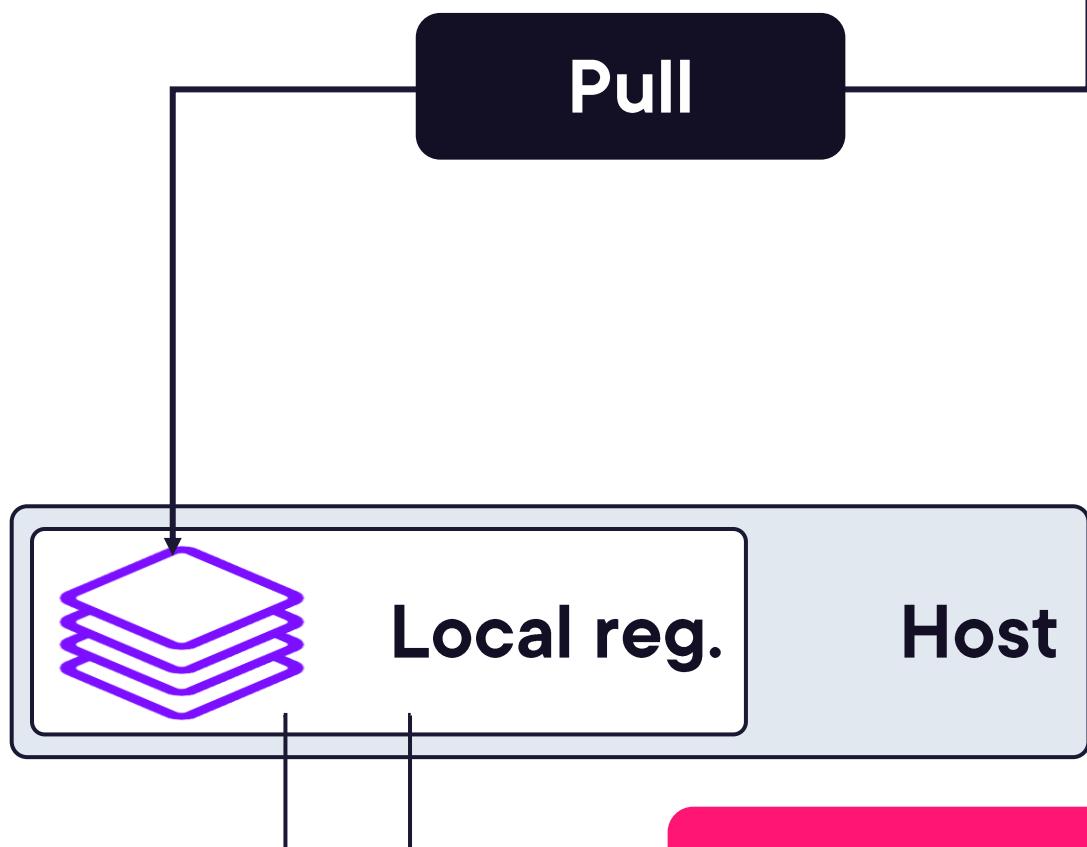
Public

## OCI Registry



Private

Pull



/var/lib/docker

C:\Programdata\docker\windowsfilter

# Two Types of Repositories

**Official**

Should be safe

**Unofficial**

Be careful



Official Repos

**OCI Registry**

<registry URL>



Official Repos

## OCI Registry

Redis

Mongo

<registry URL>/<repo name>



Official Repos

## OCI Registry

Redis



6.2-rc

6.0.8

6.1.0

Mongo



6-nano

5.0.19

6

<registry URL> / <repo name> / <tag>



Official Repos

```
$ docker pull redis
```



Official Repos

```
$ docker pull redis:latest
```



Official Repos

```
$ docker pull docker.io/redis:latest
```



```
$ docker pull redis:latest
```

