Working with Docker and Linux Containers

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LINUX SYSTEM ADMINISTRATOR

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Overview

Overview

Understand the Docker ecosystem

Overview

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Install Docker

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Understand the Docker ecosystem

Install Docker

Work with a Dockerfile script

Physical Server Model

Operating System
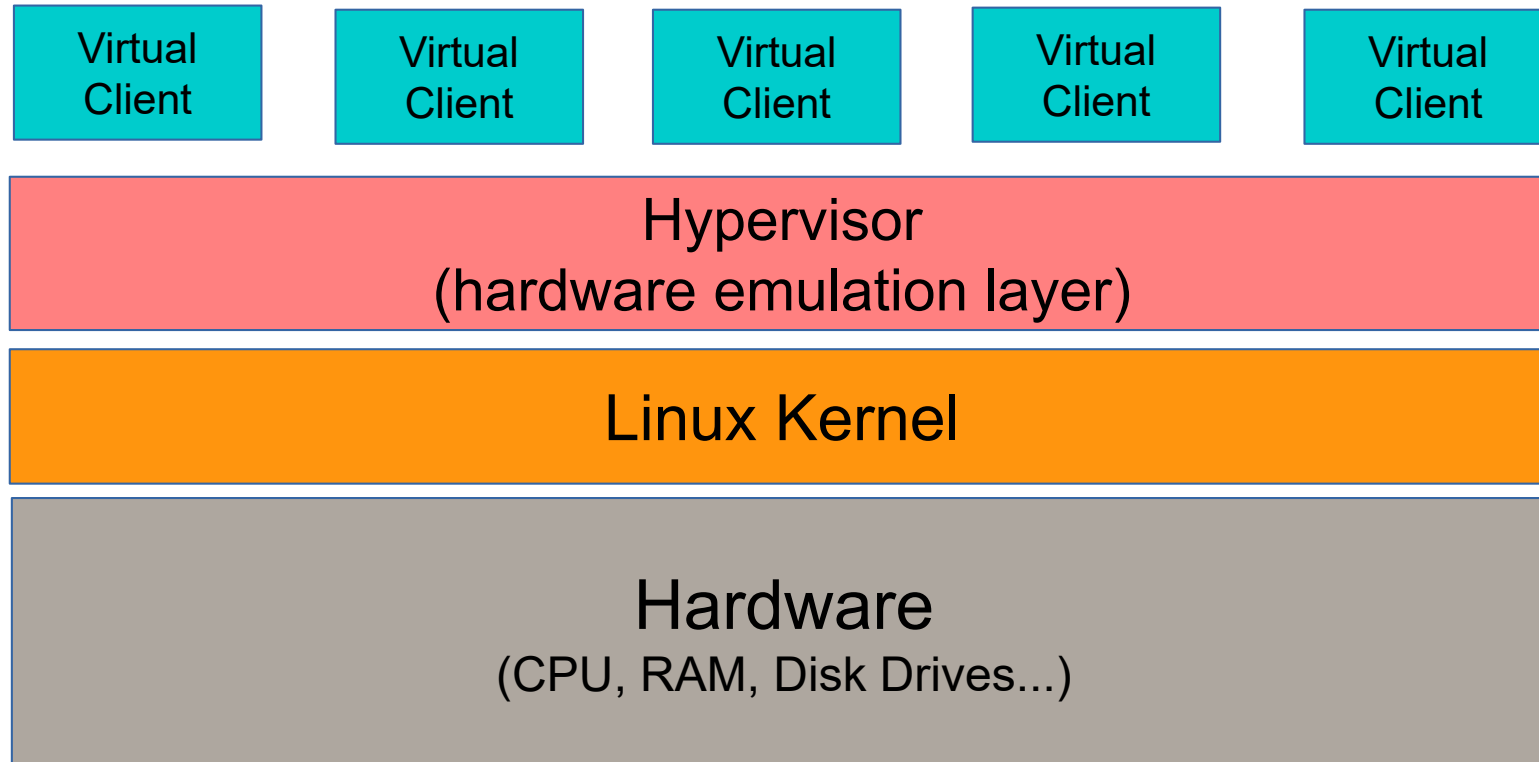
Hardware
(CPU, RAM, Disk Drives...)

