Designing Immutable Infrastructure with Packer

GETTING STARTED

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Overview

Immutable Infrastructure

- What? Why? How? (Who? You!)

Docker – Everyone's Favourite

If You Can't Docker – Packer!

Basic Packerization

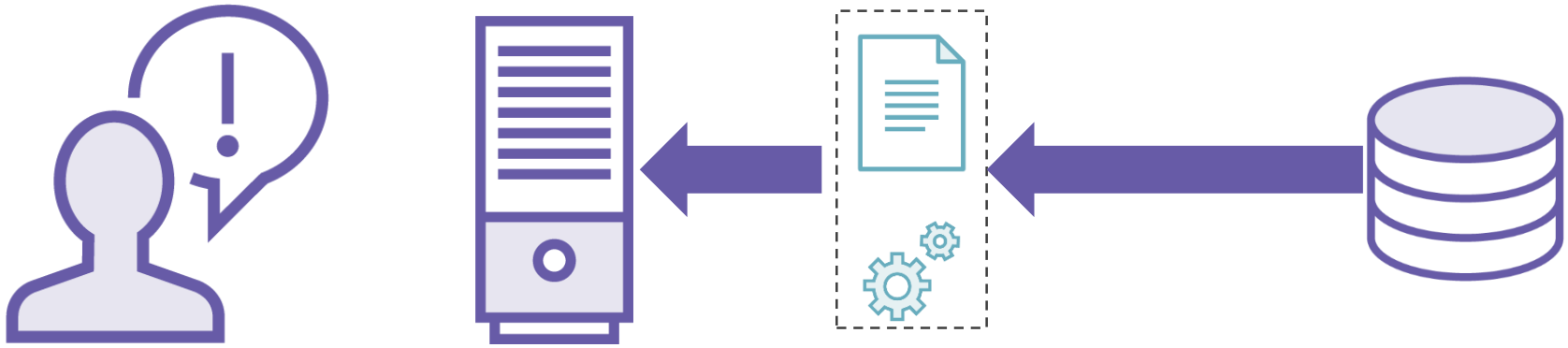
- Base Image on Amazon Web Services
- See Other AWS Courses

Immutable Infrastructure

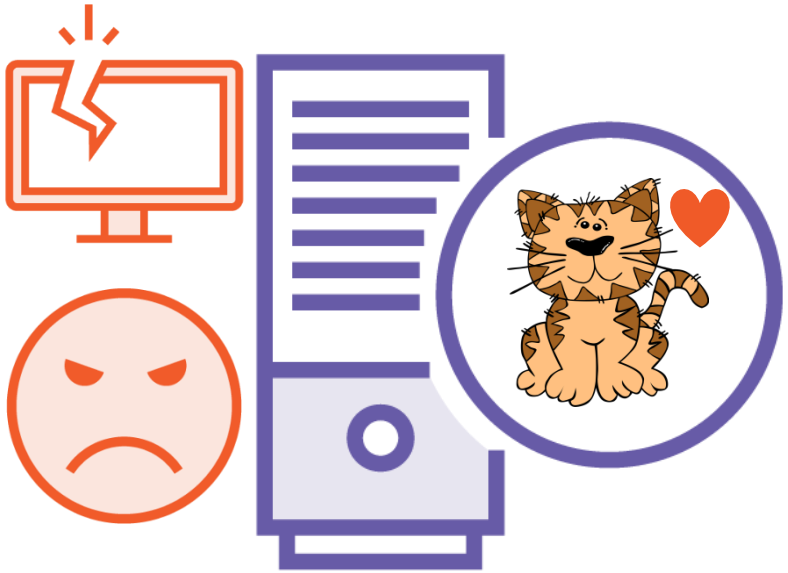
Immutable

Adjective:

Unchanging over time, or unable to be changed



Cats and Cattle, Oh My!



Mittens!