Automatically  
added by Docker  
client if blank

Not special  
or magical

Might not be  
newest image



Unofficial Repos

```
$ docker pull nigelpoulton/qsk:1.1
```

User/org

nigelpoulton

Identifies image as  
unofficial



# Two Types of Repositories

**Official**

**Curated**

**Good practices**

**Fewer vulnerabilities**

**Unofficial**

**The wild west**

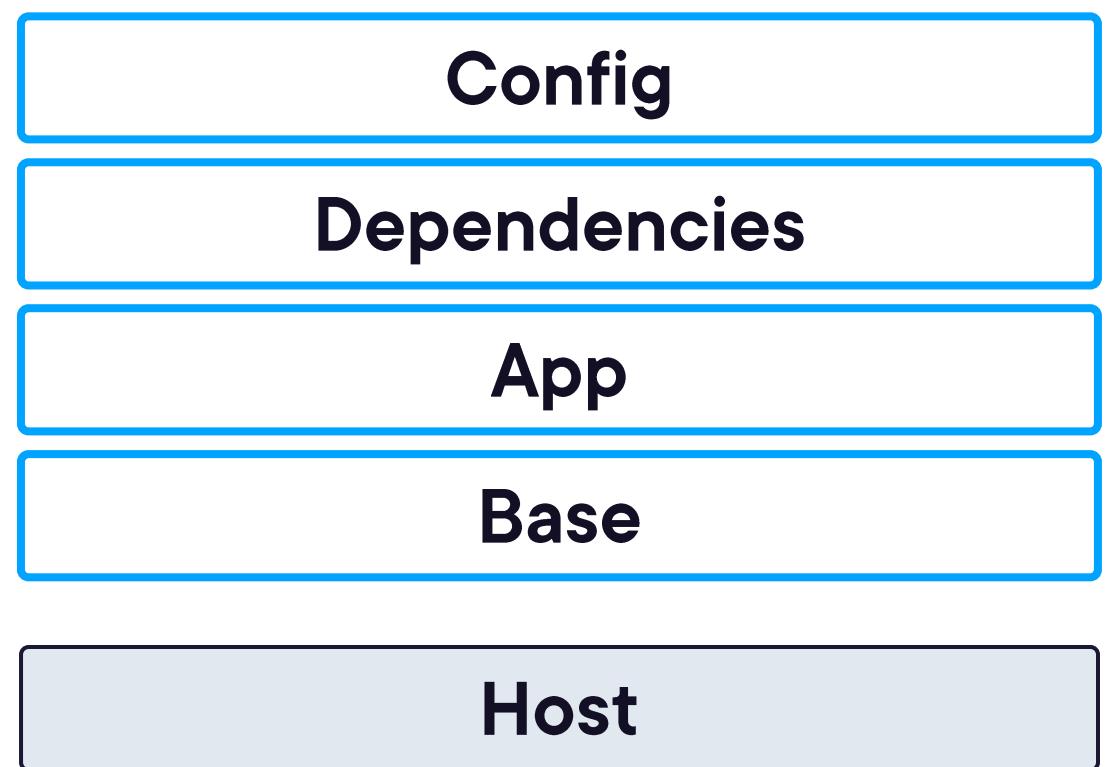
**Be very very careful**

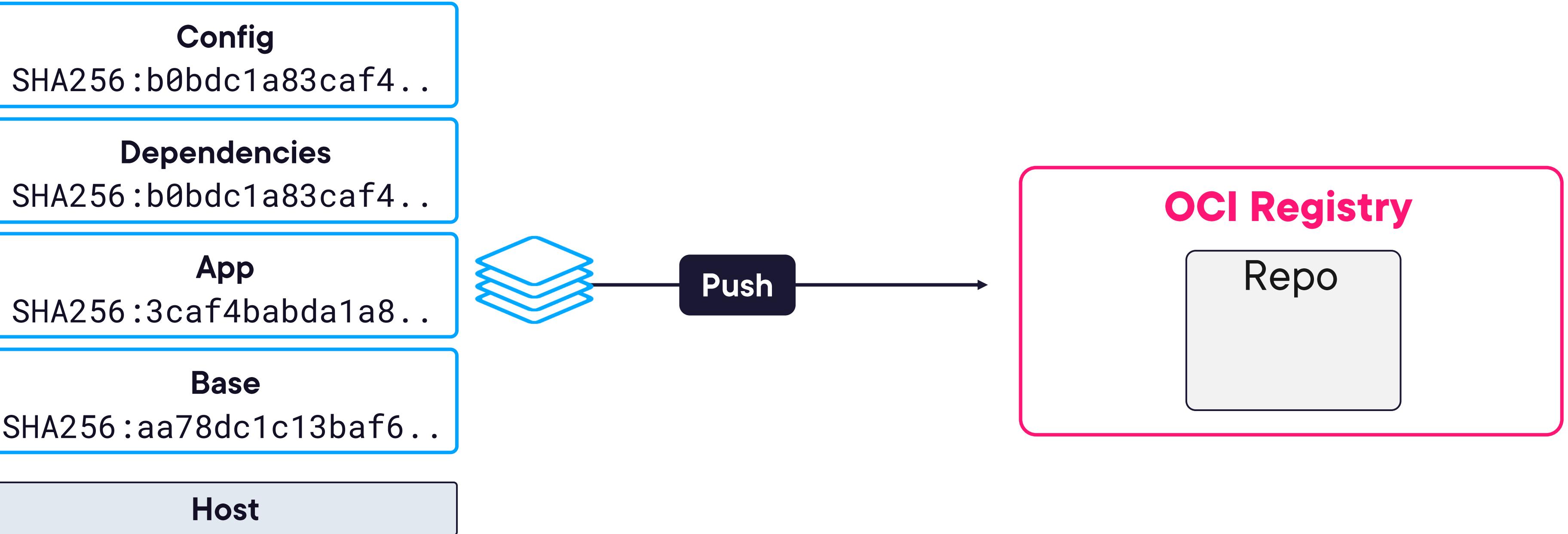


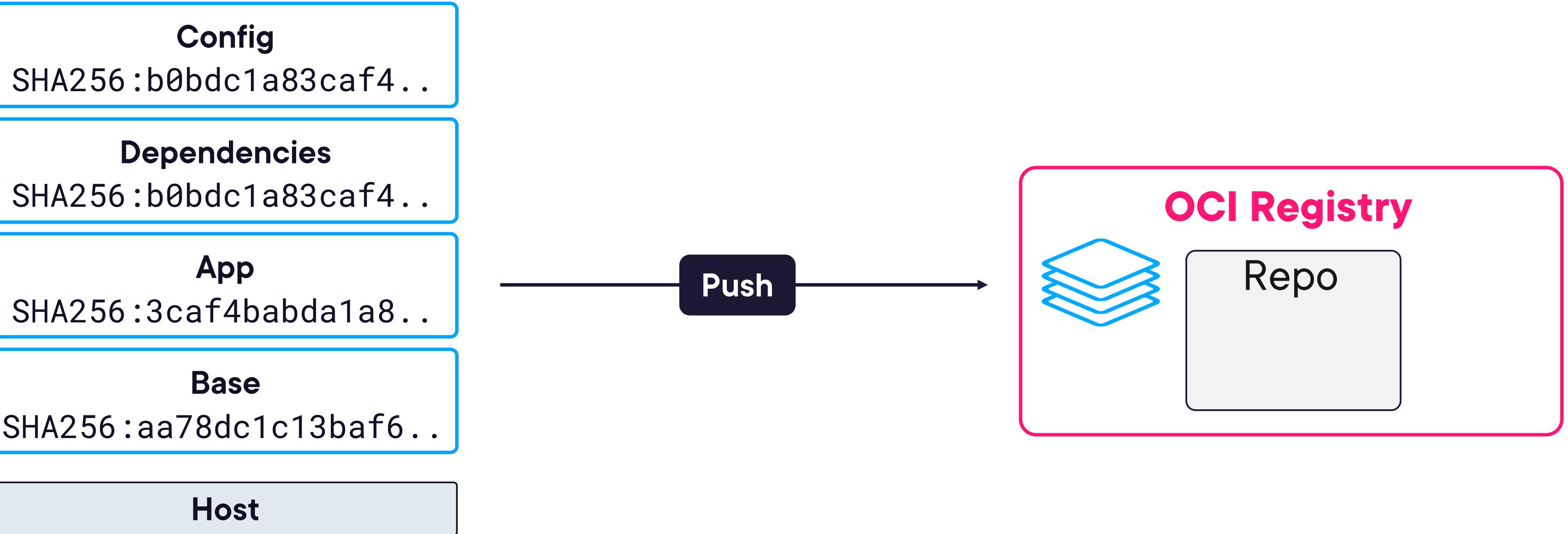
# OCI Registry

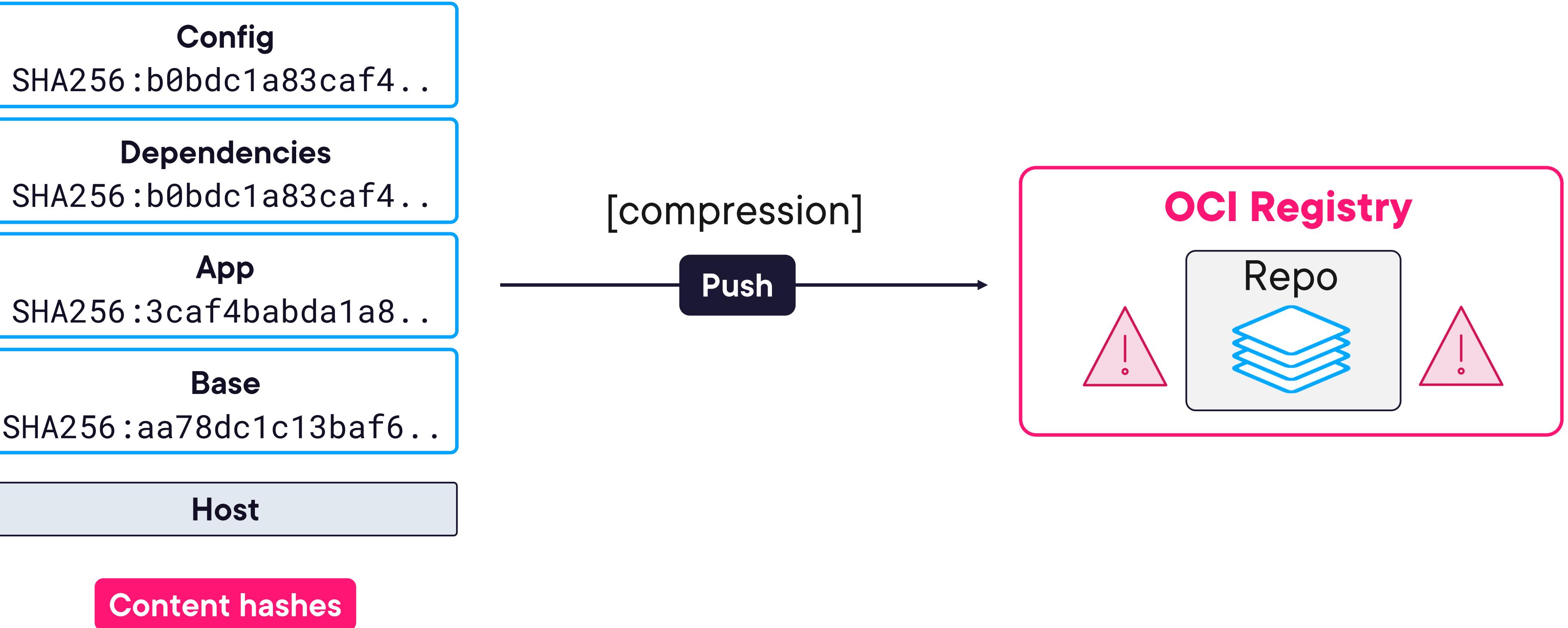
Repo











**Config**  
SHA256 :b0bdc1a83caf4...

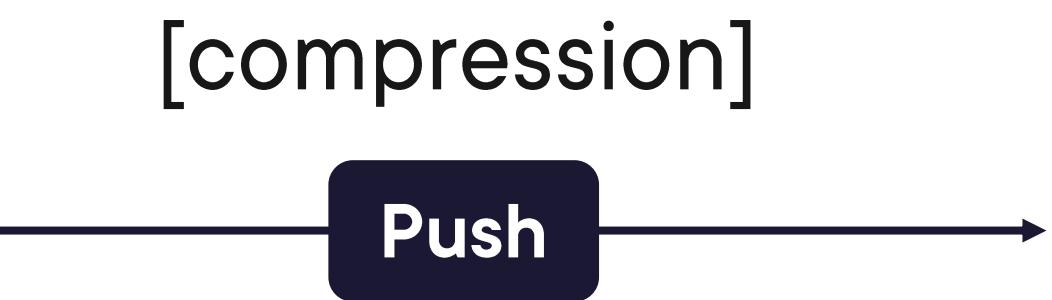
**Dependencies**  
SHA256 :b0bdc1a83caf4...

