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The bridge to possible

(Docker) Containers for NetEng

Panacea or Pain-acea?

Quinn Snyder | Technical Advocate, Learning and Certifications
@qsnyder

CISCOU-2010

Cisco Webex App

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How

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4. Enter messages/questions in the Webex space

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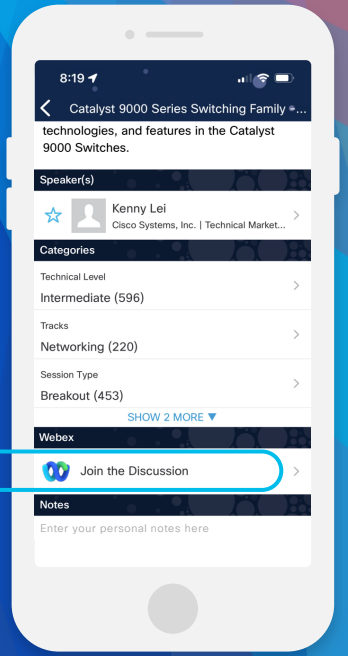

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Agenda

- Containers
- Building Container (Images)
- Making Containers Work for You!
- Demo
- Conclusion

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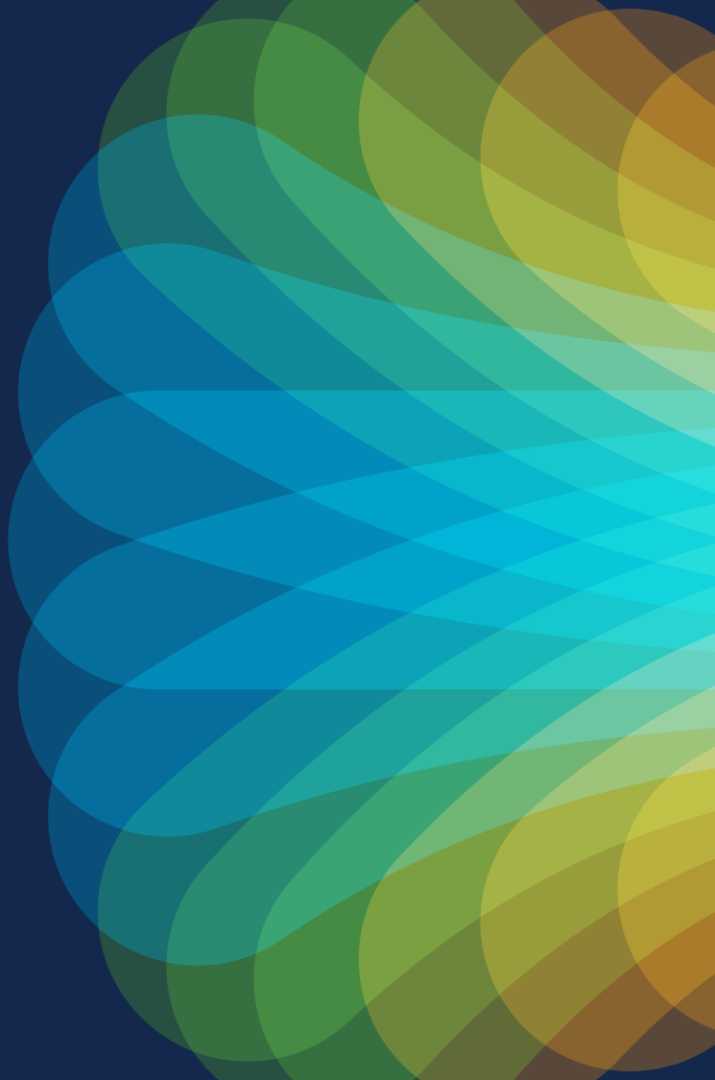
Containers



Everyone's talking about them...

