



Docker Container Basics

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Office: Room no. 418-5, 4th Floor

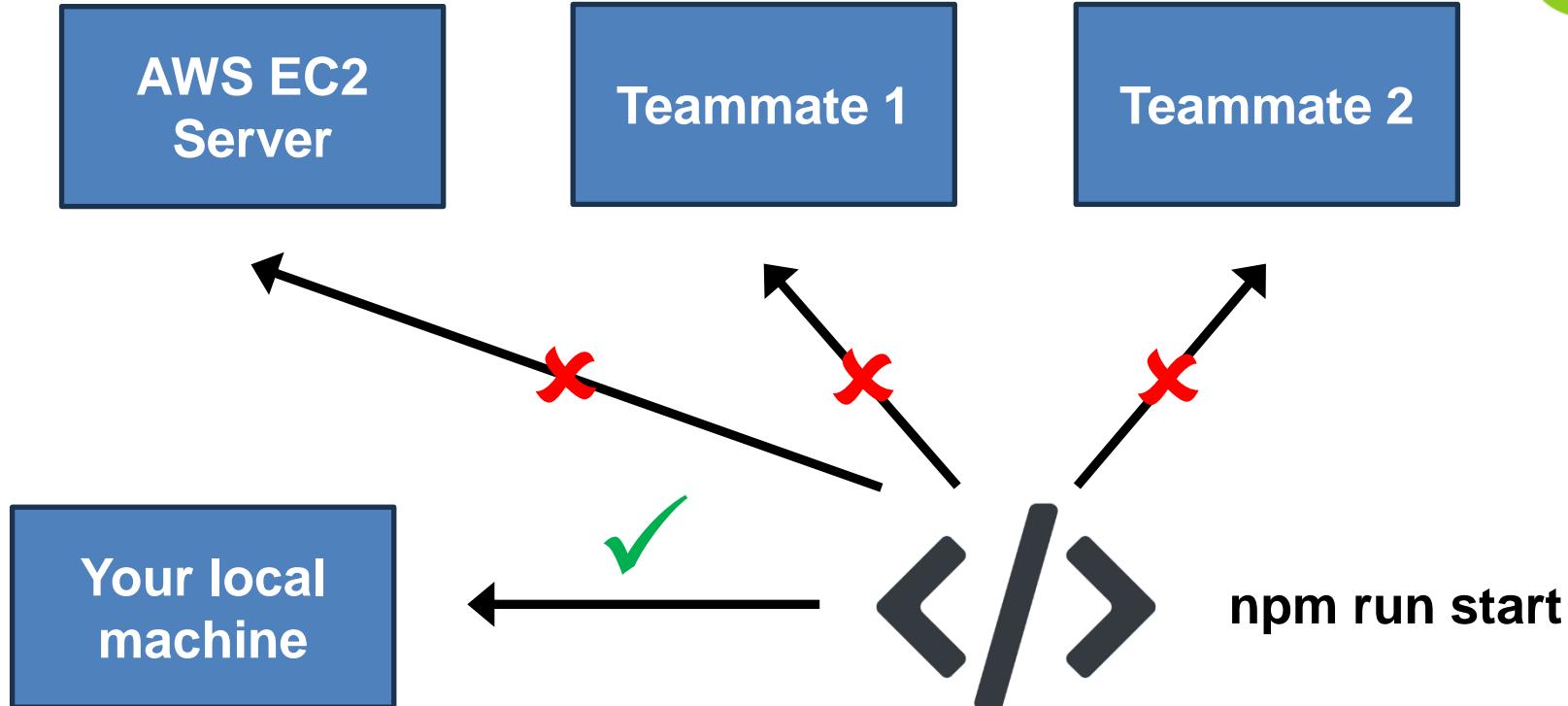
Email: praphan@it.kmitl.ac.th

Office hours: Thursday at 9:00 – 11:00 or
as an advance appointment

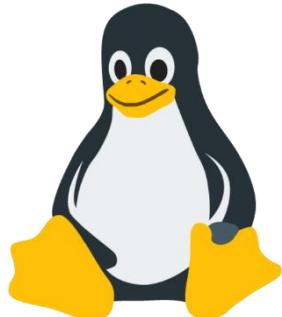
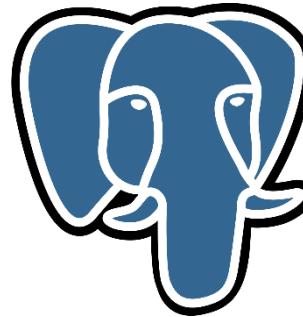
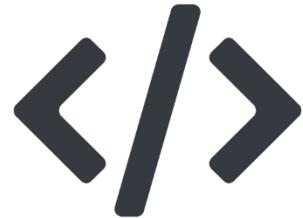
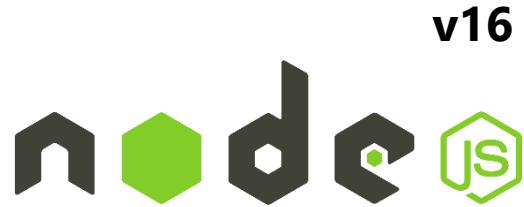
Agenda

- Relating Our Analogy to Docker
- What is Docker?
- Docker for Mac/Windows
- Installing Docker
- Using the Docker Client
- But Really...What's a Container?
- How's Docker Running on Your Computer?

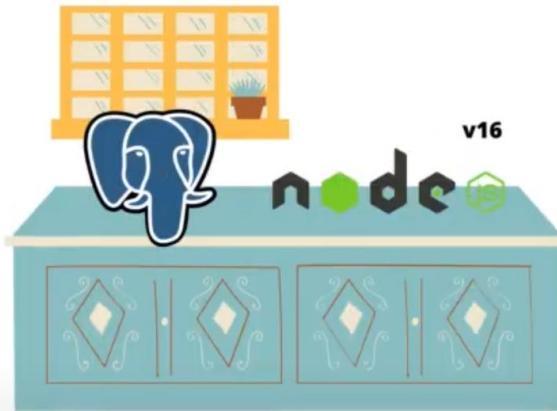
Relating Our Analogy to Docker



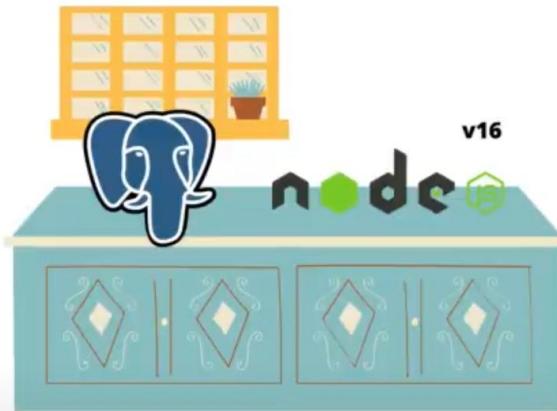
Relating Our Analogy to Docker (cont.)



