



# Docker

Mag. Thomas Griesmayer

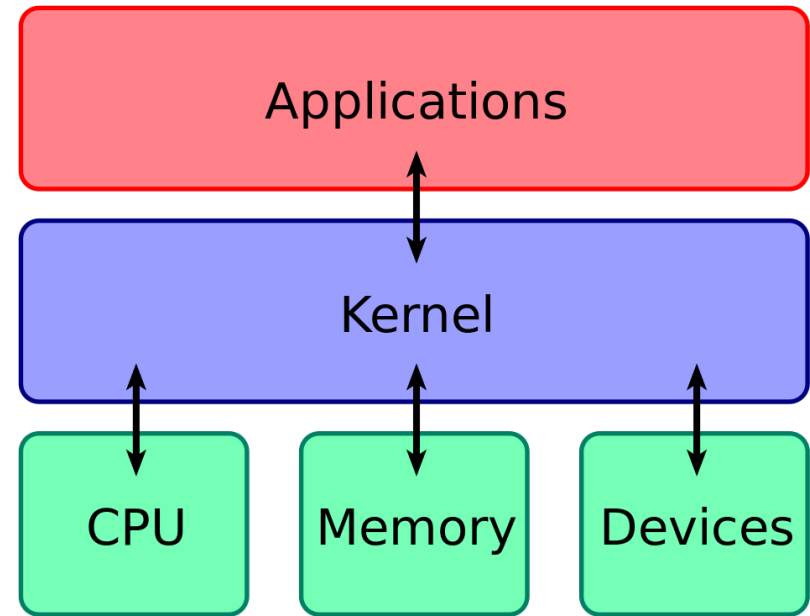
# 2021 *This Is What Happens In An Internet Minute*