**App**  
SHA256 :3caf4babda1a8...

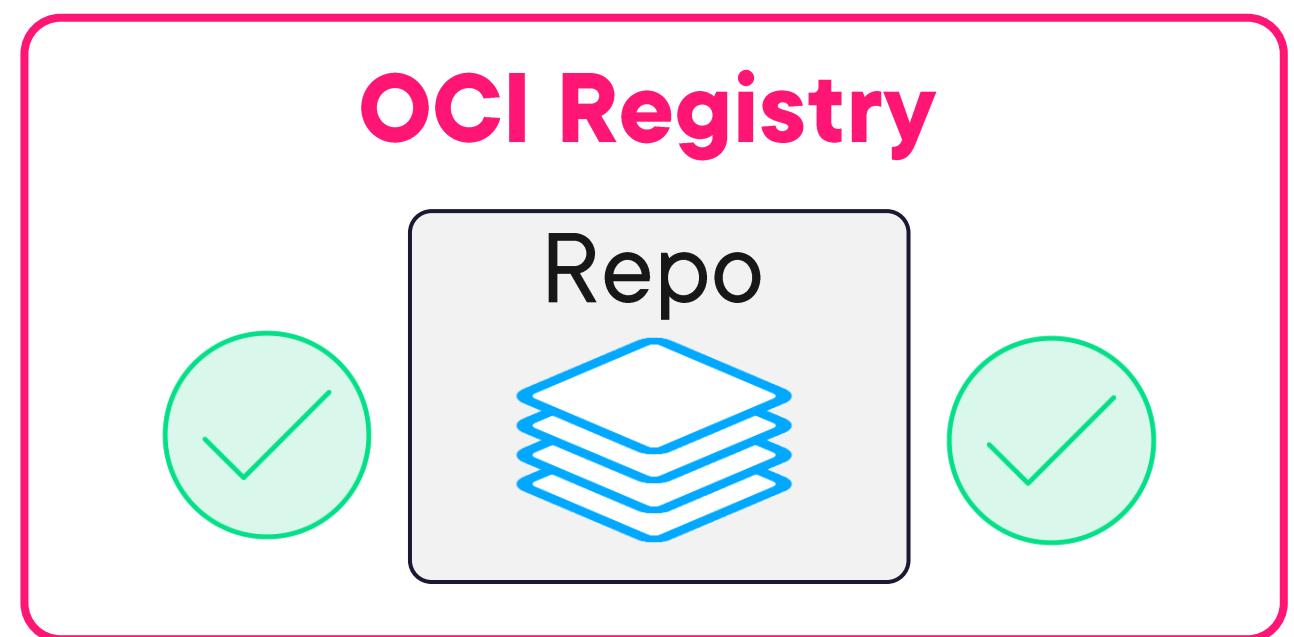
**Base**  
SHA256 :aa78dc1c13baf6...