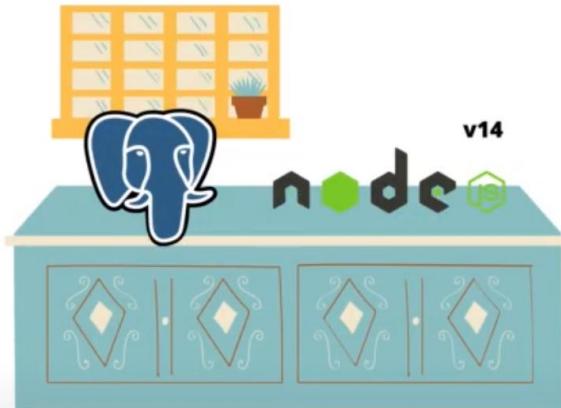
Your Environment



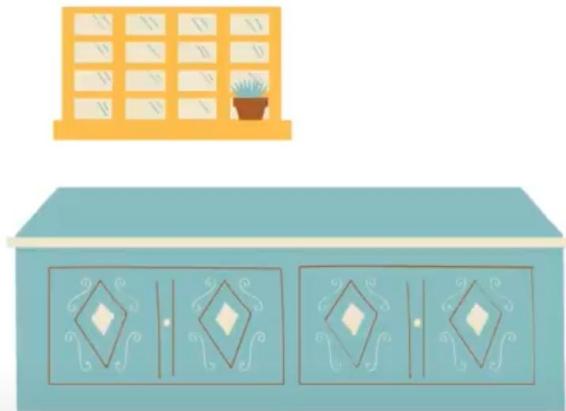
Teammate 1 Environment



Teammate 2 Environment



AWS EC2 Instance

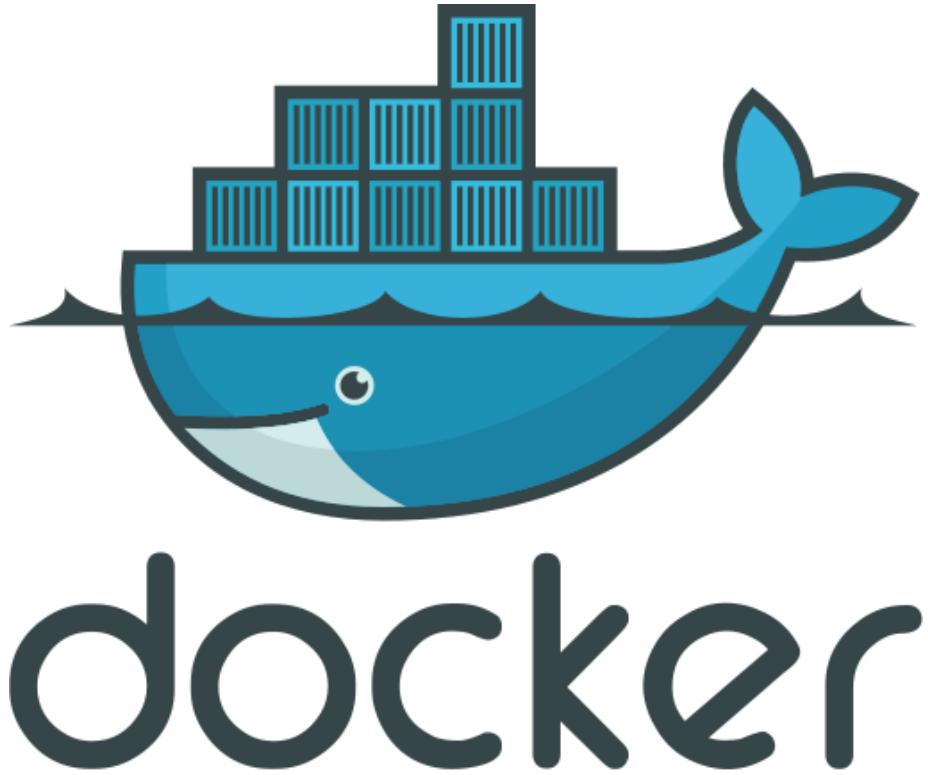


Options



- Configure everyone's environment correctly
- Run the app in isolation with all of its dependencies

Docker



Docker (cont.)

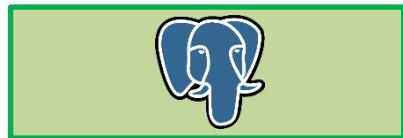
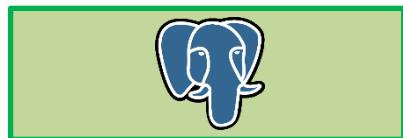
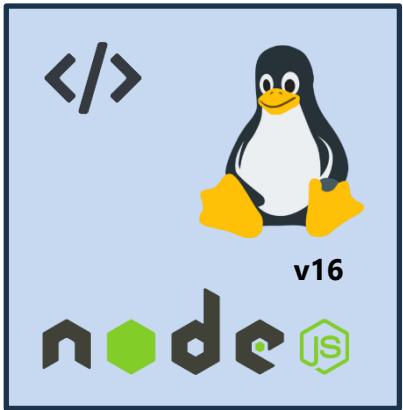
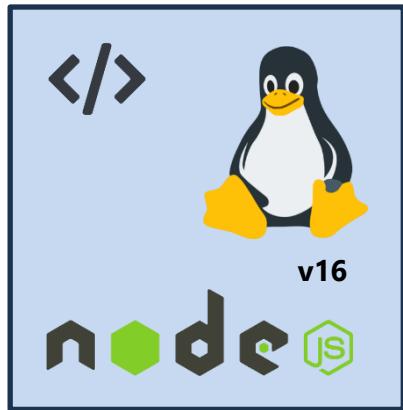
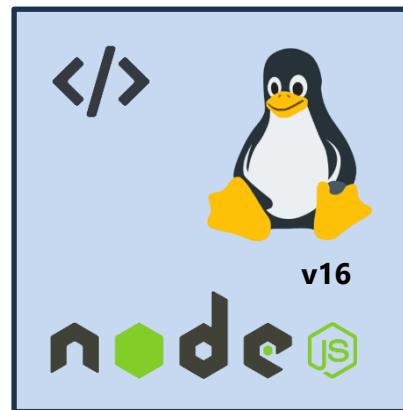
- Docker is an open source containerization platform.
- It enables developers to package applications into containers – standardized executable components combining application source code with the operating system (OS) libraries and dependencies required to run that code in any environment.

