# No More Shelling Out!

## How to create Docker containers without the CLI

Guinevere Saenger
Software Engineer
Pulumi

# About Me

- I 💖 SCaLE!
- I 💖 the ocean 🌊
  - PNW resident
  - Beachfront naturalist (in training!)
- Computers << humans
- I play piano
- I write software at Pulumi

@guineveresaenger

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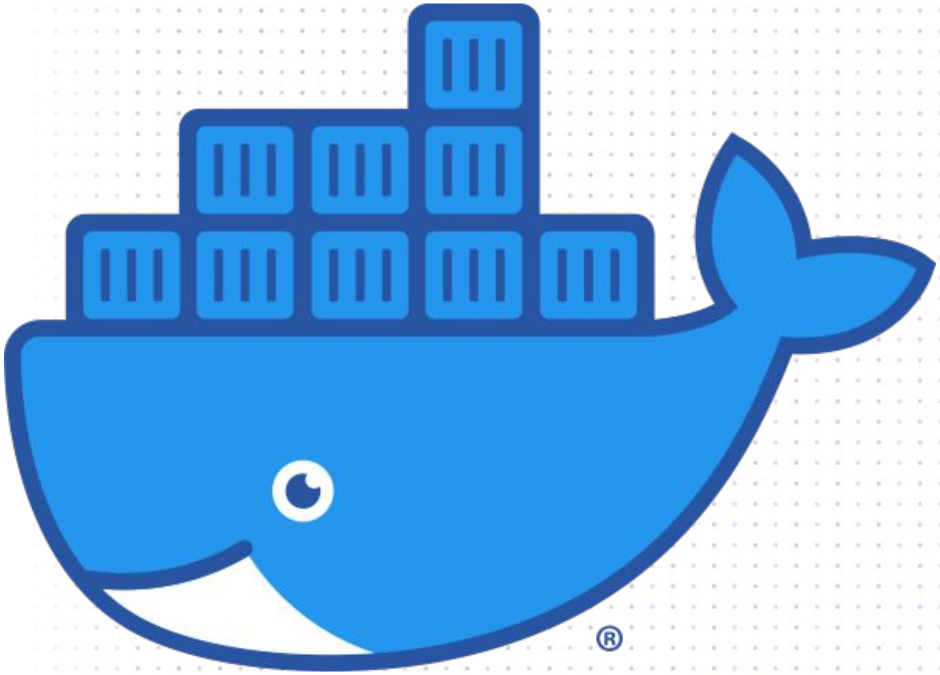
# Why this talk?

