

PLEASE GO TO THE FOLLOWING URL AND SETUP THE
PRE-REQS + SECTION 0 IF YOU HAVEN'T ALREADY!!
<https://www.chrisdorros.com/2016/oscon>

Don't Fix It, Throw it Away!

Introduction to Disposable Infrastructure



OpenDNS

2016-05-17, OSCON 2016
Chris Dorros

OpenDNS is
now part of Cisco.



Tentative Schedule

1:30	was a few minutes ago
2:00ish	Section 1
2:30ish	Section 2
3:00-3:30	break
3:30	Section 3
4:00ish	Section 4
5:00	end time, stick around for questions/help

Infrastructure as Code

- Defining **infrastructure** (servers, networking, operating systems, processes) **as code**, and **provisioning those components automatically** from the code
- **Declarative** language (in general)

Disposable? Immutable?

- *Disposable* - throw your server away, make a new one
 - (recycle/compost if you're in SFO)
- *Immutable* - no changing the server after it's already deployed.



“Pets vs Cattle”



rack n' stack,
cloud GUI



entire infra in code;
deployments via API

Why?

Higher confidence in changes

since we're switching to new infrastructure for each change, it's
very simple to rollback
great for security patches!

Documentation without knowing we're documenting!

infrastructure as code, instead of infrastructure as procedures
and tribal knowledge

This shouldn't scare you!

----- Forwarded message -----

From: **'Amazon EC2 Notification'**

Date: Wed, Dec 31, 2014 at 5:59 AM

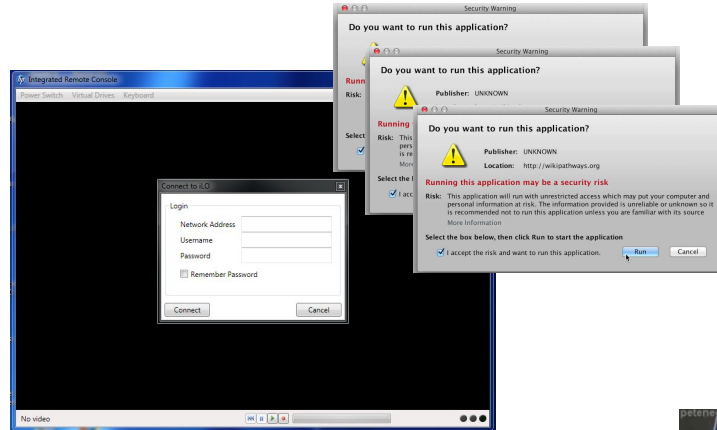
Subject: [eng.aws-role] Amazon EC2 Maintenance

Dear Amazon EC2 Customer,

One or more of your Amazon EC2 instances is scheduled for maintenance on 2015-01-06 for 2 hours starting at 14:00 UTC. During this time, the following instances in the us-west-1 region will be unavailable and then rebooted:

i-982a65c5

Deployment Workflow: Pre-Cloud



Remote KVM

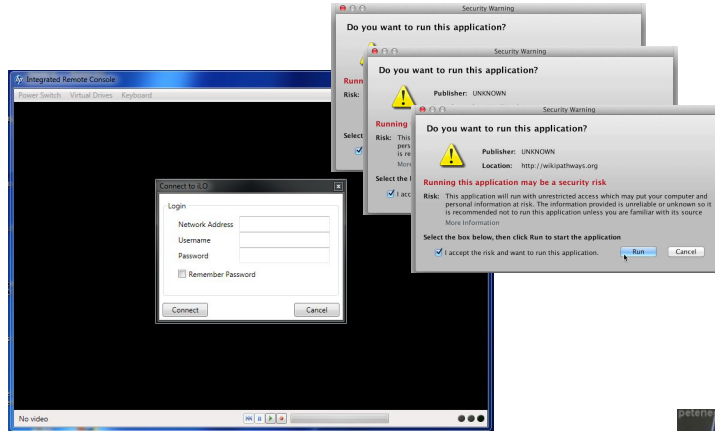


\$ uptime 12:40 up 4 years 22 days

Configuration Management



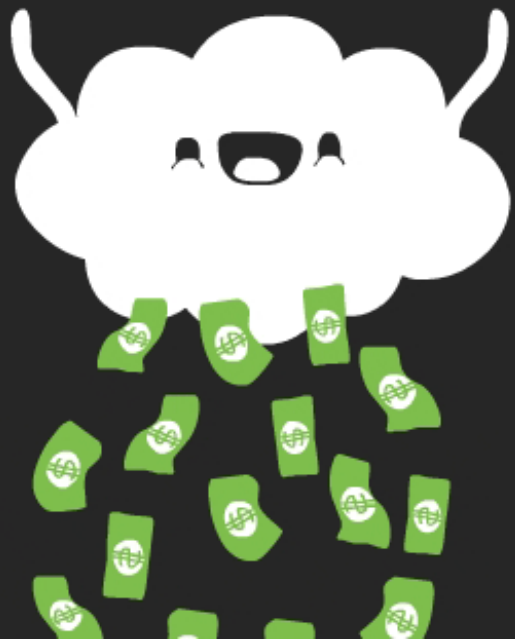
Deployment Workflow: Pre-Cloud



Remote KVM



\$ uptime 12:40 up 4 years 22 days



Deployment Workflow: Post-Cloud



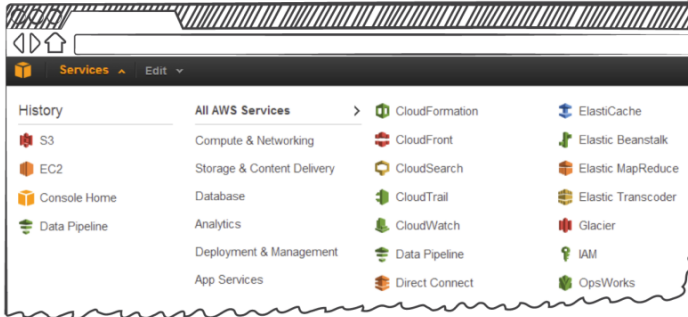
\$ uptime 12:40 up 4 years 22 days

Specify Parameters

Specify values or use the default value

Parameters

AppAdminPassword	*****	Rails app admin password
AppAdminUsername	*****	Username for Rails app admin access
DBAllocatedStorage	5	The size of the database (Gb)
DBInstanceClass	db.m1.small	The database instance type
DBName	MyDatabase	MySQL database name
DBPassword	*****	Password for MySQL database access
DBUsername	*****	Username for MySQL database access
InstanceType	t1.verymicro	WebServer EC2 instance type
KeyName	RobertHughes	Name of an existing EC2 KeyPair to enable SSH access to the instances
MultiAZDatabase	false	Create a multi-AZ MySQL Amazon RDS database instance
SSHLocation	0.0.0.0/0	The IP address range that can be used to SSH to the EC2 instances
WebServerCapacity	1	The initial number of WebServer instances



Deployment Workflow: Post-Cloud



\$ uptime 12:40 up 4 years 22 days

Specify Parameters

Specify values or use the default value

Parameters

AppAdminPassword Rails app admin password

AppAdminUsername Username for Rails app admin access

DBAllocatedStorage The size of the database (GB)