Solution

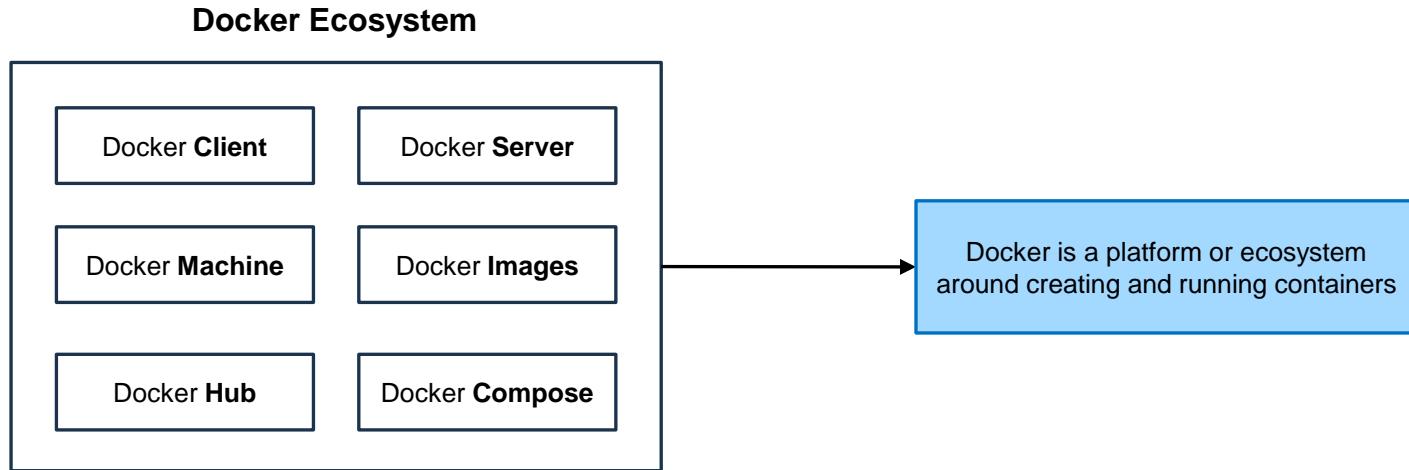
AWS EC2
Server

Teammate 1

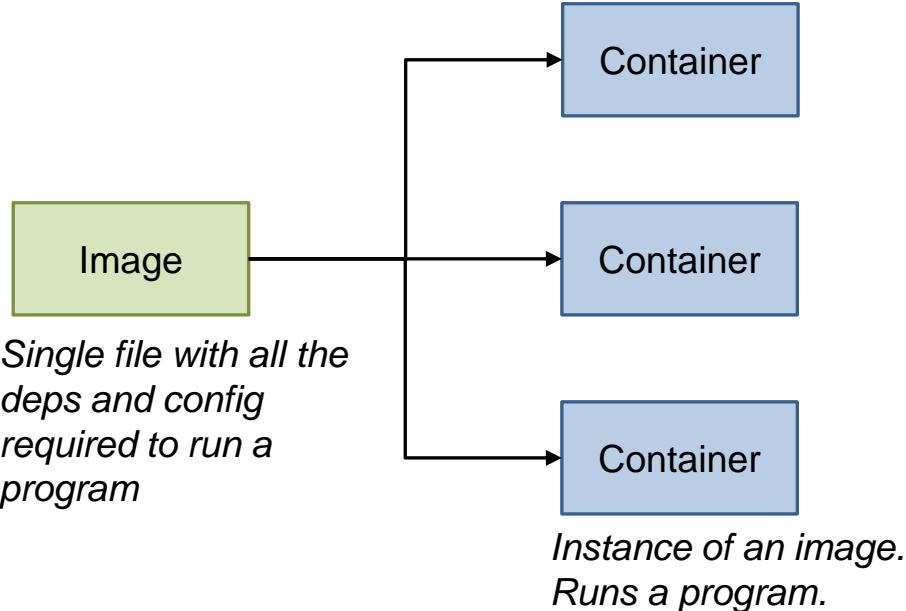
Teammate 2



What is Docker?



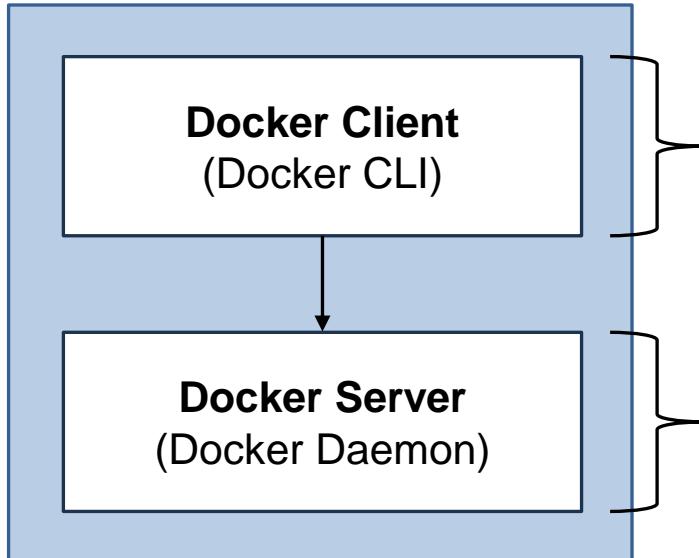
What is Docker? (cont.)



Docker for Windows/Mac



Docker for Windows/Mac



Tool that we are going to issue commands to

*Tool that is responsible for creating images,
running containers, etc.*

Installing Docker



- Installing Docker on macOS
(*Installing Docker on macOS.pdf*)
- Installing Docker with WSL on Windows 10/11
(*Installing Docker with WSL on Windows 10-11.pdf*)
- Installing Docker on Linux
(*Installing Docker on Linux.pdf*)

Using the Docker Client



```
C:\ Command Prompt
Microsoft Windows [Version 10.0.19045.4046]
(c) Microsoft Corporation. All rights reserved.

C:\Users\praphan>docker version
Client:
  Cloud integration: v1.0.35+desktop.10
  Version:          25.0.3
  API version:     1.44
  Go version:      go1.21.6
  Git commit:      4debf41
  Built:           Tue Feb  6 21:13:02 2024
  OS/Arch:         windows/amd64
  Context:         default

Server: Docker Desktop 4.27.2 (137060)
  Engine:
    Version:        25.0.3
    API version:   1.44 (minimum version 1.24)
    Go version:    go1.21.6
    Git commit:    f417435
    Built:         Tue Feb  6 21:14:25 2024
    OS/Arch:       linux/amd64
    Experimental: false
  containerd:
    Version:        1.6.28
    GitCommit:      ae07eda36dd25f8a1b98dfbf587313b99c0190bb
  runc:
    Version:        1.1.12
    GitCommit:      v1.1.12-0-g51d5e94
  docker-init:
```