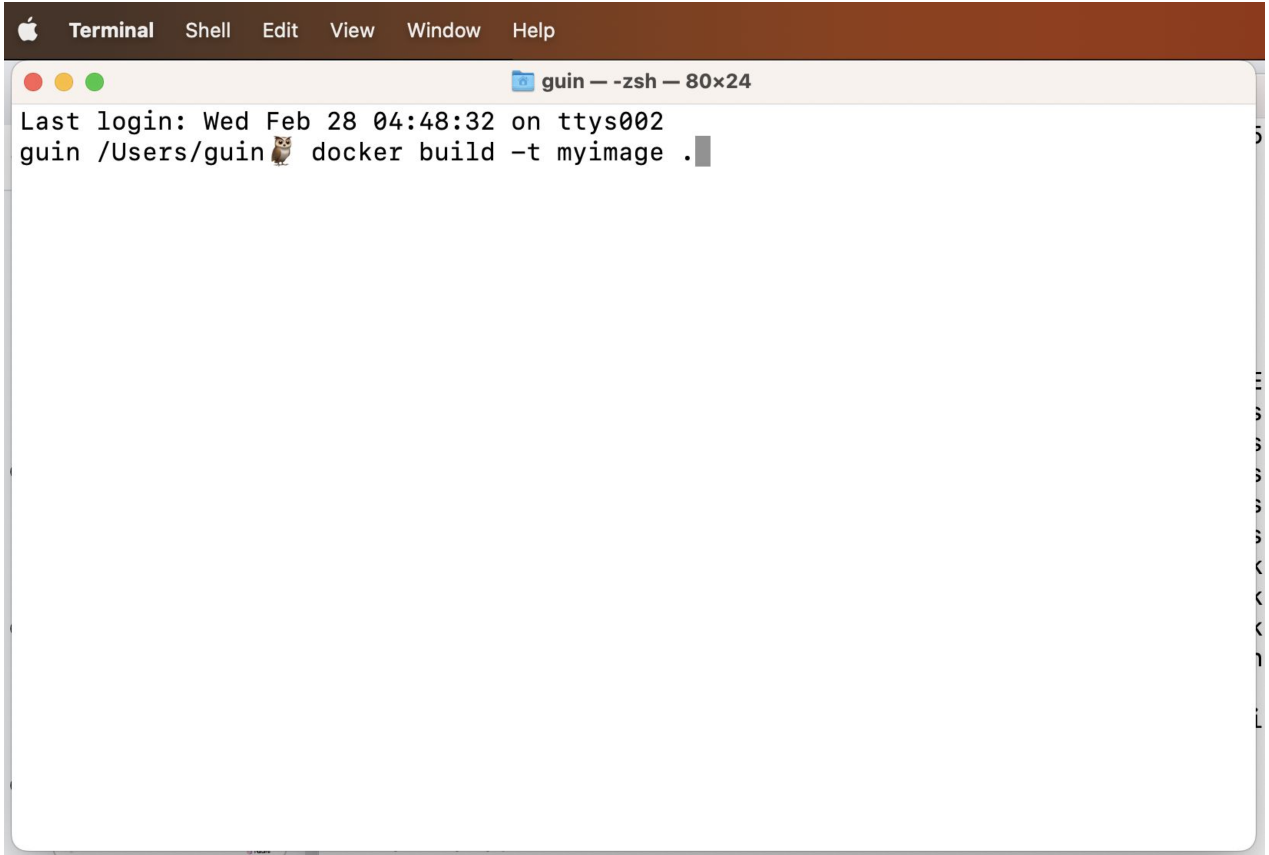
# What is docker anyway?

- Open source container platform
- Popular container runtime
- Runs on most major operating systems (with tweaks)
- Container registries
- Cute whale logo



# Why shelling out?

# This is how most people build docker images

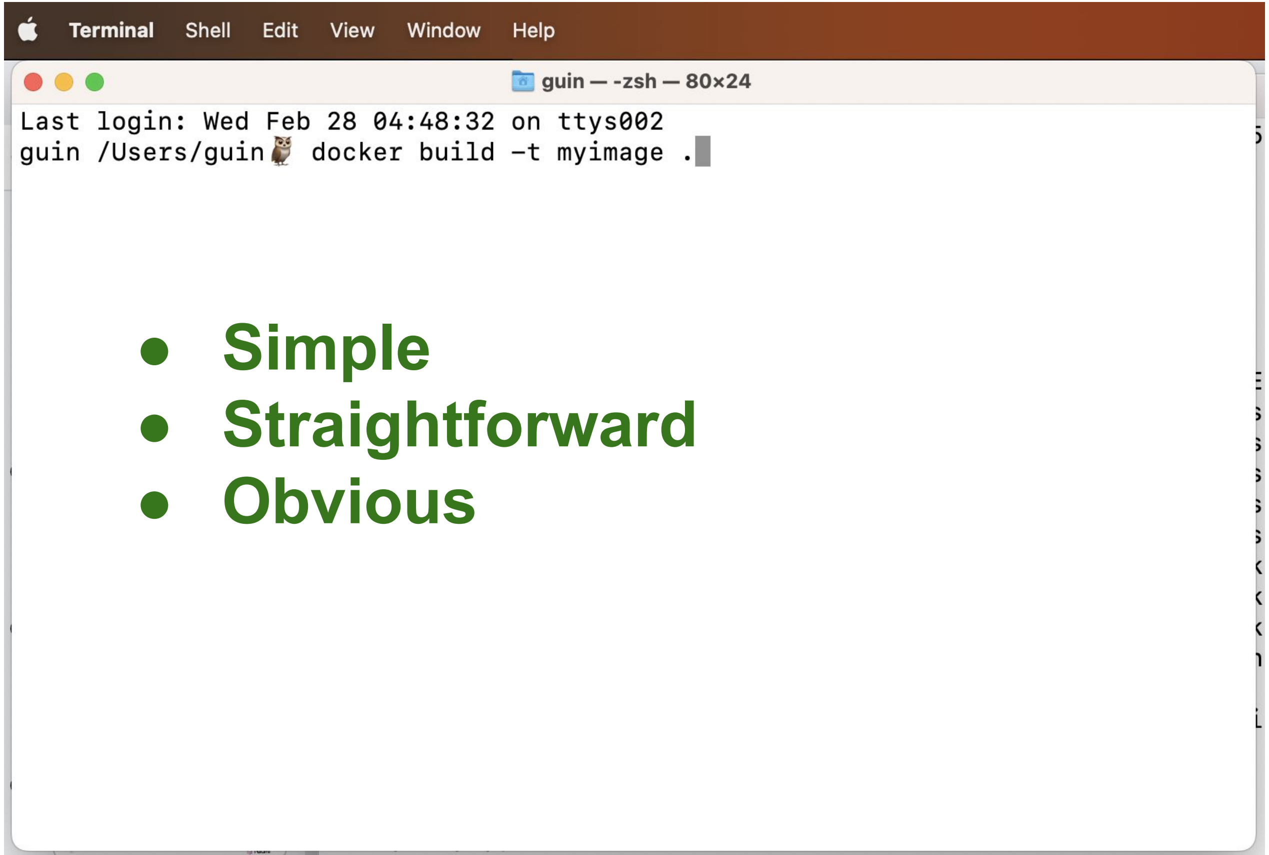


```
Last login: Wed Feb 28 04:48:32 on ttys002
guin /Users/guin🦉 docker build -t myimage .
```