Hypervisor Virtualization

Virtual Client	Virtual Client	Virtual Client	Virtual Client	Virtual Client

**Hypervisor
(hardware emulation layer)**

Linux Kernel

**Hardware
(CPU, RAM, Disk Drives...)**

Container Virtualization

Ubuntu	OpenSUSE	CentOS	Debian

Container Management Platform

Linux Kernel

Hardware
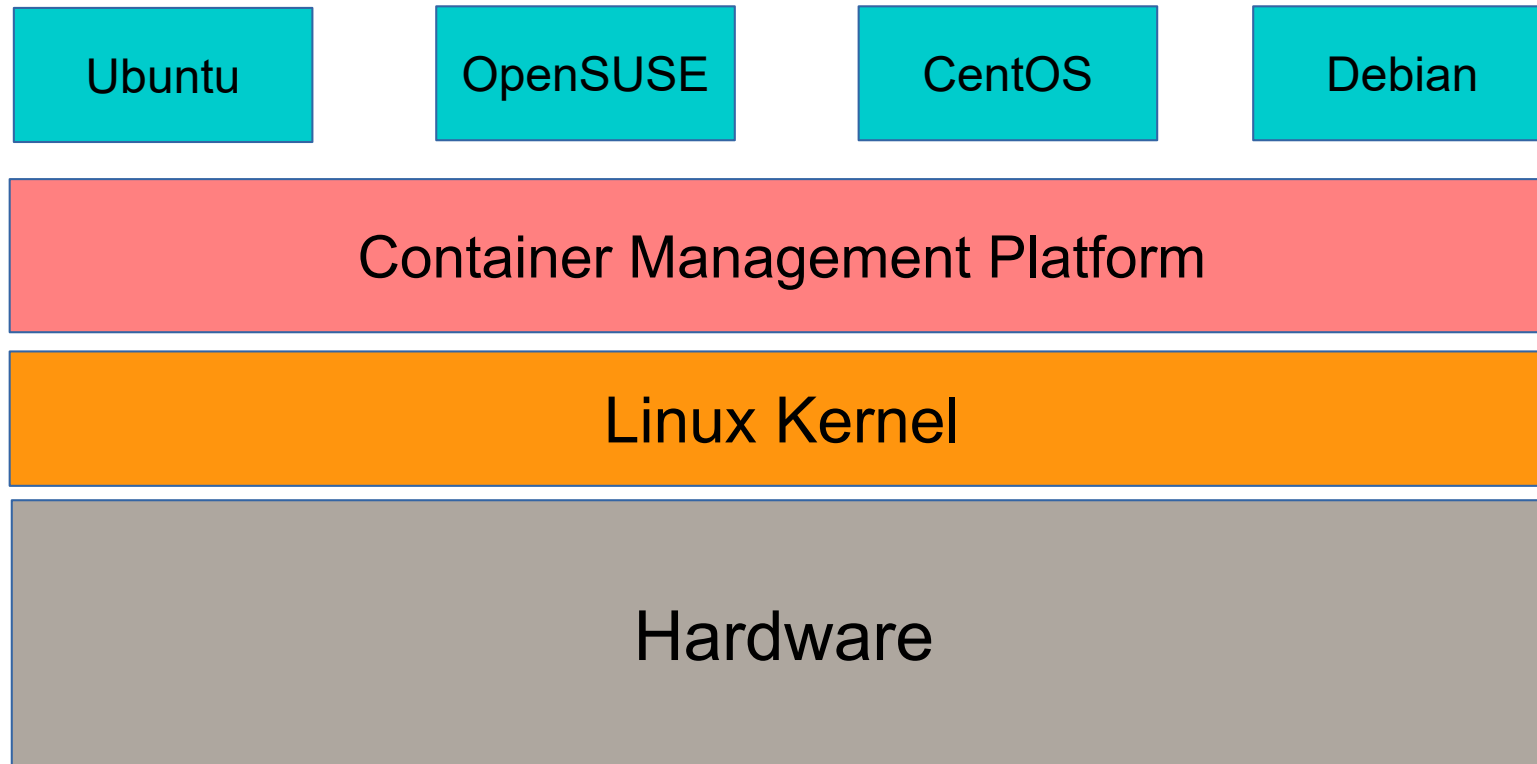
Linux In a Container World

Linux In a Container World

Host administration

- Privileges
- Kernel access

Linux In a Container World

Host administration

- Privileges
- Kernel access

Container administration

Application design

Linux In a Container World

Host administration
- Privileges
- Kernel access

Container administration
Application design

The Future of Linux
- Microservices
- DevOps
- Development support

Understanding the Docker Ecosystem

A Sample Dockerfile

```
# Create a webserver on Ubuntu
#
FROM ubuntu:18.04

RUN apt-get update
RUN apt-get install -y apache2
RUN echo "Welcome to my web site" >
/var/www/html/index.html
EXPOSE 80
```

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Docker
Resources

Docker Resources

Image hosting:

Docker Resources

Image hosting:

– **Docker Hub**

– **Docker Registry**

Docker Resources

Image hosting:

- **Docker Hub**

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Storage:

Docker Resources

Image hosting:

– **Docker Hub**

– **Docker Registry**

Storage:

– **Docker Volumes**

– **Third-party solutions**
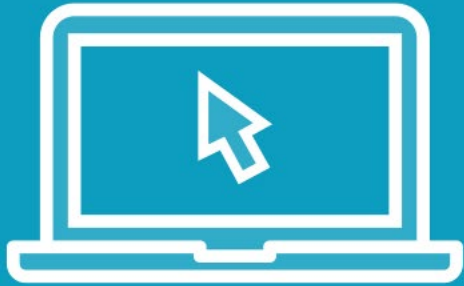
Installing Docker Engine on Linux
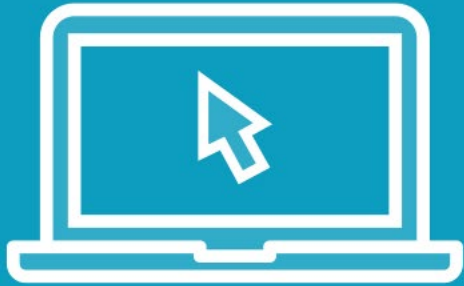
Demo

Demo

Set up encryption keys

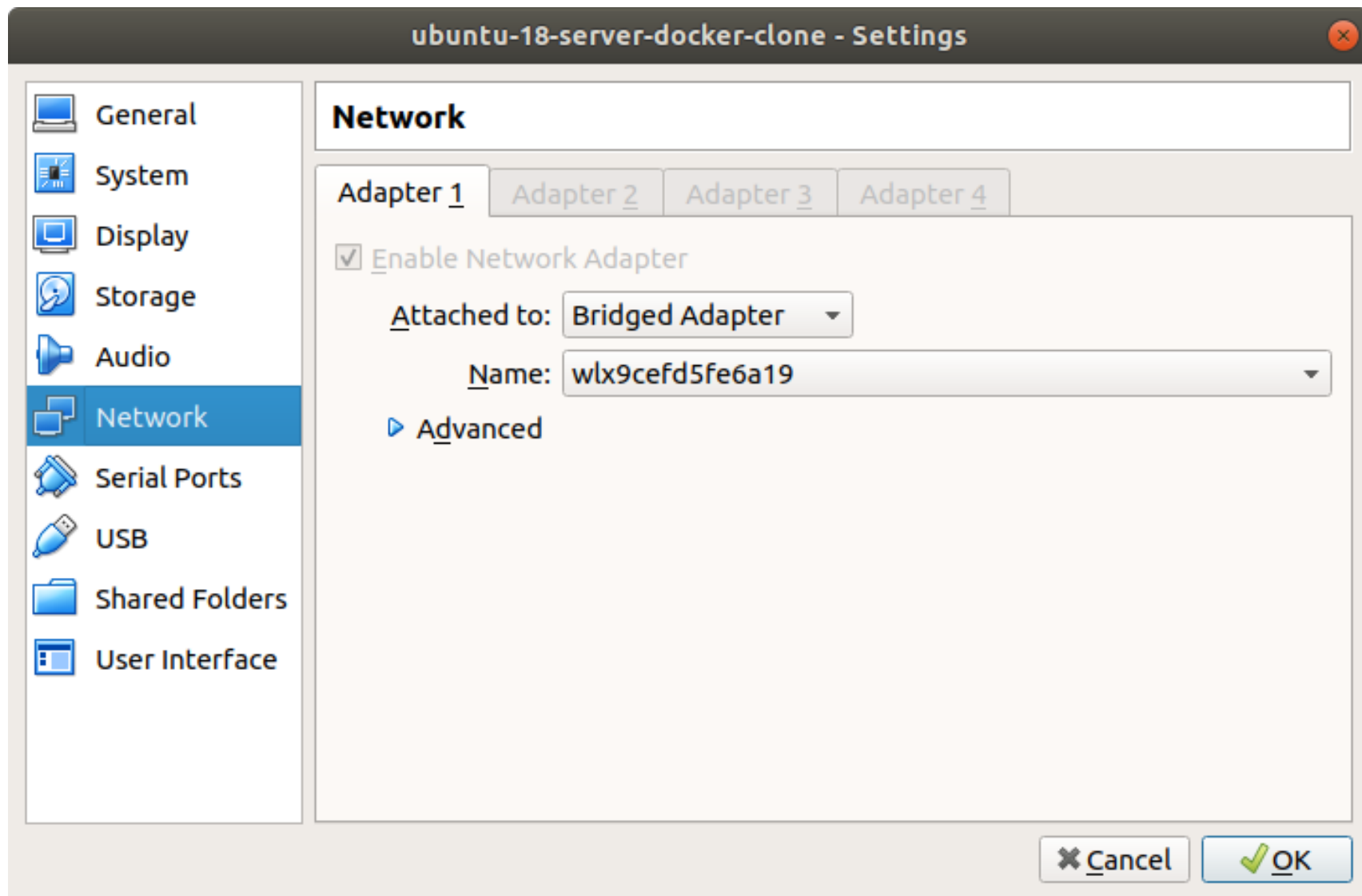# Demo

Set up encryption keys

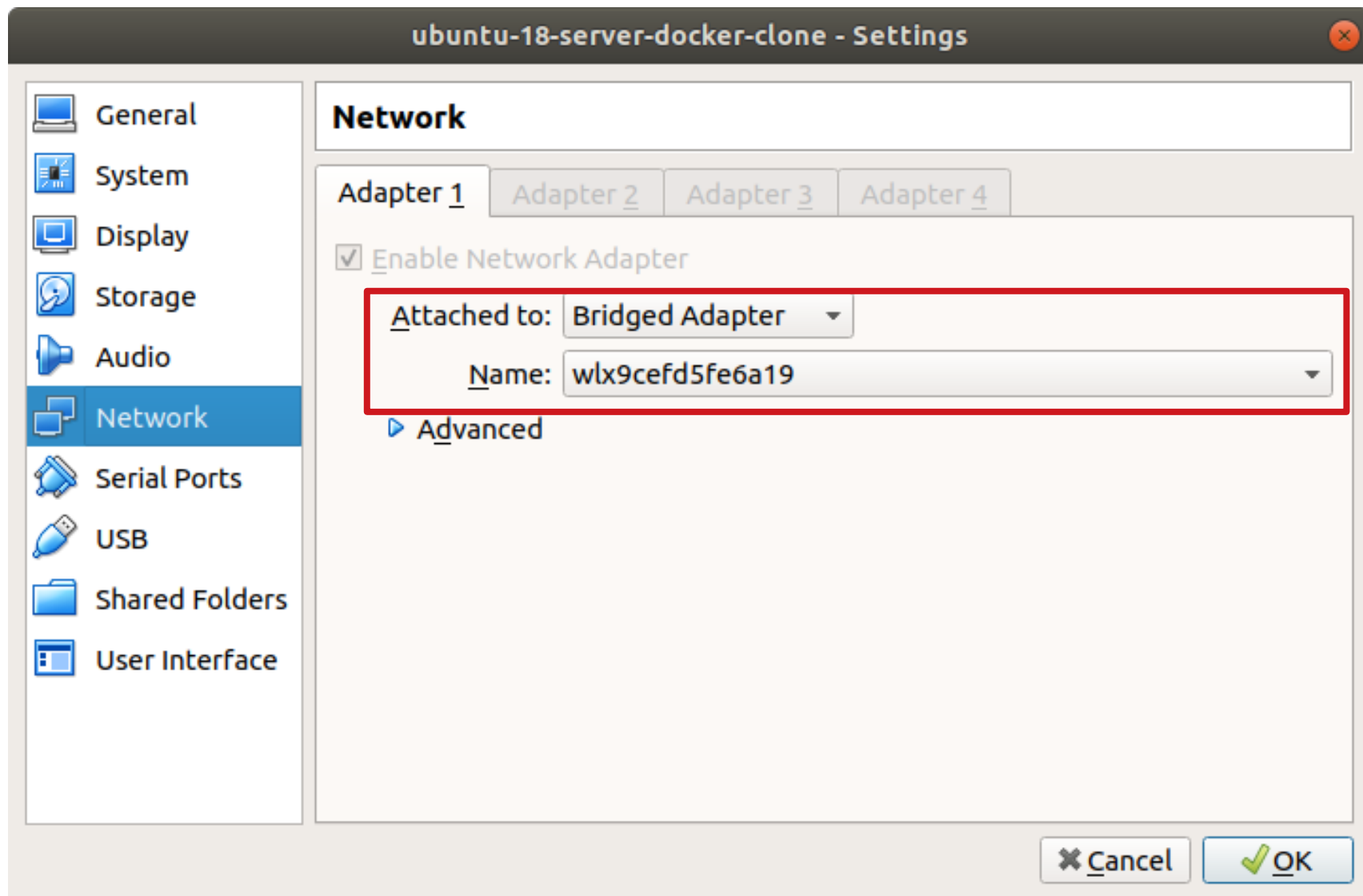Add Docker repo to Apt

Demo

Set up encryption keys

Add Docker repo to Apt

Install Docker

VirtualBox – Ensuring Network Access

VirtualBox – Ensuring Network Access

Building a Customized Docker Image

Demo

Create a Dockerfile

Demo

Create a Dockerfile

Push image to Docker Hub

Review

Module Review

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Virtualization

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Container virtualization

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Container virtualization

Dockerfile

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Virtualization

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Dockerfile

Orchestrators

Module Review

- Virtualization
- Container virtualization
- Dockerfile
- Orchestrators
- Docker installation

Module Review

- **Virtualization**
- **Container virtualization**
- **Dockerfile**
- **Orchestrators**
- **Docker installation**
- **Docker deployment**

Module Review

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Docker repositories