



Docker

The idea of “containerization”



Roadmap

What is Docker

How it works

Why should we
use it



What is docker?

Create



Deploy



Run Applications

Container

Container?



Contain applications in a way that keep them isolated from the host system that they run on.

It packages up libraries, dependencies, etc.

To the outside world, the can look like their own complete system.

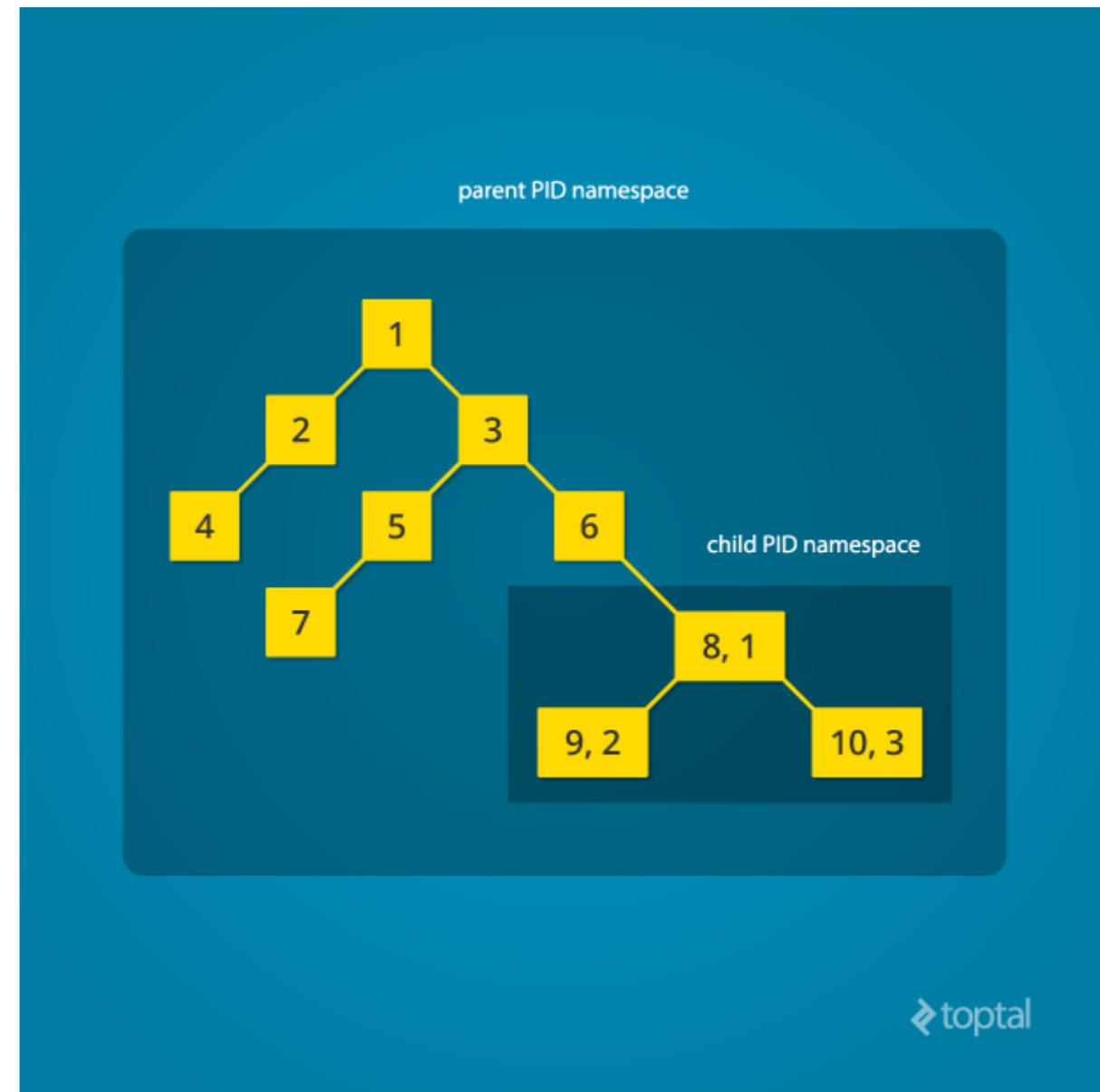
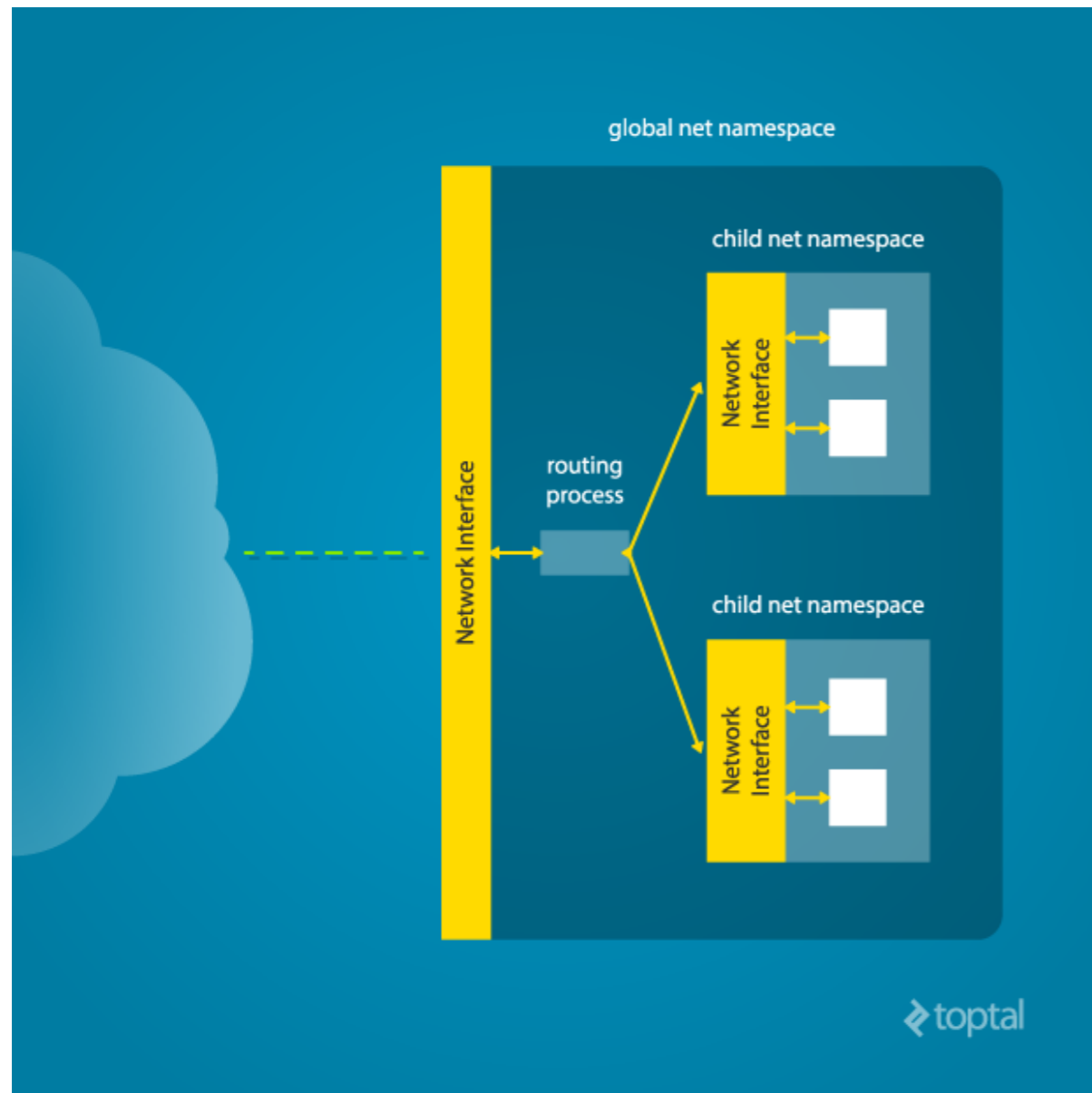
CORE TECH OF DOCKER

