Kelas KLuBing #1

Container (Docker) untuk Pemula

KLuB

Klub Linux Bandung

https://www.pikiran-rakyat.com/gaya-hidup/pr-01342007/berkunjung-ke-museum-konferensi-asia-afrika-objek-wisata-sejarah-di-bandung

@andisugandi

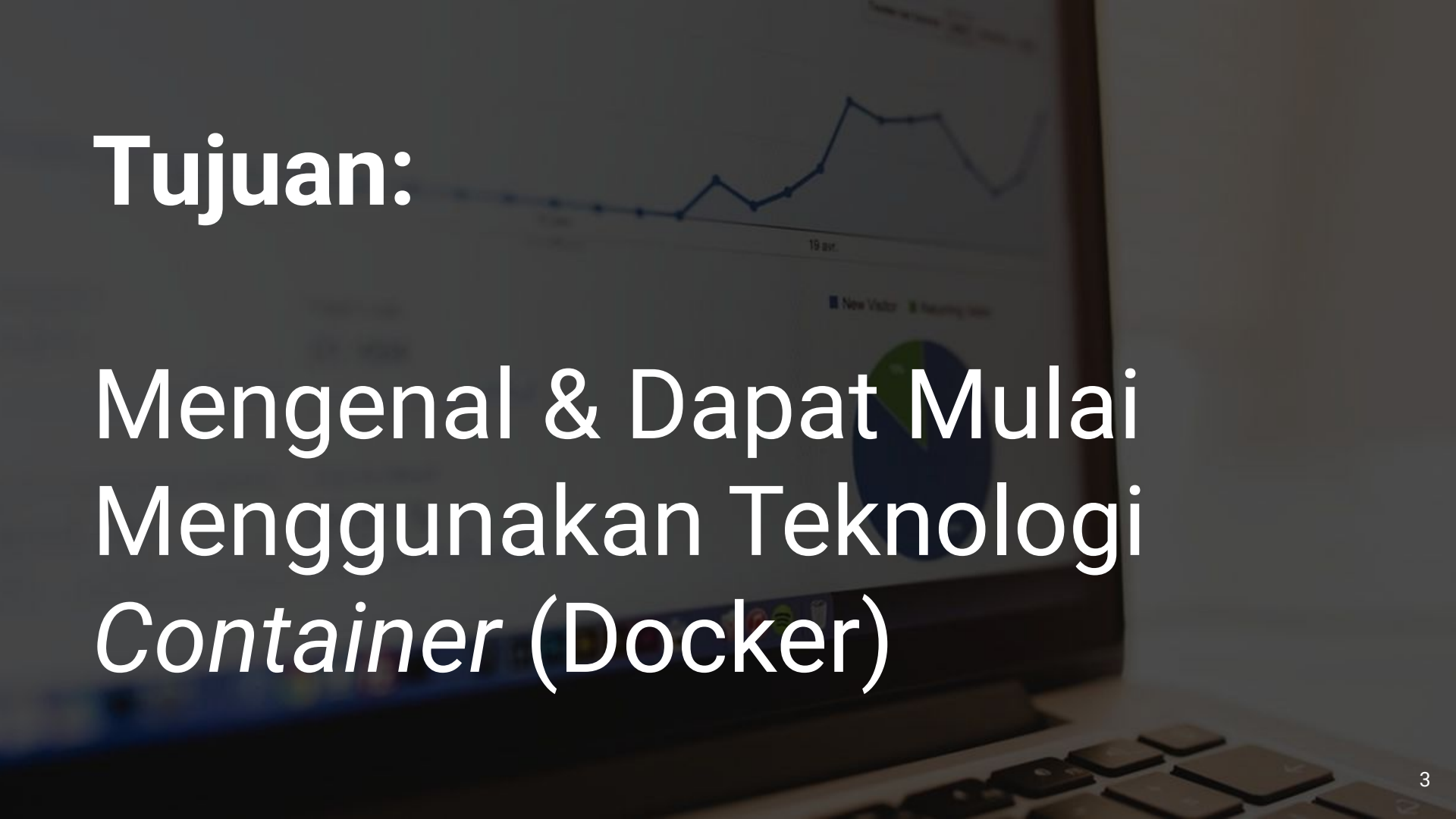
Pengguna *Pengajar* *Infra-Team*

Pengajar Kelas **OA-DTS 2020: CKO**

CKO: Container, Kubernetes, and Red Hat OpenShift

docker

OPENSHIFT



Tujuan:

Mengenal & Dapat Mulai Menggunakan Teknologi *Container* (Docker)

Alur Kelas

Rencana Kelas KluBing #1 (Container)

*) Dalam perencanaan

Daftar Isi (1)

Daftar Isi (2)

00. *Container?*

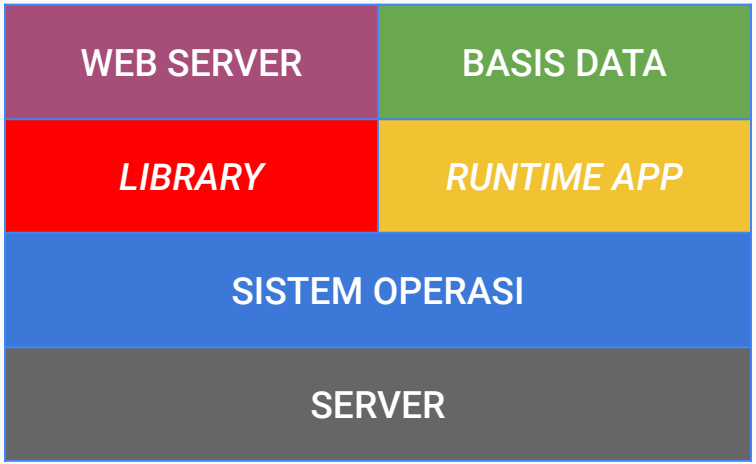
“Implementations of operating system-level virtualization for the Linux operating system. ...”