# Let’s look at that a bit more closely

```
docker build -t myimage .
```

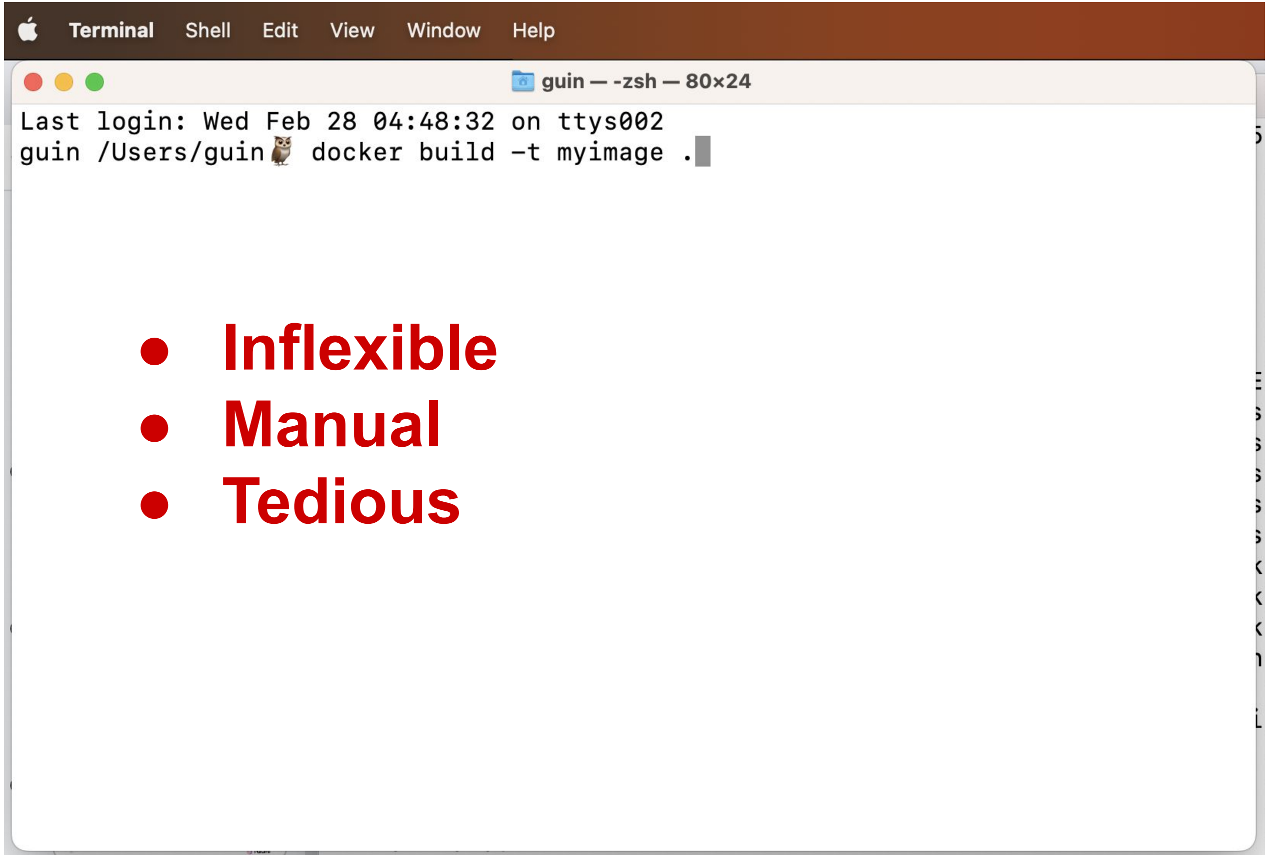
# The basic use case is not too bad



```
Last login: Wed Feb 28 04:48:32 on ttys002
guin /Users/guin🦉 docker build -t myimage .
```