NAMESPACES

CONTROL
GROUPS

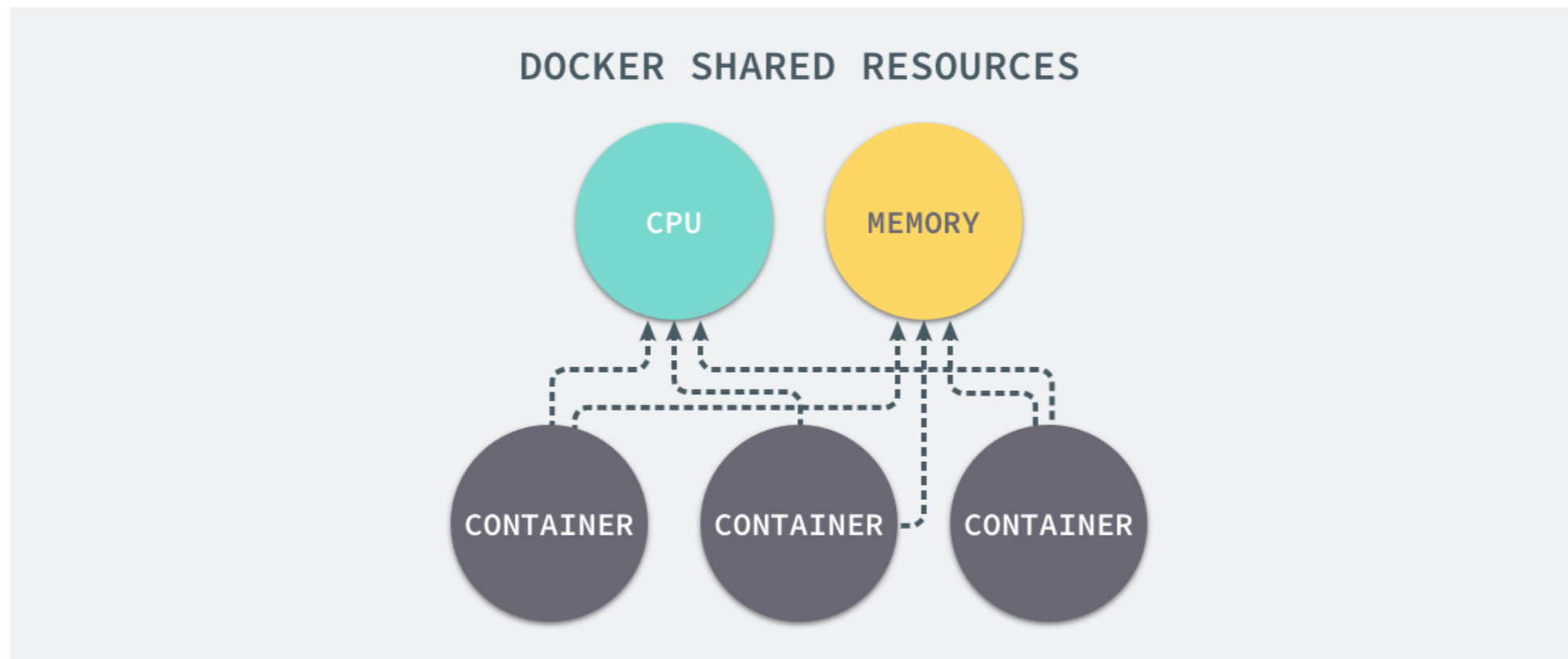
UNION
FILESYSTEM

Namespaces



Only processes within a group knows the existence of each other.