*“... Several implementations exist, all based on the virtualization, isolation, and resource management mechanisms provided by the **Linux kernel**, notably **Linux namespaces** and **cgroups**.”*

https://en.wikipedia.org/wiki/List_of_Linux_containers

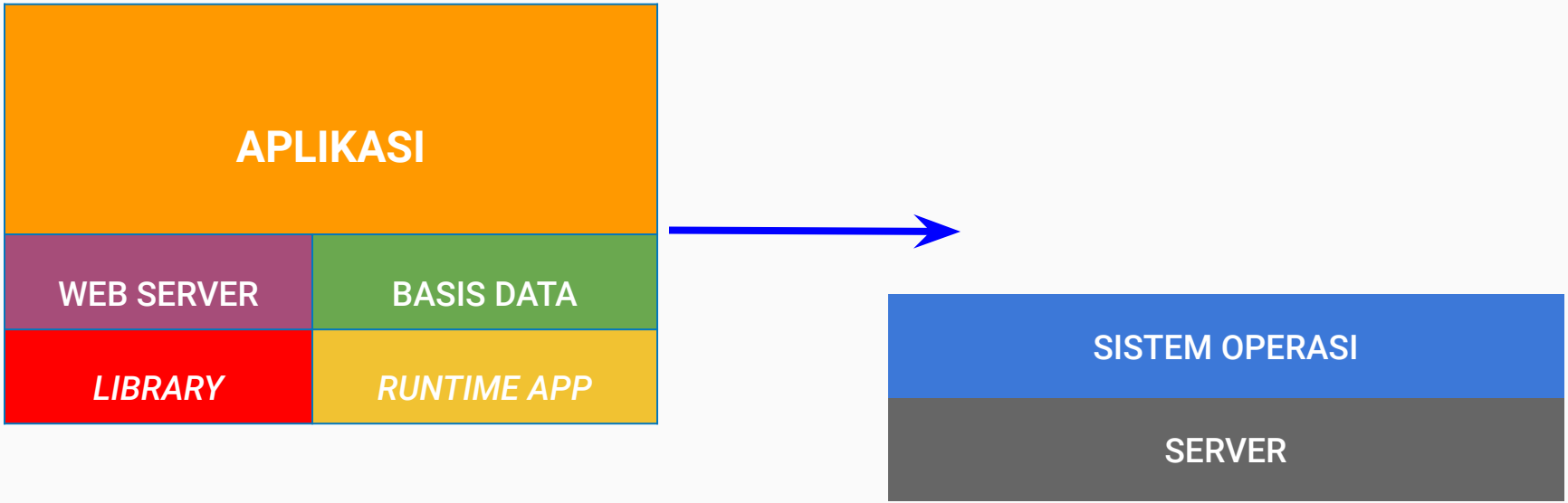
01. Pengenalan *Container*

APLIKASI

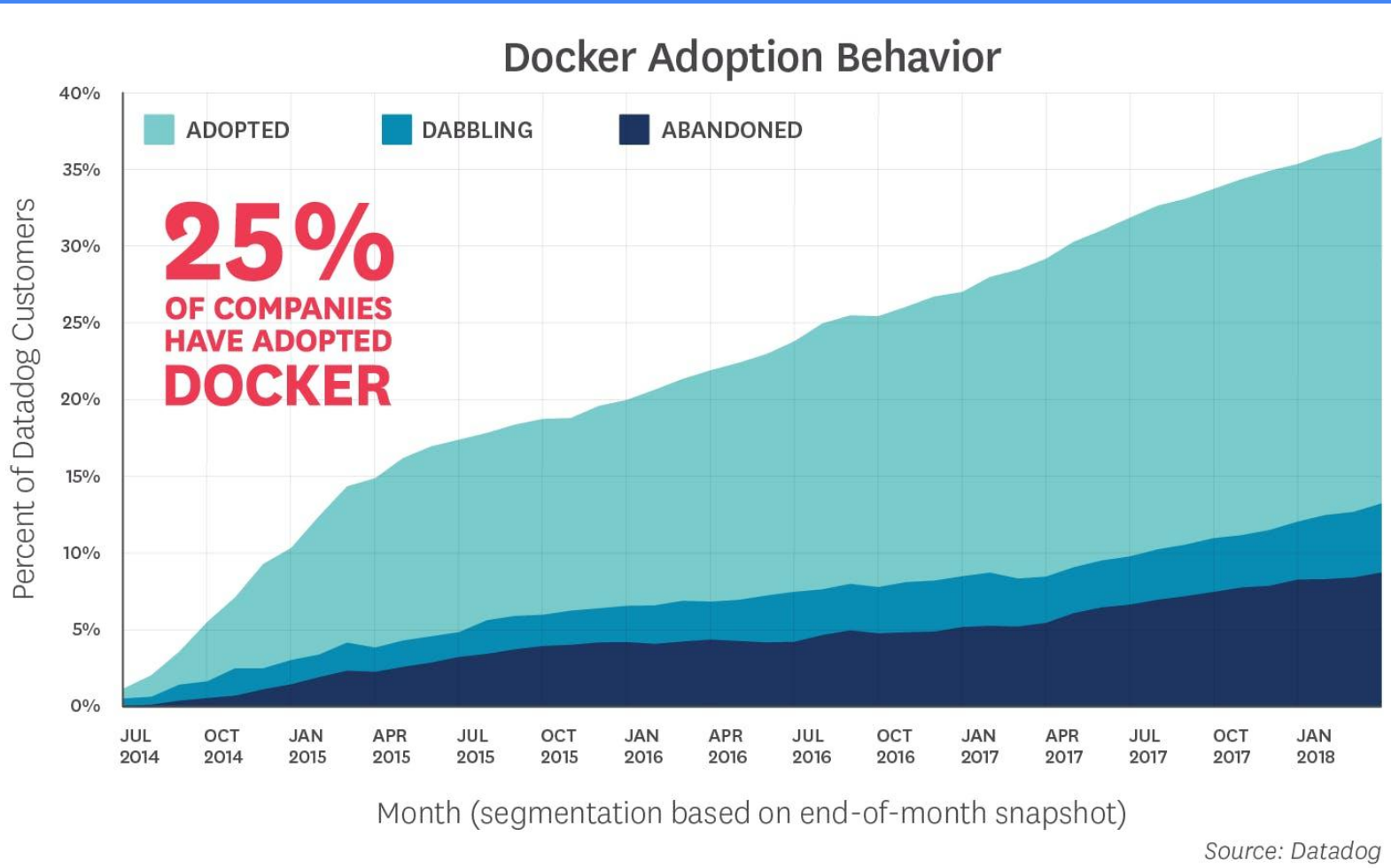


"Belajar Docker untuk Pemula": https://www.youtube.com/playlist?list=PL-CtdCApEFH-A7jBmdertzbeACuQWvQao

