The Missing Semester:
Containers and Virtual Machines

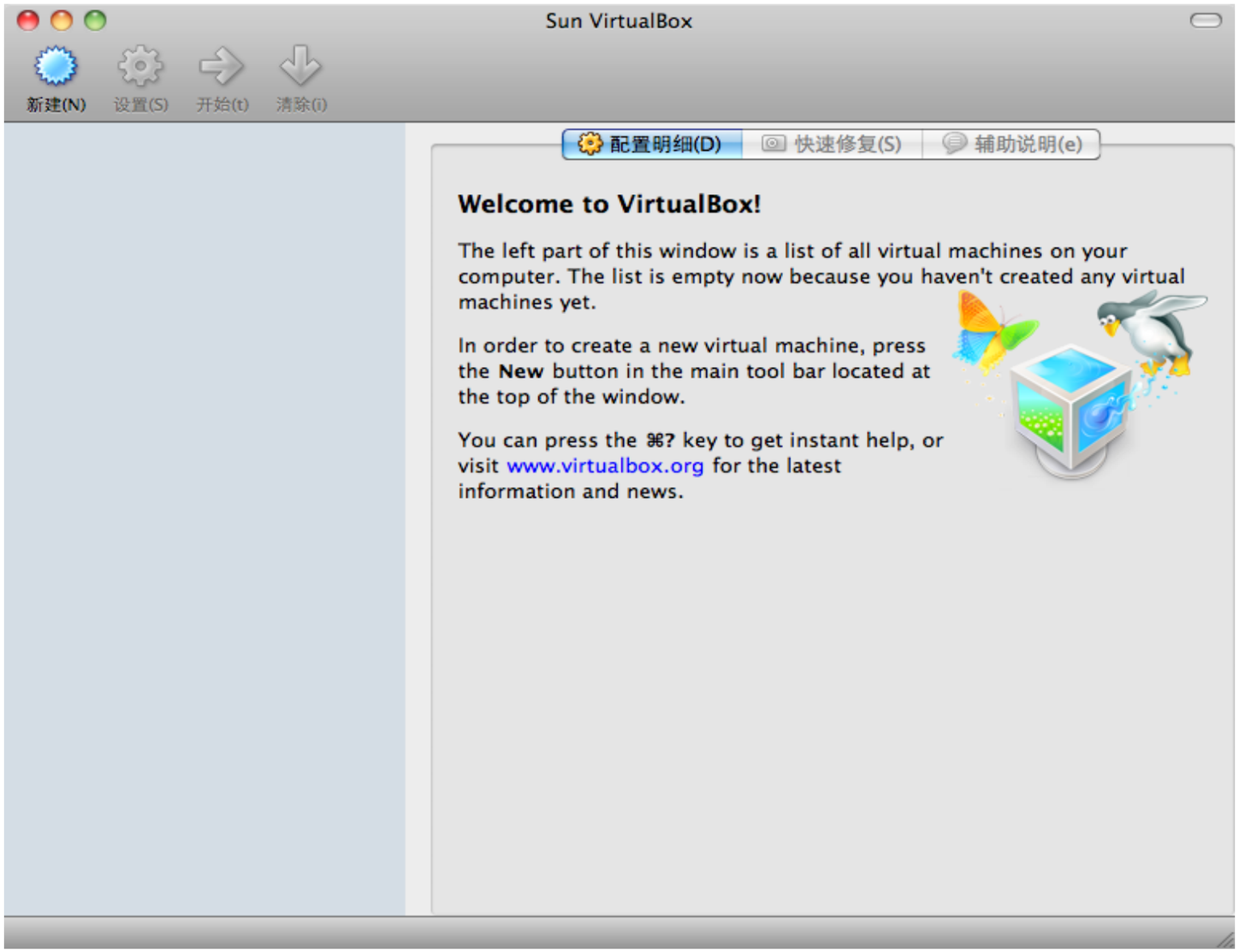
Wait, What is a Virtual Machine?

Have you ever worried about software running in your machine but not in other systems? Docker is the solution. Docker sandboxes applications running within as containers so that their execution is completely isolated from others. This has become enormously popular over the last few years, but to capitalize on it, you need to integrate third-party images.

