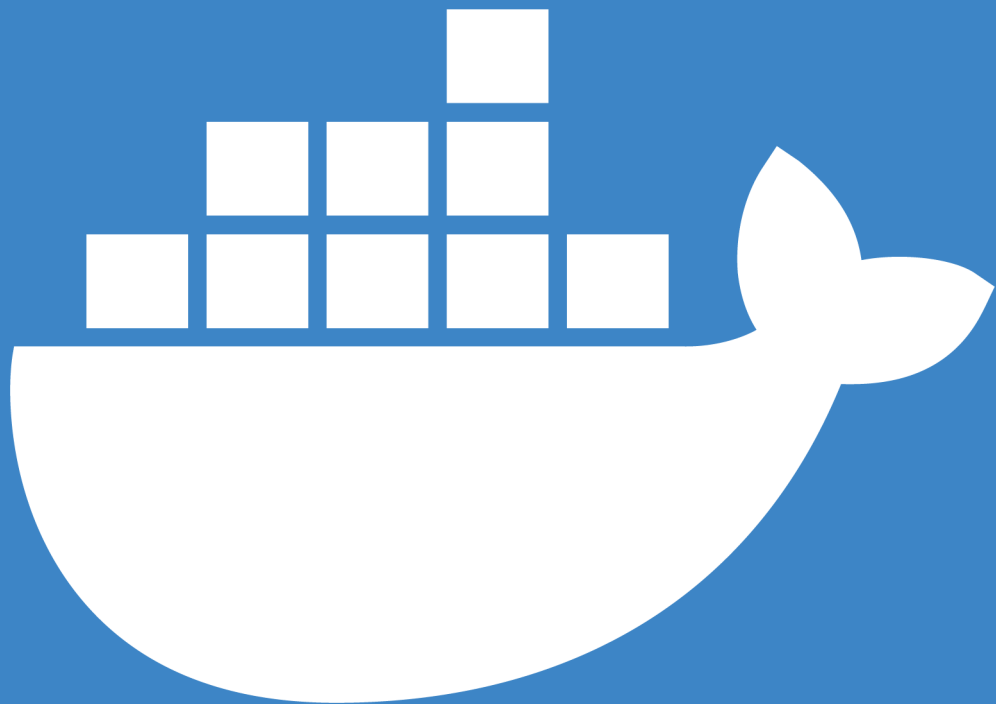


# DOCKER

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**Mohammad Yavari**  
**Matin Mokhtari**



# What is **Docker?**

A tool that can  
package  
software into  
**CONTAINERS**  
that run  
reliably in any  
environment.