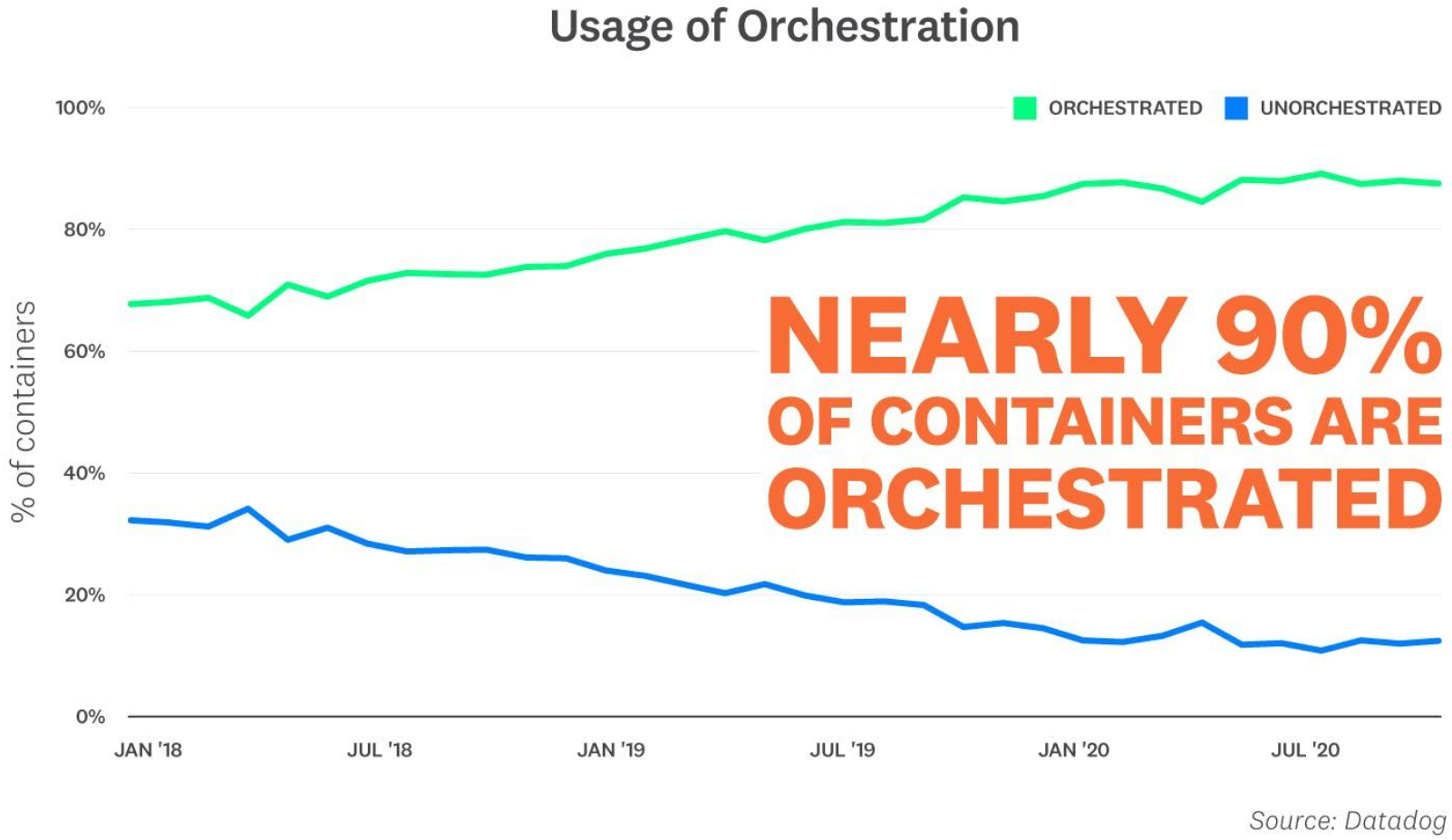
01. Pengenalan *Container*



"Belajar Docker untuk Pemula": https://www.youtube.com/playlist?list=PL-CtdCApEFH-A7jBmdertzbeACuQWvQao

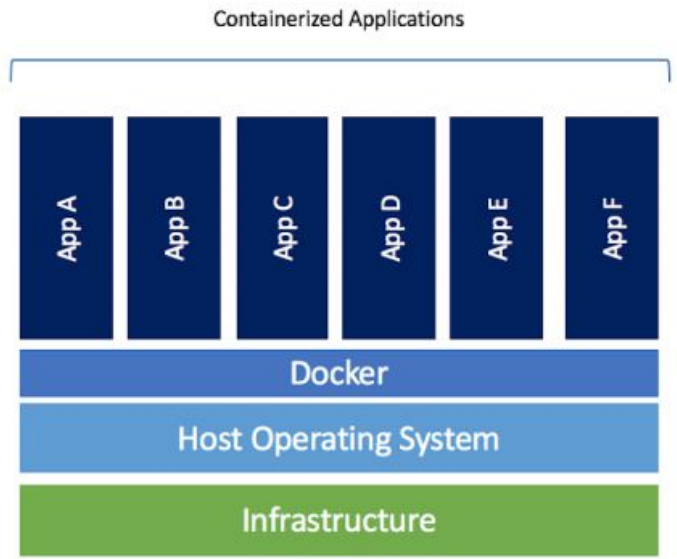


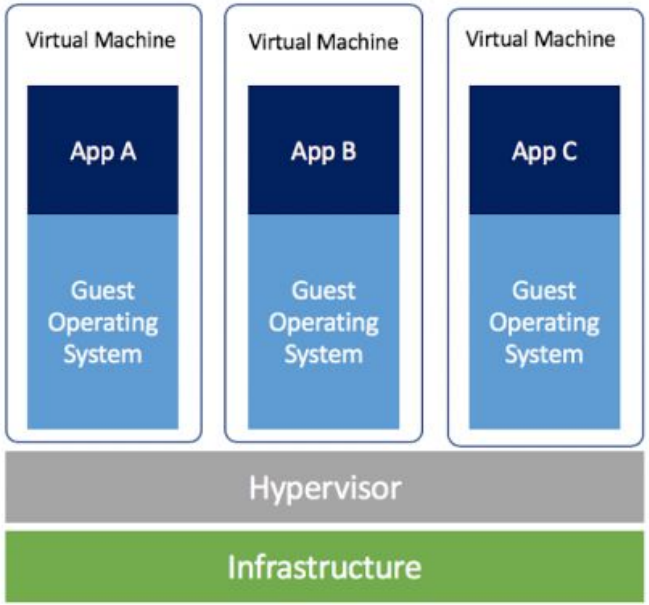
https://www.datadoghq.com/docker-adoption



https://www.datadoghq.com/container-report

02. *Container* vs. VM





https://www.docker.com/blog/containers-replacing-virtual-machines

03. Memasang Docker

Docker Desktop for Mac

A native application using the macOS sandbox security model which delivers all Docker tools to your Mac.