- **Simple**
- **Straightforward**
- **Obvious**

# This unfortunately assumes a human operator



```
Last login: Wed Feb 28 04:48:32 on ttys002
guin /Users/guin🦉 docker build -t myimage .
```

- **Inflexible**
- **Manual**
- **Tedious**

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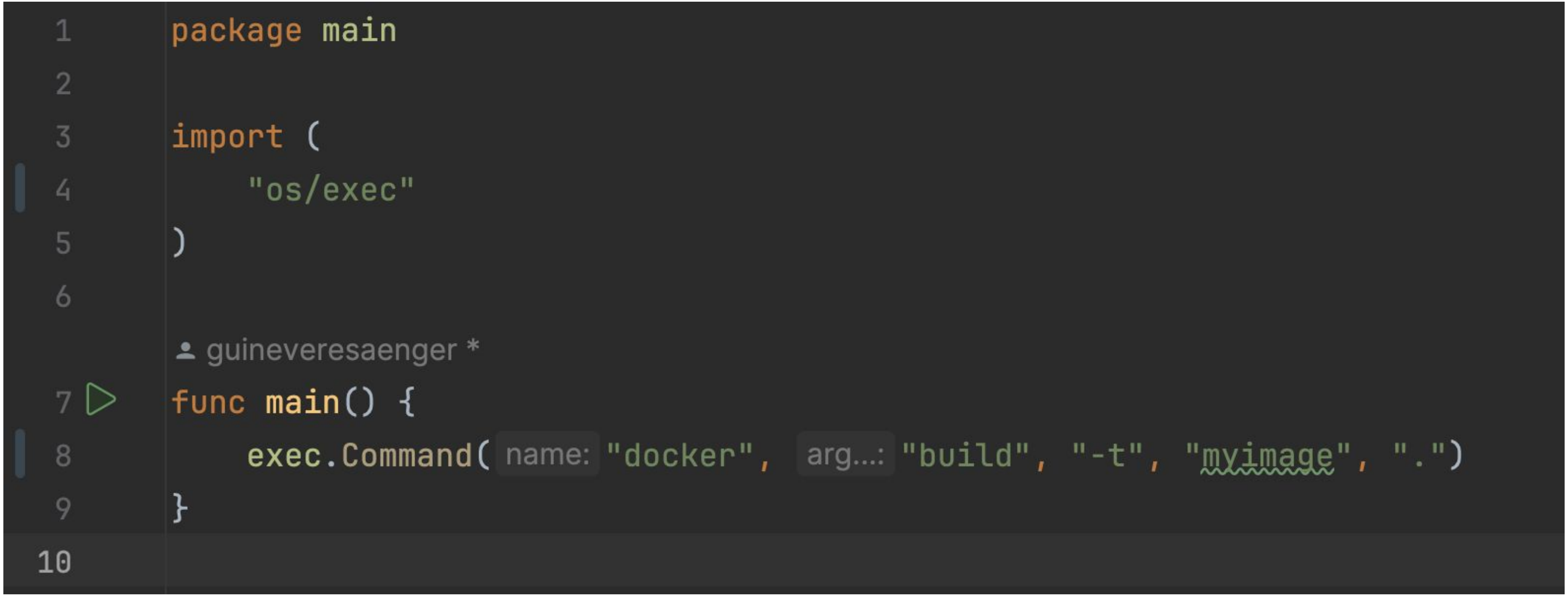
# So we shell out.



```
package main

import (
	"os/exec"
)

func main() {
	exec.Command( name: "docker",  arg...: "build", "-t", "myimage", ".")
}
```

