Module 02: Understanding Docker

Docker Workshop

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Agenda

- What is a Linux Container?
- What is this all about?
- A little of history before we started
- What is Docker?
- About Docker
- Demo 01: Our first contact with docker

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What is a Linux Container (LXC)?

- Is an operating-system-level virtualization method for running multiple isolated Linux systems (containers) on a control host using a single Linux kernel

- Is the technology on which Docker it's based

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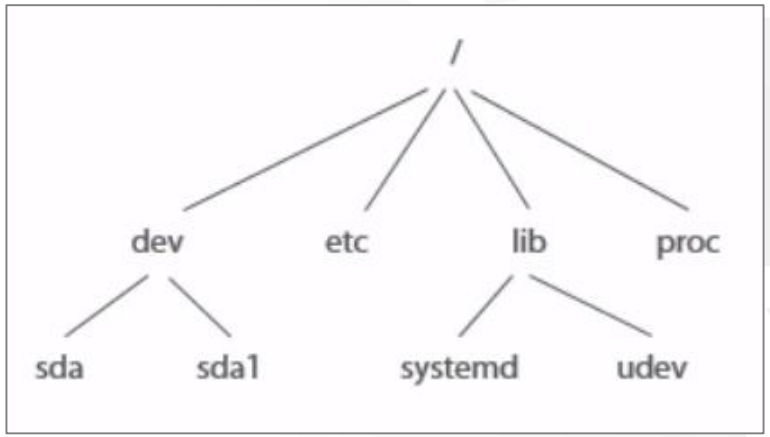
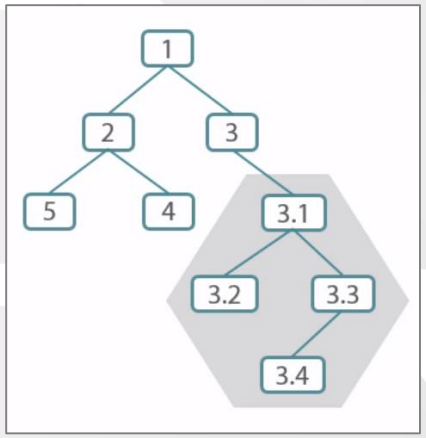
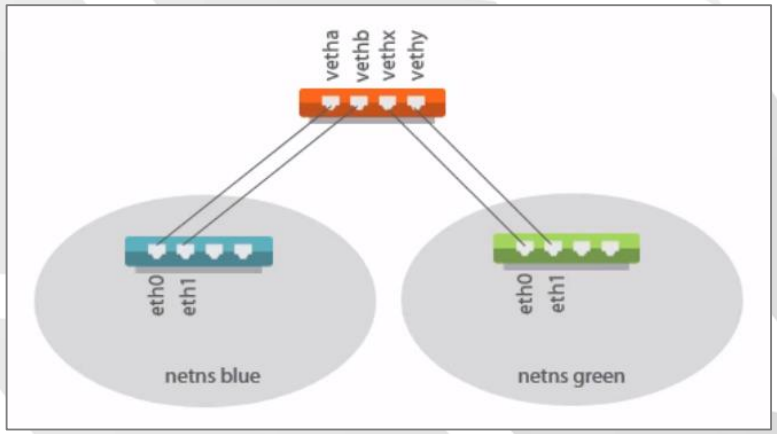
What is a Linux Container (LXC)?

- LXC have Independent:
  - File System
  - Process Tree
  - Networking Stacks
- Linux containers uses:
  - namespaces → Isolation
  - cgroups → Apply limits
  - capabilities → Manage privileges