Docker Desktop for Windows

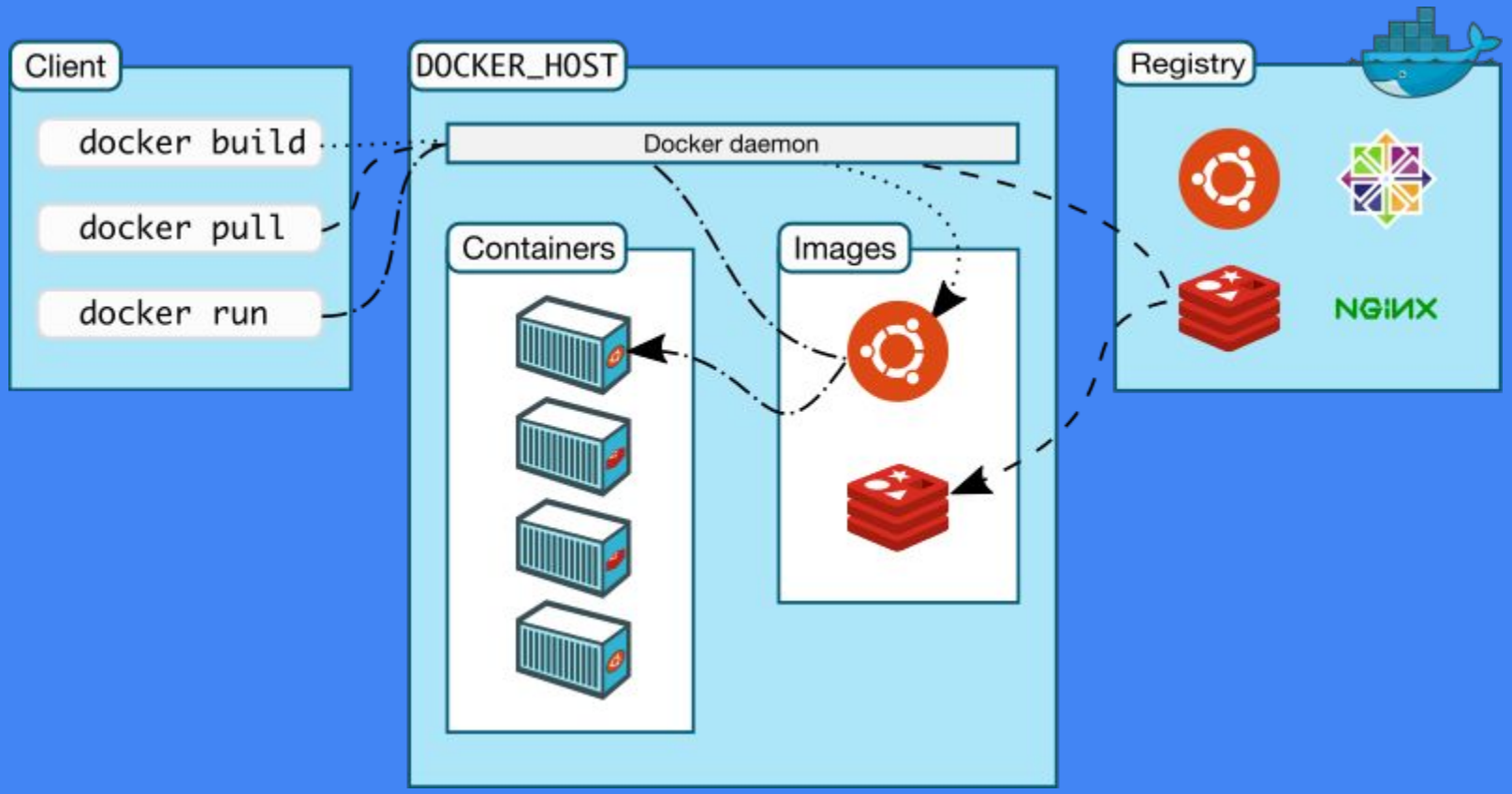
A native Windows application which delivers all Docker tools to your Windows computer.

Docker for Linux

Install Docker on a computer which already has a Linux distribution installed.