## Internet Minute



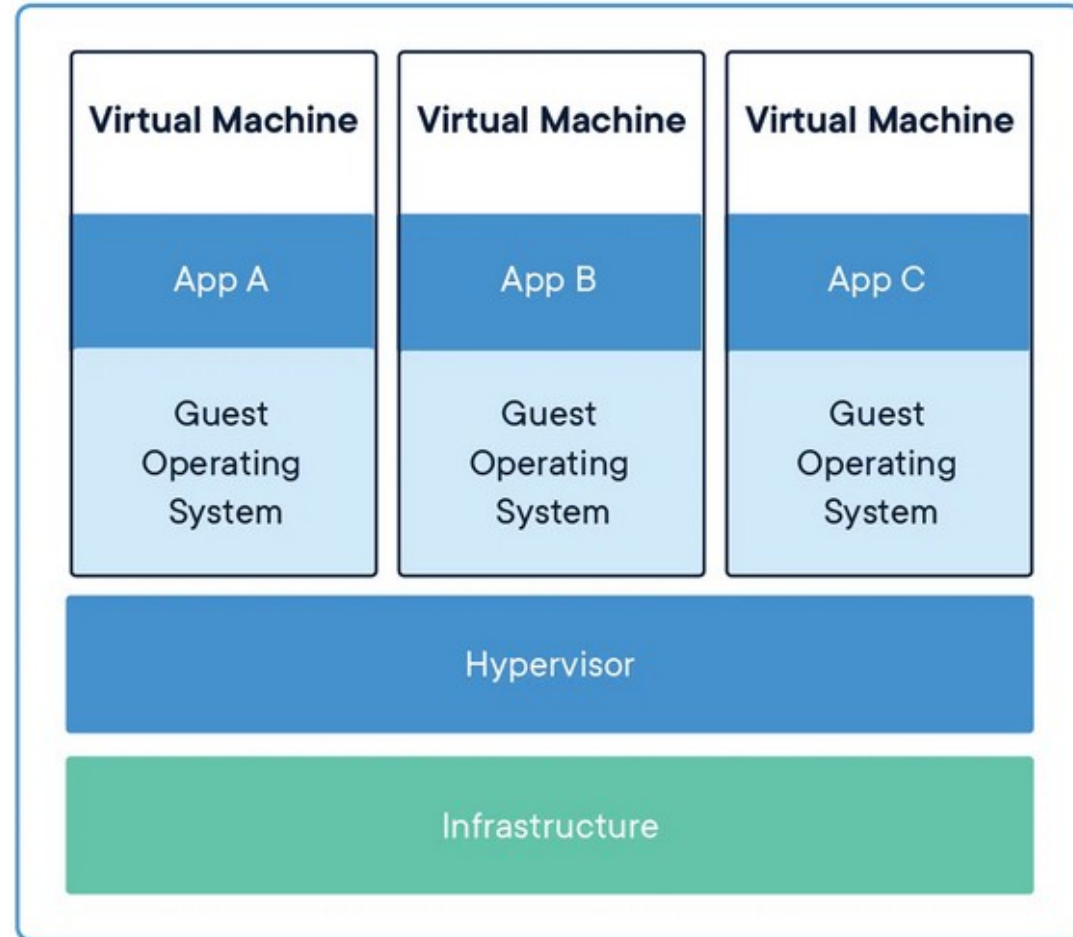
# Operating system

- An operating system (OS) is system software that manages computer hardware and software resources, and provides common services for computer programs.
- Time-sharing operating systems schedule tasks for efficient use of the system and may also include accounting software for cost allocation of processor time, mass storage, peripherals, and other resources.
- Hardware:
  - CPU
  - Memory
  - Storage devices
  - Motherboard
  - Input and output peripherals
  - Graphic card



# Virtual machines

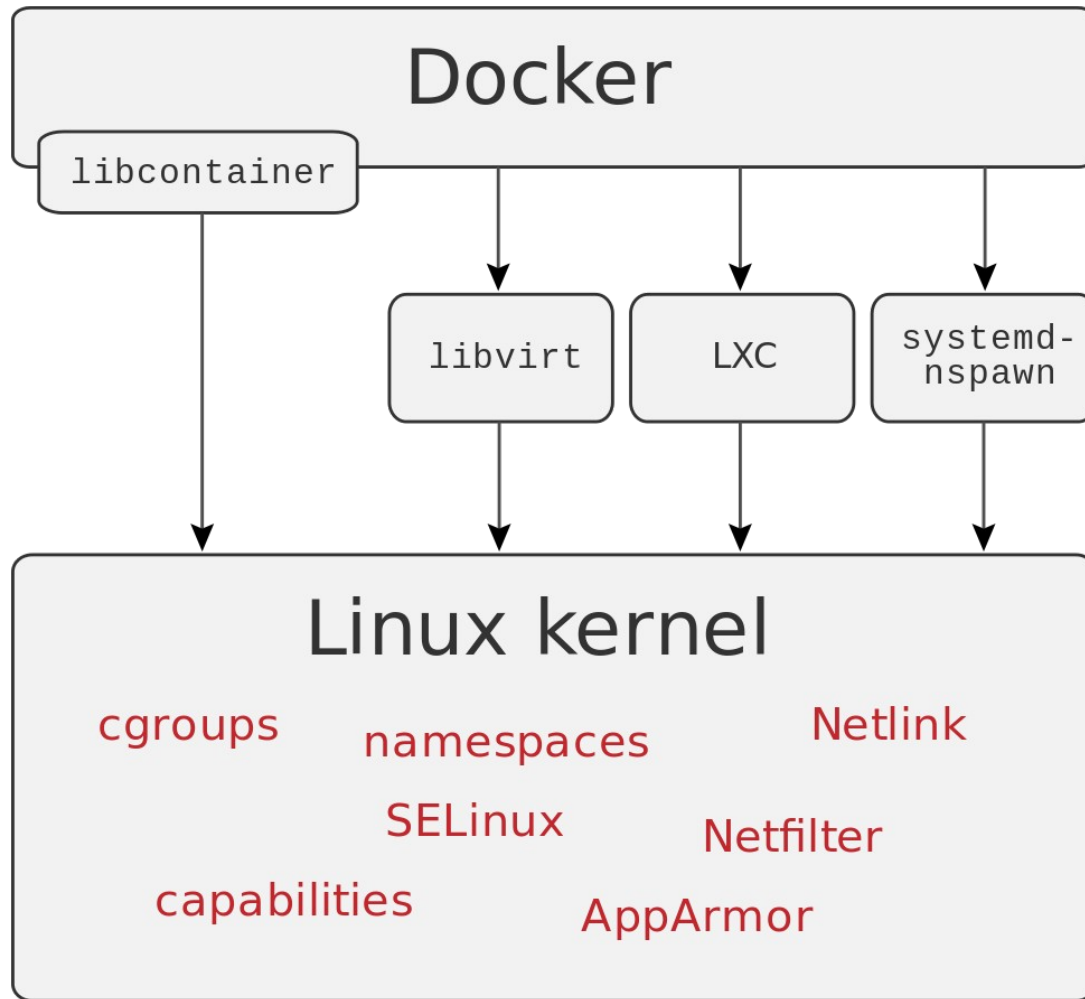
- Virtual machines (VMs) are an abstraction of physical hardware turning one server into many servers.
- The hypervisor allows multiple VMs to run on a single machine.
- Each VM includes a full copy of an operating system, the application, necessary binaries and libraries – taking up tens of GBs.
- VMs can also be slow to boot.