Using the Docker Client (cont.)



```
C:\Users\praphan>docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
clec31eb5944: Pull complete
Digest: sha256:d000bc569937abbe195e20322a0bde6b2922d805332fd6d8a68b19f524b7d21d
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

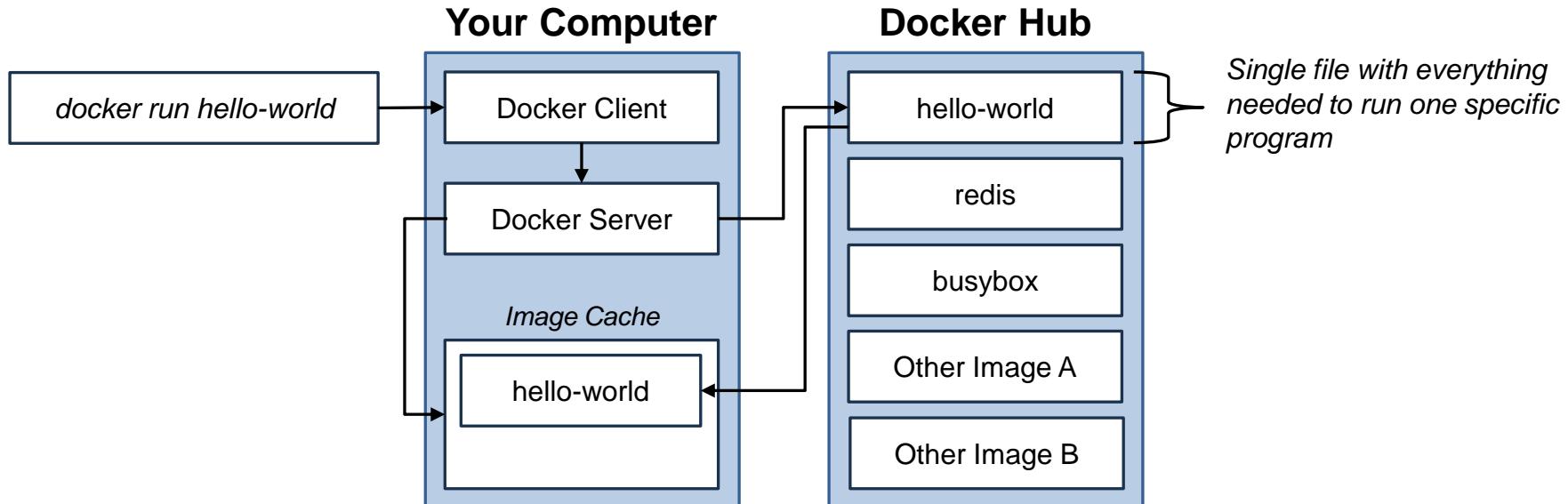
To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/
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Using the Docker Client (cont.)



Using the Docker Client (cont.)



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C:\ Command Prompt