# Let’s look at that a bit more closely, too

```
exec.Command(“docker”, “build”, “-t”,
    “myimage”, “.”)
```

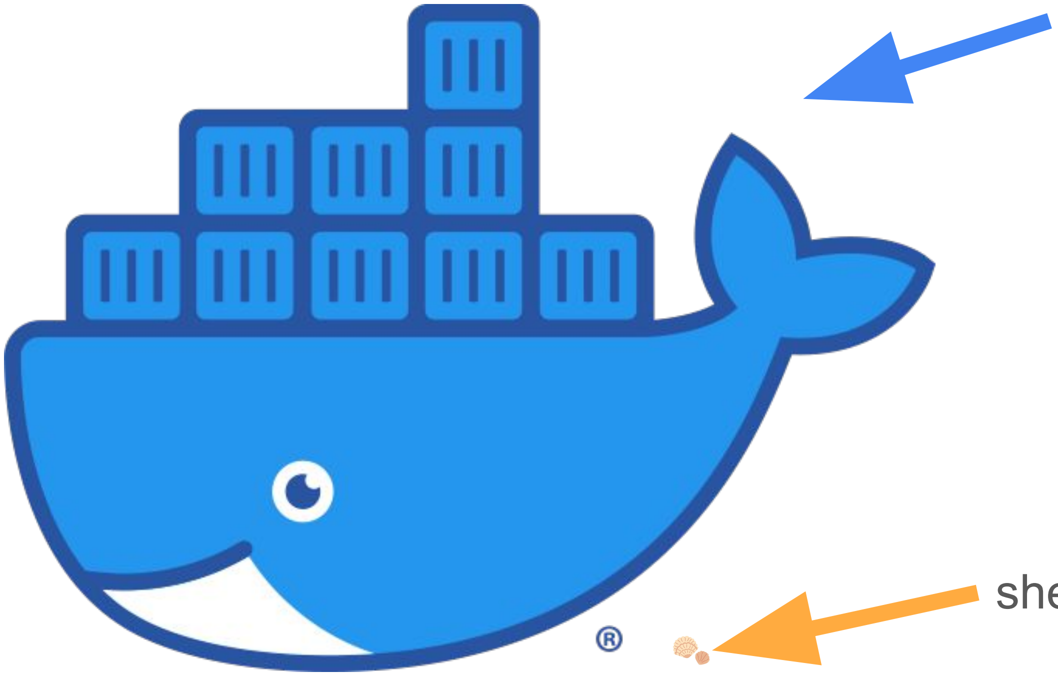
# Not all commands are short

```
docker run --rm --interactive --volume
$(pwd):/workdir --env
CROSS_TRIPLE=x86_64-apple-darwin
multiarch/crossbuild /bin/bash -s
<<EOF
```