<https://www.docker.com/resources/what-container/> (10.9.2023)

# Introduction

- Docker is a set of platform as a service (PaaS) products that use OS-level virtualization to deliver software in packages called containers.
- The software that hosts the containers is called Docker Engine. It was first released in 2013 and is developed by Docker, Inc.
- Docker is a tool that is used to automate the deployment of applications in lightweight containers so that applications can work efficiently in different environments in isolation.
- Containers are isolated from one another and bundle their own software, libraries and configuration files; they can communicate with each other through well-defined channels.
- Because all of the containers share the services of a single operating system kernel, they use fewer resources than virtual machines.

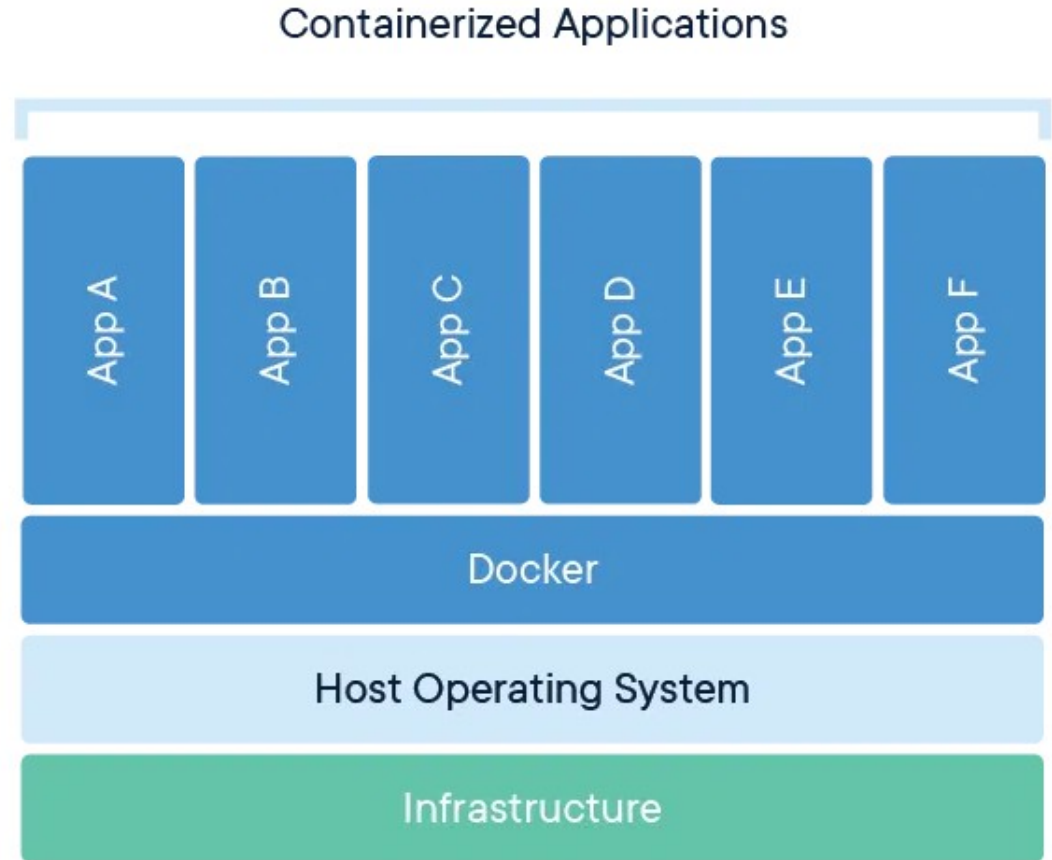


[https://en.wikipedia.org/wiki/Docker\\_\(software\)](https://en.wikipedia.org/wiki/Docker_(software)) (10.9.2023)

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# Containers

- Containers are an abstraction at the app layer that packages code and dependencies together.
- Multiple containers can run on the same machine and share the OS kernel with other containers, each running as isolated processes in user space.
- Containers take up less space than VMs (container images are typically tens of MBs in size), can handle more applications and require fewer VMs and Operating systems.



- SQL Server:

```
docker run -d -p 1433:1433 --name sqlserver2019 -e  
"ACCEPT_EULA=Y" -e "SA_PASSWORD=SqlServer2019"  
mcr.microsoft.com/azure-sql-edge
```

- Oracle:

```
docker run -d -p 1521:1521 -e ORACLE_PASSWORD=oracle --name  
oracle21c gvenzl/oracle-xe:21-full
```