The Missing Semester:
Introduction to VirtualBox

Sri Venkateswara
College of Engineering

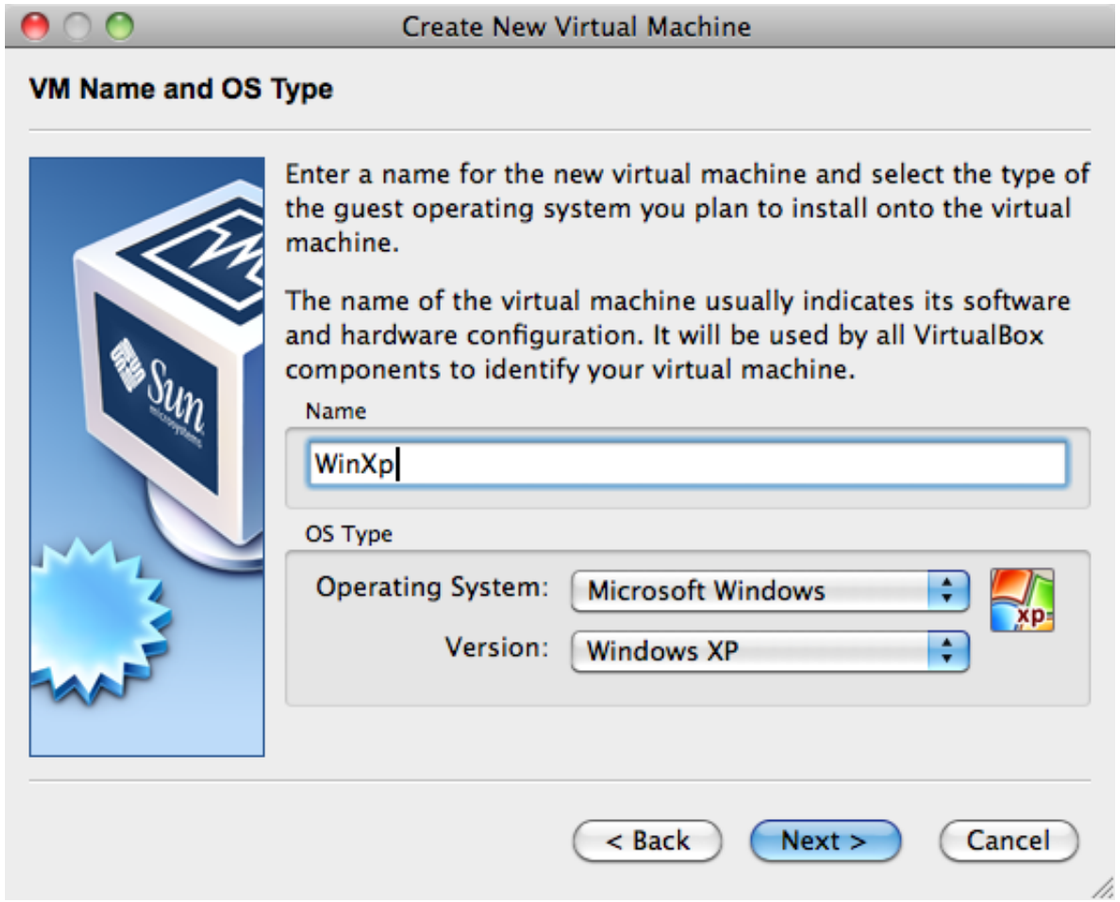
Part I – Creating Virtual Machine



Part II – Creating Virtual Machine

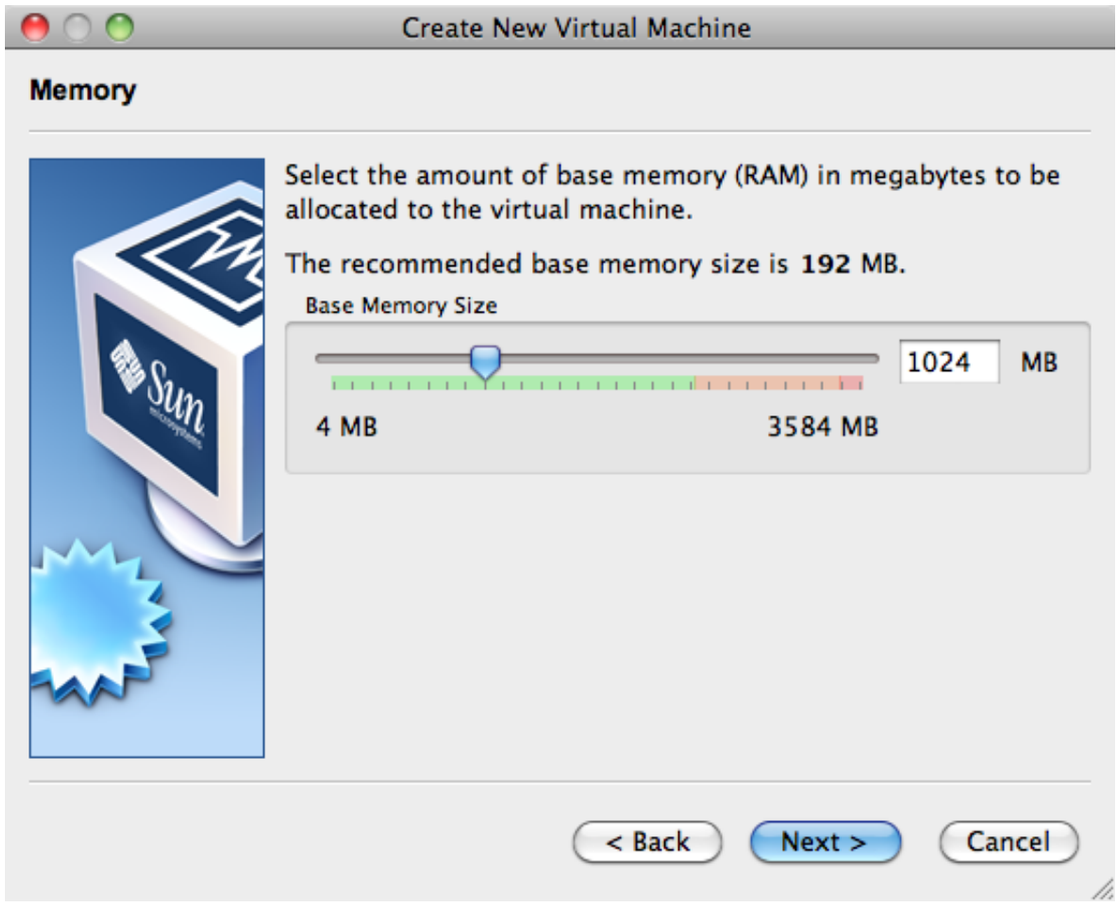
1.1: Creating new machines

Part II – Creating Virtual Machine