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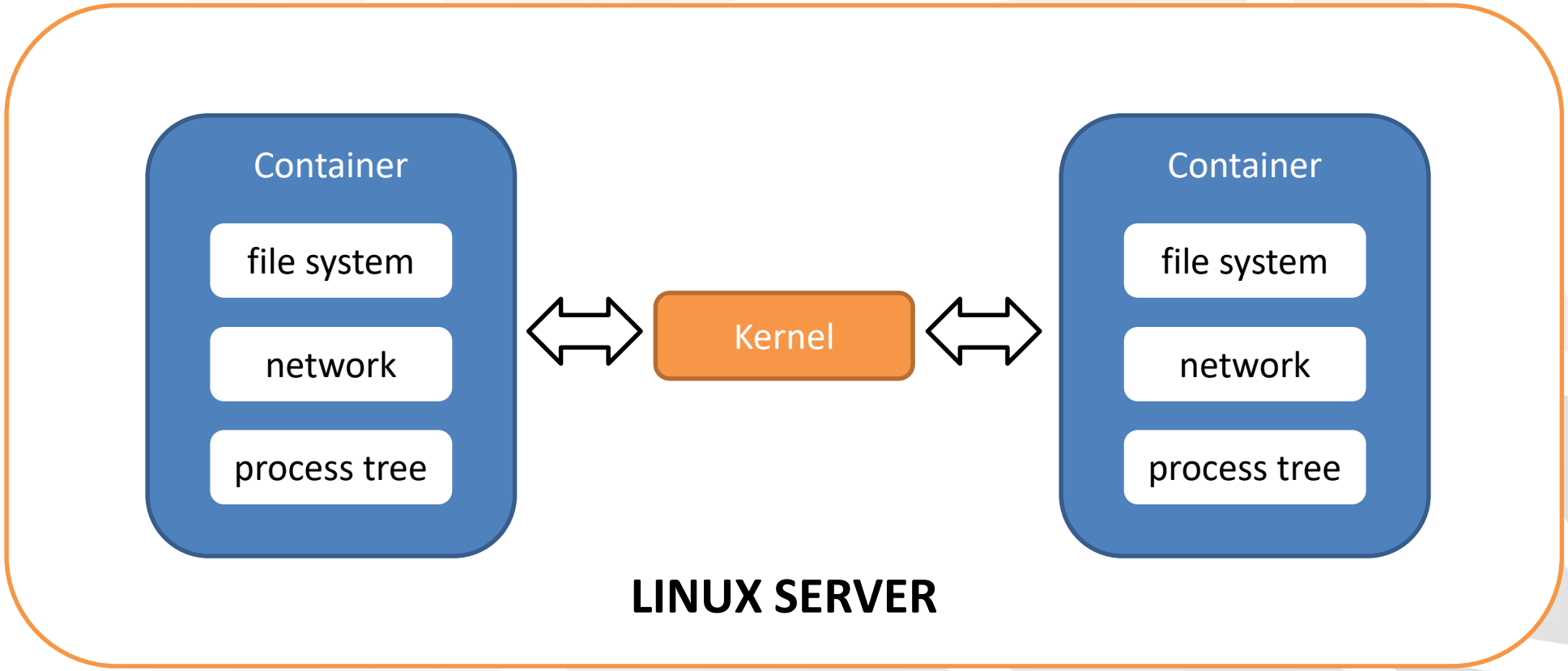
What is a Linux Container (LXC)?



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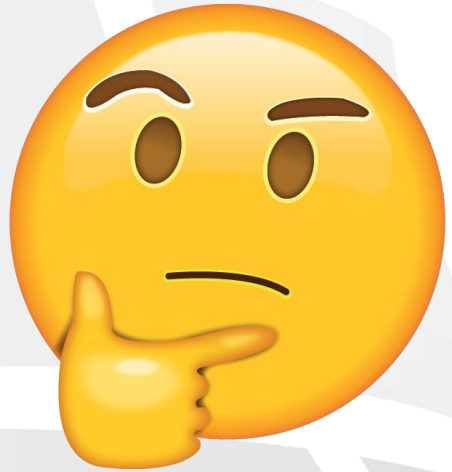
But, what is this all about?

Containers are a big IT revolution in our days,

But why?

What is this all about?



Actually, it's quite simple,

Is all about the **APPLICATIONS!**

After all, the OS only exist to facilitate the application

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A little of history before we started…

- In the past, a physical server was needed for each application

10 Applications = 10 Physical Servers

(The result, a HUGE waste of resources)

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A little of history before we started…

- Then, virtual machines comes to the rescue!

10 Applications = 1 Physical Servers

1 Physical Server = 10 Virtual Machines

10 Virtual Machines = 10 Operation Systems

(The result, a waste of resources)

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A little of history before we started…

- It's then when **containers** come to solve the problem:
  - More lightweight than VM's
  - Containers consumes less CPU, less RAM and less diskspace.
  - Every container shares a single common linux kernel in the host
  - Containers are faster and more portable than VM's
  - Provides a secure isolated runtime environment for each container

(No more operating system for each application)