DBInstanceClass The database instance type

DBName MySQL database name

DBPassword Password for MySQL database access

DBUsername MySQL database username

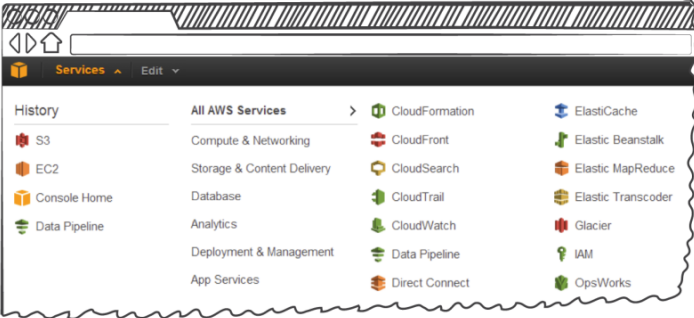
InstanceType Instance type

KeyName Key name

HAZDatabase false

SSHLocation The IP address range that can be used to SSH to the EC2

WebServerCapacity The initial number of WebServer instances



CHEF



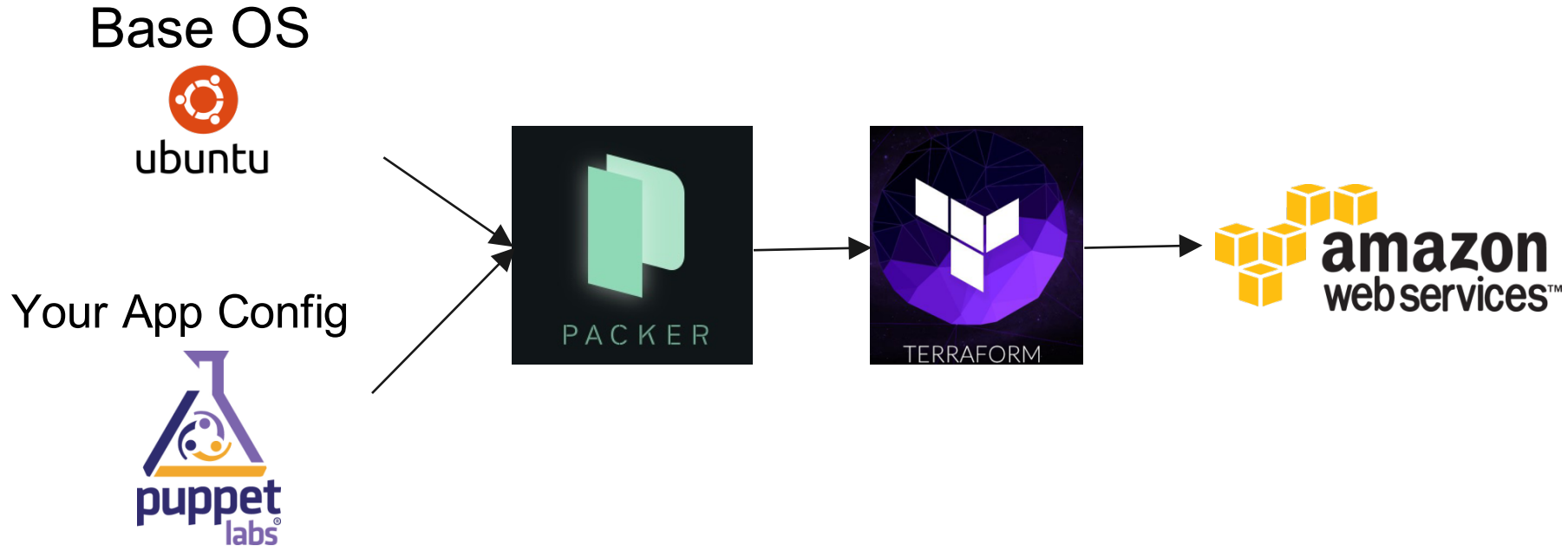
ANSIBLE