**(No, I am not rewriting this one in Go.)**

# Sometimes, shelling out is the right choice…

# Sometimes it just doesn’t make sense!

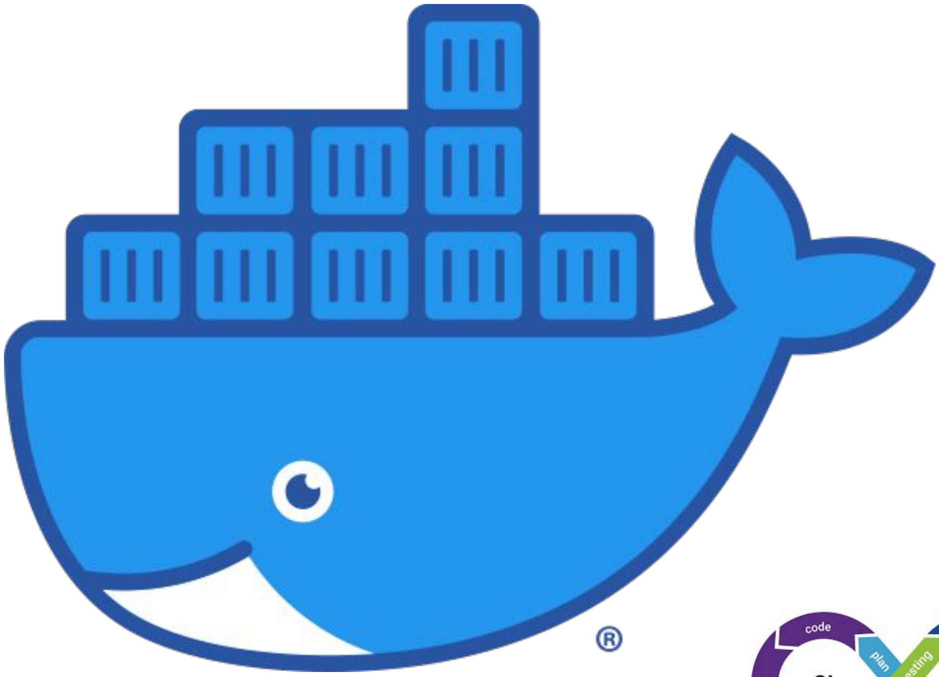


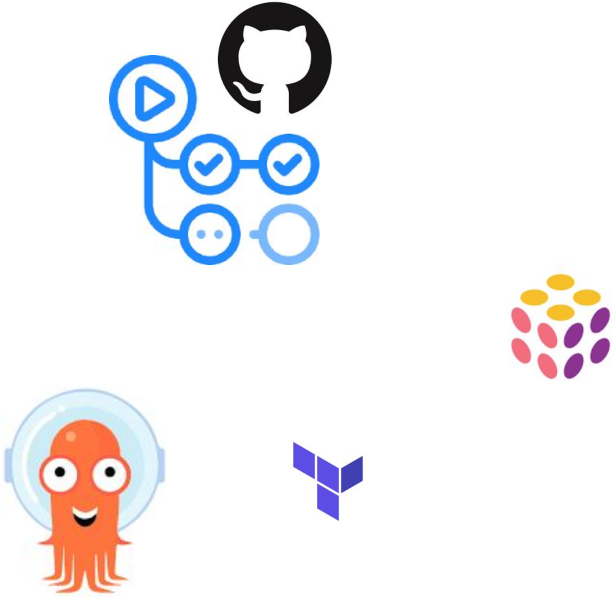
whale

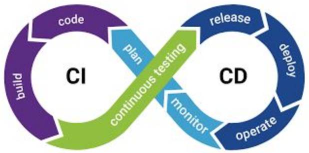
shells

(not actual relative sizes, but you get the point)

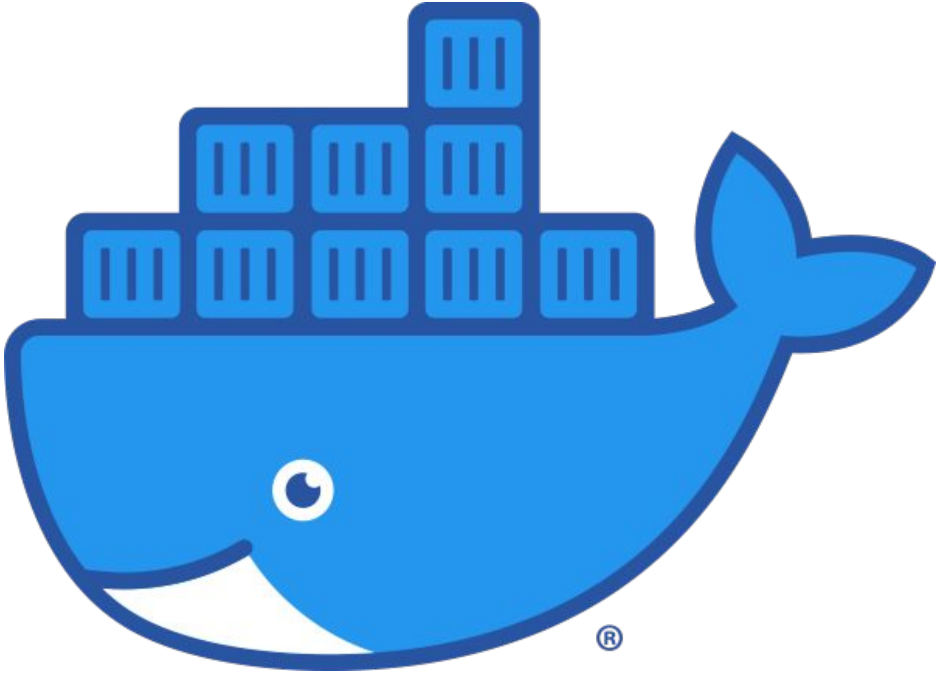
# Sometimes it just doesn’t make sense!