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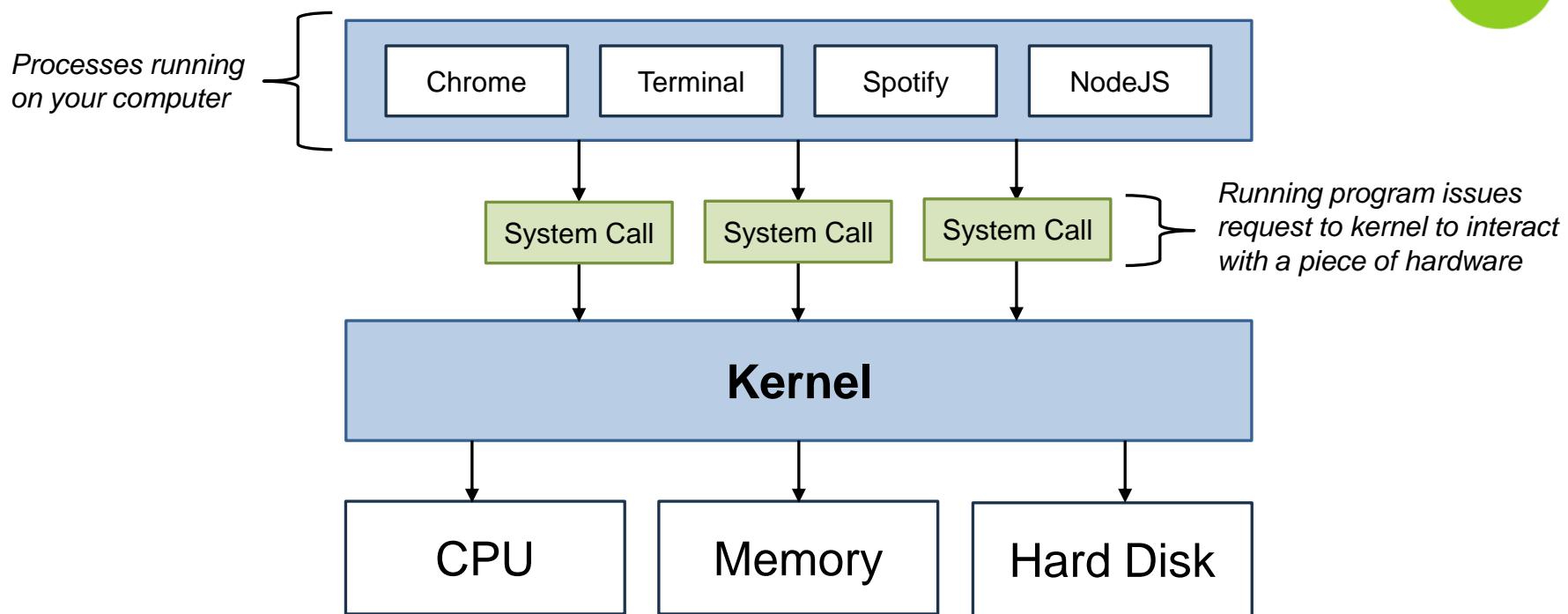
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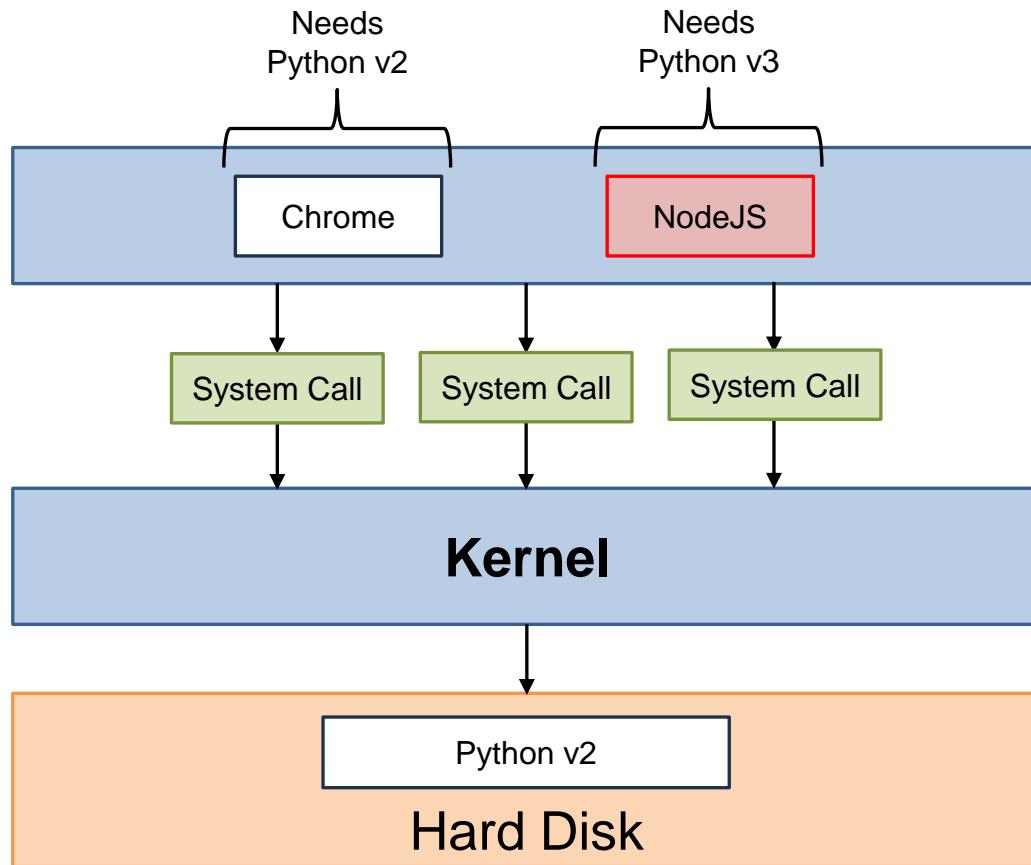
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C:\Users\praphan>
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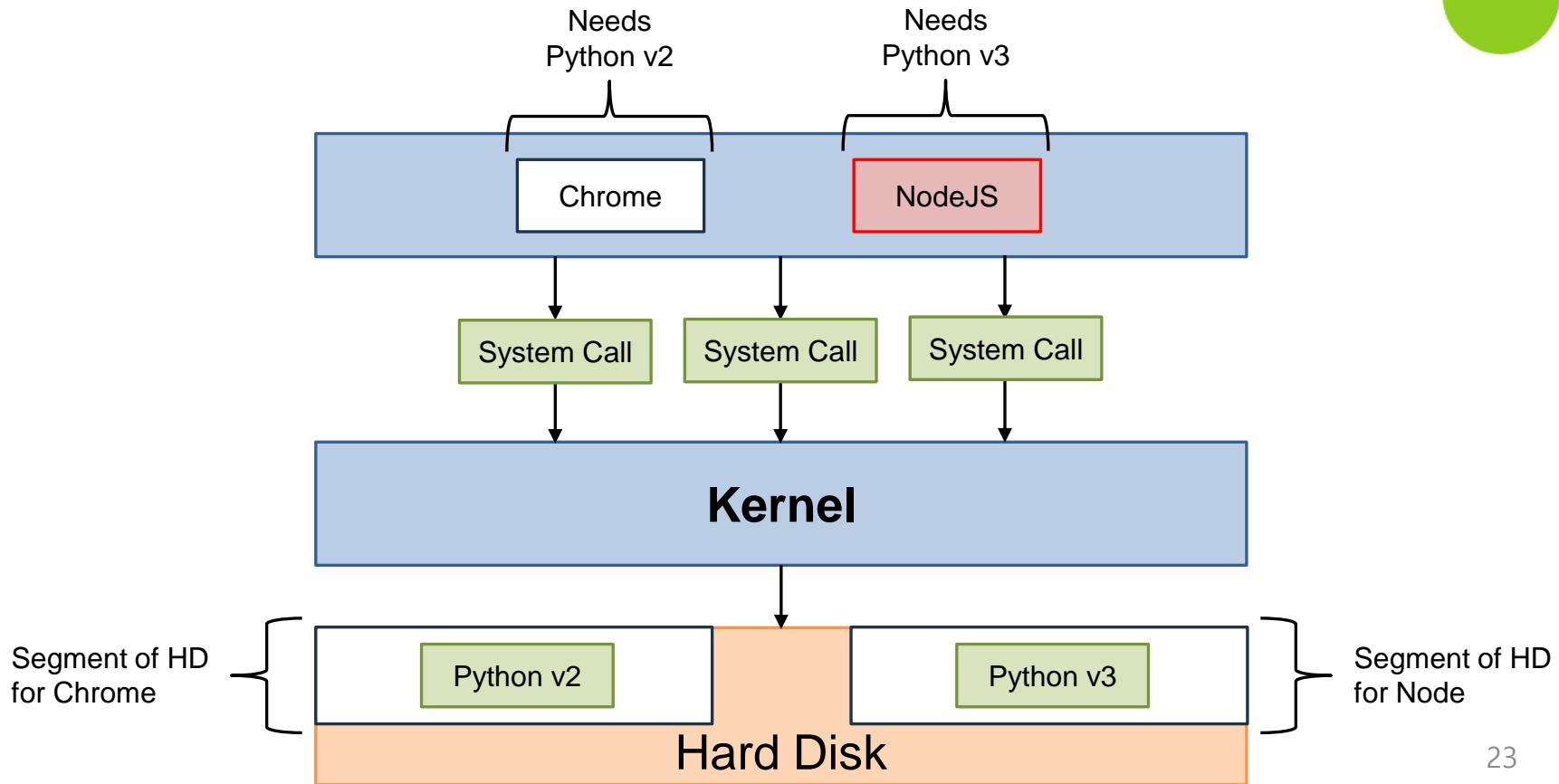
But Really...What's a Container?



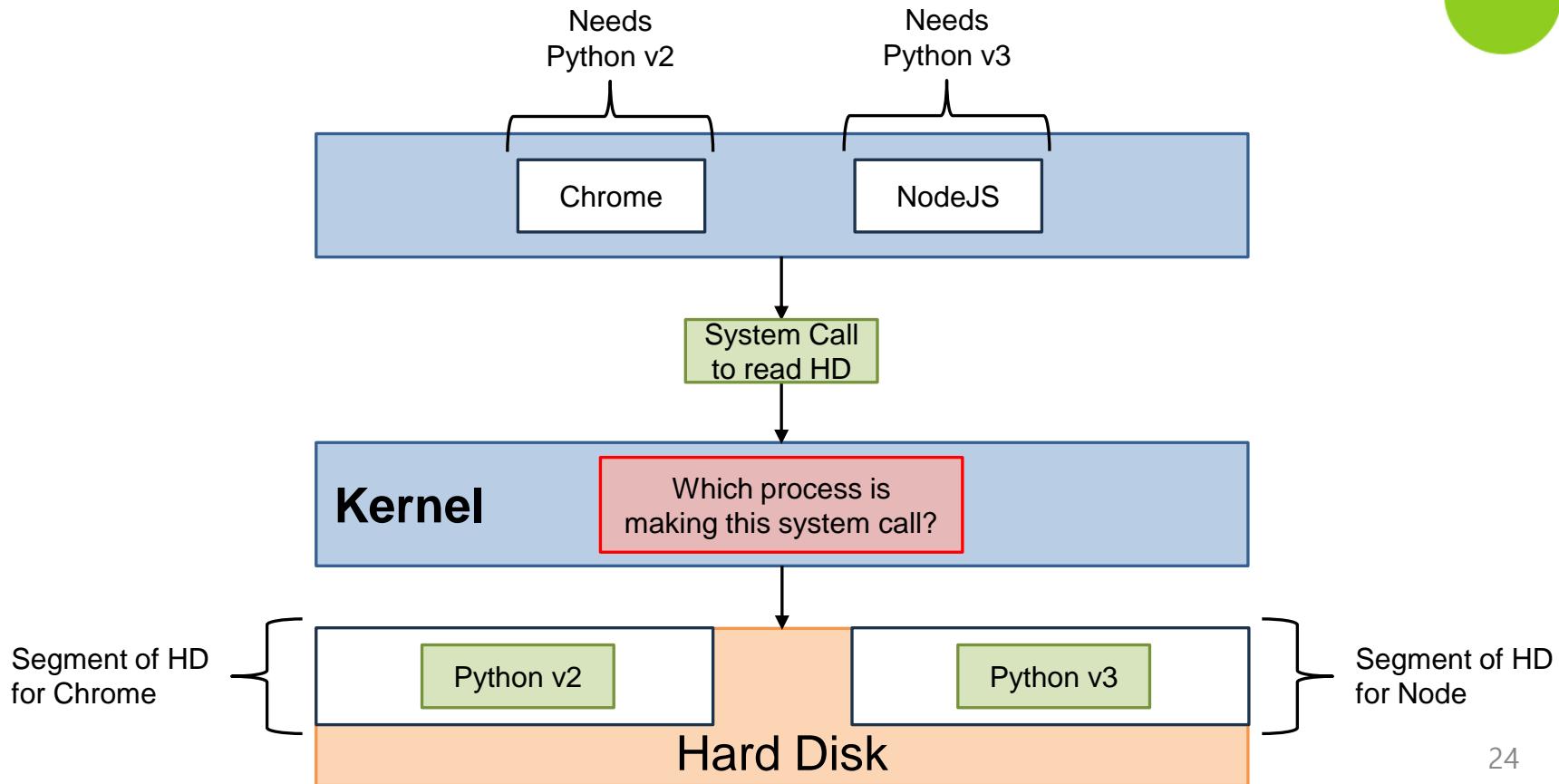
But Really...What's a Container? (cont.)



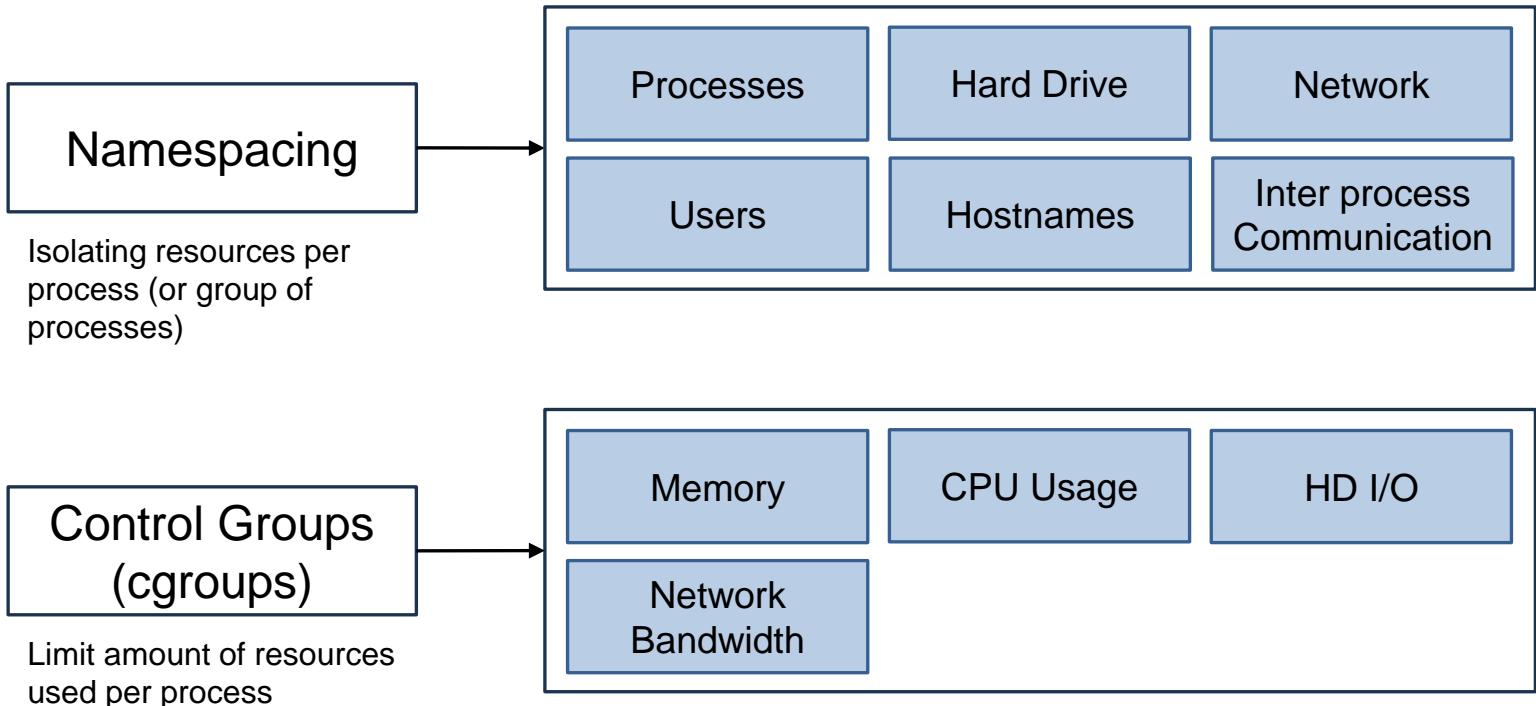
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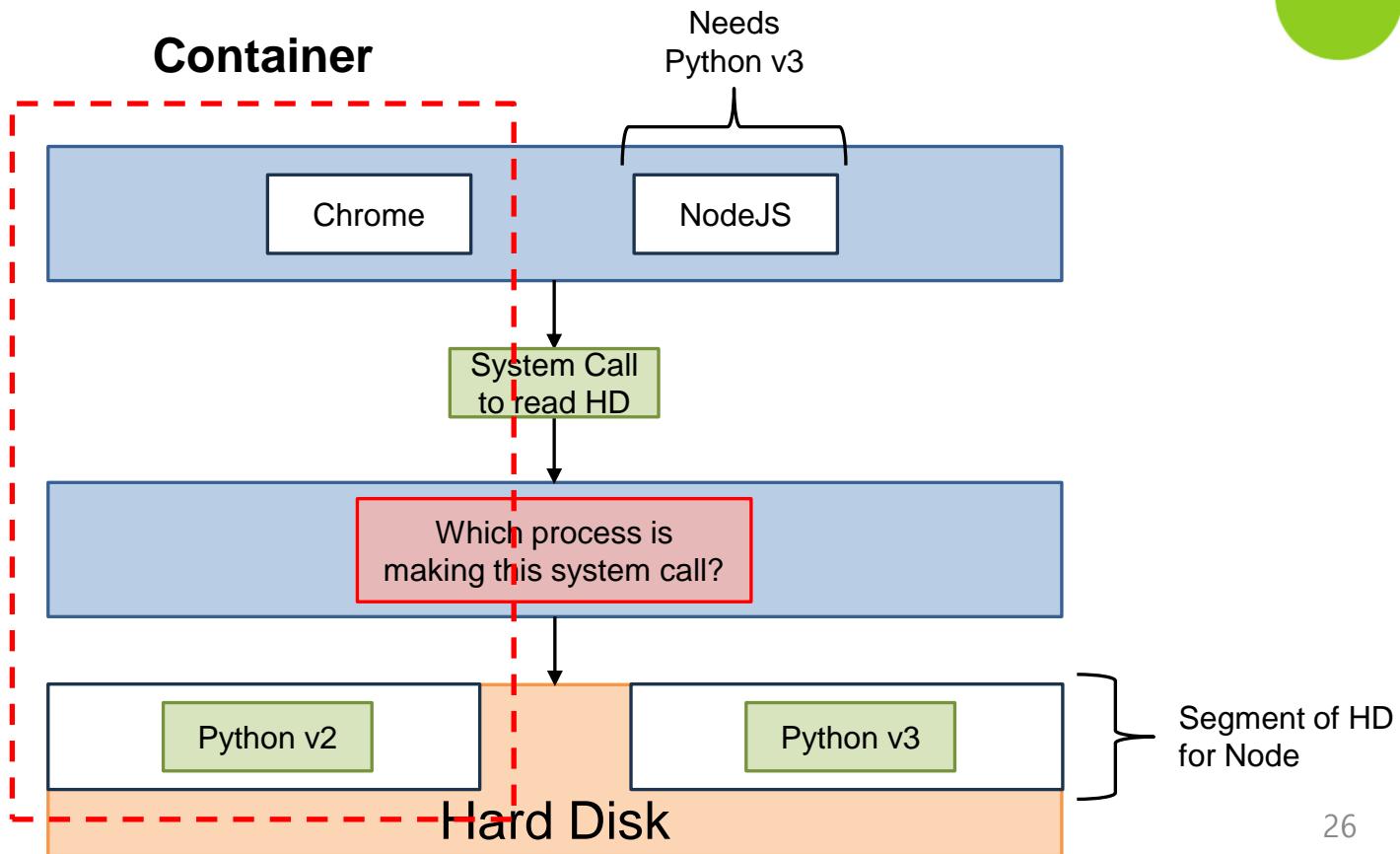