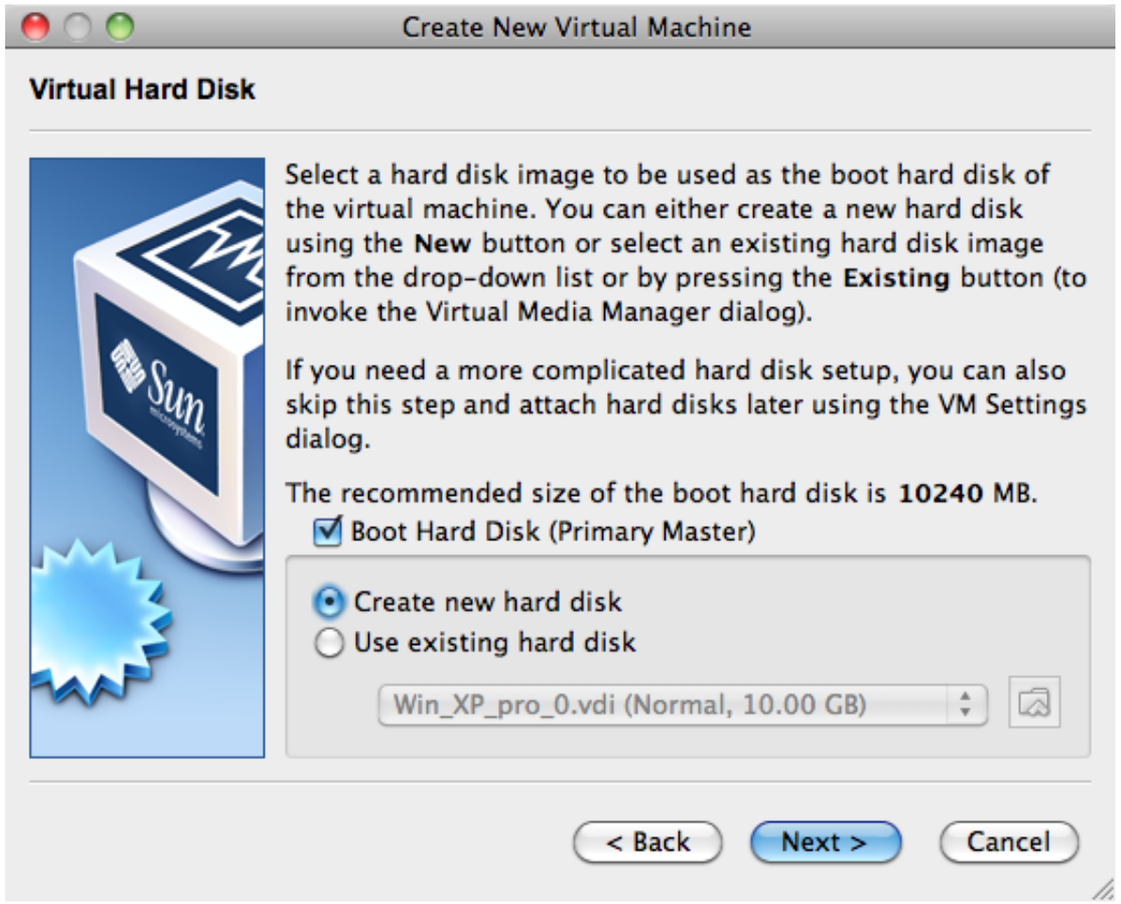
1.2: Naming new machines

Allocating Resources



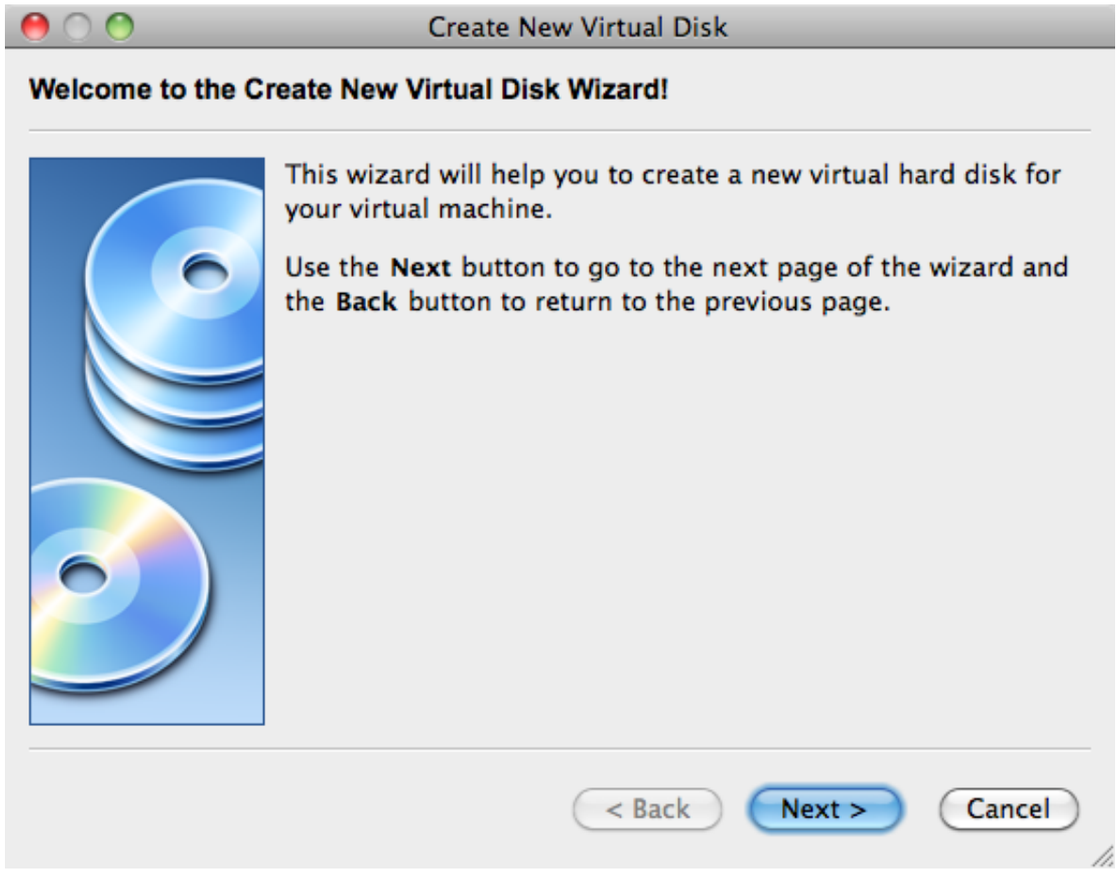
1.3: Allocating memory for machines

Allocating Resources



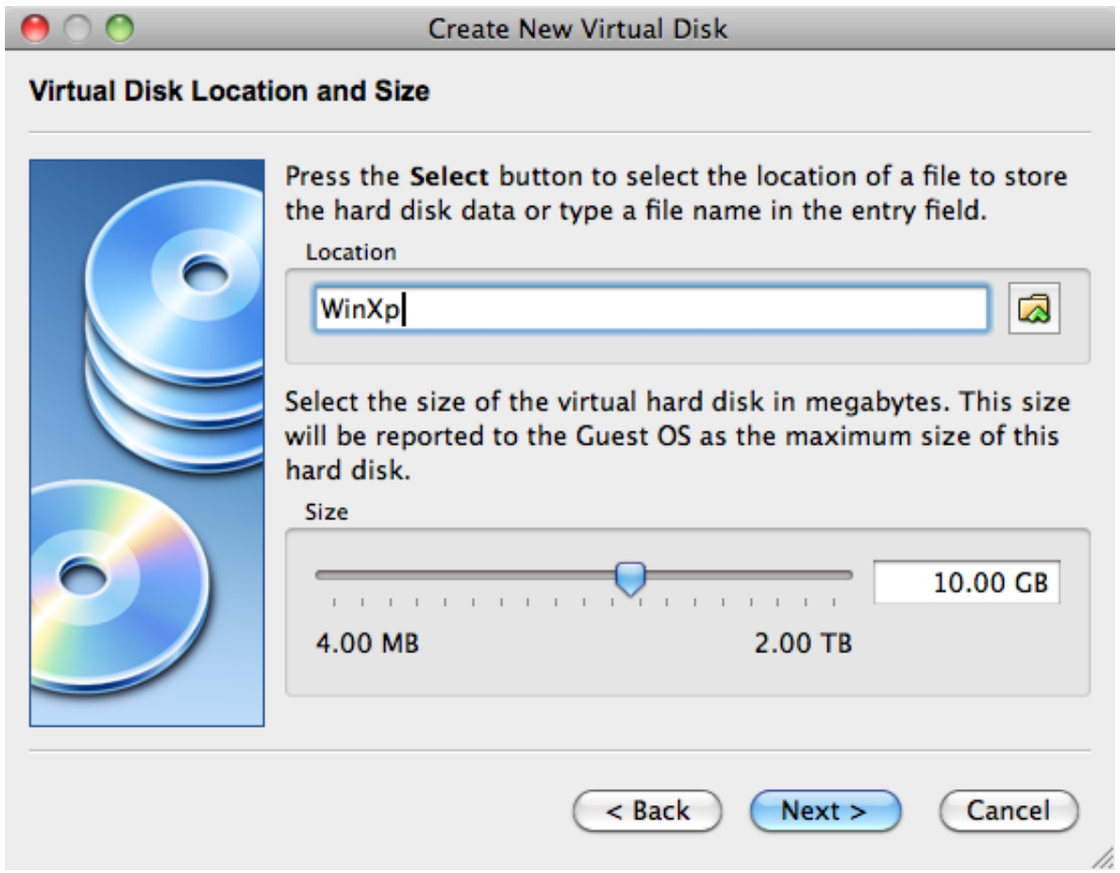
1.4: Creating Virtual Storage for machines