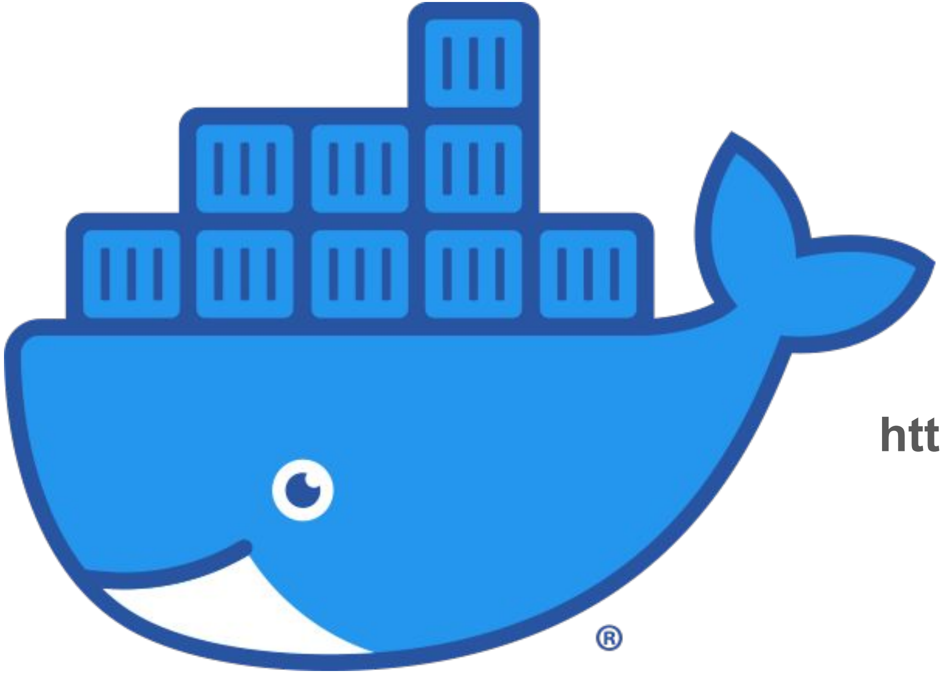


# Why do we use the whale in the first place?



?

# That would be a different talk.



Fortunately the docker people have this covered

https://www.docker.com/why-docker/

## We should be able to create and use Docker images - without the need for an interactive terminal

# Demo time!

**github.com/guineveresaenger/scale21x-docker-automation**

# Summary

# Docker Classic vs Docker Buildx

## Classic

- Easier to use
- Supports buildkit, but limited
- Does not support all modern Docker capabilities such as multiplatform builds

## Buildx

- More configurable
- Supports custom builders
- Supports buildkit
- Focuses on build capabilities (doesn’t run containers or push images)

# But there's more!

# Remember the reason I went through all the trouble with the Docker client libraries?

# Bonus demo

# Thank you SCaLE 21x!

@guincodes

@guineveresaenger

# Sample bullet slide with one-line title

- First-level body text goes here
- First-level body text goes here
    - 
    - Second-level body text
        - Third-level body text
        - Third-level body text

# Sample bullet slide with a title that stretches for two lines

- First-level body text goes here
- First-level body text goes here
  - Second-level body text
  - Second-level body text
    - Third-level body text
    - Third-level body text

# Sample bullet slide with a subtitle

## Subtitles look like this

- First-level body text goes here
- First-level body text goes here
  - Second-level body text
  - Second-level body text
    - Third-level body text
    - Third-level body text