**Host**

**Content hashes**



**Distribution hashes**



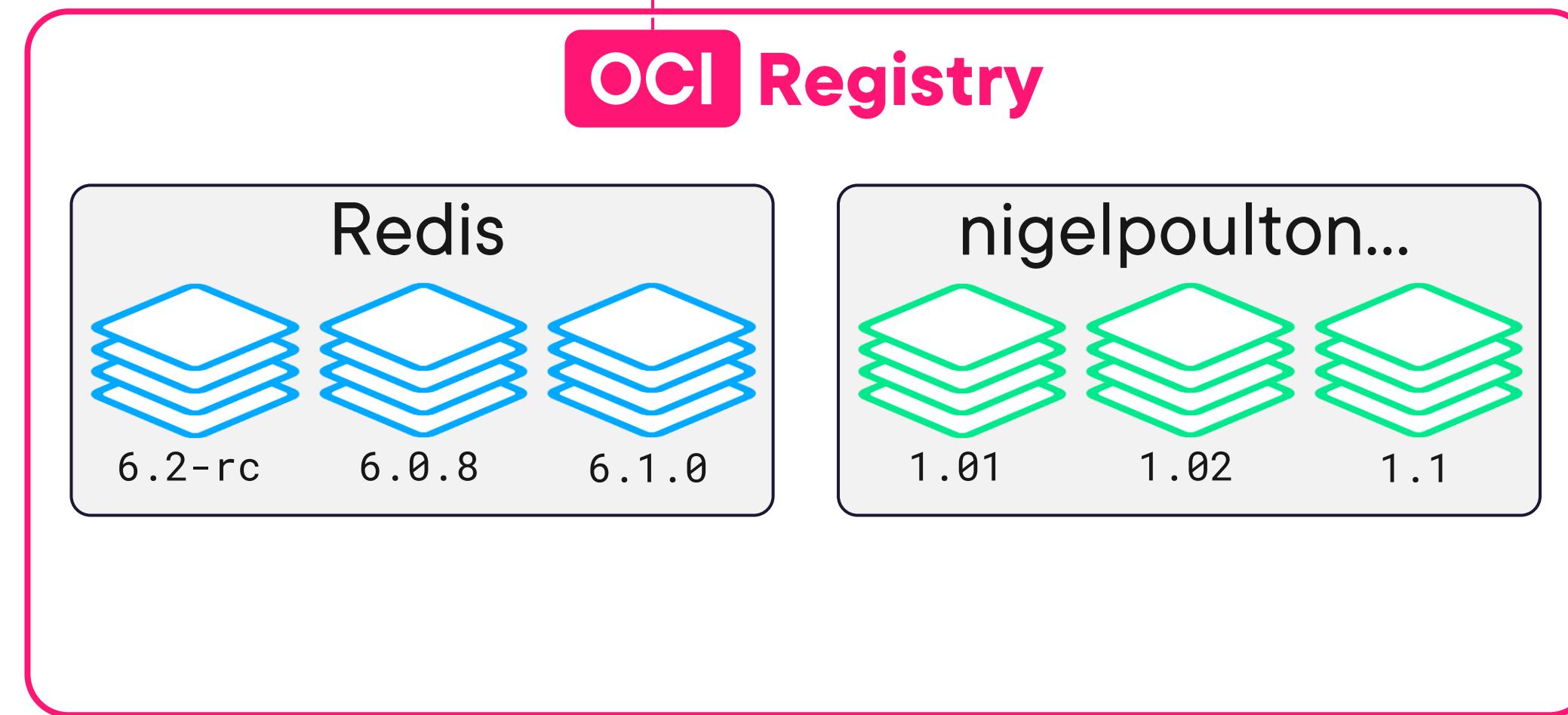
**Distribution hashes**



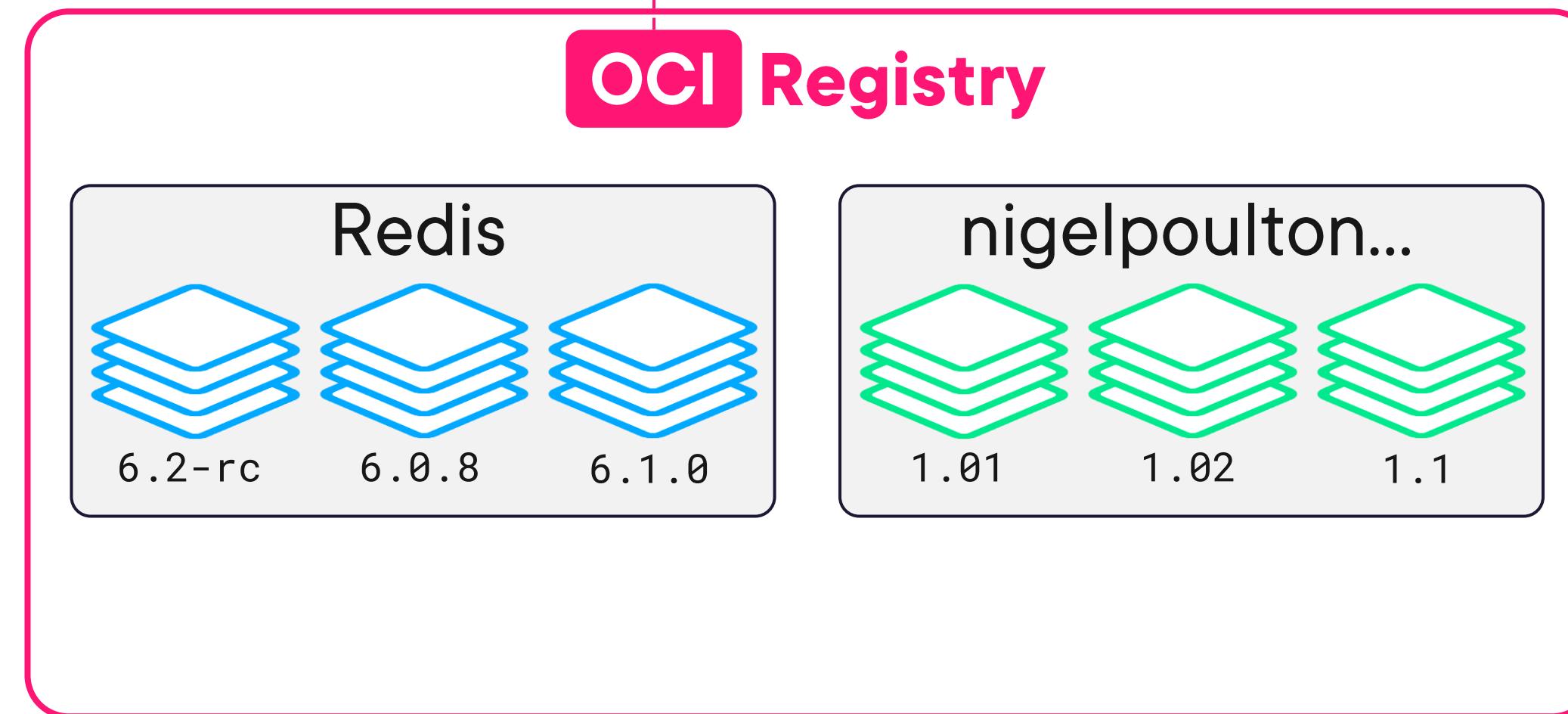
# Registry

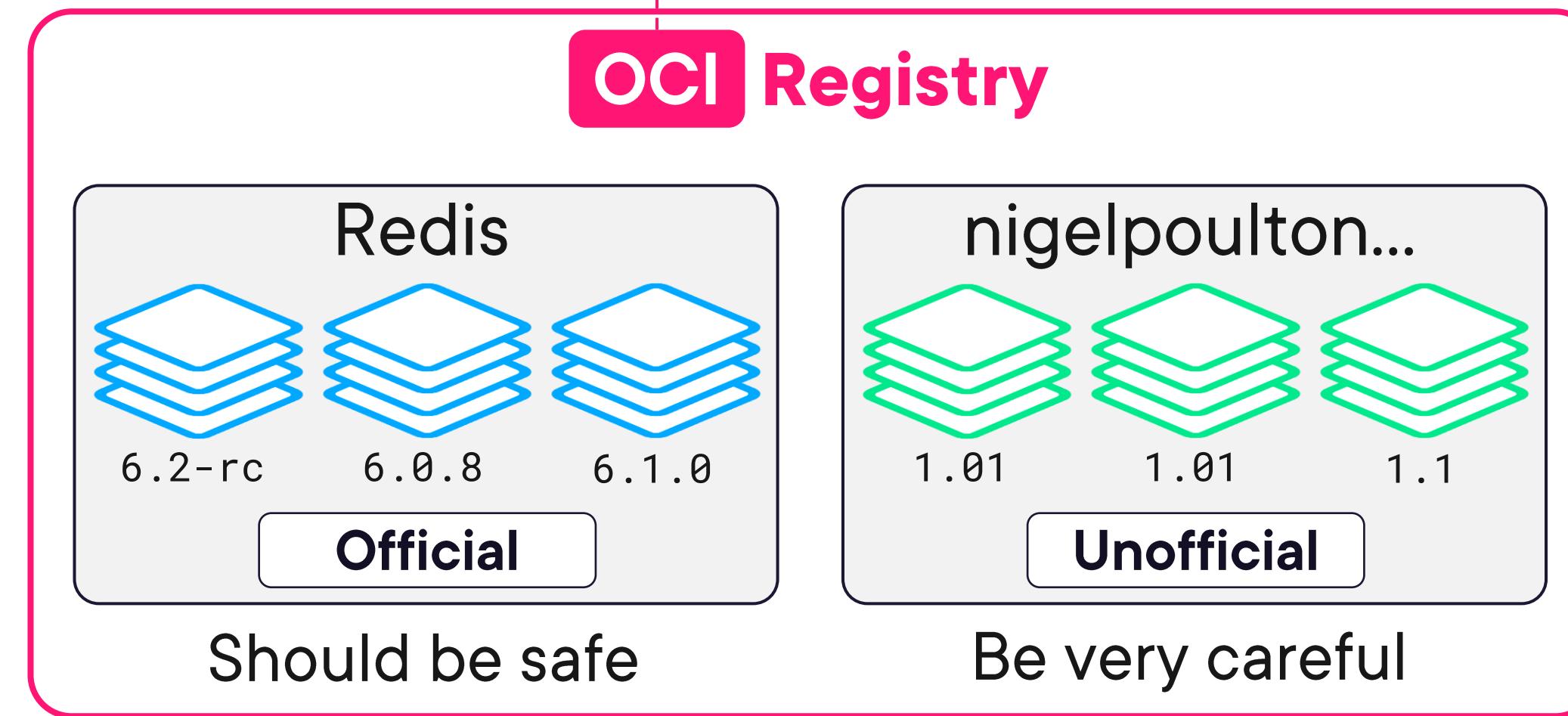


<https://github.com/opencontainers/distribution-spec>



<https://github.com/opencontainers/distribution-spec>





**Up Next:**

# **A Few Good Practices**

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# A Few Good Practices



# Images: A Few Good Practices

**Use Official Images**

**Keep Images Small**

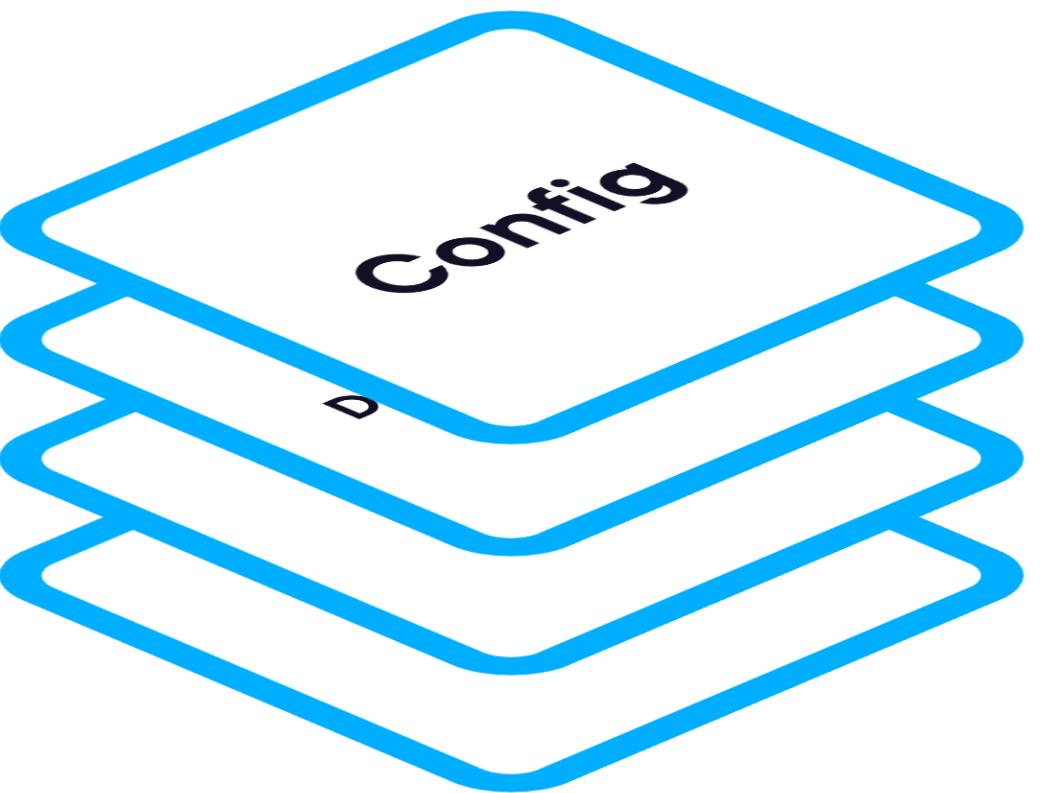
**Build Custom Images From Small  
Official Base Images**