`https://docs.docker.com/get-docker`

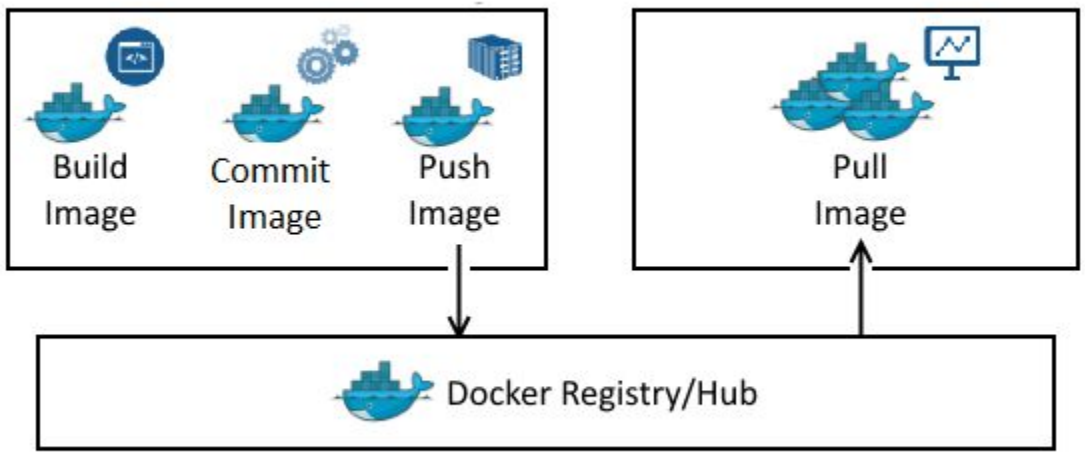
04. Arsitektur Docker



https://docs.docker.com/get-started/overview

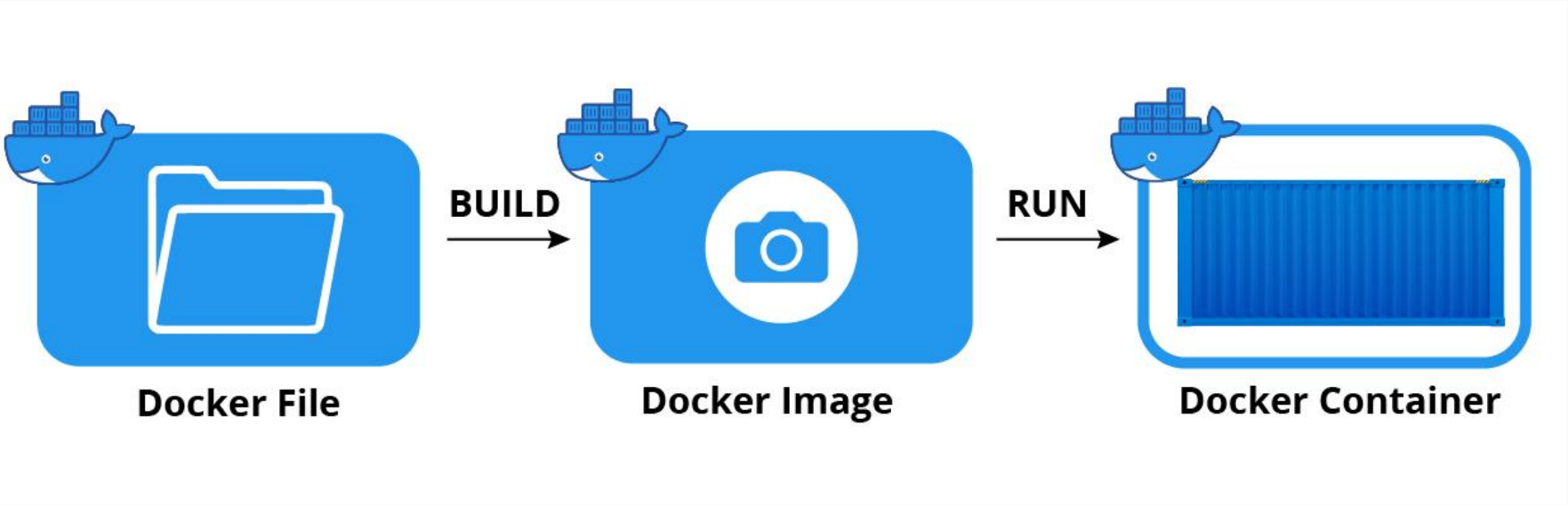
05. Docker *Registry*

https://www.itzgeek.com/how-tos/linux/working-with-docker-images-building-docker-images.html



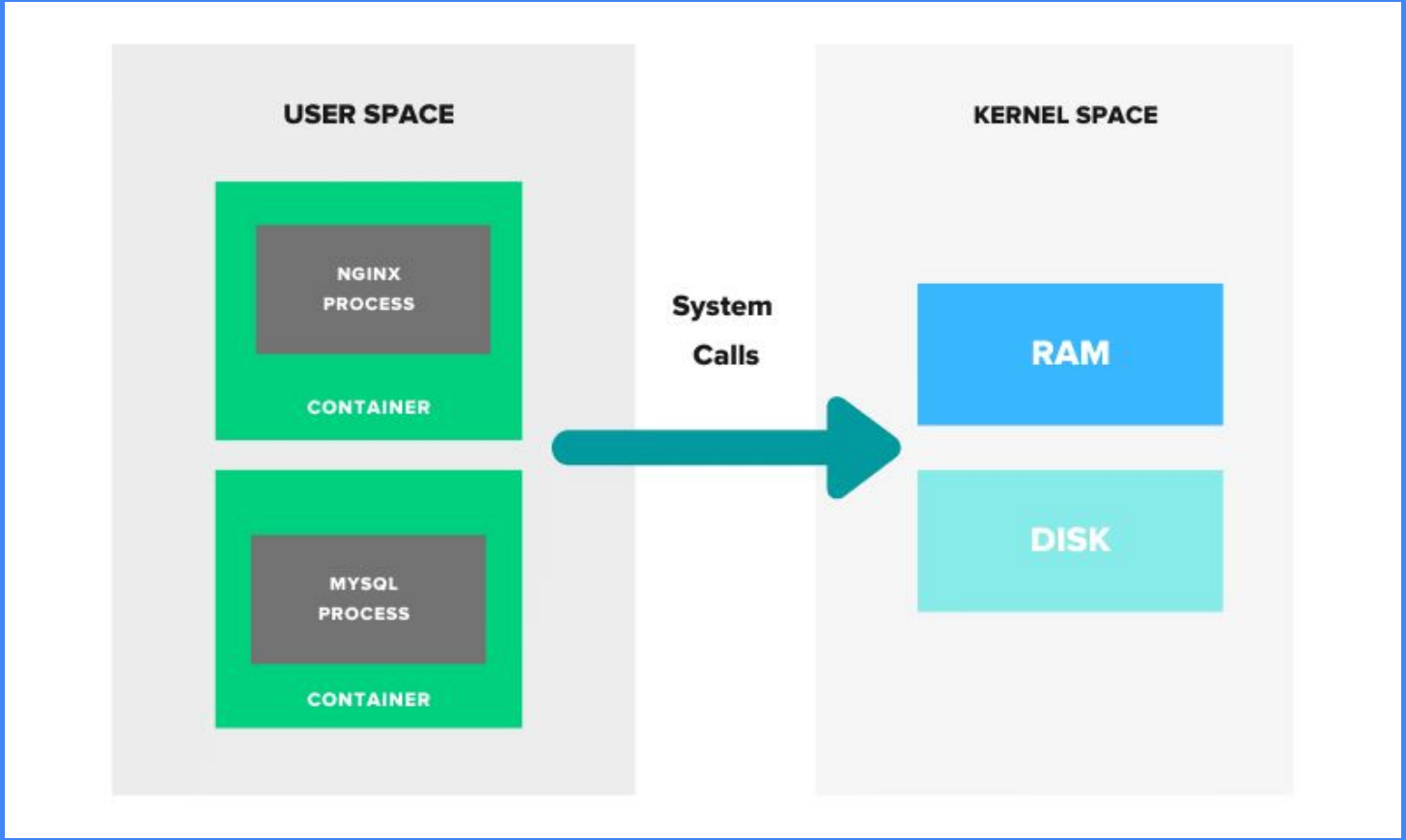
Docker Hub, **Google** Container Registry, **AWS** ECR, *registry.opensuse.org , quay.io*

06. Docker *Image*



https://jfrog.com/knowledge-base/a-beginners-guide-to-understanding-and-building-docker-images