- A (running) set of packaged libraries, binaries
  - Containers at rest are images
- Standardized runtime environment (VM) to abstract underlying OS (mostly) and ensure portability (also mostly)
- Lightweight and generally faster than traditional VMs (see abstraction above)

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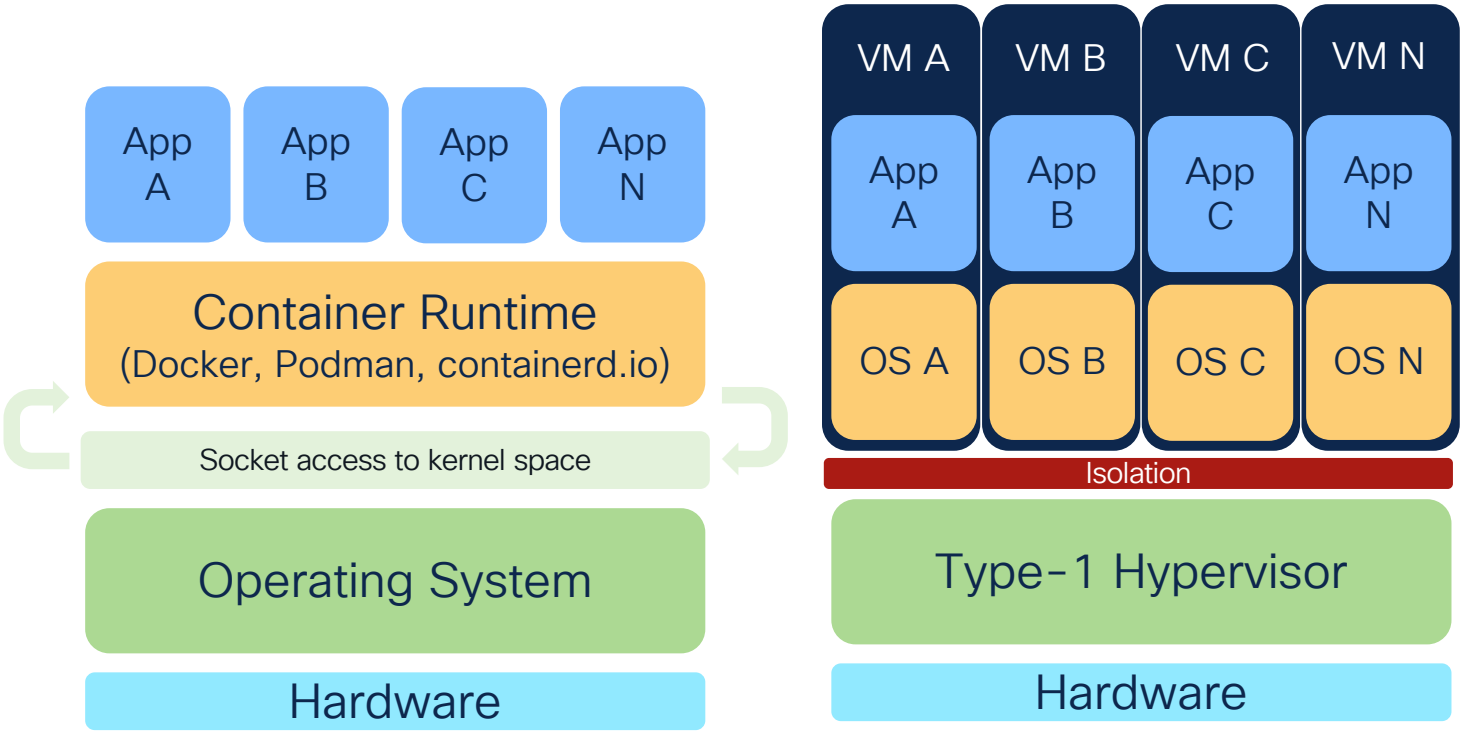
About “n”-space separation and shared fate



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No separation, no problem!

- Shared kernel space creates quick instantiation times
- No department of redundancy department
  - “So much more room for activities!”
- Windows containers are a thing*

* On Windows machines only with proper Docker installation. You win this round, Windows users...