XB306-1

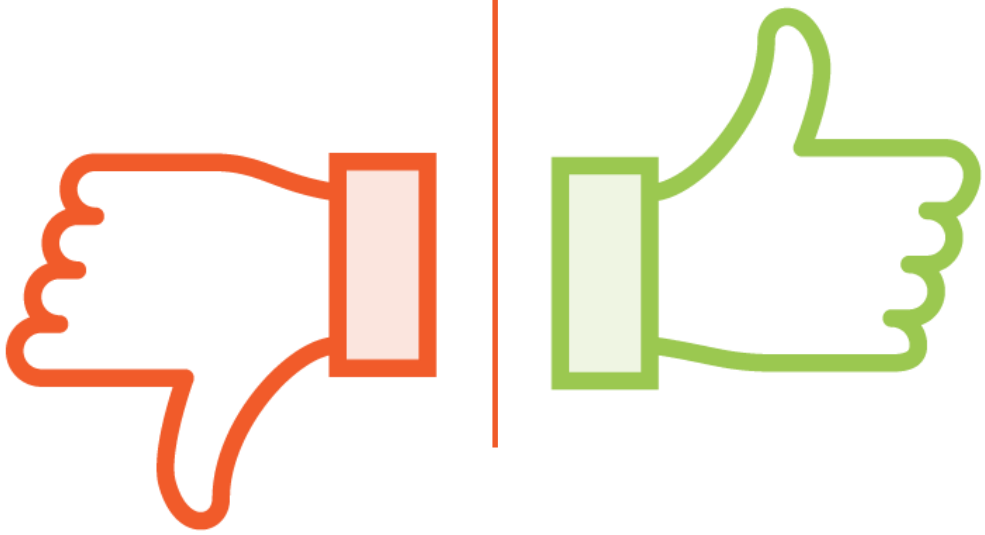
XB306-2

XB306-3

...

Servers - Cats vs. Cattle

Cats	Cattle
Kept alive at all costs	Expendable
Need manual intervention	Work “out of the box”
Difficult to Scale	Easy to Scale
High-stress	Low-stress



Other Benefits

Testable Infrastructure

Reproduce Production

Unit of Deployment

Confident Changes

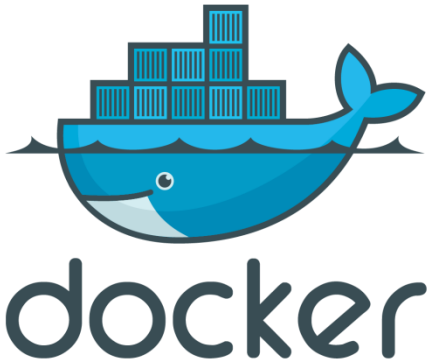
When To Use It?

* ALL THE TIME!

* Except at very small scale

I want this!

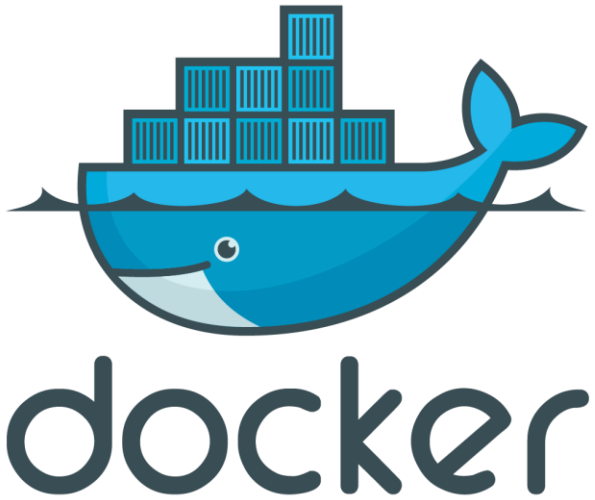
How?



Docker
Container-based
Linux only (for now)

Packer
“Image”-based
Cross-platform

Docker?



No Windows support

Application re-architecture

Orchestration

Sometimes worth it, sometimes not

Packer!