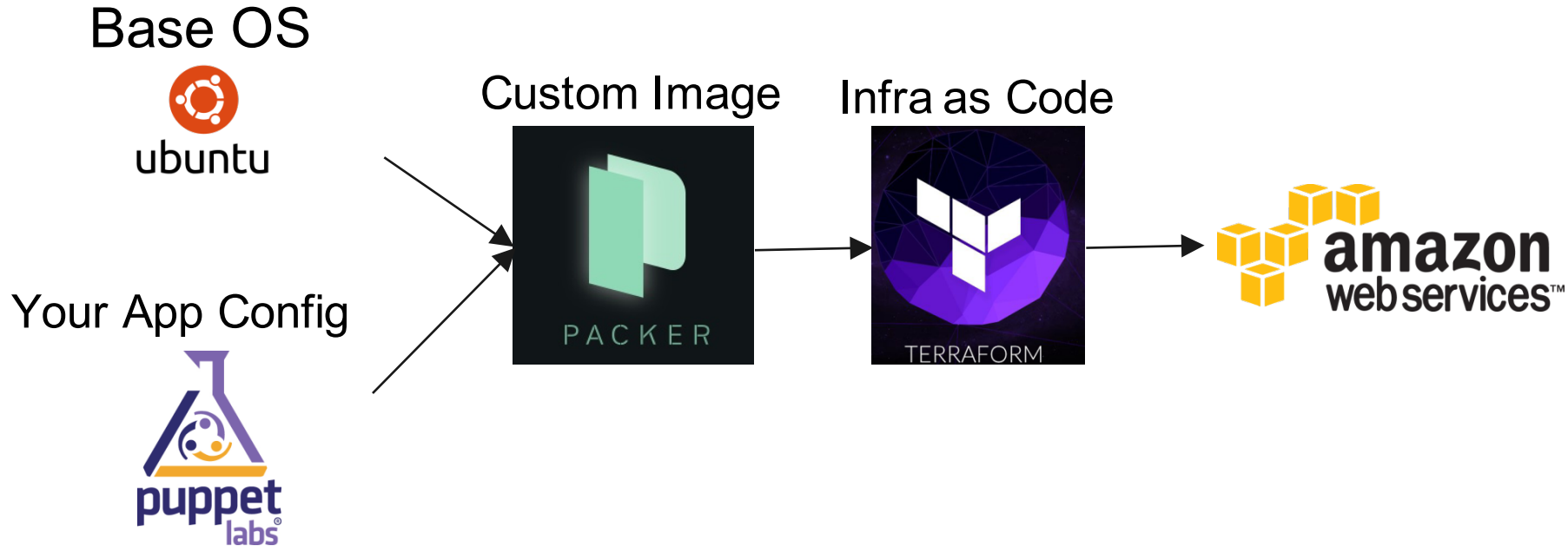
puppet labs



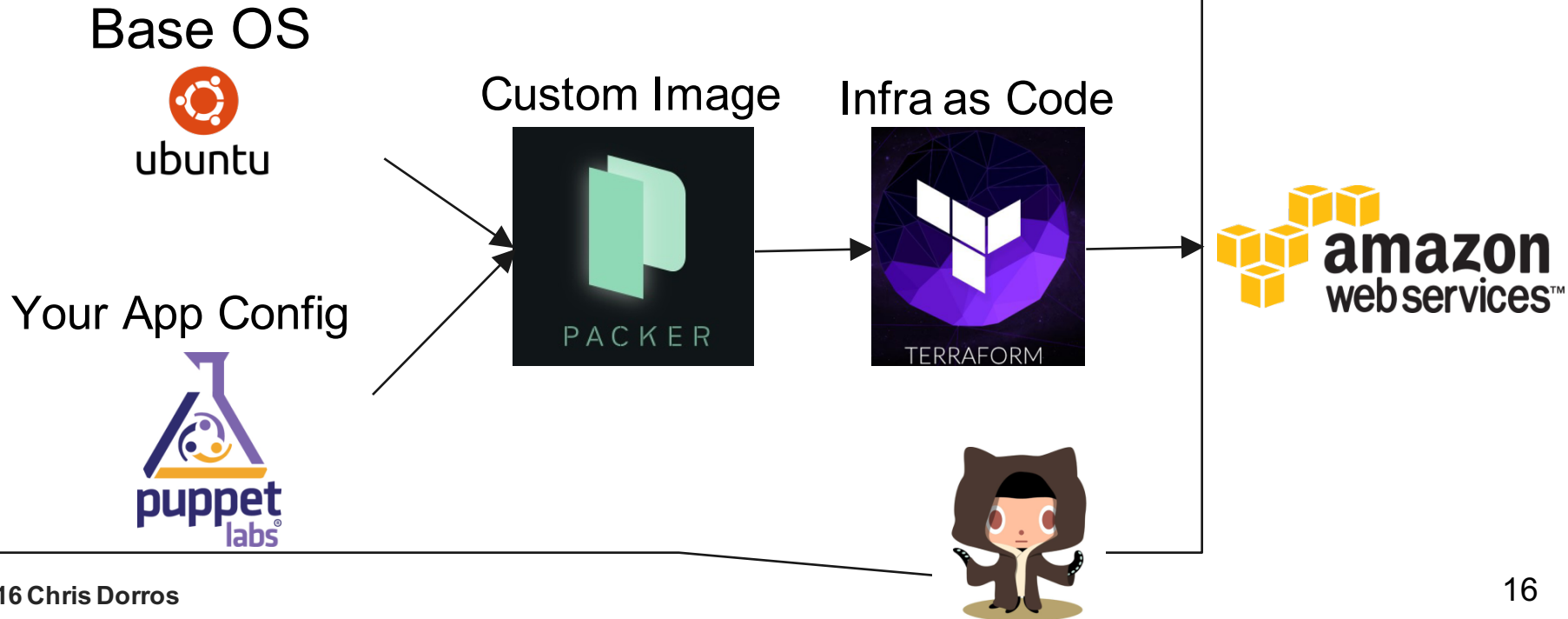
Deployment Workflow: Today's Exercise



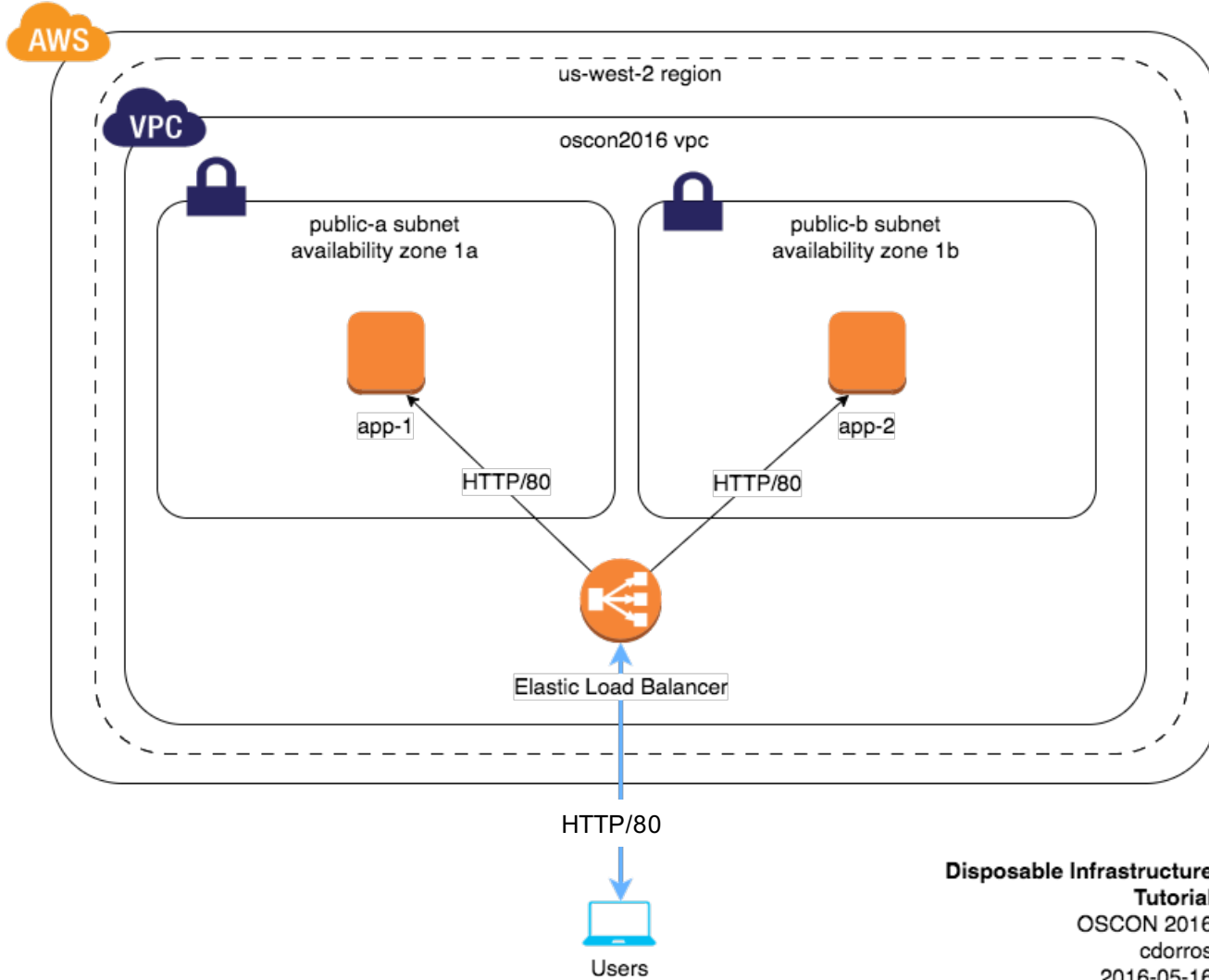
Deployment Workflow: Today's Exercise