# Main **Docker** tools



**DockerFile**

**Docker  
Images**



**Containers**



## What are Containers?

First we have to take a  
look at

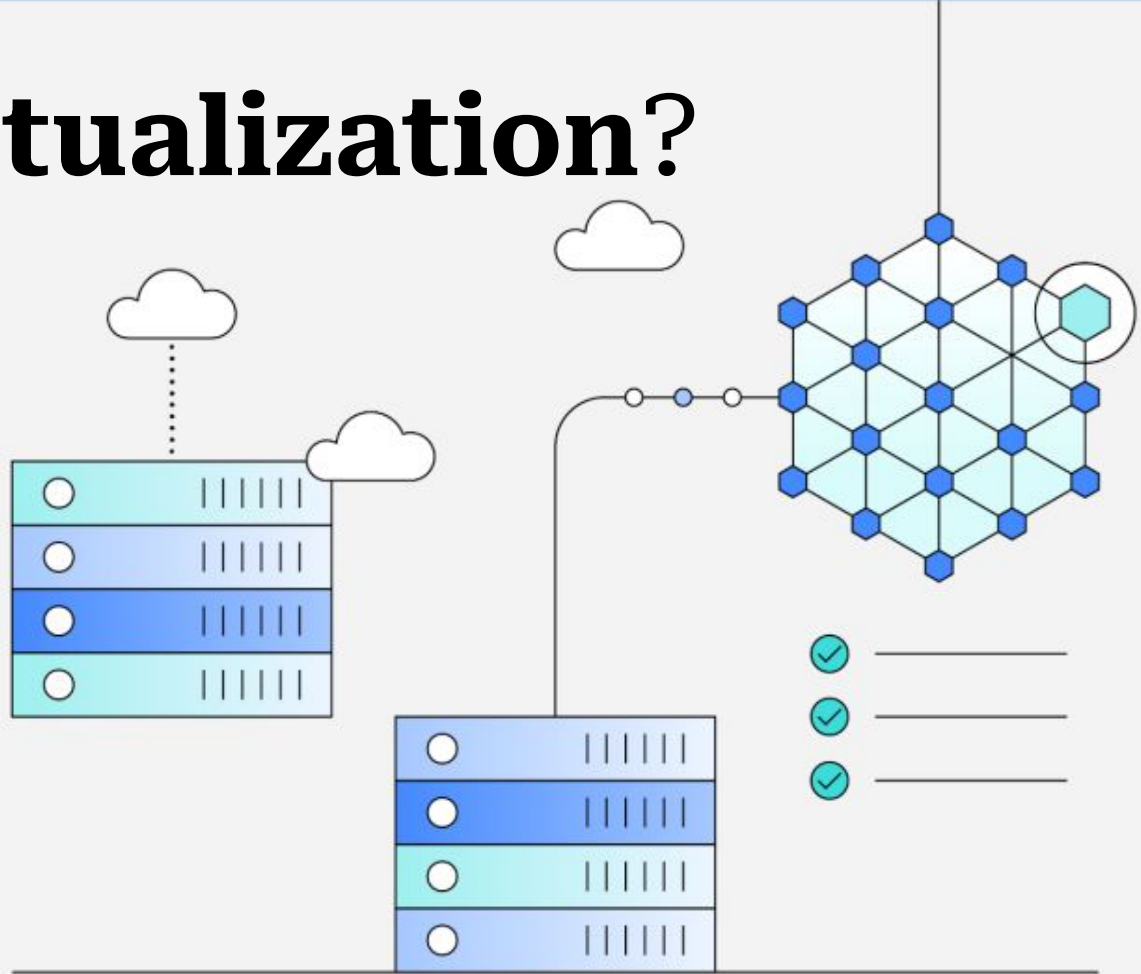
**Virtual Machines**

## What is a **Virtual Machine?**

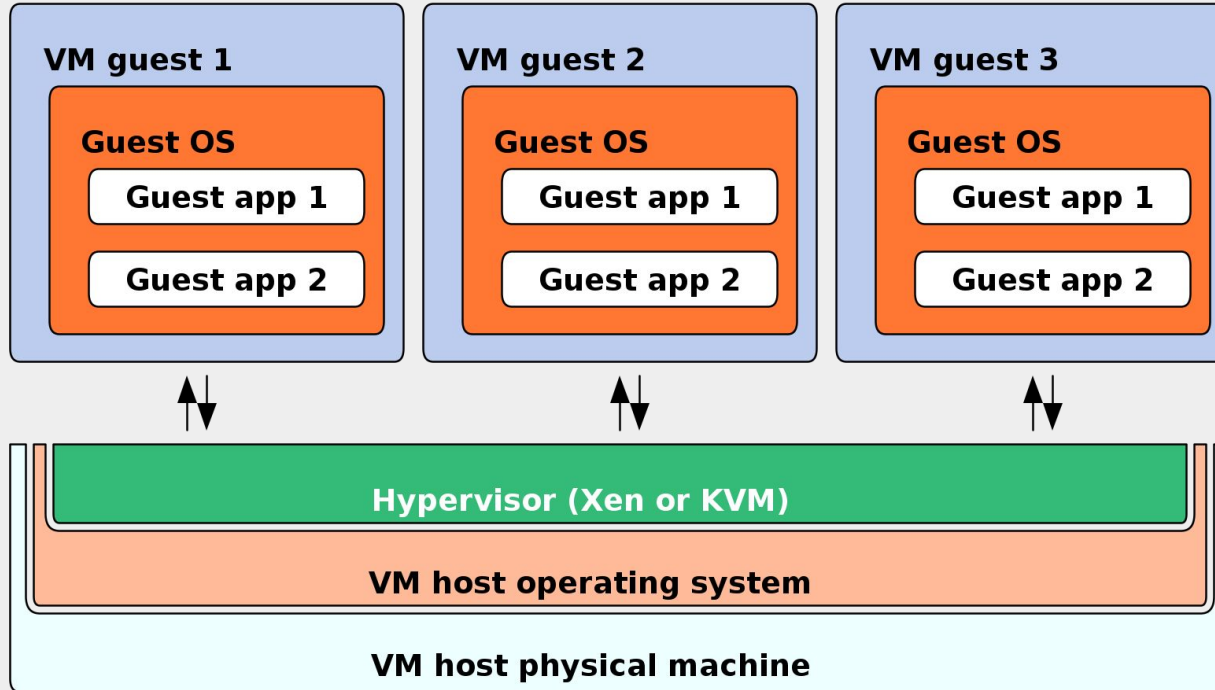
A virtual machine is a virtual representation, or emulation, of a physical computer. They are often referred to as a **guest** while the physical machine they run on is referred to as the **host**.

**Virtualization** makes it possible to create multiple virtual machines, each with their own operating system (OS) and applications, on a single physical machine with the help of a **Hypervisor**. A VM cannot interact directly with a physical computer.

