



ARTURO PIE @arturo_pie

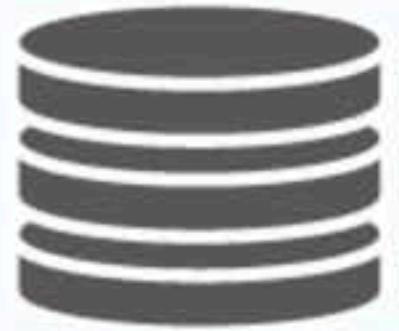
IAC WITH TERRAFORM



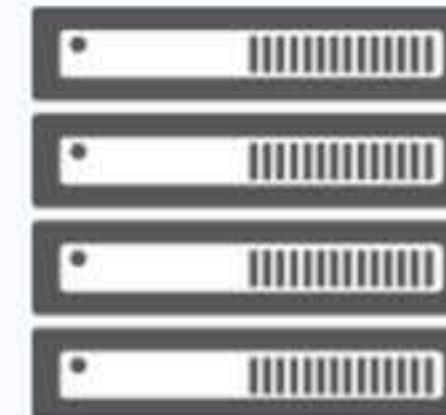
- ▶ Based in Toronto, Canada
- ▶ Goal: Build software that dramatically reduces waste in the global supply chain
- ▶ We serve Kellogg's, P&G, DHL, L'Oreal and others
- ▶ Software Craftsmanship
- ▶ Learning organization
- ▶ Modern Agile methodology
- ▶ TDD and pair programming