07. *Container*

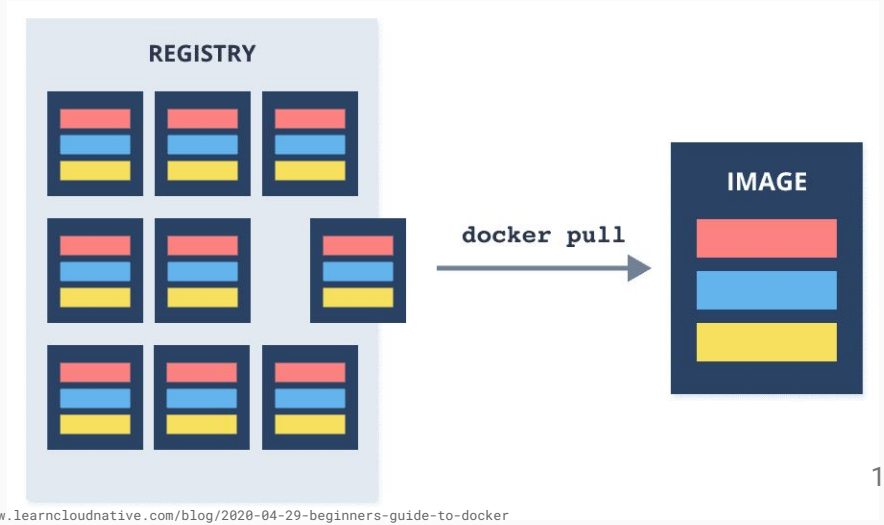


https://devopscube.com/what-is-docker

08. Mengambil *Image* dari *Registry*

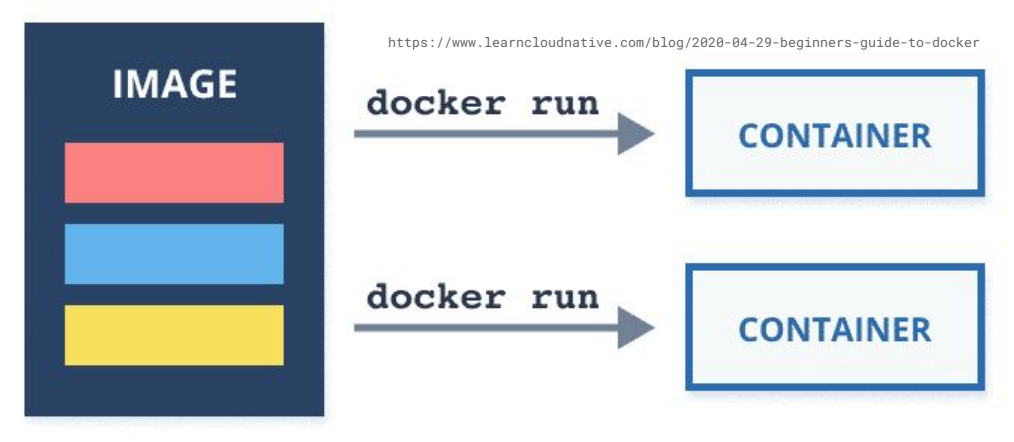
```
$ docker image pull [NAMA IMAGE:tag]
```

```
$ docker images
```



https://www.learncloudnative.com/blog/2020-04-29-beginners-guide-to-docker

09. Membuat *Container*

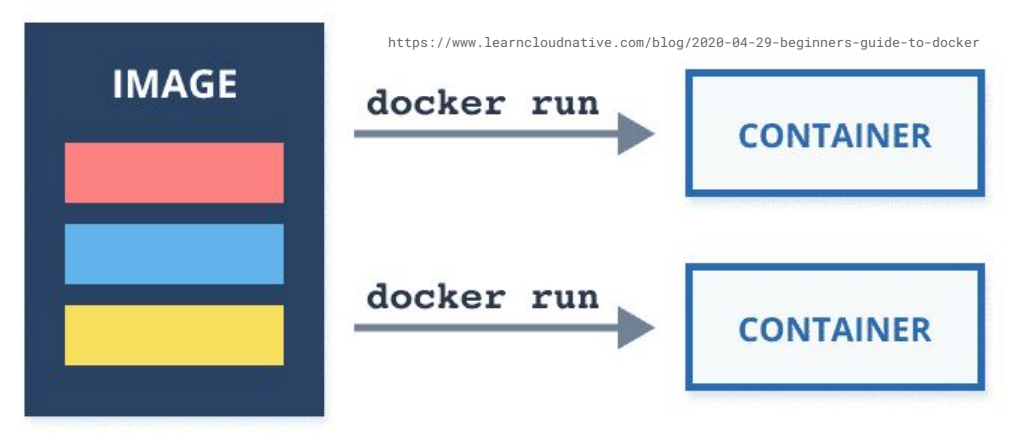



```
$ docker container ls
```

```
$ docker container ls --all
```

```
$ docker container create --name [NAMA CONTAINER] [NAMA IMAGE:tag]
```

10. Menjalankan *Container*




```
$ docker container ls
```

```
$ docker container start [NAMA CONTAINER]
```

11. Menghapus *Container*

```
$ docker container ls
```

```
$ docker container stop [NAMA CONTAINER]
```

```
$ docker container rm [NAMA CONTAINER]
```

12. Membuka Port untuk *Container*

```
$ docker create --name [NAMA CONTAINER] \
          -p PORT_EXTERNAL:PORT_INTERNAL [NAMA IMAGE:tag]
```

```
$ docker container start [NAMA CONTAINER]
```

13. Menghapus Docker *Image*

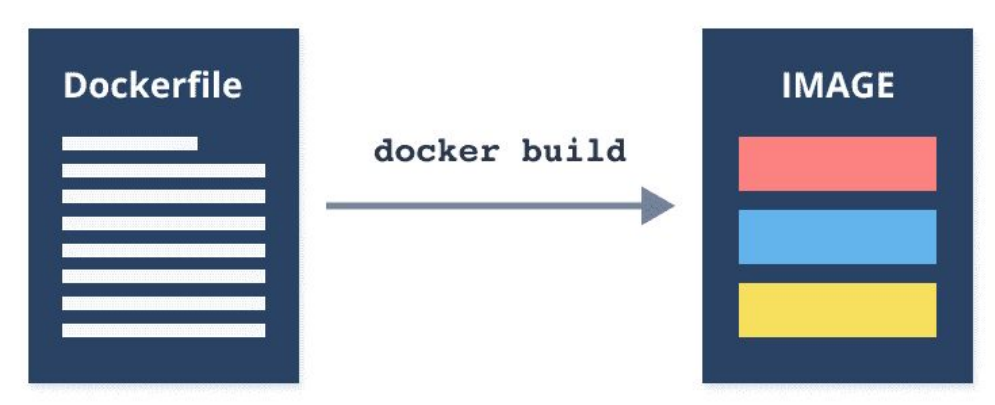
```
$ docker images
```

```
$ docker container stop [NAMA CONTAINER]
```

```
$ docker container rm [NAMA CONTAINER]
```

```
$ docker image rm [NAMA IMAGE]
```