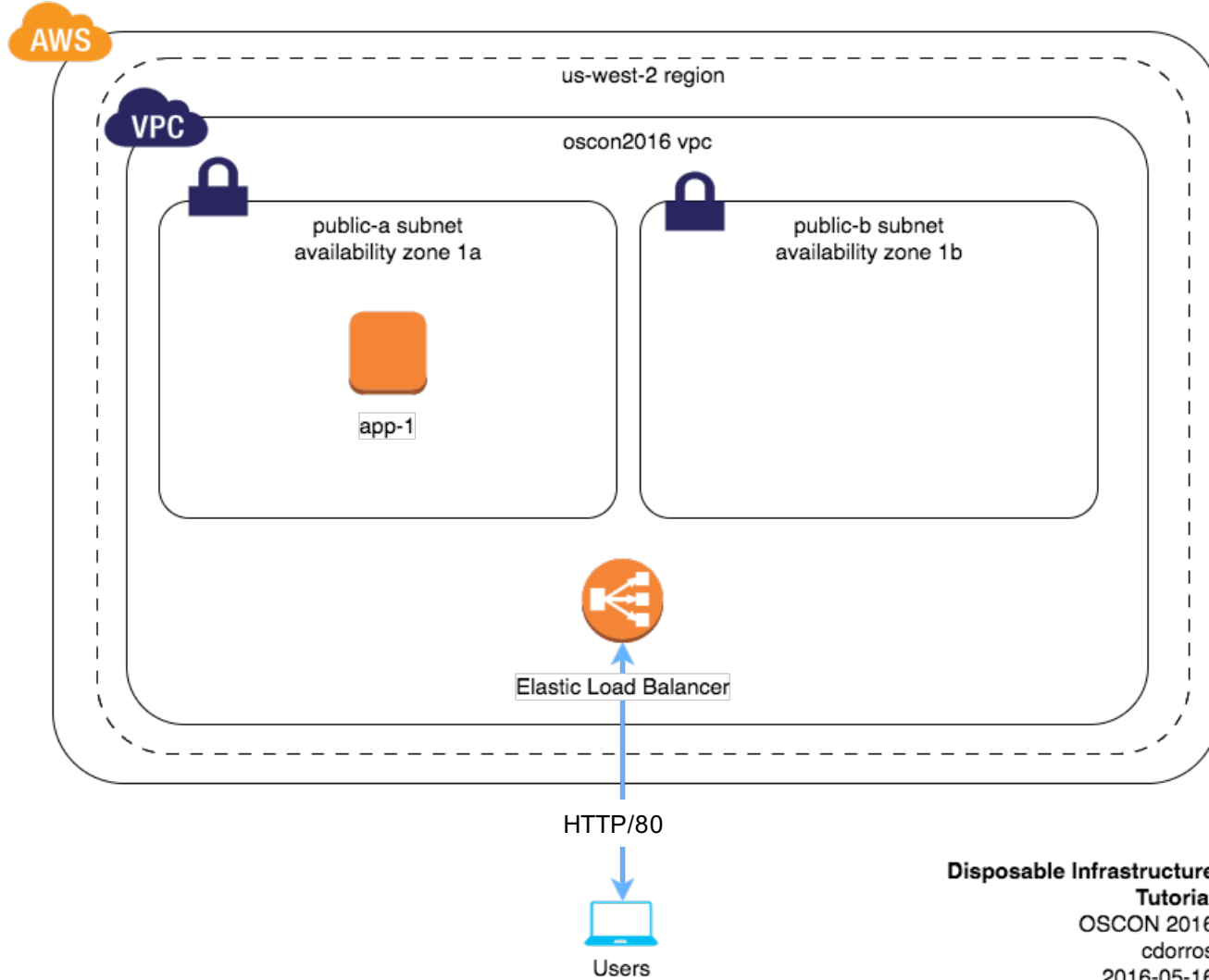
Deployment Workflow: Today's Exercise



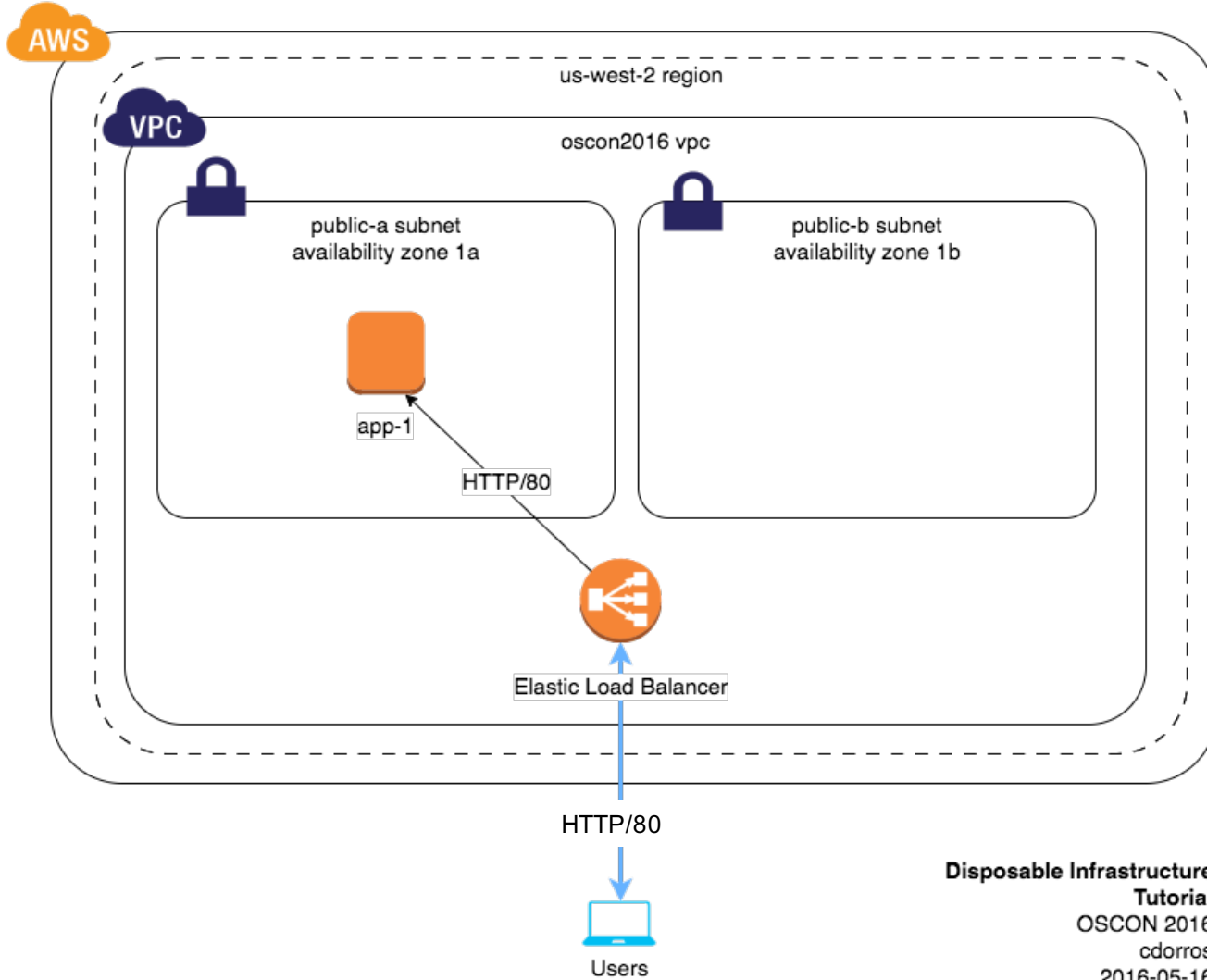
What we're building today



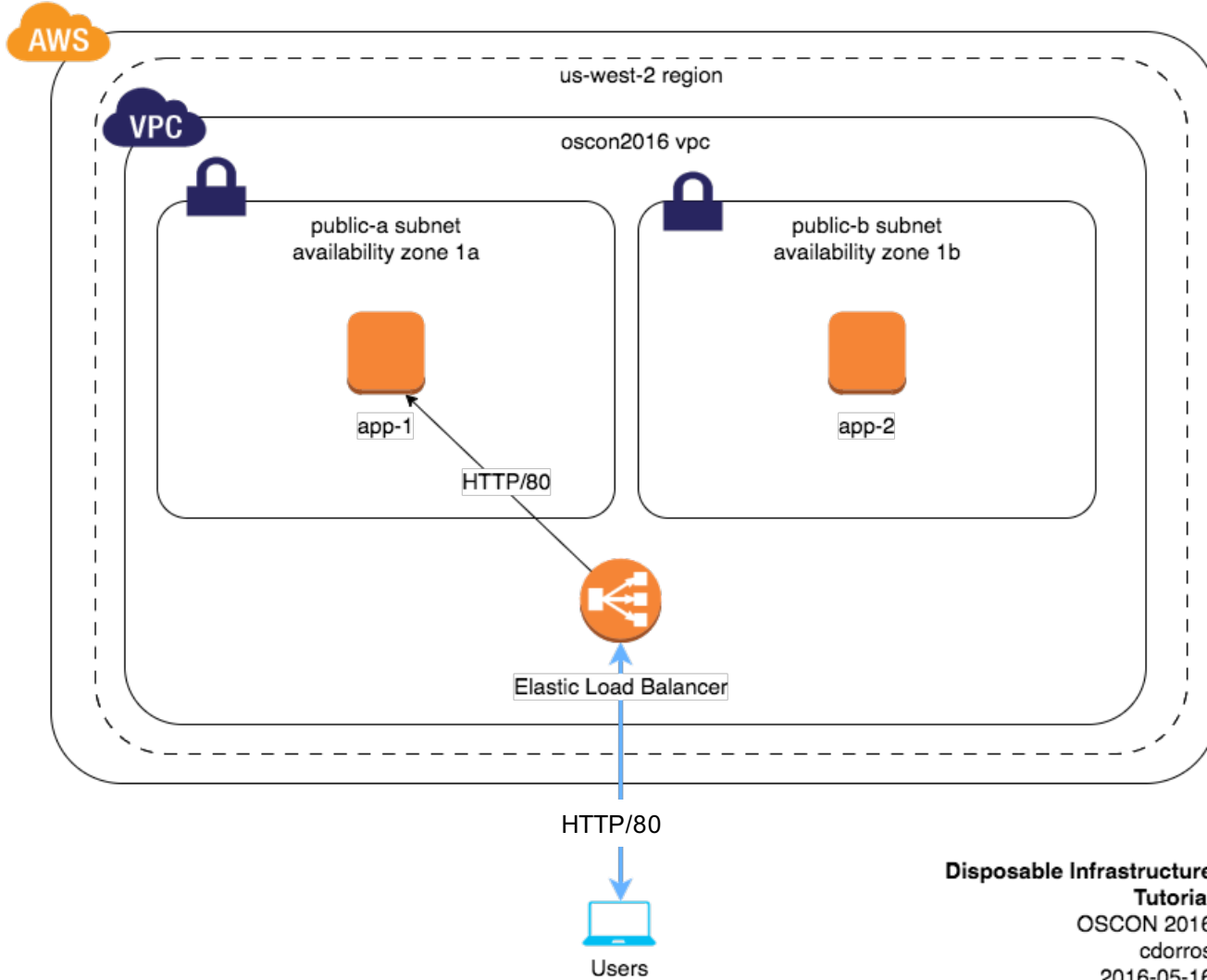
Section 3 (app-1 out of rotation)