# Sample half-width content slide

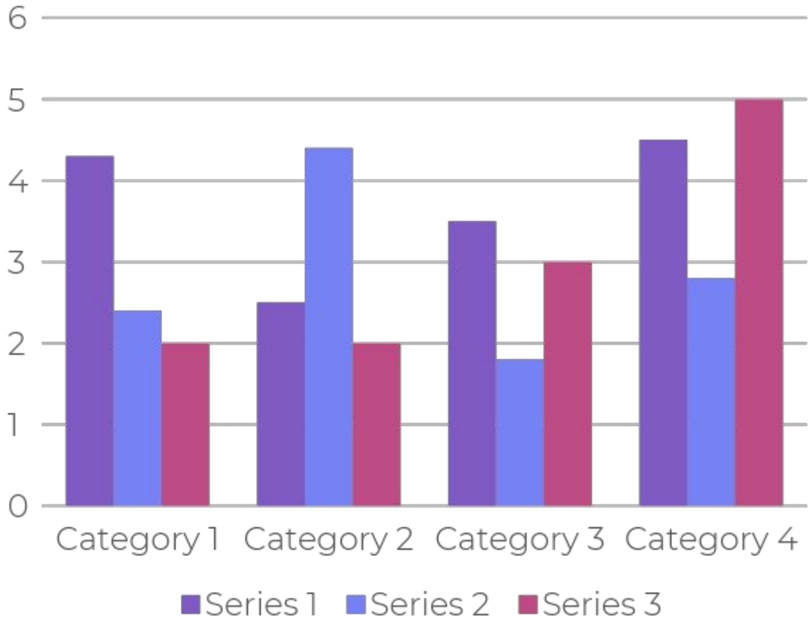
- First-level body text goes here
- First-level body text goes here
  - Second-level body text
  - Second-level body text
    - Third-level body text
    - Third-level body text

# Sample half-width content slide

- First-level body text goes here
- First-level body text goes here
  - Second-level body text
  - Second-level body text
    - Third-level body text
    - Third-level body text

# Two-content layout

- Each of the two content placeholders on this slide can contain text, graphics, tables, or charts
- For example, this slide uses the left placeholder for text and the right placeholder for a graph



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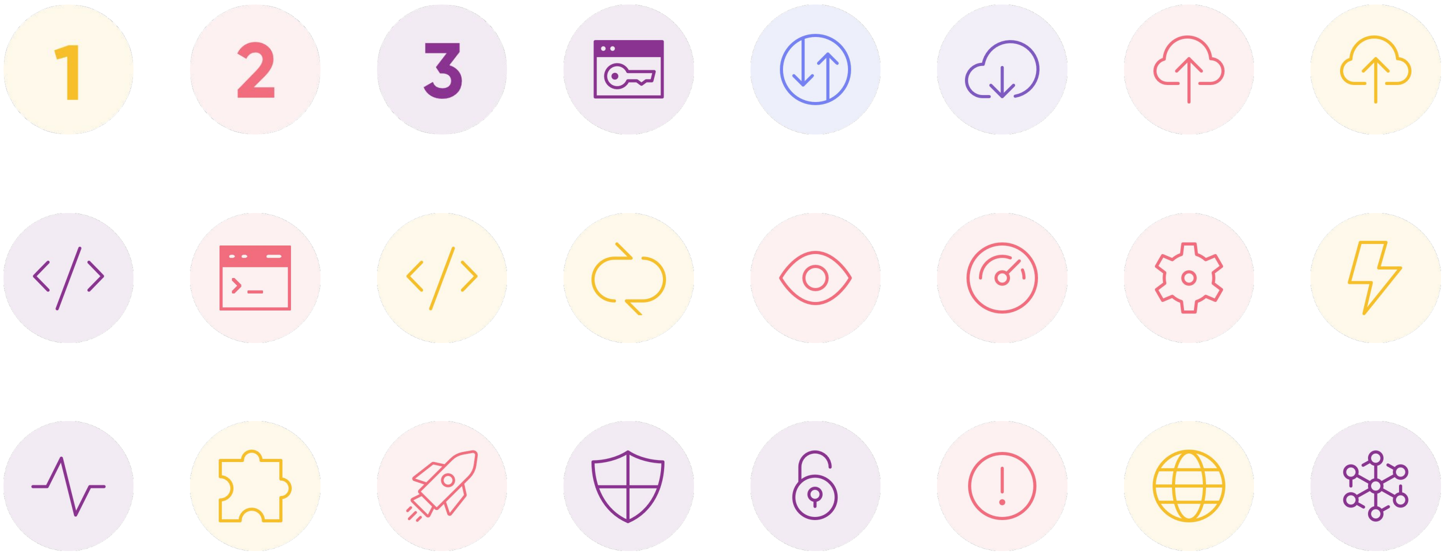
# Sample icons



# Section title here

Guest speaker name or other information

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# Cloud Engineering for everyone