Allocating Resources



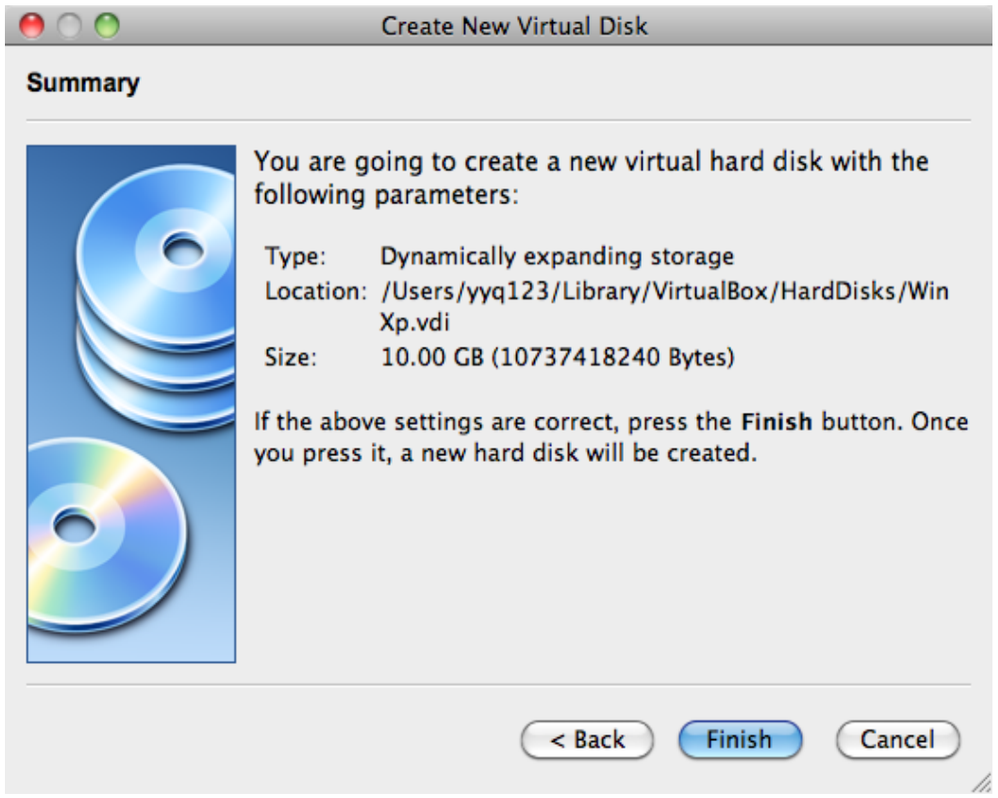
1.4: Allocatng Virtual Storage for machines