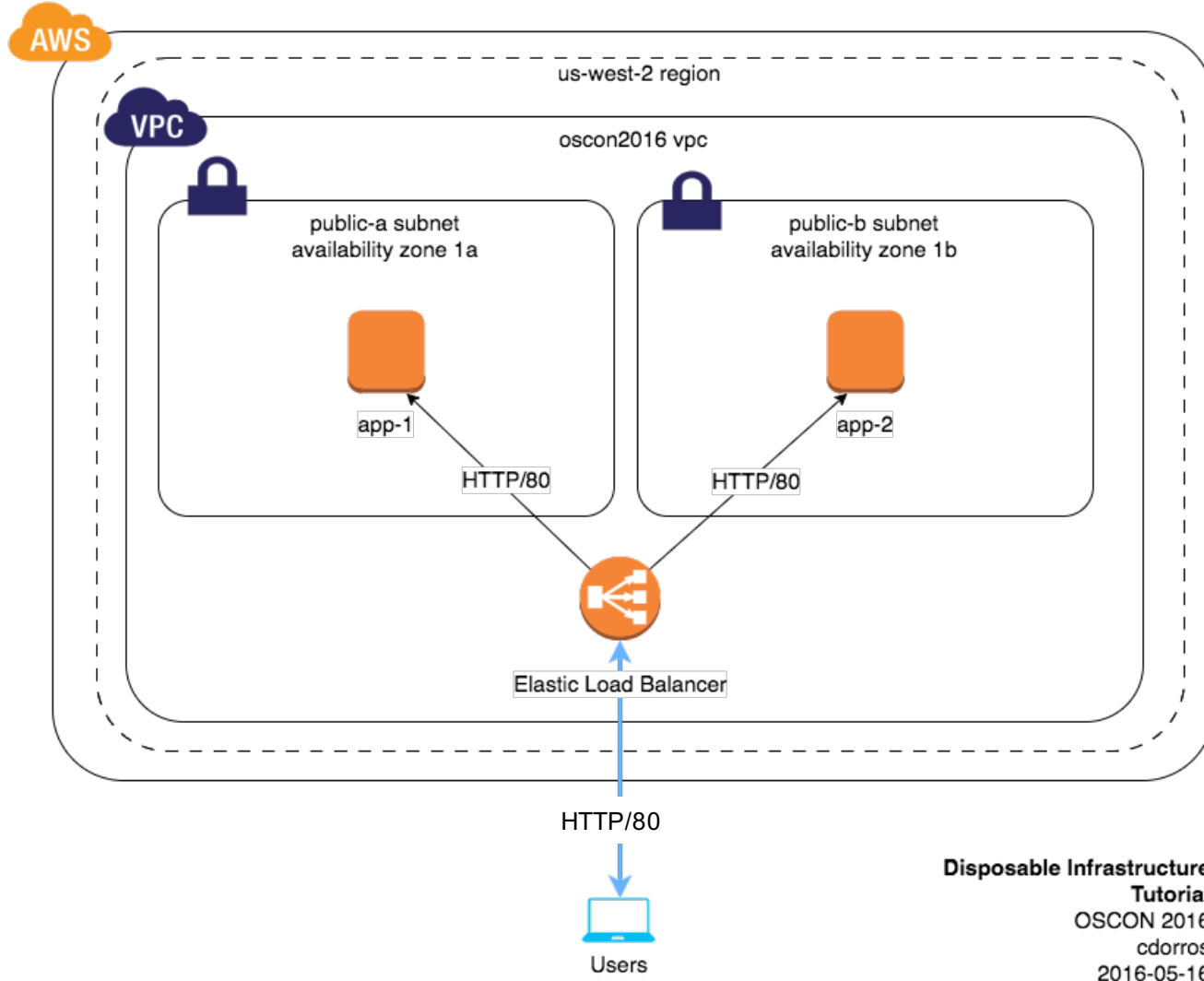
Section 3 (app-1 in rotation)