14. Membuat *Image* dengan `Dockerfile`



https://www.learncloudnative.com/blog/2020-04-29-beginners-guide-to-docker

14.1. Menyiapkan Berkas Aplikasi

14.2. Membangun *Image* Docker

http://trainer.edu.mirantis.com/KD100/docker-images.html

14.1. Menyiapkan Berkas Aplikasi

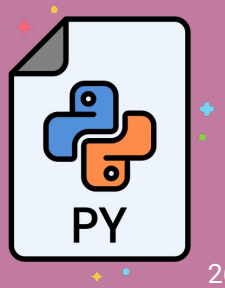
```
$ mkdir flaskapp flaskapp/templates
```

```
$ cd flaskapp
```

```
flaskapp/
    Dockerfile
    app.py
    requirements.txt
    templates/
        index.html
```

Berkas: “app.py”

```
from flask import Flask, render_template
import random

app = Flask(__name__)

# list of cat images
images = [
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Combing-Itself.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Hug.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Playing-Basketball.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Playing-Ping-Pong.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Using-Chopsticks.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Using-Computer.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-Wearing-Glasses.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-With-Beer.jpg",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cat-With-Teddy-Bear.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cats-Sitting-Like-Human.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cats-Using-iPad.gif",
"https://bitbucket.org/mirantis-training/public/raw/master/gifs/cats/Cats-Wearing-Party-Hats.gif"
]

@app.route('/')
def index():
    url = random.choice(images)
    return render_template('index.html', url=url)

if __name__ == "__main__":
    app.run(host="0.0.0.0")
```



https://www.flaticon.com/free-icon/python_2721287

Berkas: “requirements.txt”

```
Flask==0.10.1
```

https://www.flaticon.com/free-icon/txt_2306185

Berkas: “templates/index.html”

```
<html>
  <head>
    <style type="text/css">
      body {
        background: black;
        color: white;
      }
      div.container {
        max-width: 500px;
        margin: 100px auto;
        border: 20px solid white;
        padding: 10px;
        text-align: center;
      }
      h4 {
        text-transform: uppercase;
      }
    </style>
  </head>
  <body>
    <div class="container">
      <h4>Cat Gif of the day</h4>
      <img src="{{url}}" />
    </div>
  </body>
</html>
```

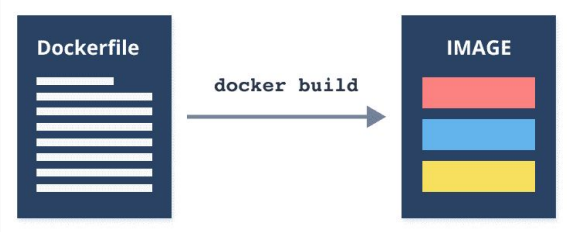
https://www.flaticon.com/free-icon/html_136528

Berkas: “Dockerfile”

```
# our base image
FROM alpine:3.9

# Install python and pip
RUN apk add --update python3

# upgrade pip
RUN pip3 install --upgrade pip

# install Python modules needed by the Python app
COPY requirements.txt /usr/src/app/
RUN pip install --no-cache-dir -r /usr/src/app/requirements.txt

# copy files required for the app to run
COPY app.py /usr/src/app/
COPY templates/index.html /usr/src/app/templates/

# tell the port number the container should expose
EXPOSE 5000

# run the application
CMD ["python3", "/usr/src/app/app.py"]
```