Control Groups

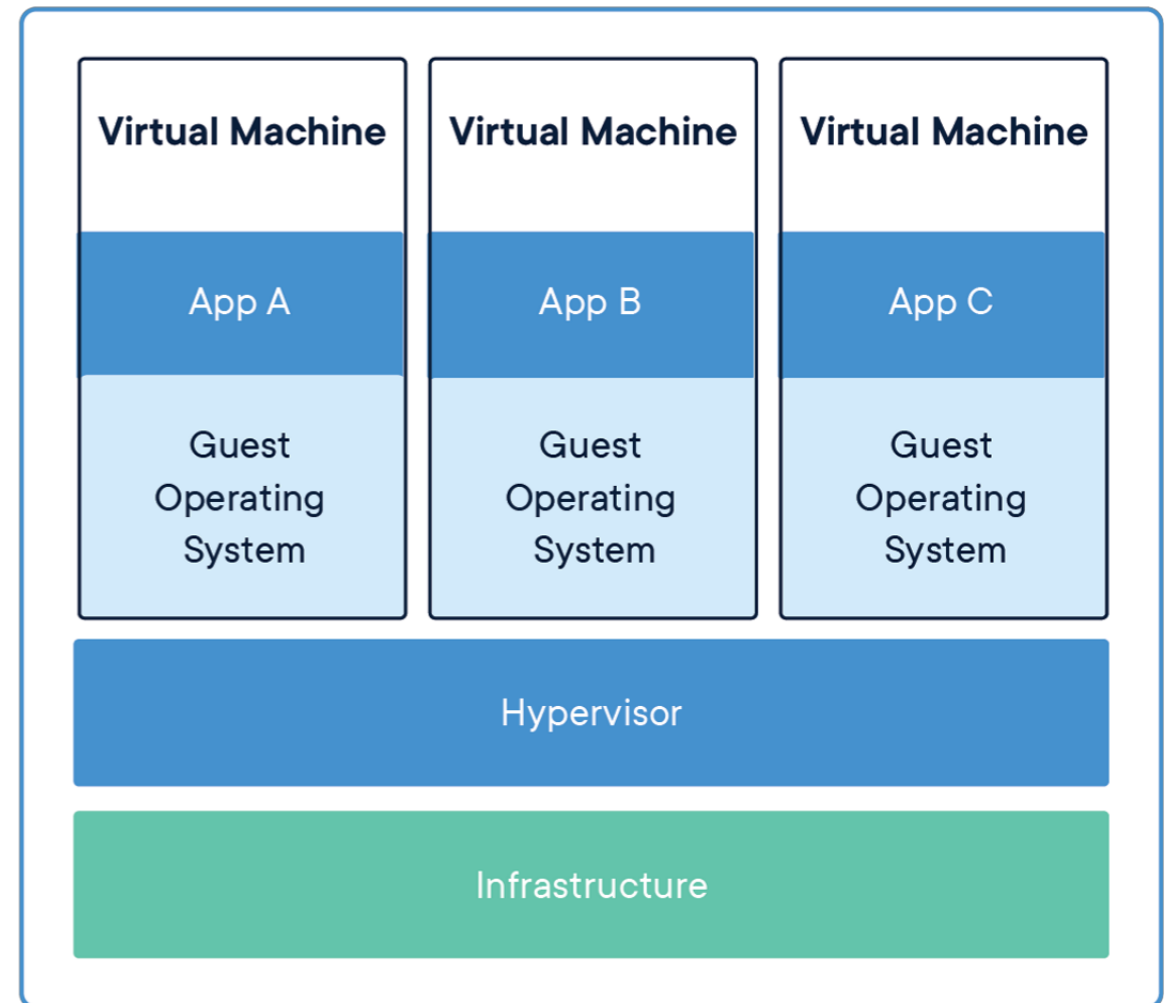
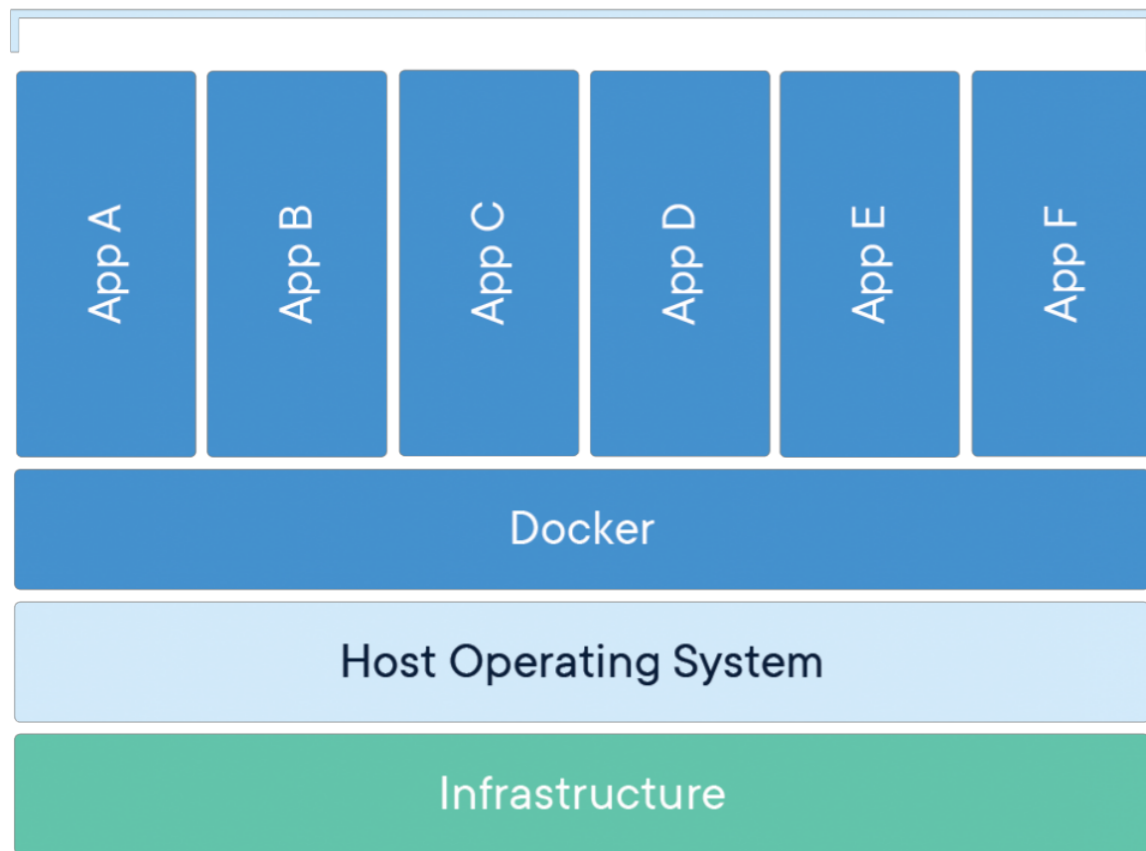