# What is **Virtualization**?



**Virtualization** is a technology that provides a way for a machine (VM Host Server) to run another operating system (VM Guest) on top of the host operating system.



# What is a **Hypervisor**

A hypervisor is the **software layer** that coordinates VMs. It serves as an interface between the VM and the underlying physical hardware, ensuring that each has access to the physical resources it needs to execute. It also ensures that the VMs don't interfere with each other by impinging on each other's memory space or compute cycles.



# Types of Hypervisors

## ❖ Type 1

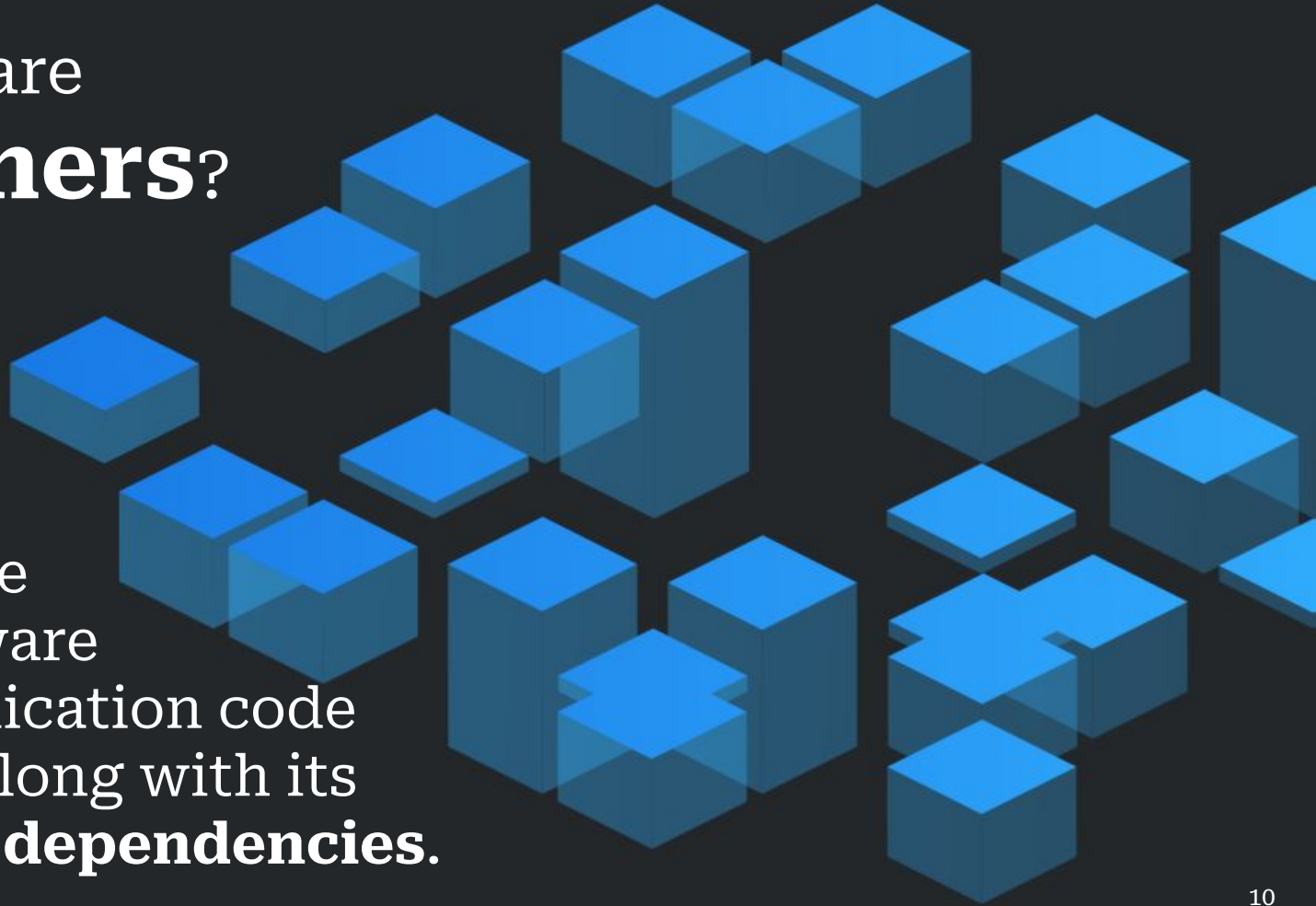
- Citrix Hypervisor (XenServer)
- VMware vSphere/ESXi
- Microsoft Hyper-V
- Red Hat Enterprise Virtualization (RHEV)