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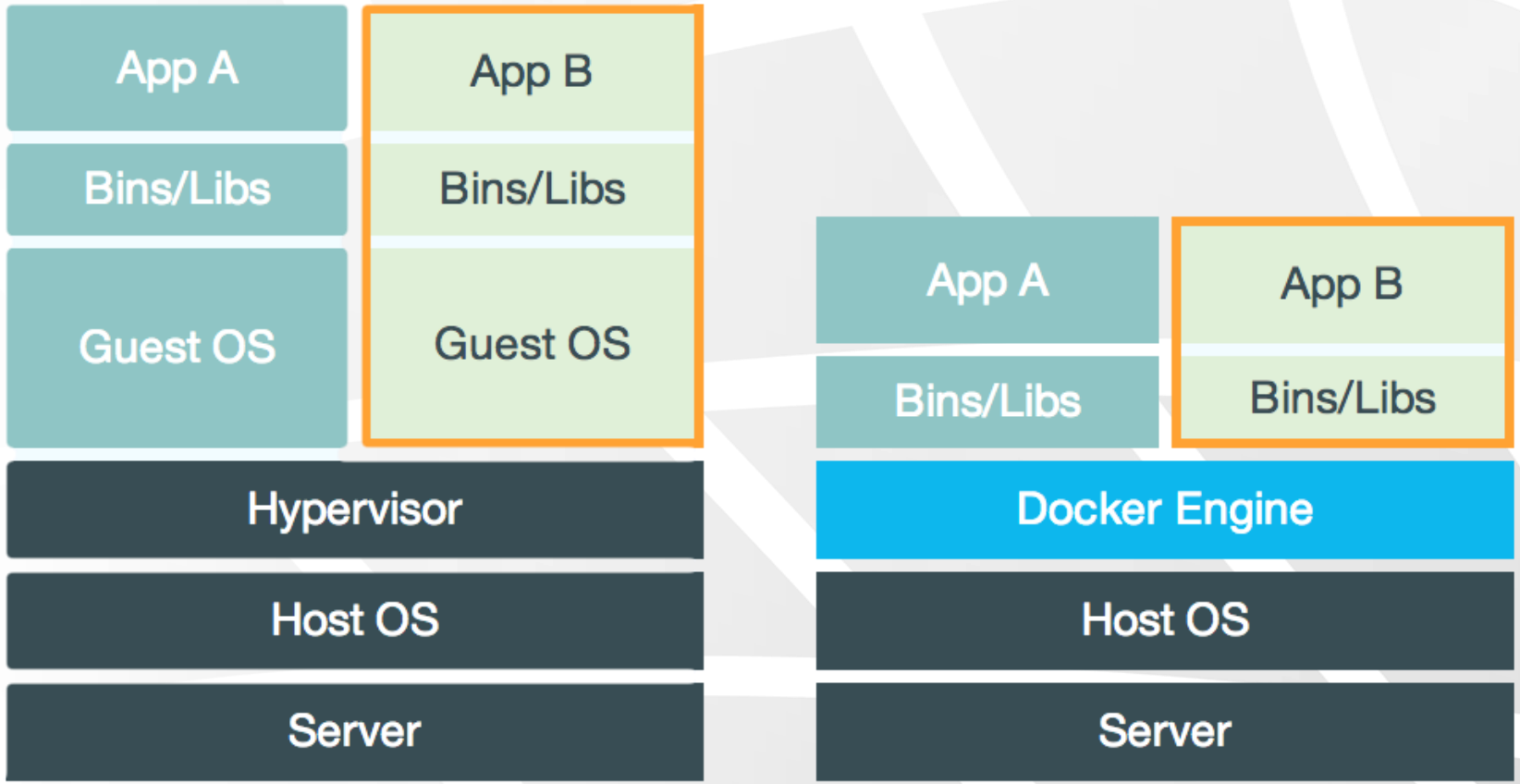
Docker Vs VM



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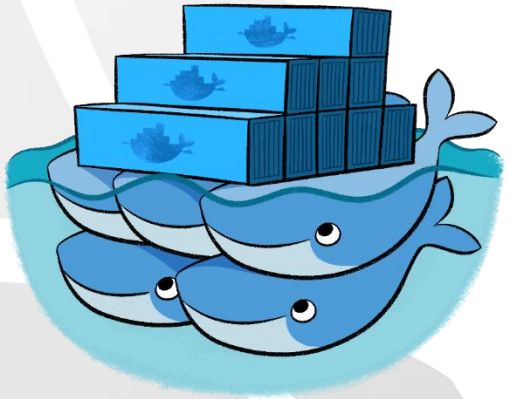
What is Docker?

- Docker is an actual implementation of a container technology
- It brings together the kernel namespaces, cgroups, capabilities and all of that stuff into a product
- Docker provides a very uniform and standard runtime
- Docker is growing more than just a container runtime, becoming more of a platform (registry, clustering, orchestration, networking, etc)



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About Docker

- Docker is written in golang and is open source under the apache 2 license
- Windows apps developed on window docker containers will only run on windows hosts running docker and the same goes for linux containers
- Docker it's a basic client server model where the docker client sends commands to the docker deamon and the deamon responds.

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Questions

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Demo 01: Our first contact with Docker

Demo

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