Utilize native tools

Integrate with configuration management

Easy to convert to Docker

A Packer Template

```
{
    “builders”: [
    ],
    “provisioners”: [
    ],
    “post-processors”: [
    ]
}
```

Template

```
{
    “type”: “amazon-ebs”,
    “name”: “MyCowServer-AWS”,
    “region”: “us-west-2”
}
```

Builders

Generate your image

Provider-specific

Multiple builders = cross-provider builds!

```
{
    “type”: “shell”,
    “script”: “makeMyCowAwesome.sh”,
    “only”: [“MyCowServer-AWS”]
}
```

Provisioners

Customize your image

Scripts or configuration management

Can be builder-specific

```
{
    “type”: “compress”,
    “output”: “MyCowServer-VirtualBox.tar.gz”,
    “only”: [“MyCowServer-VirtualBox”]
}
```

Post-Processors

Put on the finishing touches

Integration with other services

Key to Docker conversion

Demo

Install Packer

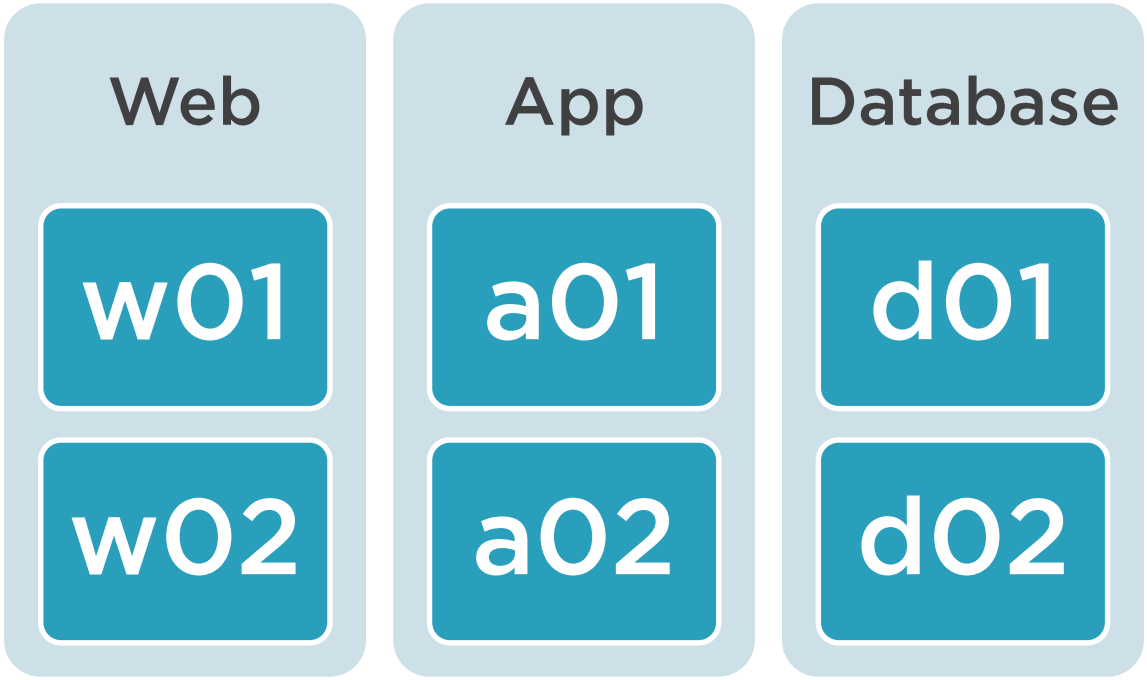
Command Line Options

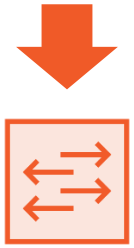
Basic Packer Template

- Ubuntu 14.04 LTS on AWS

Your First Cow Server!

Globalmantics





Summary

Immutable Infrastructure

- Cats and Cows – Cows are Better!

Packer Basics

Simple Packer Template

Next: More Detailed Templates