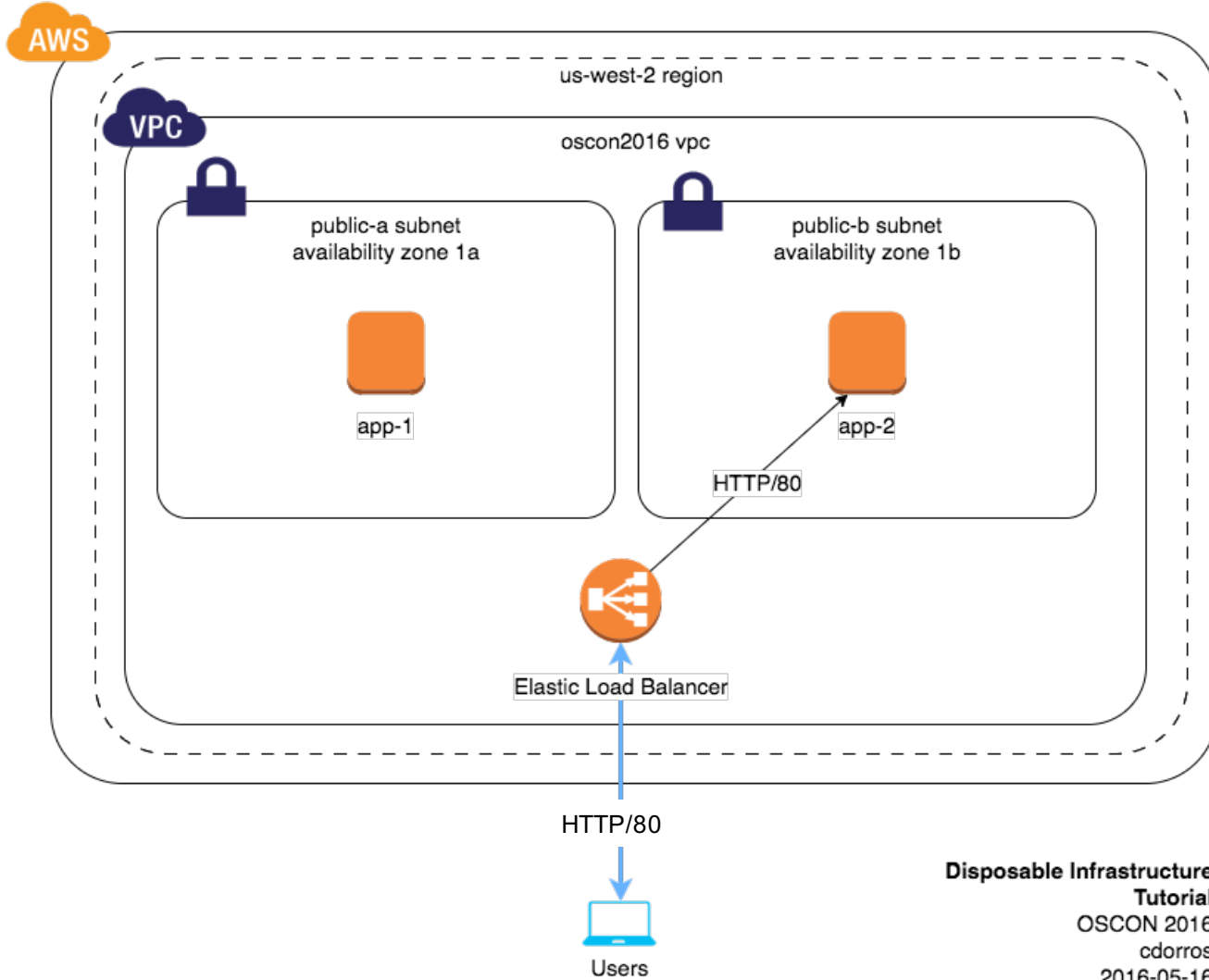
Section 4 (app-1 in rotation)



Section 4 (both versions of the app in rotation)



Section 4 (app-2 in rotation instead of app-1)



Where do I go from here

- Experiment with it!
 - Try adding a fake SSH key to the AWS EC2 instance during build to force yourself not to login
- Dev / Prod parity
 - Re-using Terraform configuration across both
 - 1. “terraform apply” in dev
 - 2. switch AWS keys to point to prod
 - 3. “terraform apply” in prod

Thank you!

Feedback, or just to update on applying these techniques back @ work:

✉ `chris[at]chrisdorros[dot]com`