Containers know nothing about each other, but they are sharing the same physical resources.

Control groups isolates physical resources, such as CPU, memory, disk I/O

Virtual Machine?

Containerized Applications



By contrast, container gives performance boost and reduces the size of the application.

Why docker?

Shipping code to the server is too hard













Instead, we can use containers by images, which are templates for containers.

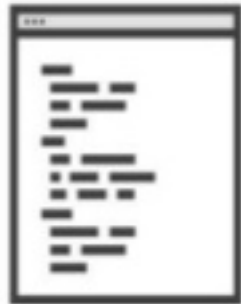
Access the world's largest library of container images

Official Images

A screenshot of the Docker Hub interface showing a grid of official container images. The top row features five large image thumbnails: NGINX, mongoDB, alpine Linux, node JS, and redis. Below these are two rows of smaller image cards, each with a logo, the name of the image, the word "Official", and a download count of "10M+".

 couchbase Official 10M+	 busybox Official 10M+	 postgres Official 10M+	 httpd Official 10M+	 traefik Official 10M+
 ubuntu Official 10M+	 golang Official 10M+	 memcached Official 10M+	 mysql Official 10M+	 docker Official 10M+

Dockerfile



Dockerfile



Docker Image

then, just **docker-compose up**

Compose file

```
services:  
  db:  
    container_name: test-db  
    image: postgres:9.6.3  
    volumes:  
      - ./data/postgresql:/var/lib/postgresql/data  
    env_file:  
      - .env  
    restart: on-failure  
  
  redis:  
    container_name: test-redis  
    image: redis:5.0  
    volumes:  
      - ./data/postgresql:/var/lib/postgresql/data  
    env_file:  
      - .env  
    restart: on-failure  
  
.....
```

**“Developers worried about inside the box,
Infrastructureers worried about outside the box”**

Start using Docker today!

- 1. Docker introduces the idea of containers by utilising OS-level support**
- 2. More efficient and better performance compared to virtual machines**
- 3. Separate the concern of DevOps and Development.**