14.2. Membangun *Image* Docker

```
$ docker build -t <user-name>/flaskapp .
```

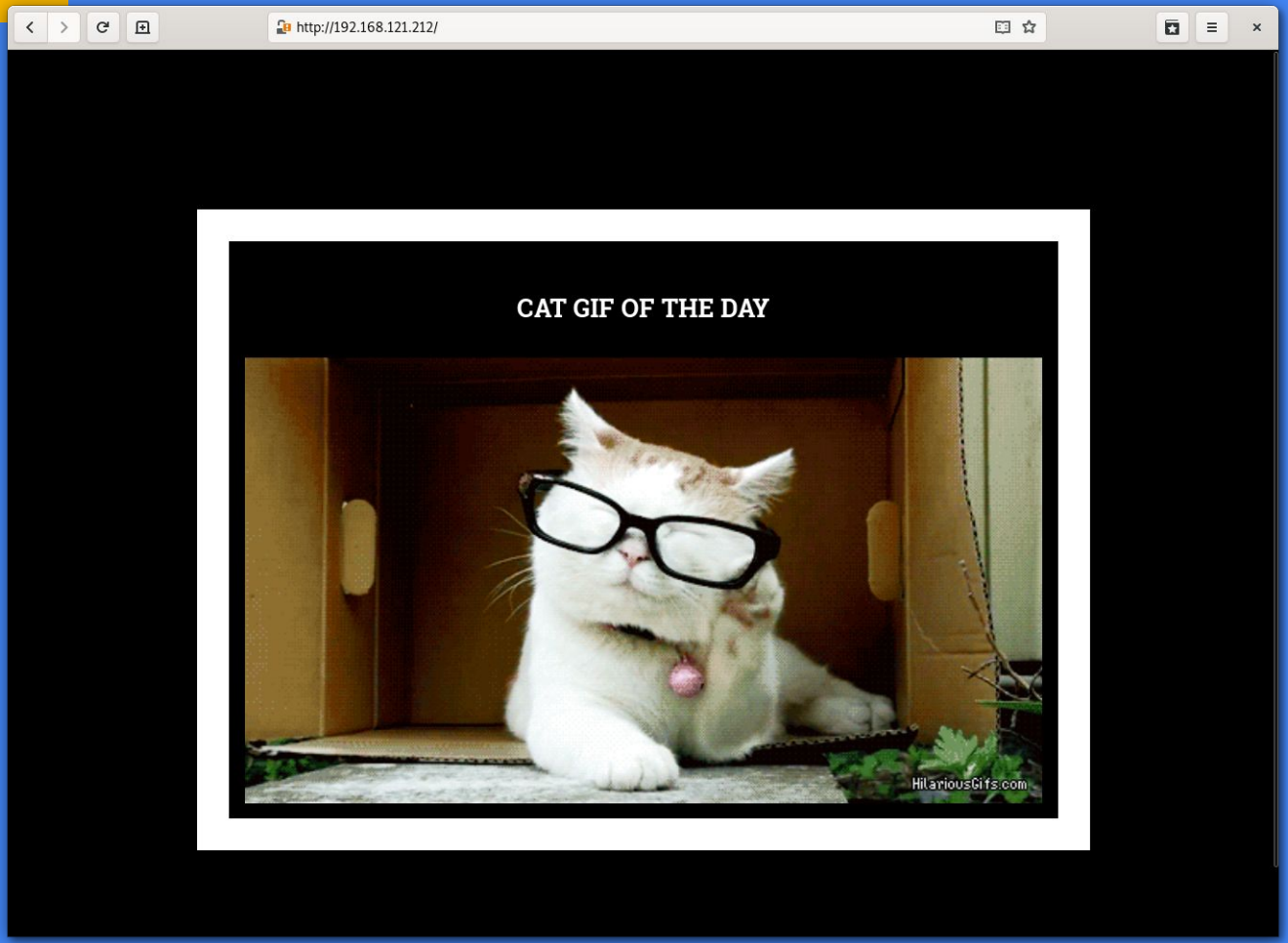


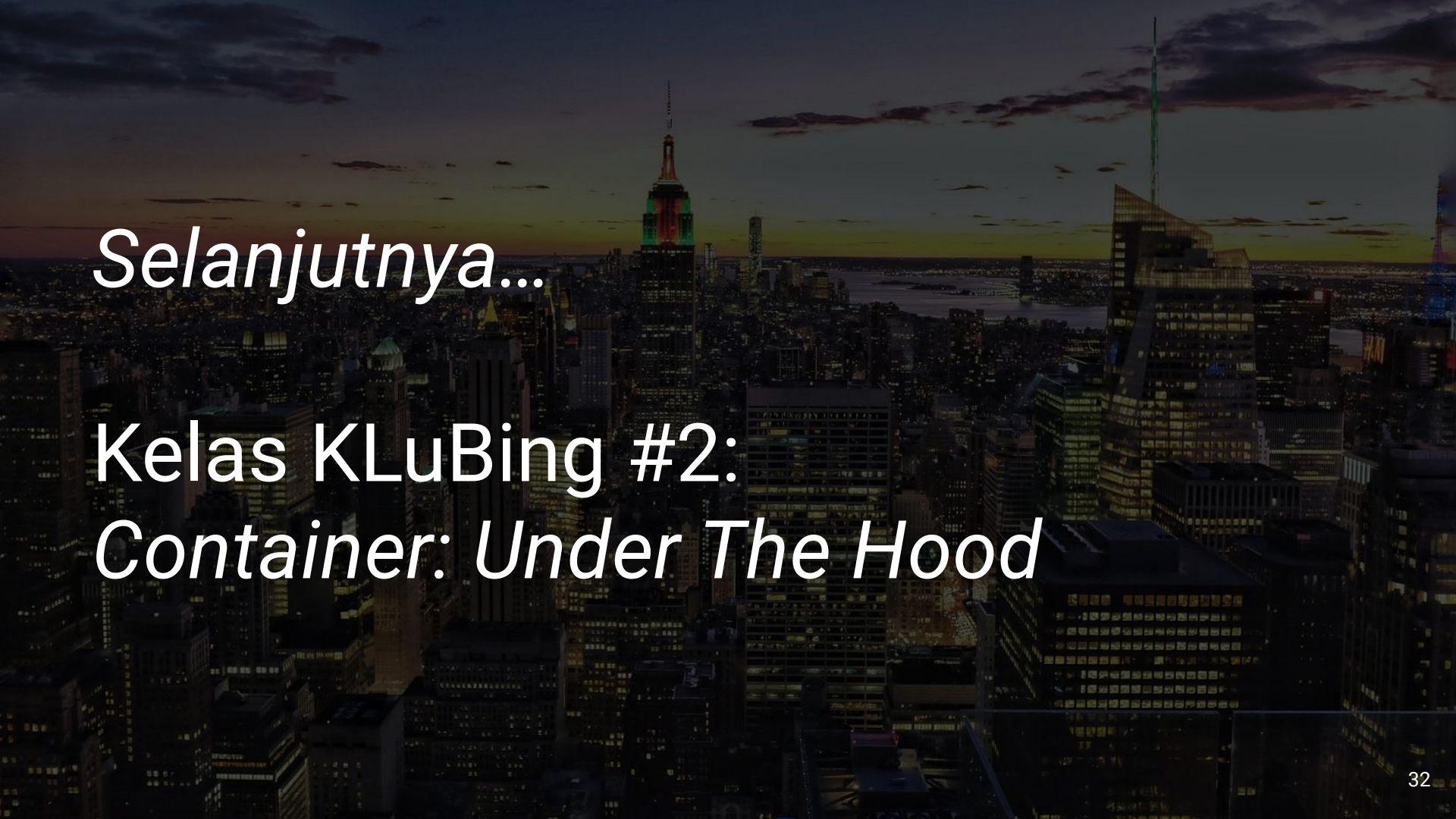
https://www.learncloudnative.com/blog/2020-04-29-beginners-guide-to-docker

```
$ docker images
```

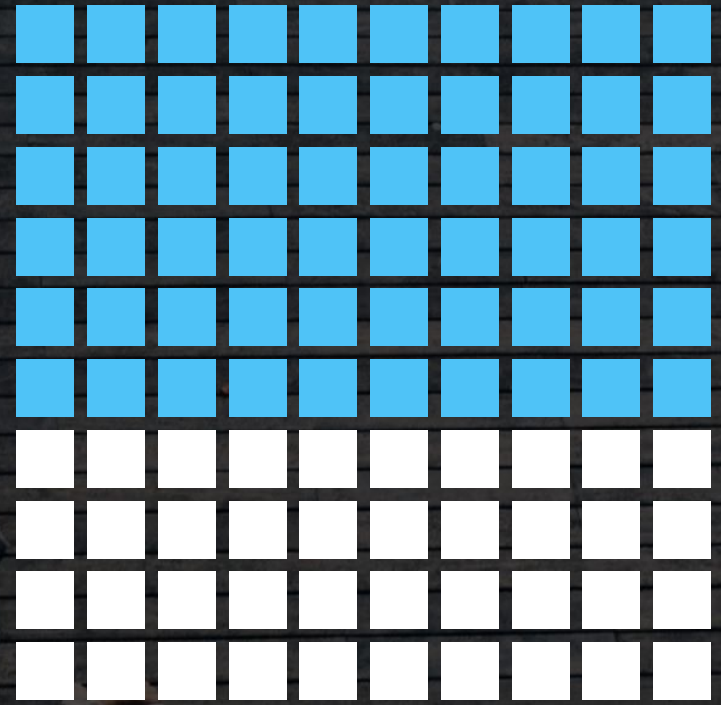
```
$ docker run -dp 80:5000 --name myfirstapp \
                         <user-name>/flaskapp
```

"CAT GIF OF THE DAY"




Selanjutnya…
Kelas KLuBing #2:
Container: Under The Hood

TETAP SEMANGAT !



h.a.t.u.r n.u.h.u.n !