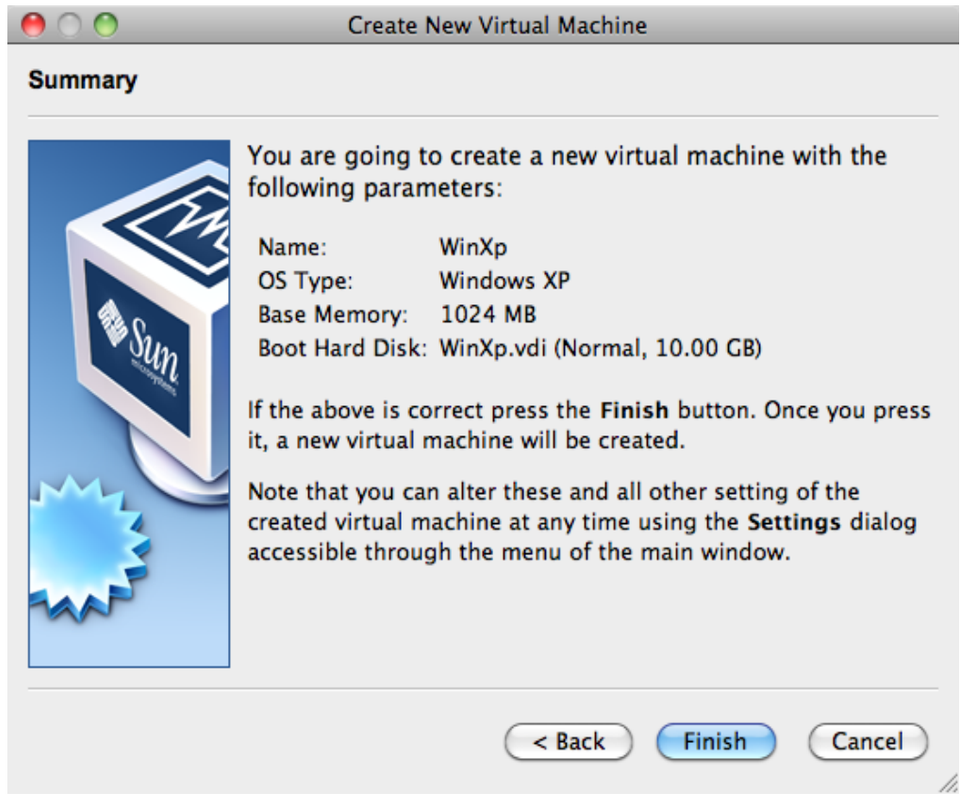
Allocating Resources



1.5: Disk Location and Size

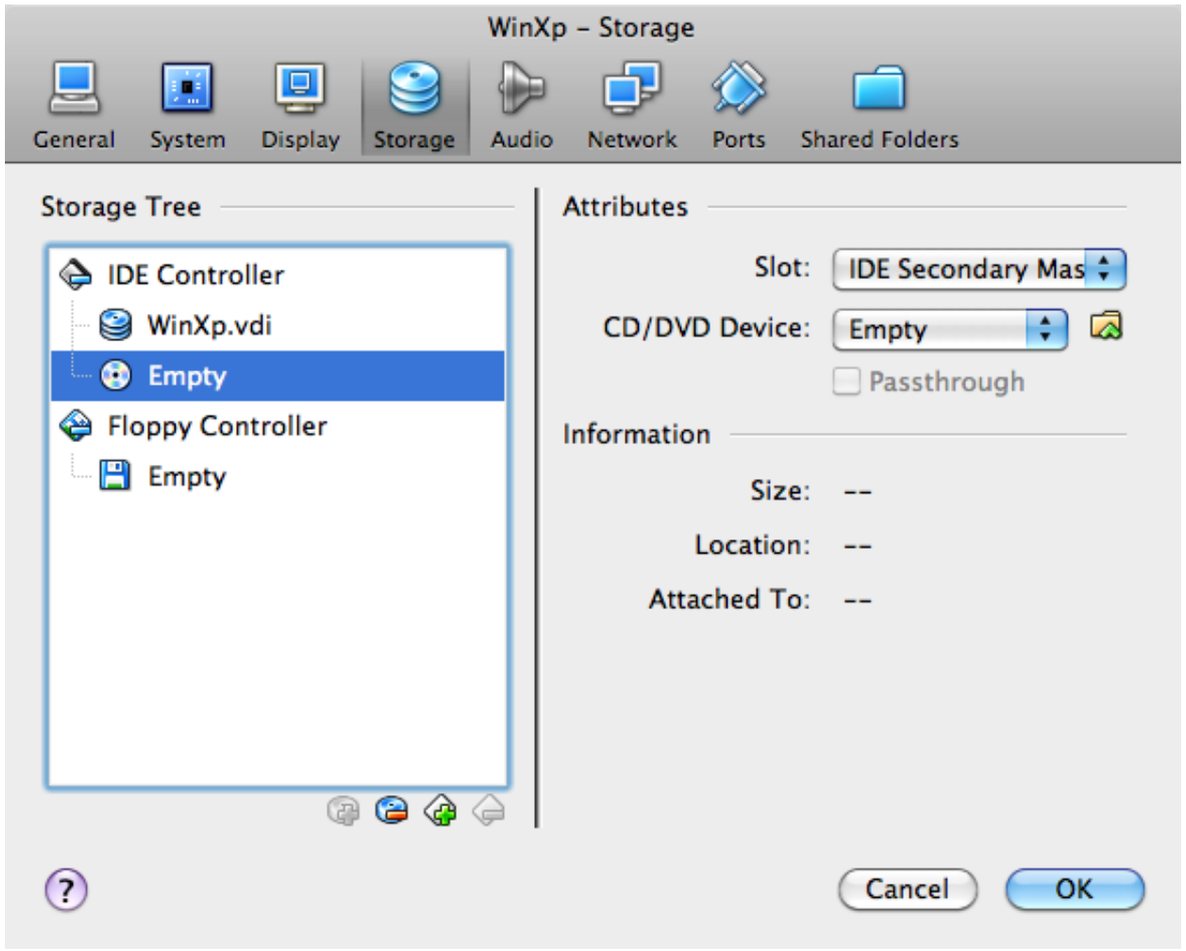
Allocating Resources





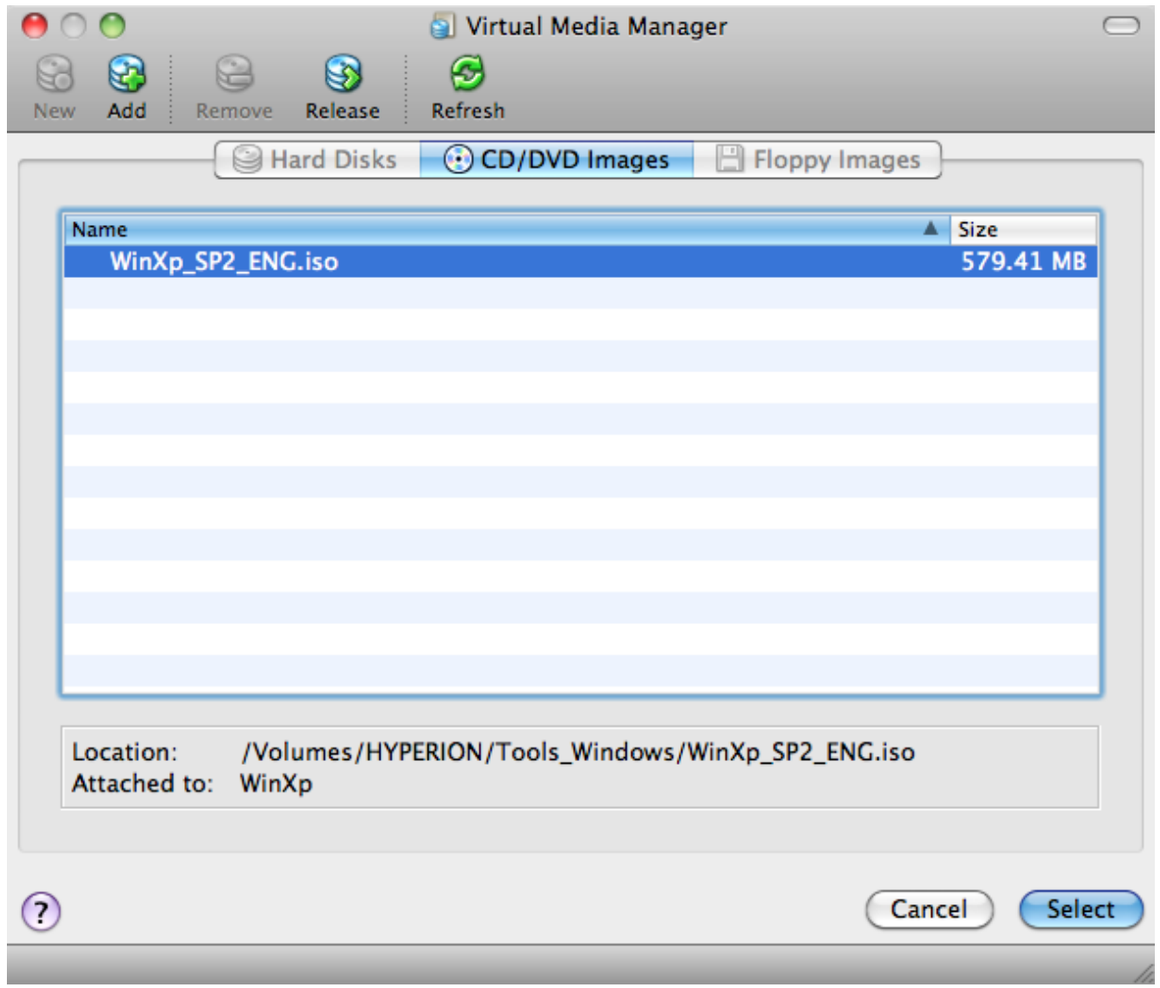
1.5: Review Machine Configuration

Part II – Mount Bootable Disk



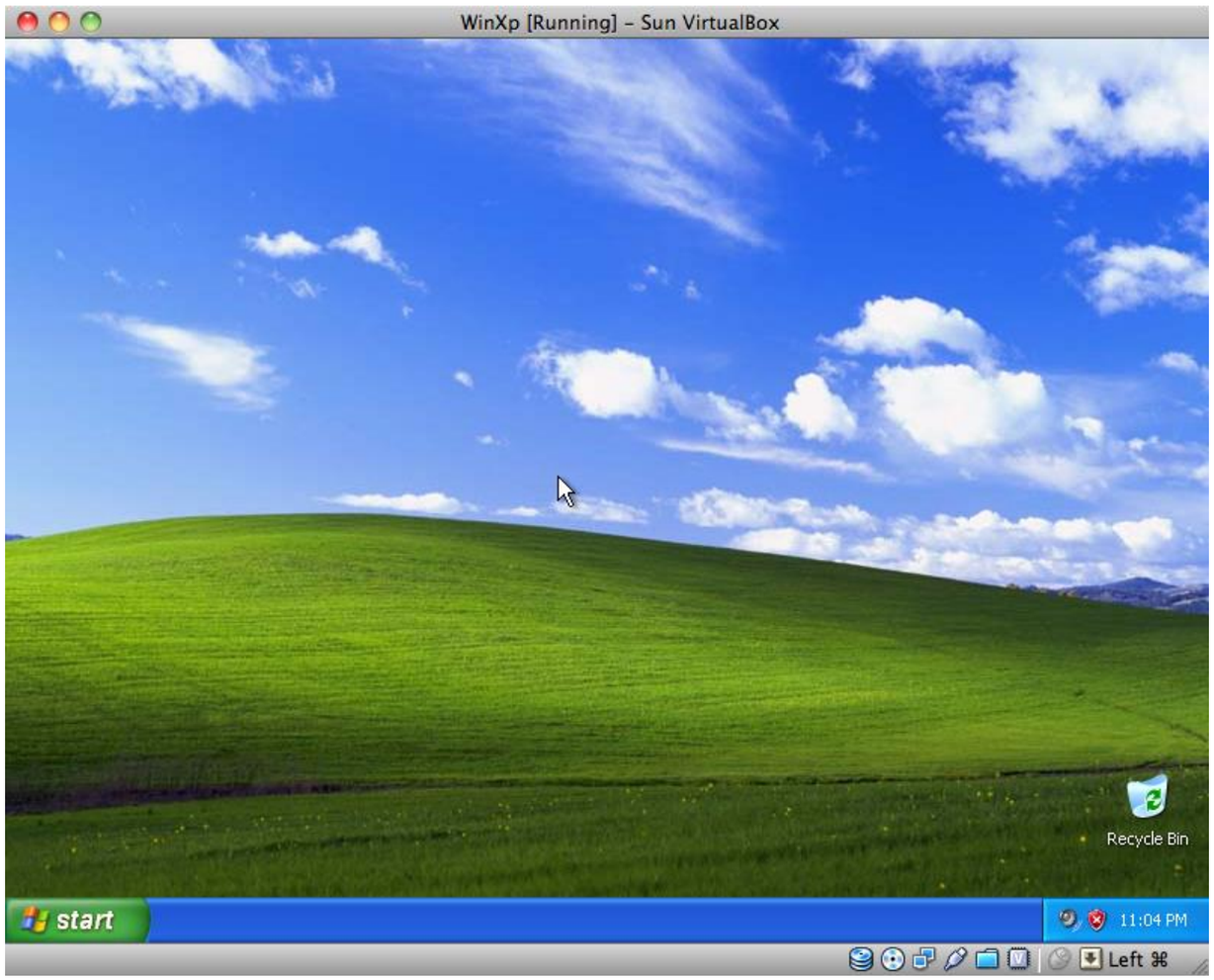
2.1: Mount CD

Part II – Mount Bootable Disk



2.2: Add ISO

Part III – Start Virtual Machine



3.1: Start VM

The Missing Semester:
Introduction to Docker Containers

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Agenda

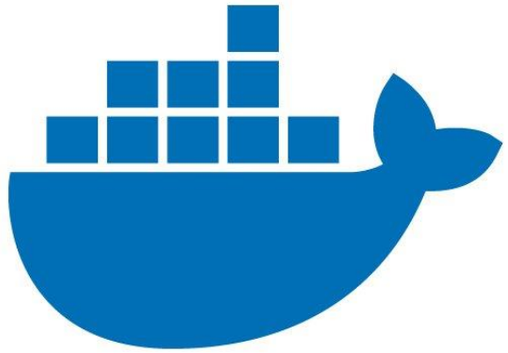