INFRASTRUCTURE

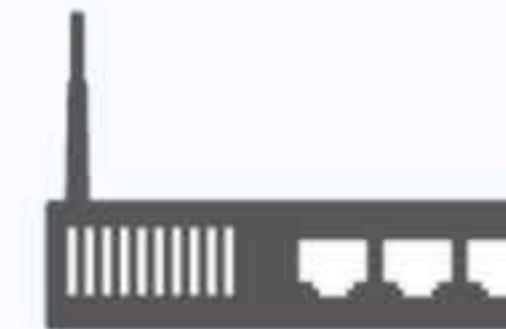
Orchestration & Automation



Storage/
Availability



Servers



Networking



Security



Management/
Monitoring

**App Resource
Management**

INFRASTRUCTURE AS CODE

```
provider "aws" {
  region = "us-west-2"
}

resource "aws_vpc" "main" {
  cidr_block = "10.0.0.0/16"
}

data "aws_ami" "ubuntu" {
  most_recent = true

  filter {
    name   = "name"
    values = ["ubuntu/images/hvm-ssd/ubuntu-trusty-14.04-*"]
  }

  filter {
    name   = "virtualization-type"
    values = ["hvm"]
  }

  owners = ["099720109477"] # Canonical
}

resource "aws_instance" "web" {
  ami          = "${data.aws_ami.ubuntu.id}"
  instance_type = "t2.large"
  security_groups = ["${aws_security_group.allow_all.id}"]

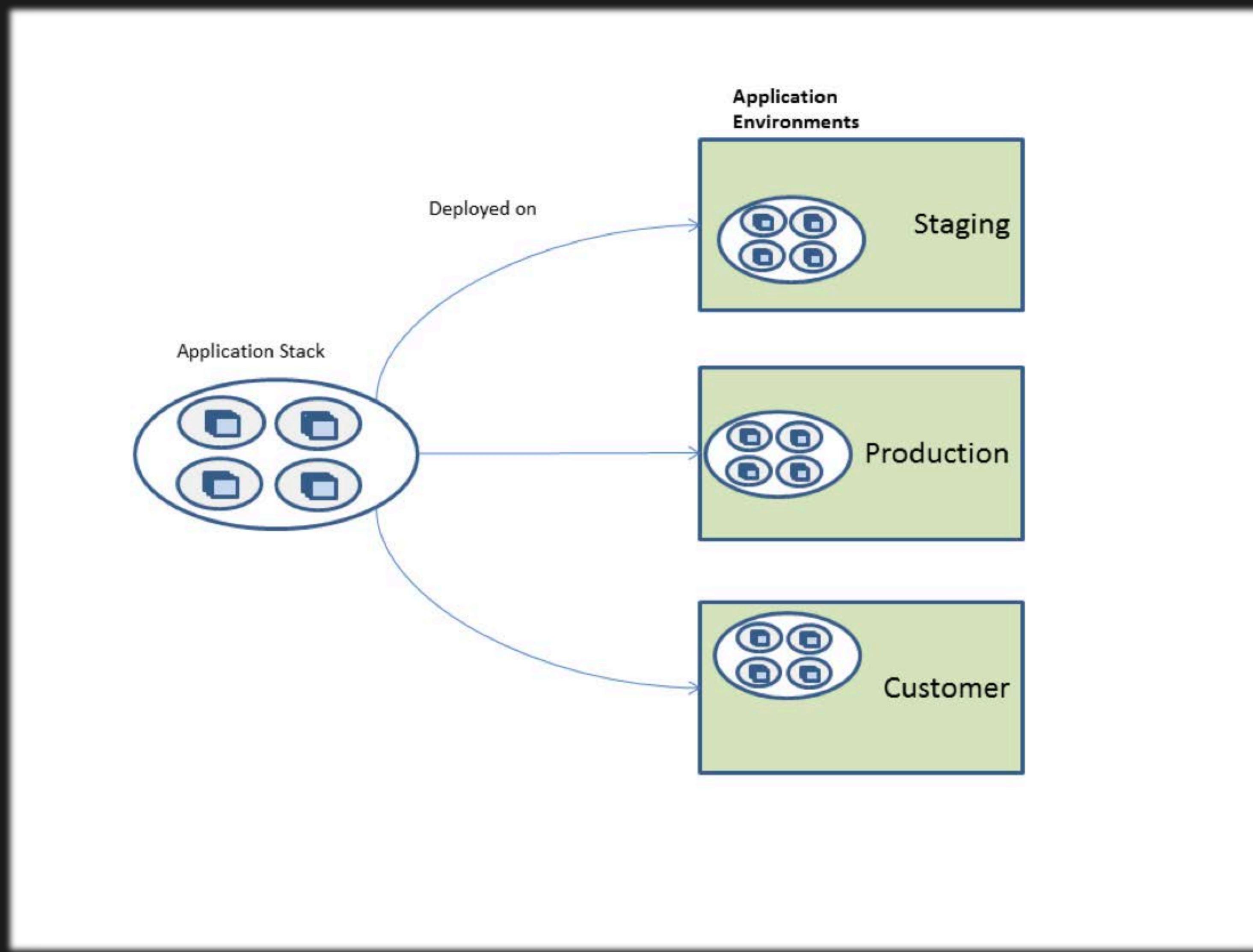
  tags {
    Name = "HelloWorld"
  }
}

resource "aws_rds_cluster" "postgresql" {
  cluster_identifier      = "aurora-cluster-demo"
  engine                  = "aurora-postgresql"
  availability_zones     = ["us-west-2a", "us-west-2b", "us-west-2c"]
  database_name           = "mydb"
  master_username          = "foo"
  master_password          = "bar"
  backup_retention_period = 5
  preferred_backup_window = "07:00-09:00"
}

resource "aws_security_group" "allow_all" {
  name      = "allow_all"
  description = "Allow all inbound traffic"
  vpc_id    = "${aws_vpc.main.id}"

  ingress {
    from_port  = 0
    to_port    = 0
    protocol   = "-1"
  }
}
```

ENVIRONMENT



EC2 Dashboard

- Events
- Tags
- Reports
- Limits
- INSTANCES**
 - Instances
 - Spot Requests
 - Reserved Instances
 - Scheduled Instances
 - Dedicated Hosts
- IMAGES**
 - AMIs
 - Bundle Tasks
- ELASTIC BLOCK STORE**
 - Volumes
 - Snapshots
- NETWORK & SECURITY**
 - Security Groups
 - Elastic IPs
 - Placement Groups
 - Key Pairs
 - Network Interfaces
- LOAD BALANCING**
 - Load Balancers
 - Target Groups
- AUTO SCALING**
 - Launch Configurations
 - Auto Scaling Groups
- SYSTEMS MANAGER SERVICES**
 - Run Command

Resources

You are using the following Amazon EC2 resources in the US West (Oregon) region:

60 Running Instances

5 Elastic IPs

0 Dedicated Hosts

133 Snapshots

71 Volumes

4 Load Balancers

98 Key Pairs

125 Security Groups

0 Placement Groups

Just need a simple virtual private server? Get everything you need to jumpstart your project - compute, storage, and networking – for a low, predictable price. [Try Amazon Lightsail for free.](#) X

Create Instance

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

Launch Instance



Note: Your instances will launch in the US West (Oregon) region

Service Health

Service Status:

✓ US West (Oregon):

This service is operating normally

Availability Zone Status:

✓ us-west-2a:

Availability zone is operating normally

✓ us-west-2b:

Availability zone is operating normally

✓ us-west-2c:

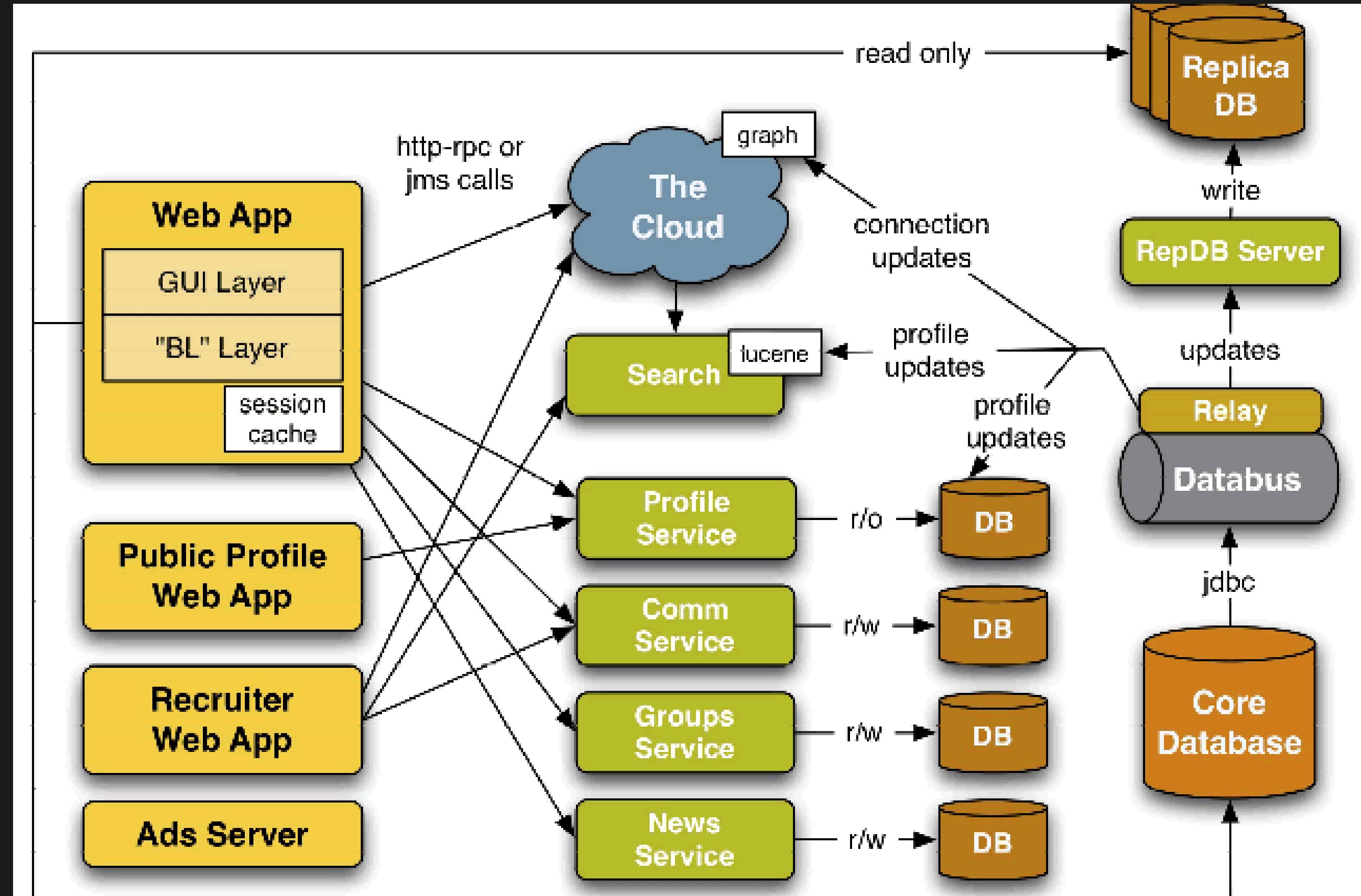
Availability zone is operating normally

[Service Health Dashboard](#)

Scheduled Events

US West (Oregon):