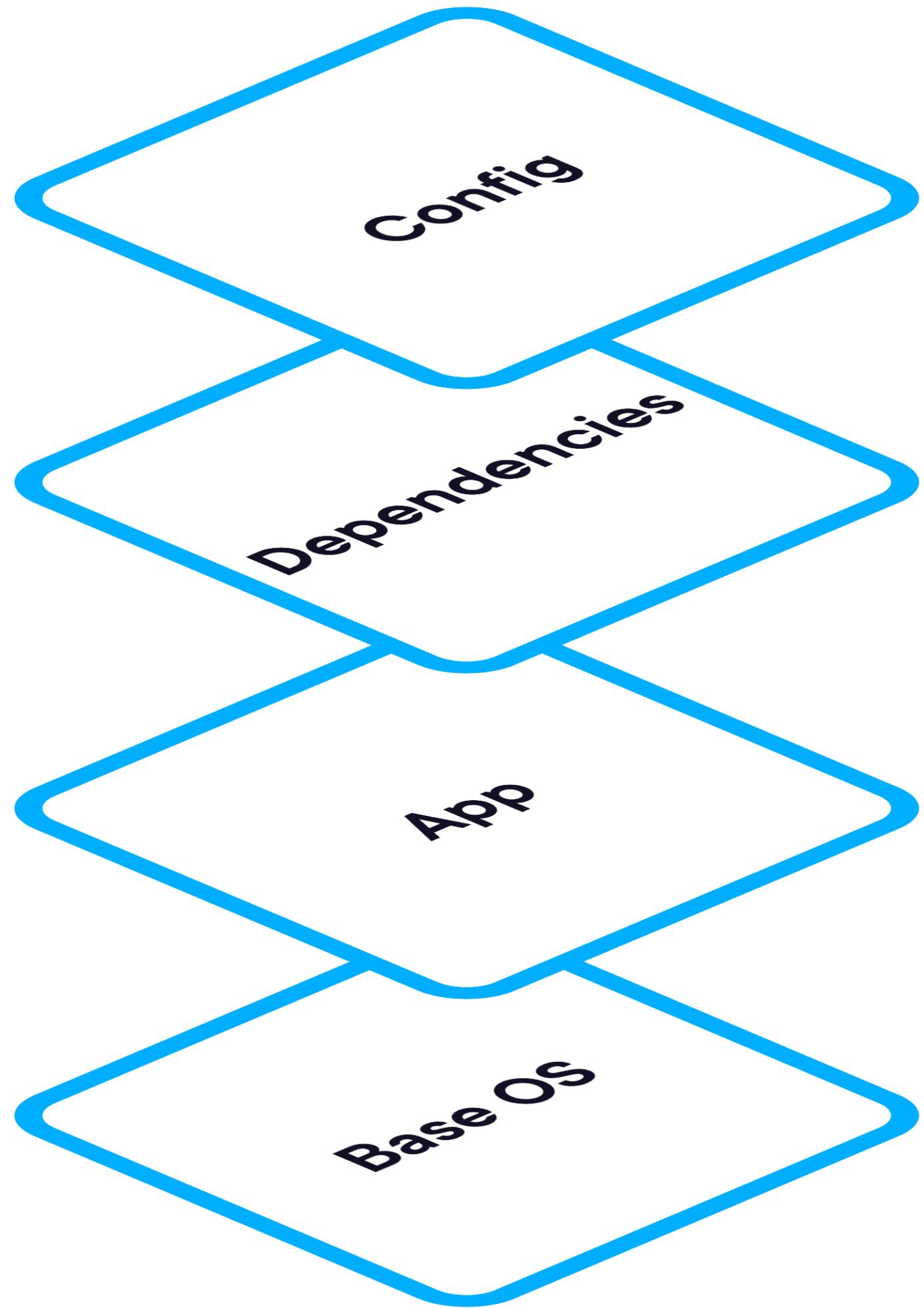
**Reference Exact Image Tags**

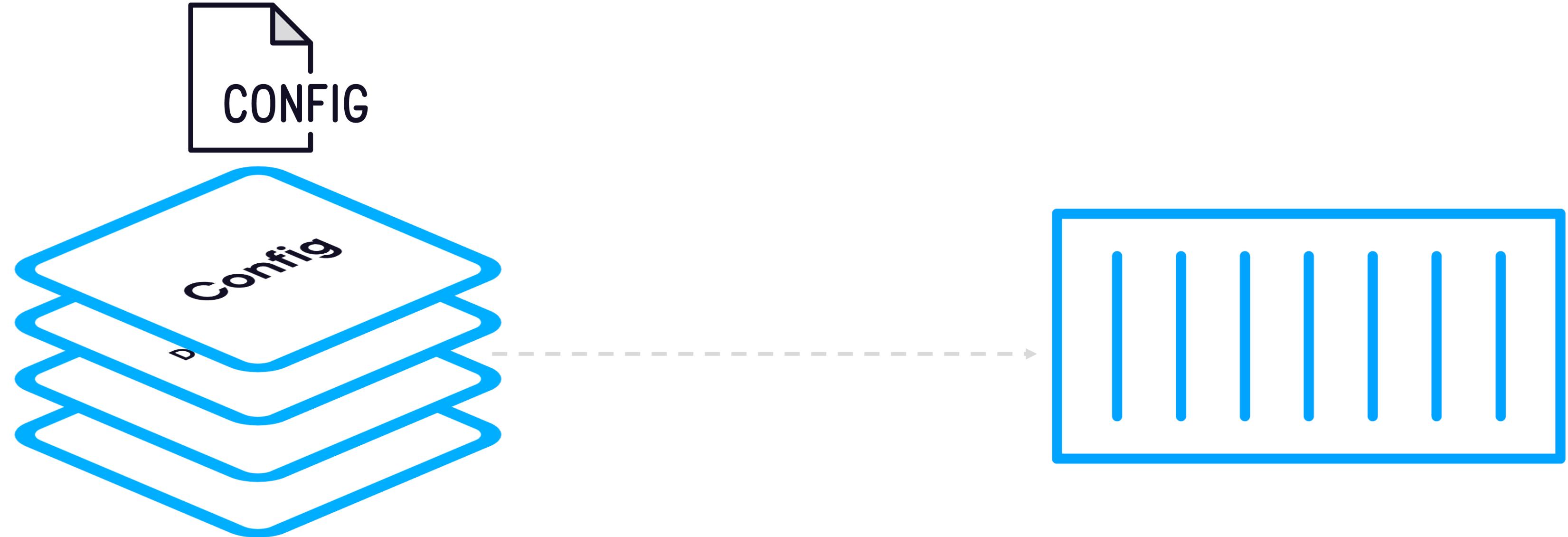


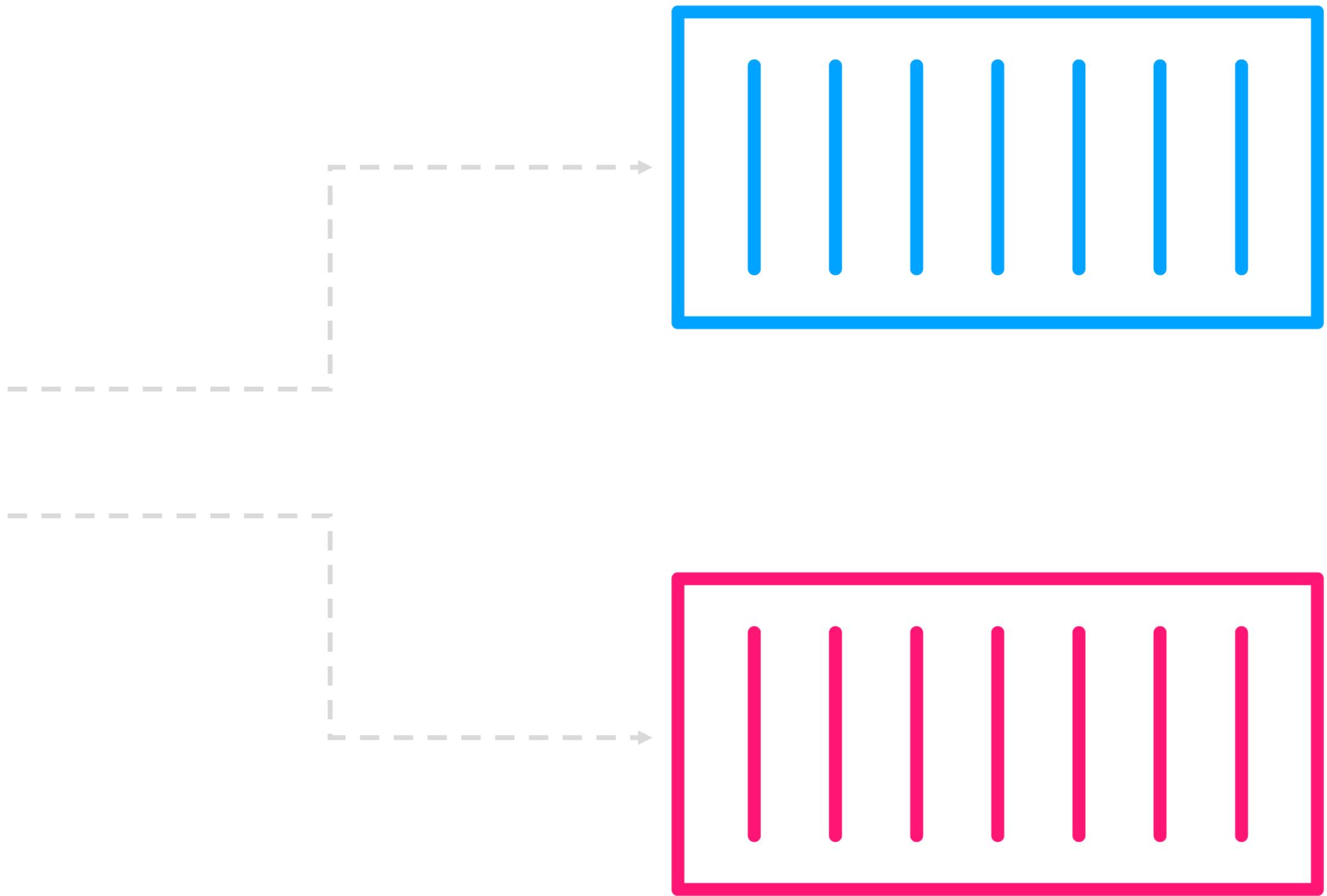
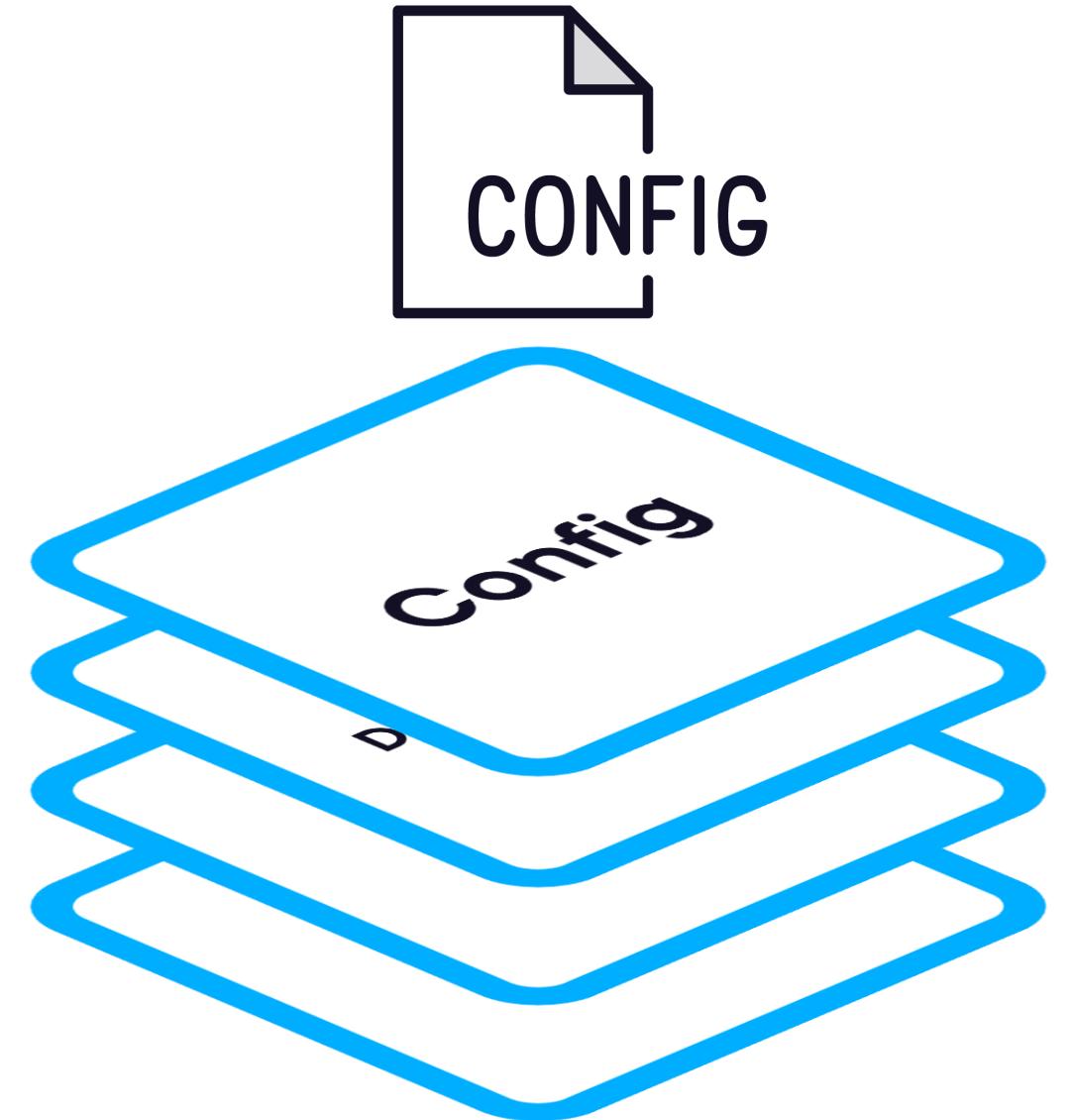
# Recap