- Why Docker?
- Docker Platform
- Docker Installation
- Docker Workflow(s)

Wait, What is Docker?

Have you ever worried about software running in your machine but not in other systems? Docker is the solution. Docker sandboxes applications running within as containers so that their execution is completely isolated from others. This has become enormously popular over the last few years, but to capitalize on it, you need to integrate third-party images.

So, Why Docker?

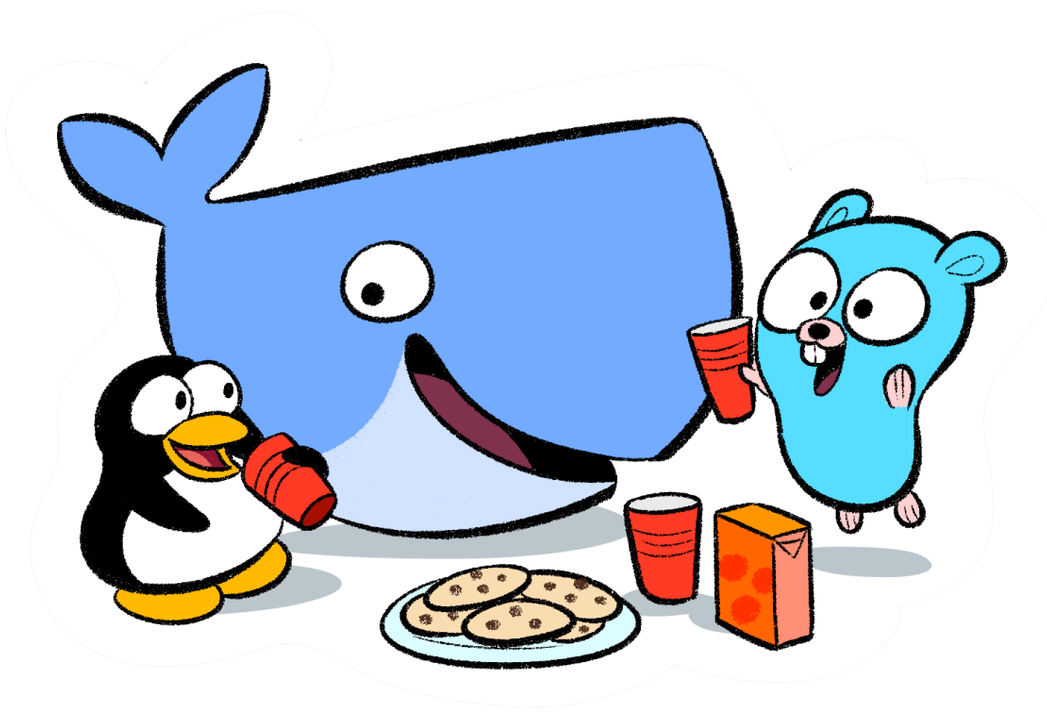
- Isolation
- Lightweight
- Simplicity
- Workflow
- Community