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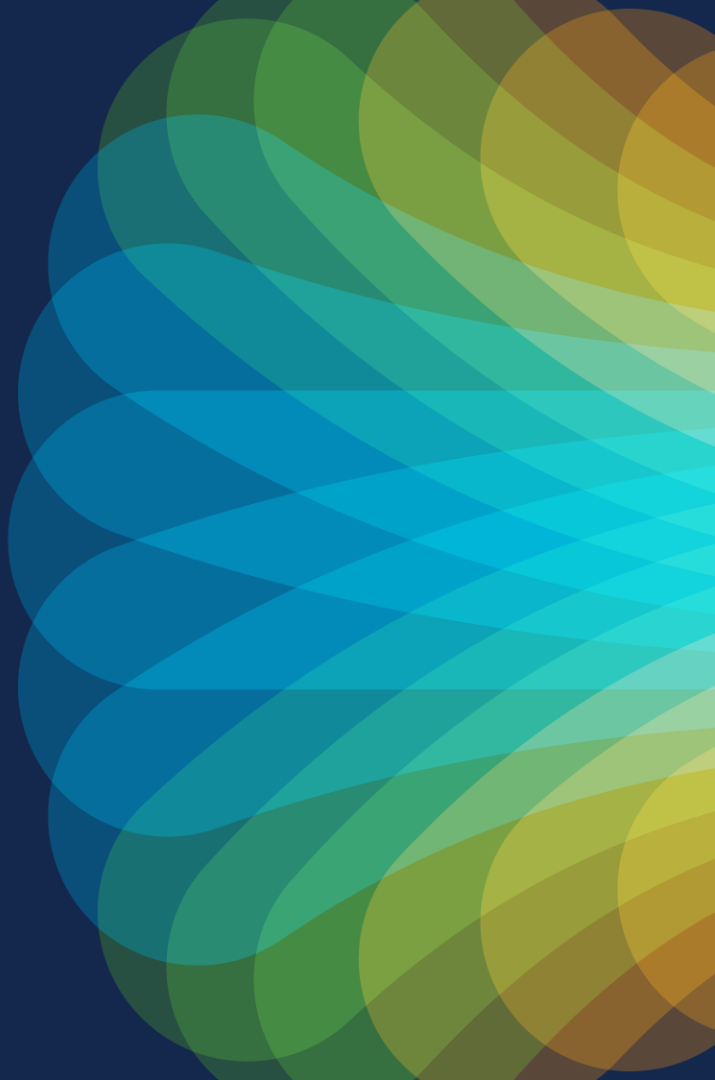
Building Container Images



Dockerfiles and You!

- Creates image from defined steps
- Specific verbs trigger actions > actions create layers > layers create image
- Alpine no longer de-facto small image base
  - Comes with a lot of baggage too
- Get your bash scripting on!

```
docker build -t qsnyder/dnebase3.7:0.1 .
```

```
1  FROM python:3.7.6-alpine3.11
2  MAINTAINER Quinn Snyder <qsnyder@cisco.com>
3
4  COPY requirements.txt .
5
6  ENV info "DNE-BASE v3.7.6: Python 3.7.6, Ansible 2.9.5,
   Openconnect, VIRLUtils"
7
8  RUN echo 'PS1="\[\e[36m\]\u\[\e[m\]\[\e[37m\]@\[\e[m\]\
   [\e[32m\]dnebase376\[\e[m\]:\[\e[33m\]\w\[\e[m\]\[\e[33m\]\\$\
   [\e[m\] "' >> /root/.bashrc
9
10 RUN echo "http://dl-cdn.alpinelinux.org/alpine/edge/testing/" >>
   /etc/apk/repositories && \
11     apk update && \
12     apk add --no-cache make curl bash git openssh gcc linux-headers
   musl-dev libffi-dev openssl-dev libxml2-dev libxslt-dev wget
   openconnect && \
13     python -m ensurepip && \
14     pip install --upgrade pip setuptools && \
15     rm -r /root/.cache && \
16     pip install -r requirements.txt && \
17     rm -rf /var/cache/apk/*
18 WORKDIR "/mycode"
19 CMD ["/bin/bash"]
```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Yes, its all just bash