## ❖ Type 2

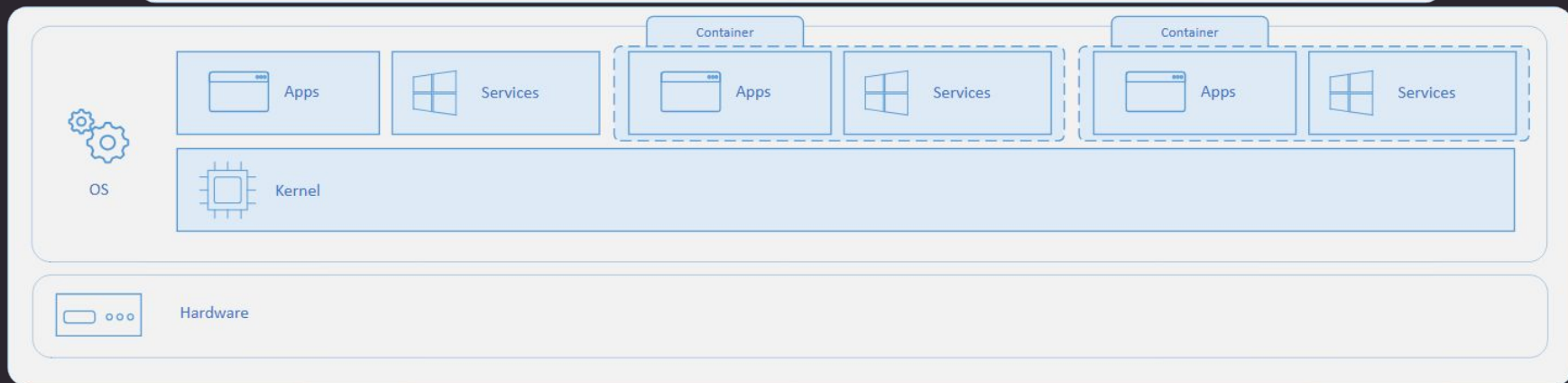
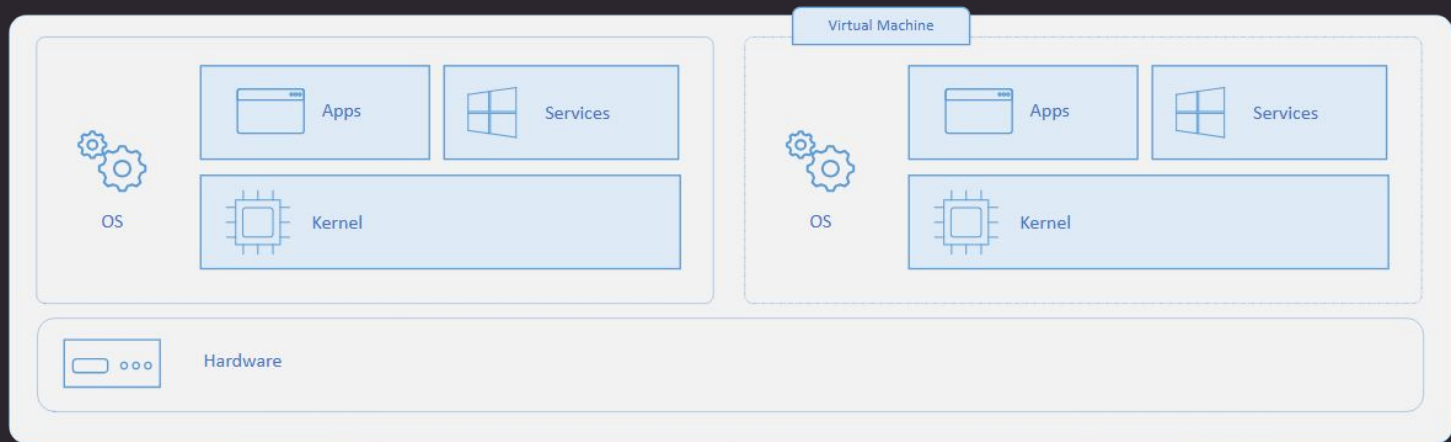
- Oracle Virtual Box (Apple, Linux, Microsoft)
- Microsoft Virtual PC 2007 (Microsoft)
- VMware (Apple, Linux, Microsoft)
- Citrix (Apple, Linux, Microsoft)

# What are **Containers?**

Containers  
are executable  
units of software  
in which application code  
is packaged along with its  
**libraries** and **dependencies**.



# Containers vs. Virtual Machines



- ★ Lightweight
- ★ Portability
- ★ Modern
- ★ Utilization

## **Benefits of using Containers**

## References

- IBM - [What are virtual machines? | IBM](#) - [What is Virtualization? | IBM](#) - [What are hypervisors? | IBM](#) - [What is Docker? | IBM](#) - [What are containers? | IBM](#)
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- Suse - [Virtualization: Basic concept \(suse.com\)](#)
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