docker

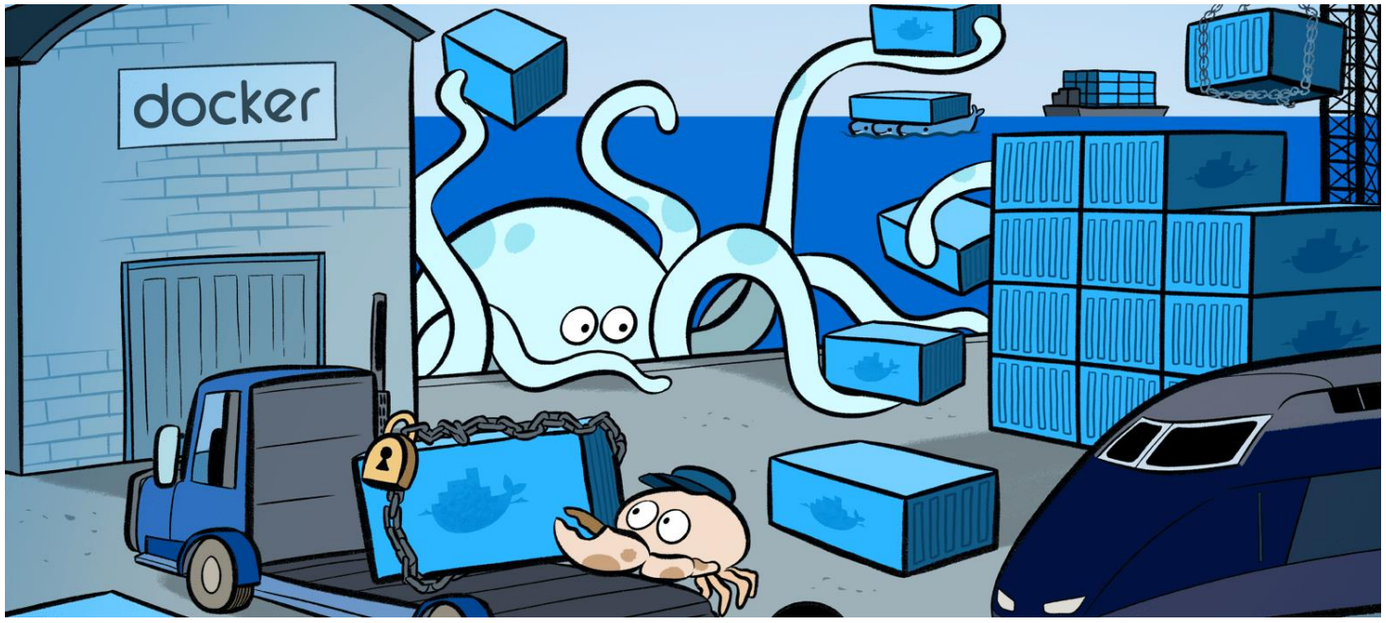
What is a Container Image?

A Docker container image is a standalone bundle of executable packages and software to run an application. An image is a dormant and immutable file with a set of layers that essentially acts as a snapshot of a container. Docker's public registry is usually your central source for container apps.



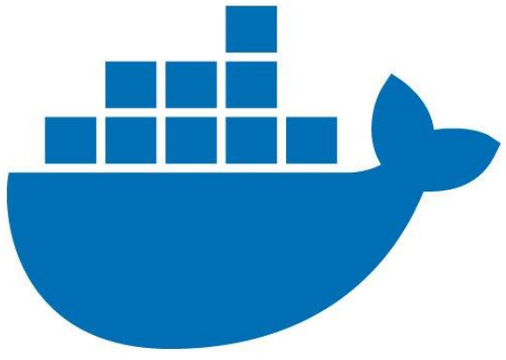
What are Containers?

A container is an efficient little environment that encapsulates up code and all its dependencies so the application runs quickly and reliably from one computing environment to another. In simple words, an instance of an image is called a container. Container images become containers only from their runtime on Docker Engine.



Docker Engine

- Docker Daemon
- Docker CLI



Docker Daemon

- Builds Images
- Runs and Manages Containers
- RESTful API

Docker CLI

```
docker build        # Build an image from a Dockerfile
docker images       # List all images on a Docker host
docker run          # Run an image
docker ps           # List all running and stopped instances
docker stop         # Stop a running instances
docker rm           # Remove an instance
docker rmi          # Remove an image
```