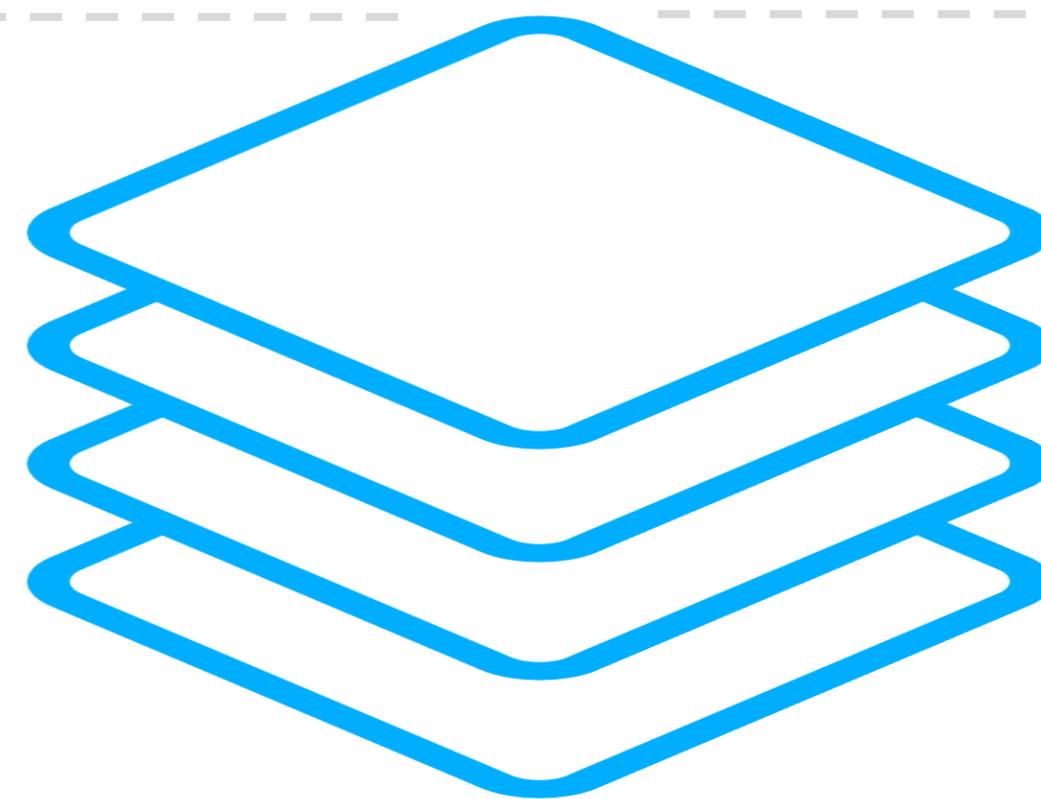
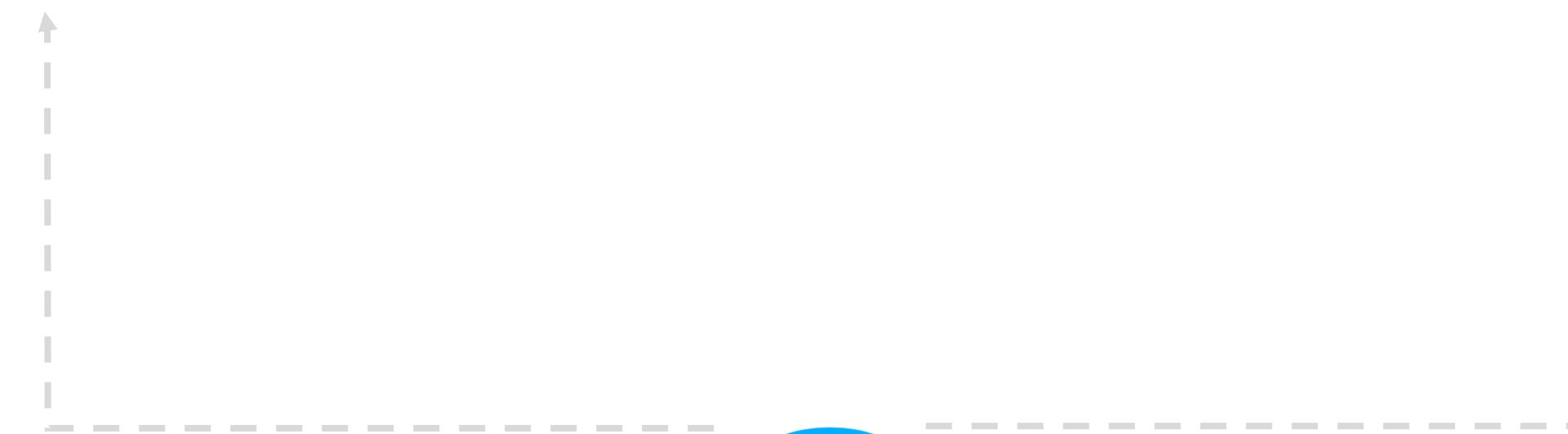
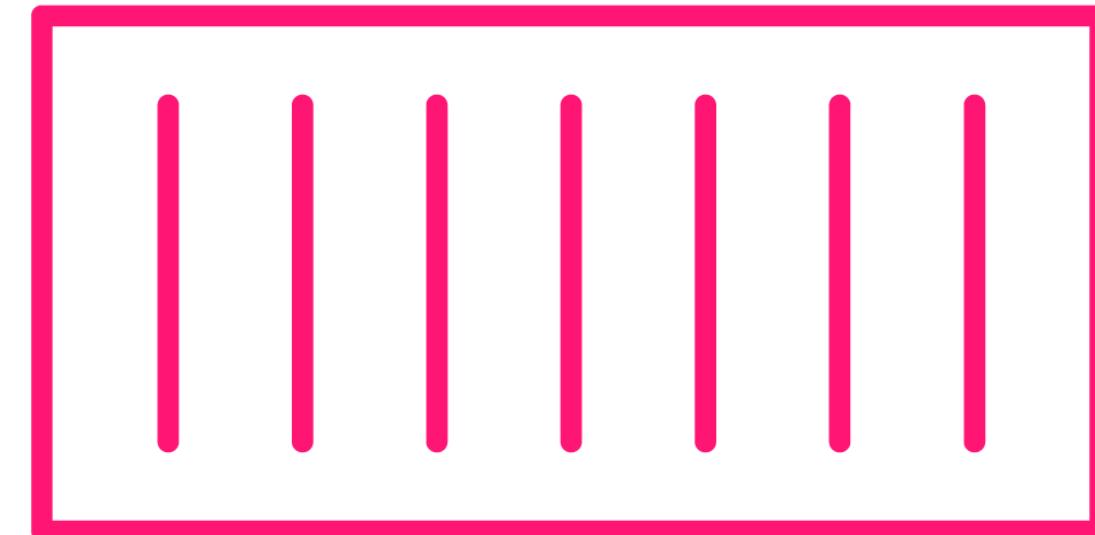