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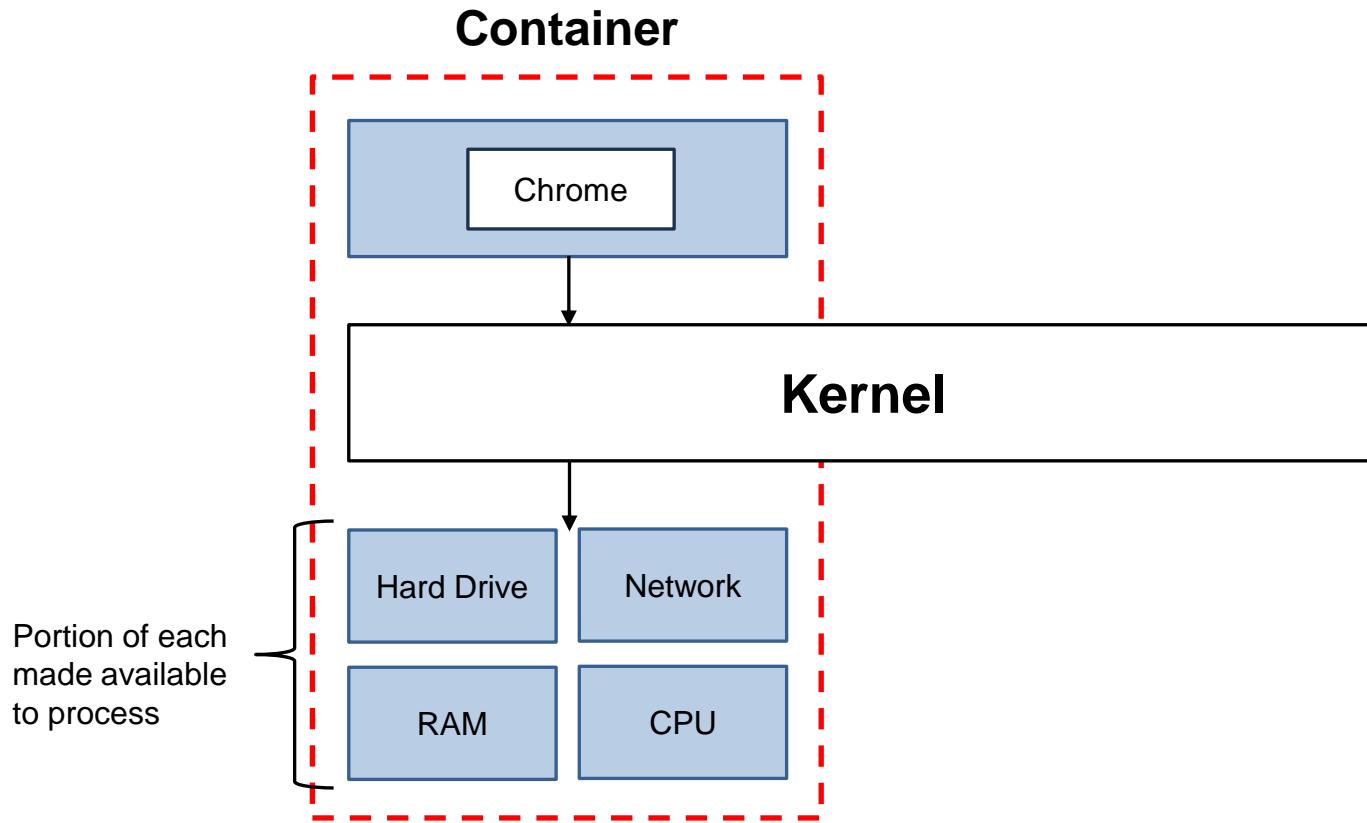
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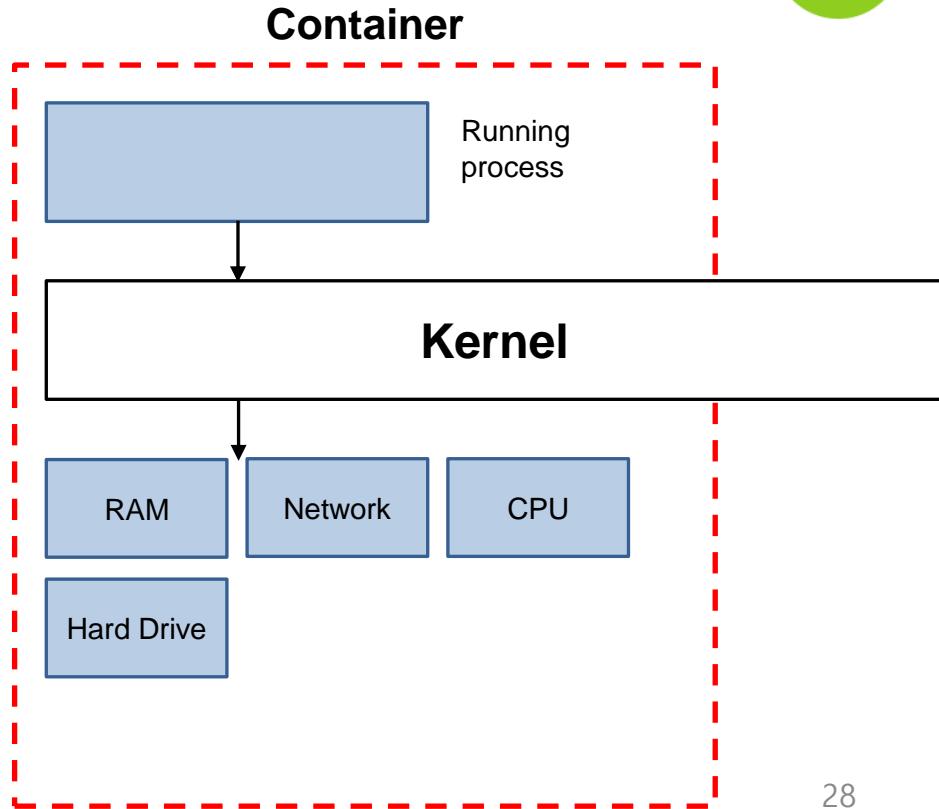
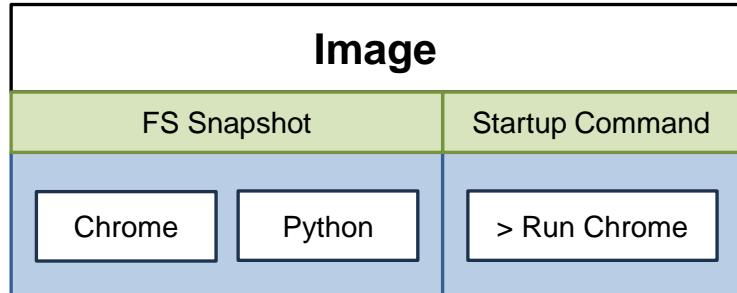
But Really...What's a Container? (cont.)



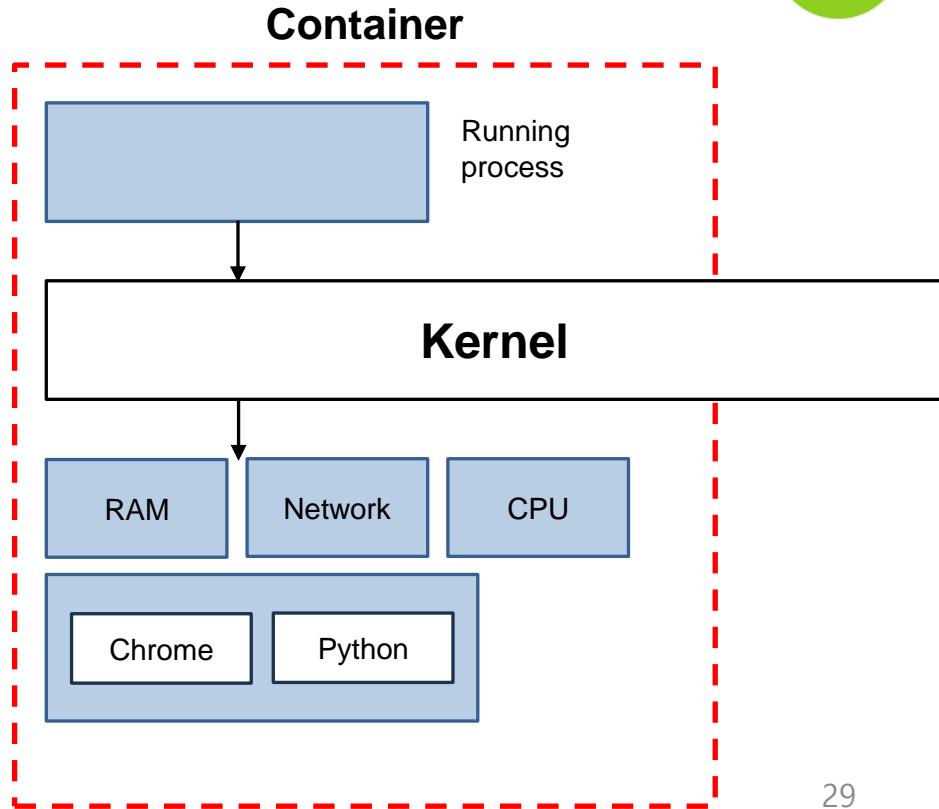
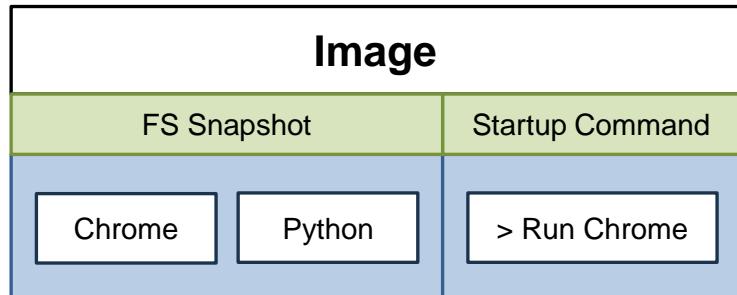
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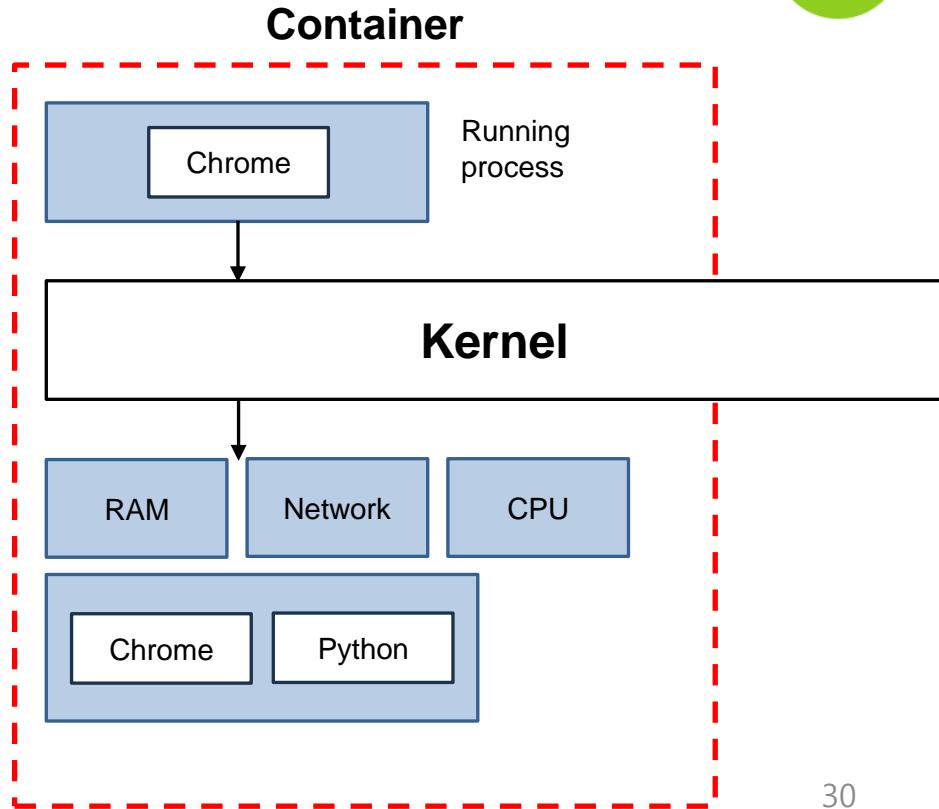
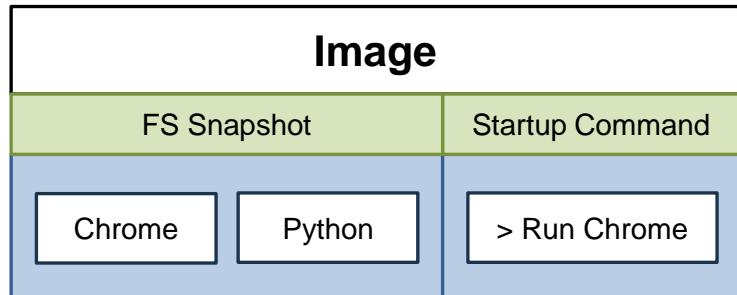
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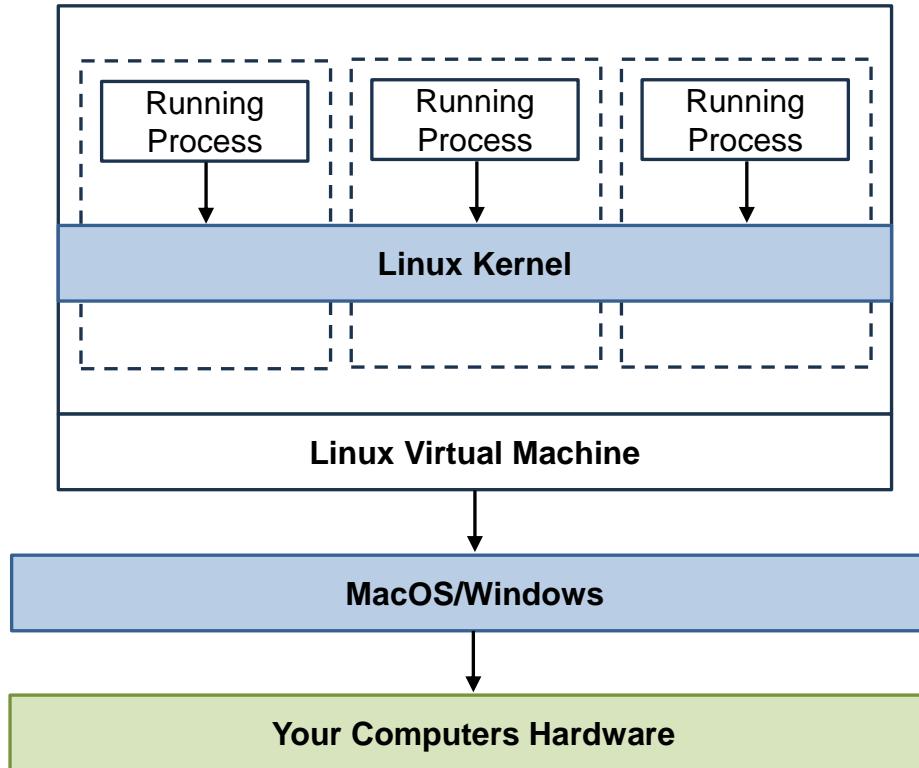