Docker Architecture

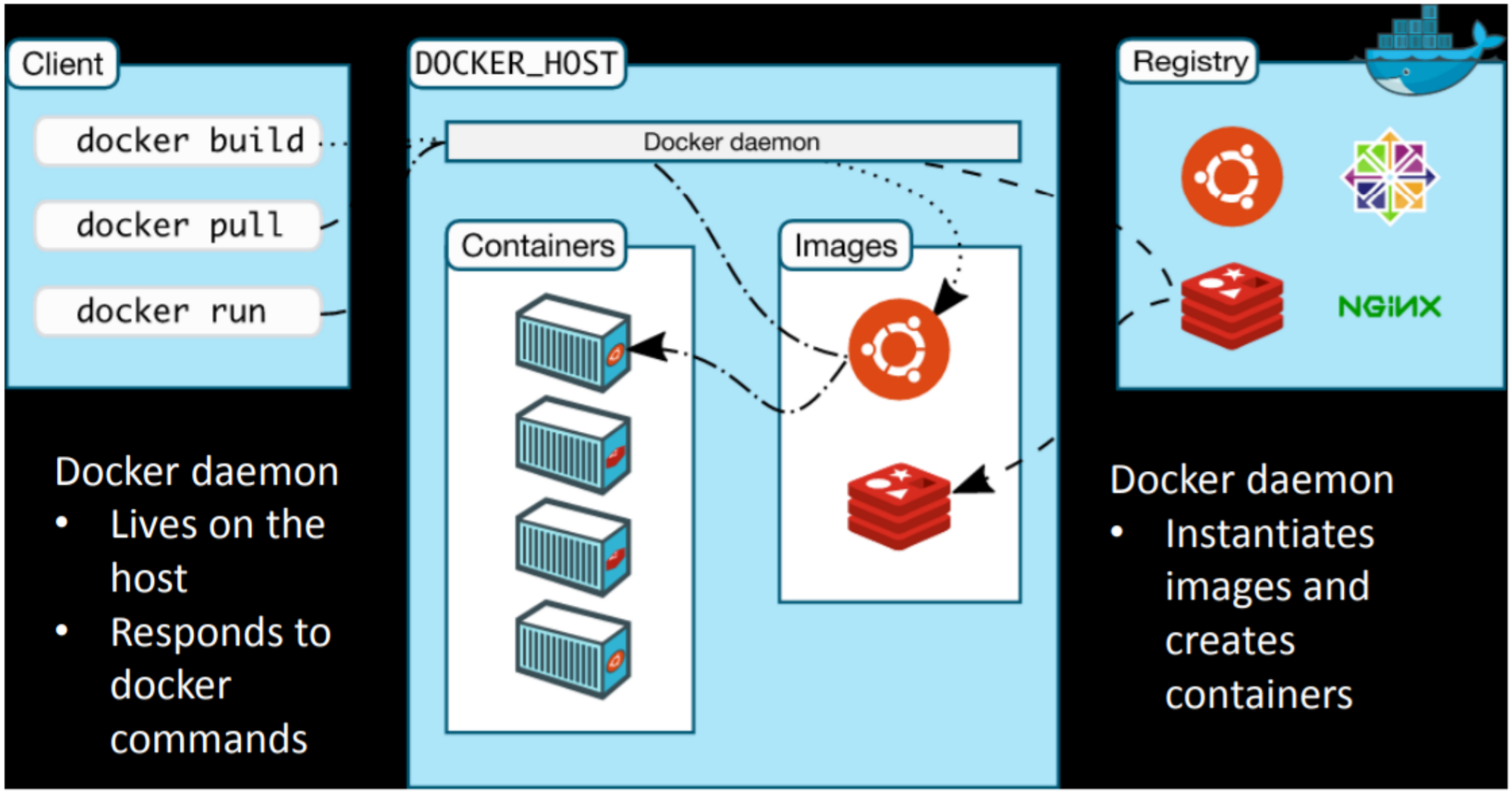


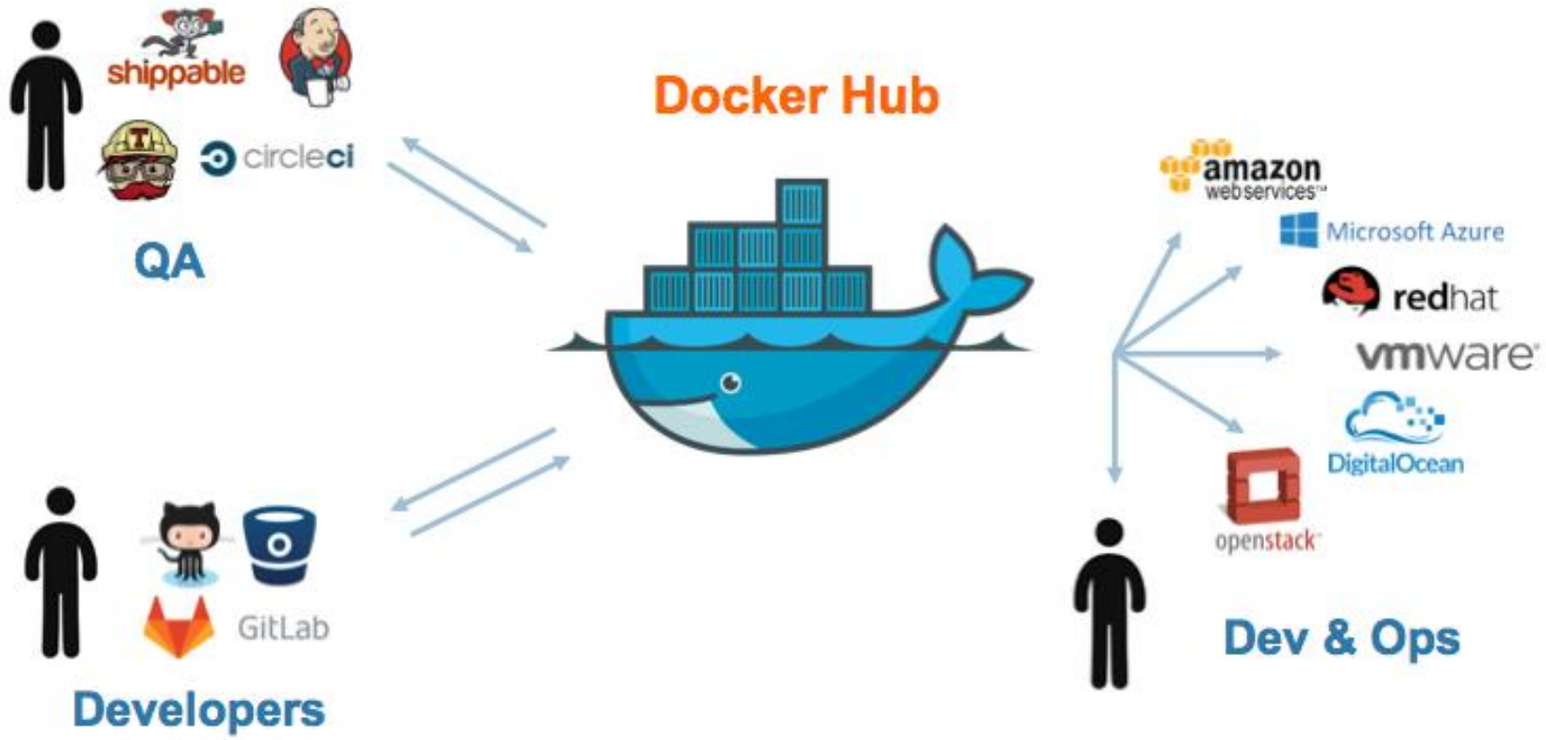
Image is instantiated to form container

Docker Hub


https://hub.docker.com
Read Later
San Diego Ukulele
http://10.254.101.2
https://hub.docker.
docker
Browse & Search
Log In
Join Docker Hub and be part of the community
Build better apps
Browse, host, share and manage apps and access within your team.
Deploy apps faster
Automate and integrate your app development workflows.
Get the latest news
Subscribes to the Docker newsletter and get the latest updates
Username
Password
Email Address
Yes! I want the weekly newsletter!
Sign up
Sign up with Github

Docker Hub

- Provides Docker Services and Library of public images
- Storage for your images
  - ✓ Free for public images
  - ✓ Cost for private images
- Automated builds (GitHub/BitBucket repo; build on commit)



Docker Platform Workflow

- Find an Image on Docker Hub
- Pull an Image from Docker Hub
- Run an Image on Docker Host
- Stop an Instance
- Remove an Instance
- Remove an Image