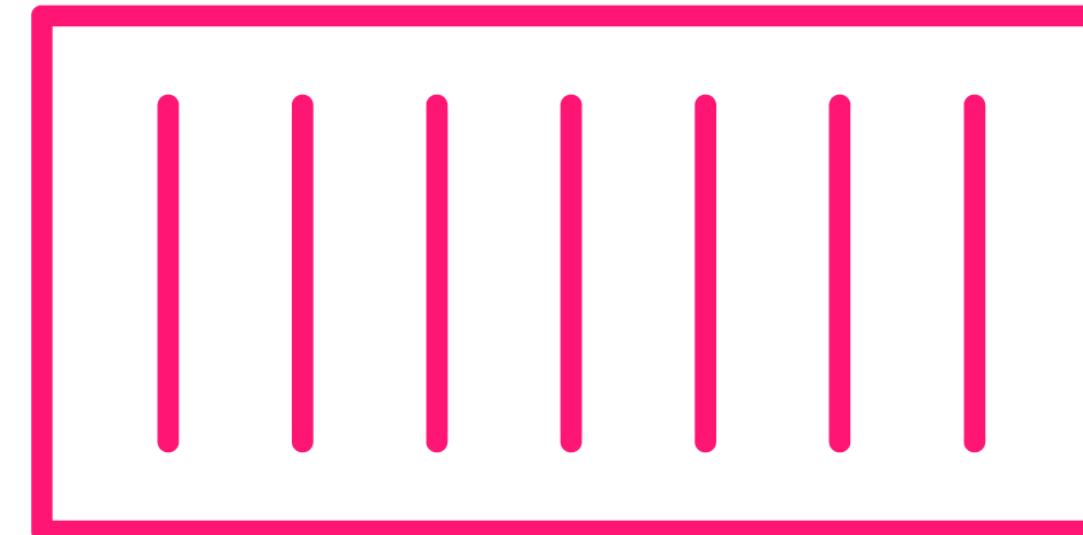






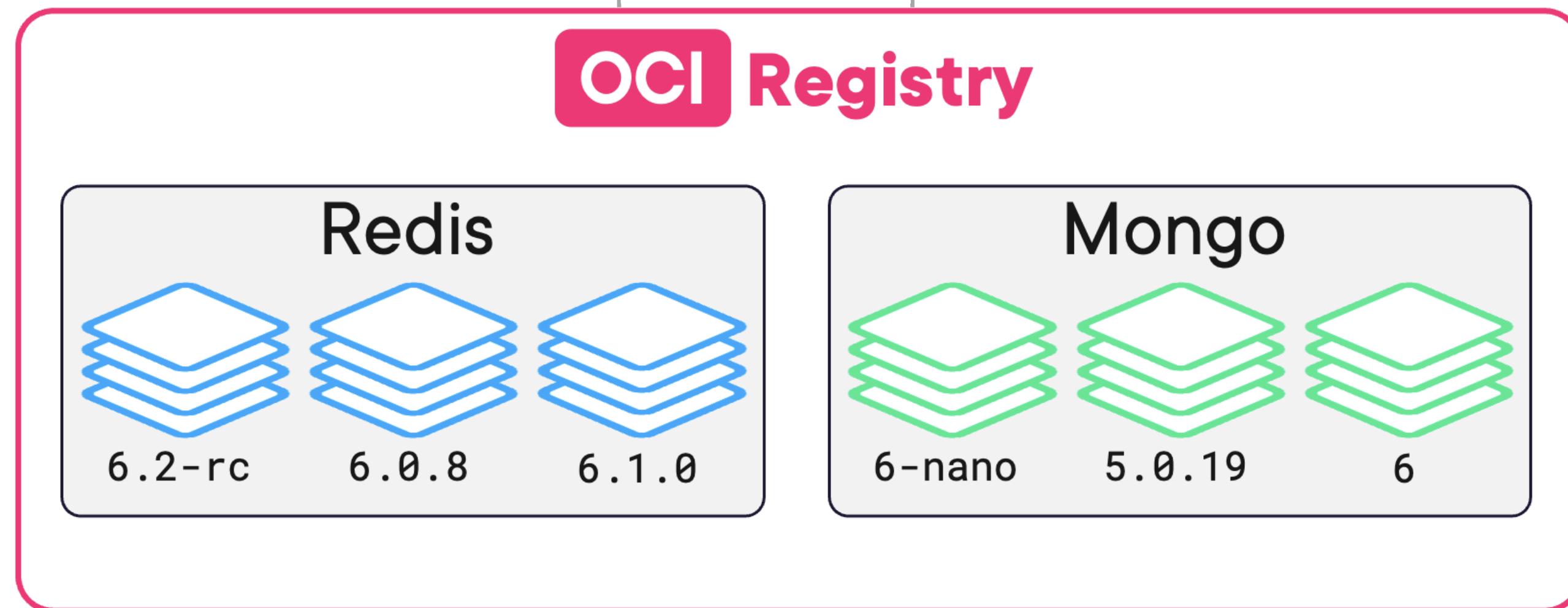






Public or Private

OCI Distribution Spec



Public

or

Private

OCI Distribution Spec

## OCI Registry

Redis



6.2-rc

6.0.8

6.1.0

Mongo



6-nano

5.0.19

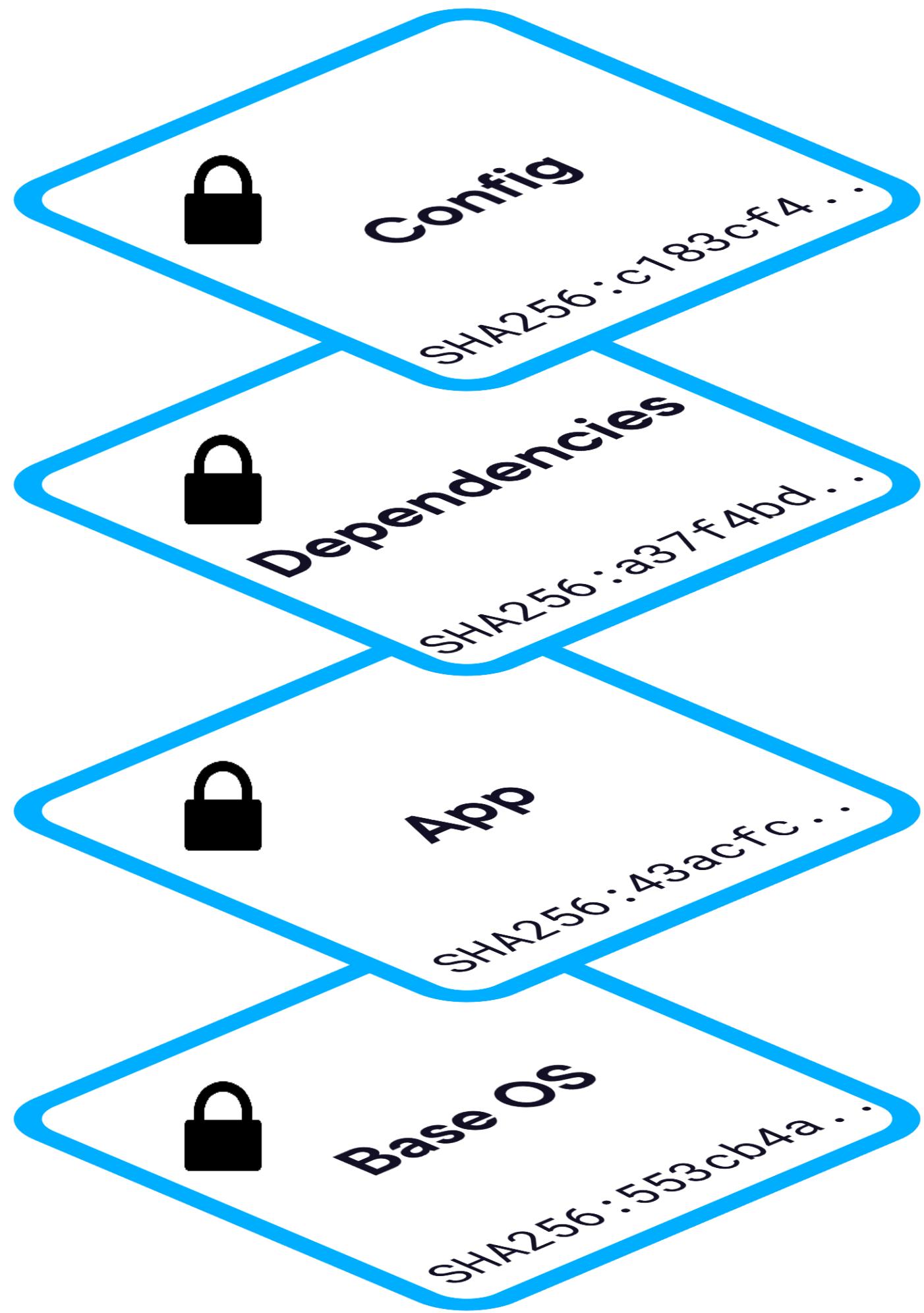
6

Push

Pull

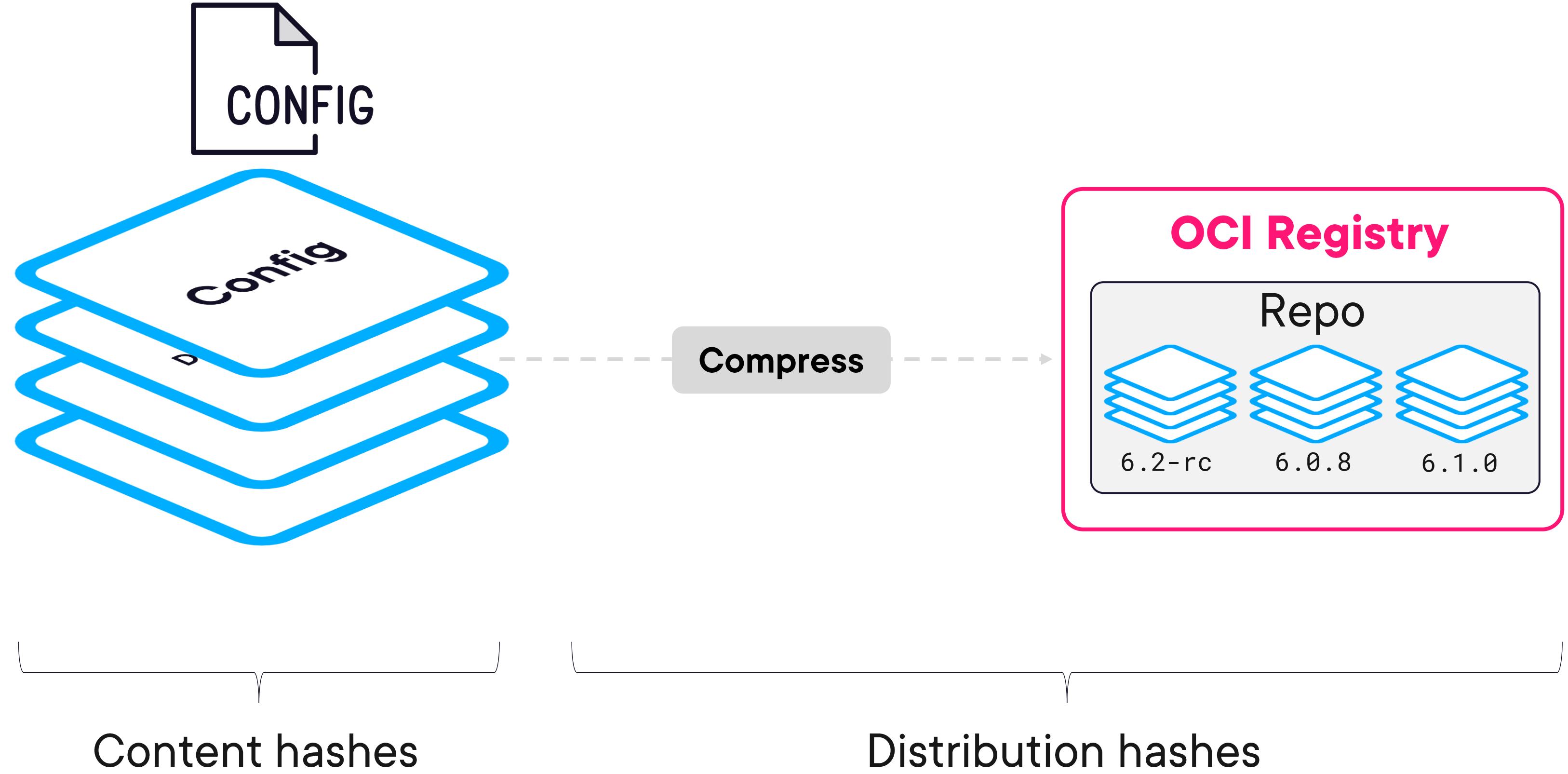






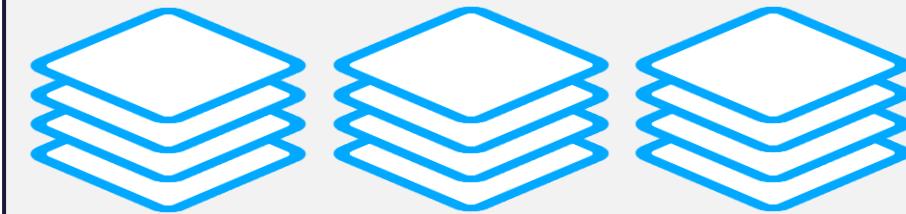
SHA256:b0bdc1aff32bca..





## OCI Registry

Repo



6.2-rc

6.0.8

6.1.0

Repo



6-nano

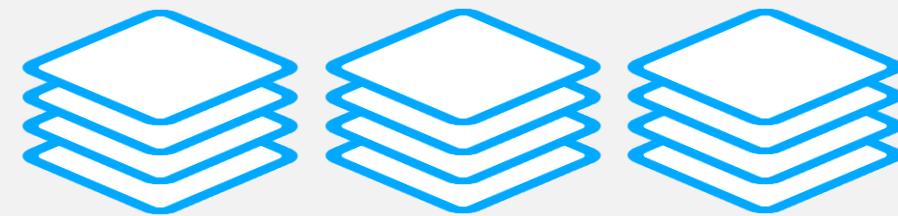
5.0.19

6



# OCI Registry

Repo



6.2-rc

6.0.8

6.1.0

Official



Repo



6-nano

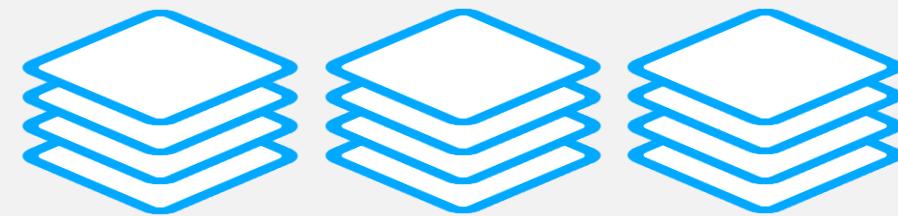
5.0.19

6



## OCI Registry

Repo



6.2-rc

6.0.8

6.1.0

Official



Repo



6-nano

5.0.19

6

Unofficial



**docker push**

**Upload image**

**docker pull**

**Download image**



**docker push**

**Upload image**

**docker pull**

**Download image**

**docker inspect**

**Image details**



`docker push`

**Upload image**

`docker pull`

**Download image**

`docker inspect`

**Image details**

`docker rmi`

**Delete image**



**Up Next:**

# **Building New Images**

---