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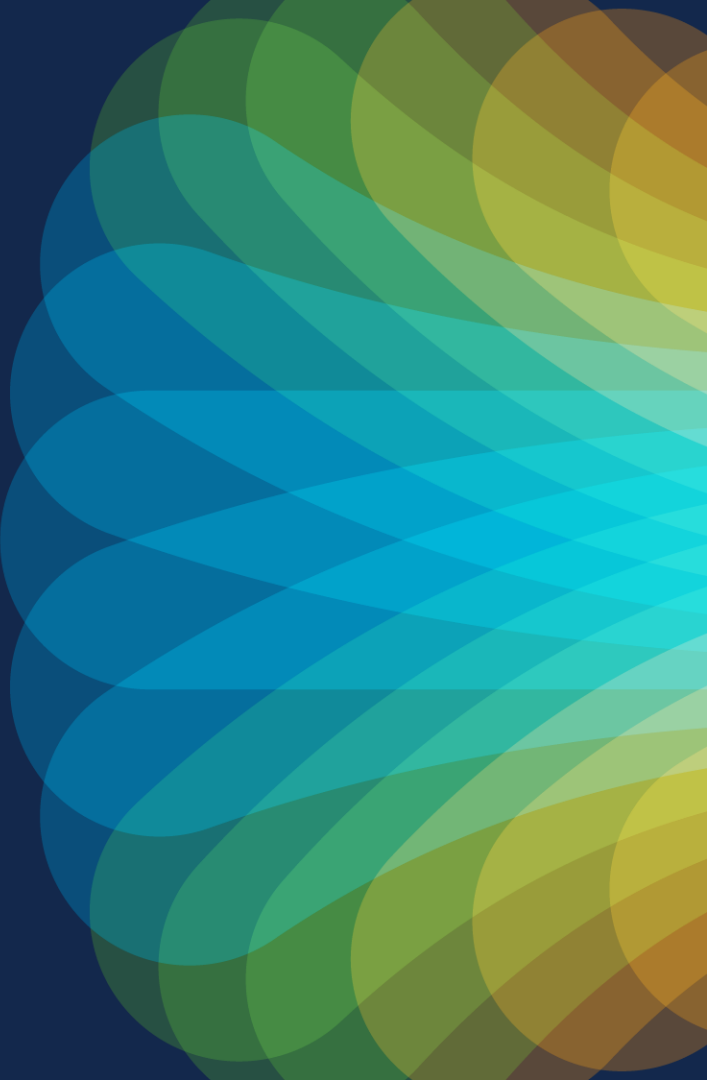
Making Containers Work for You



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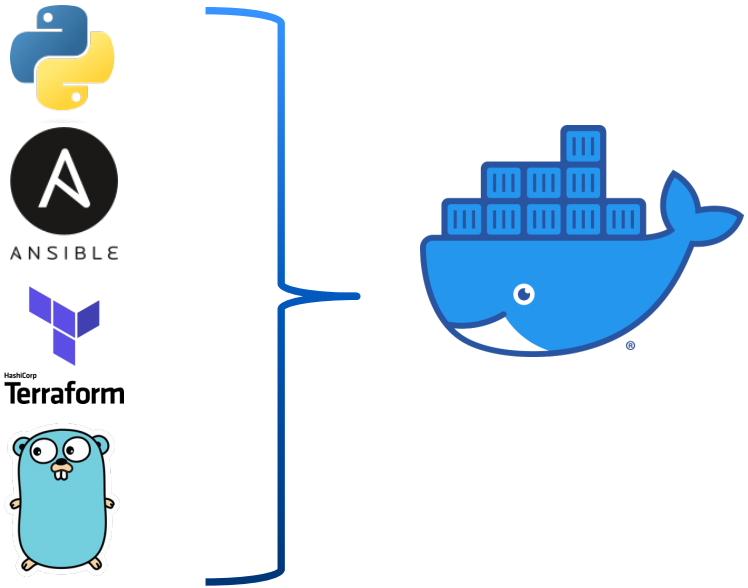
Why Let Containers Do Heavy Lifting?



- Isolates system binaries from userland binaries/runtimes
  - Breaking things doesn't require a system wipe
- Portability across environments
- No more "stupid human tricks™"
- More convenient than VMs
  - Use other "stupid human tricks™" to interact with them

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Demo

http://github.com/qsnyder/ciscou-2010

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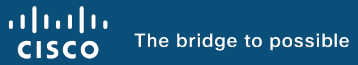

Thank you

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