But Really...What's a Container? (cont.)



But Really...What's a Container? (cont.)



How's Docker Running on Your Computer?



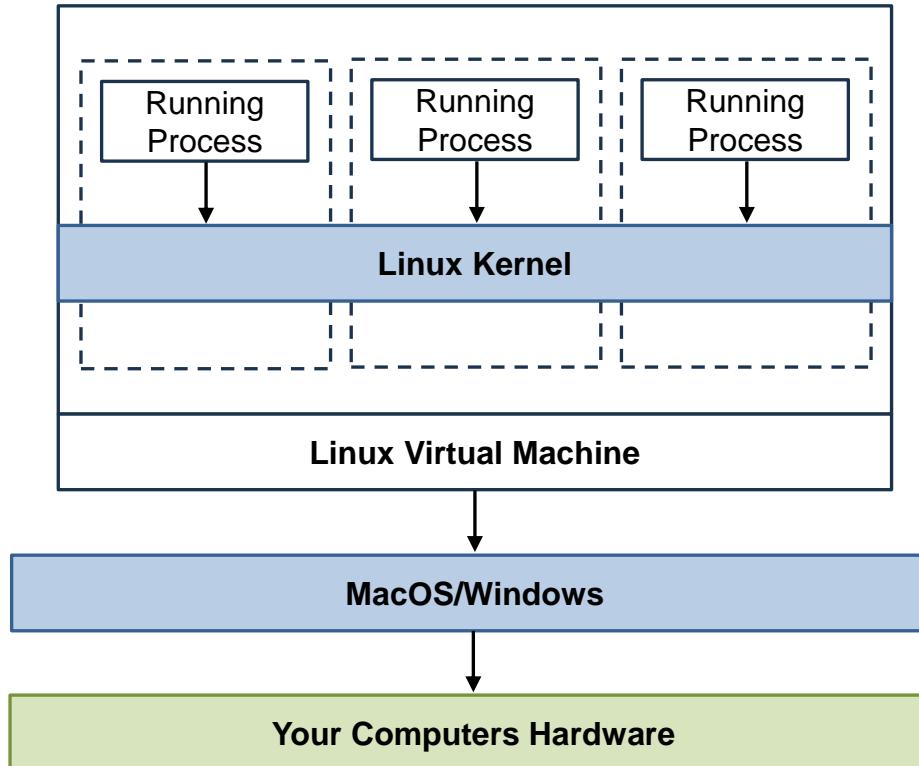
How's Docker Running on Your Computer? (cont.)



```
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  Cloud integration: v1.0.35+desktop.10
  Version:          25.0.3
  API version:     1.44
  Go version:      go1.21.6
  Git commit:      4debf41
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  OS/Arch:         windows/amd64
  Context:         default

Server: Docker Desktop 4.27.2 (137060)
Engine:
  Version:          25.0.3
  API version:     1.44 (minimum version 1.24)
  Go version:      go1.21.6
  Git commit:      f417435
  Built:           Tue Feb  6 21:14:25 2024
  OS/Arch:         linux/amd64
  Experimental:   false
containerd:
  Version:          1.6.28
  GitCommit:        ae07eda36dd25f8a1b98dfbf587313b99c0190bb
runc:
  Version:          1.1.12
  GitCommit:        v1.1.12-0-g51d5e94
docker-init:
  Version:          0.19.0
  GitCommit:        de40ad0
```

How's Docker Running on Your Computer? (cont.)



Q & A