No events



Self-service



- Self-service
- Documentation

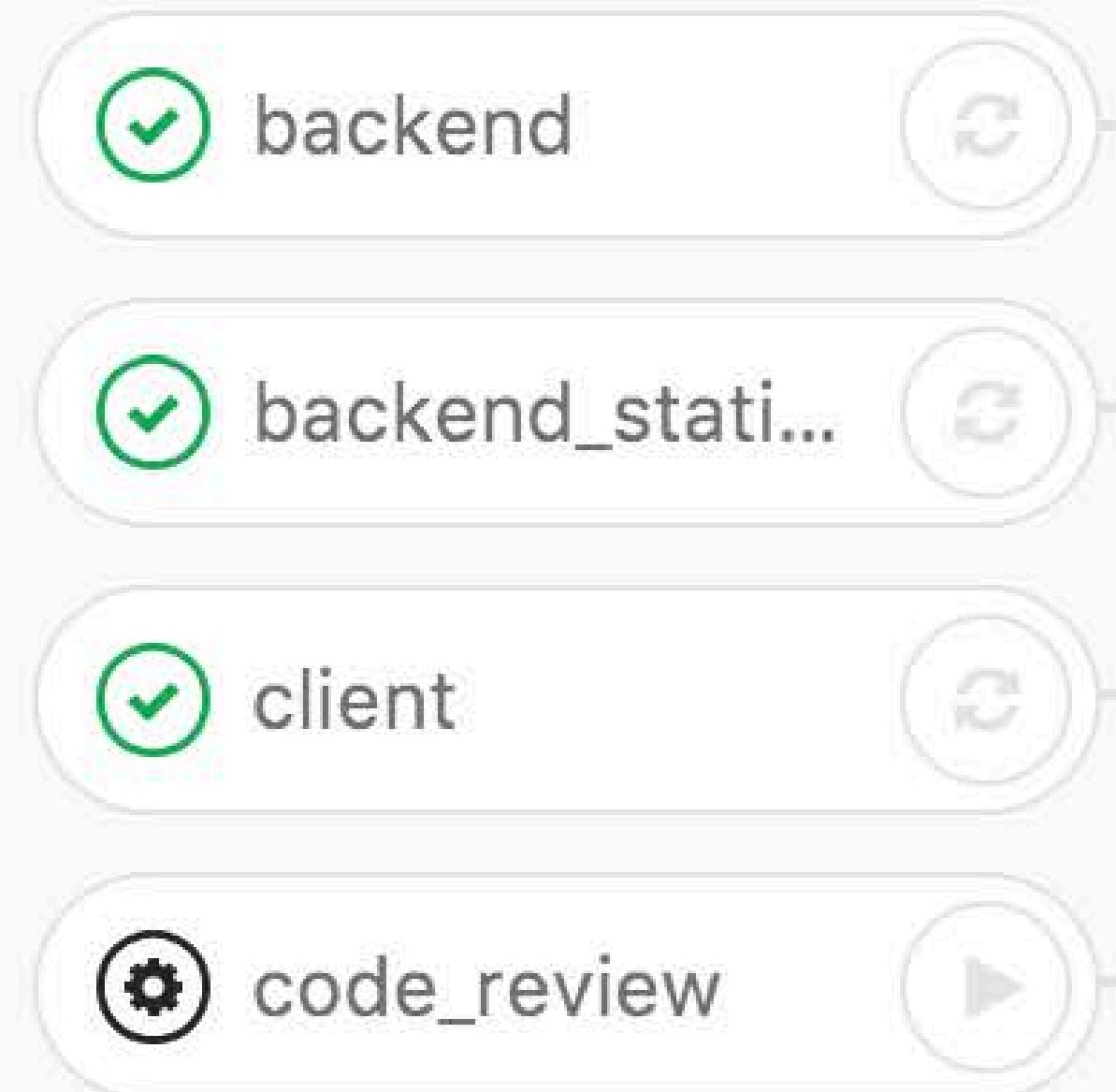




- Self-service
- Documentation
- **Speed and safety**

- Self-service
- Documentation
- Speed and Safety
- Version Control

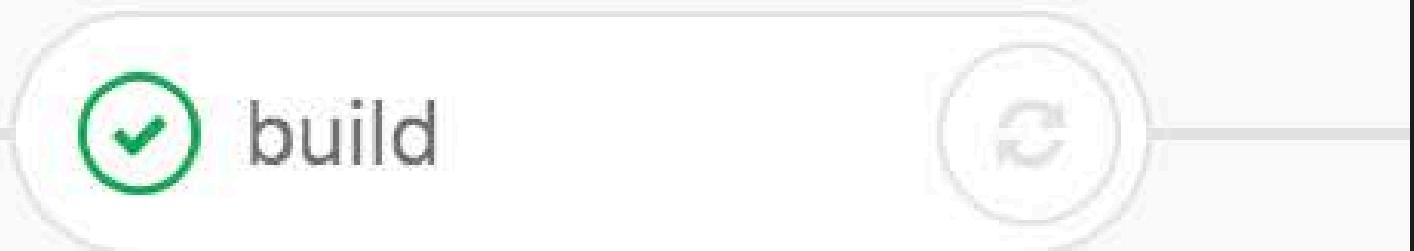
Test



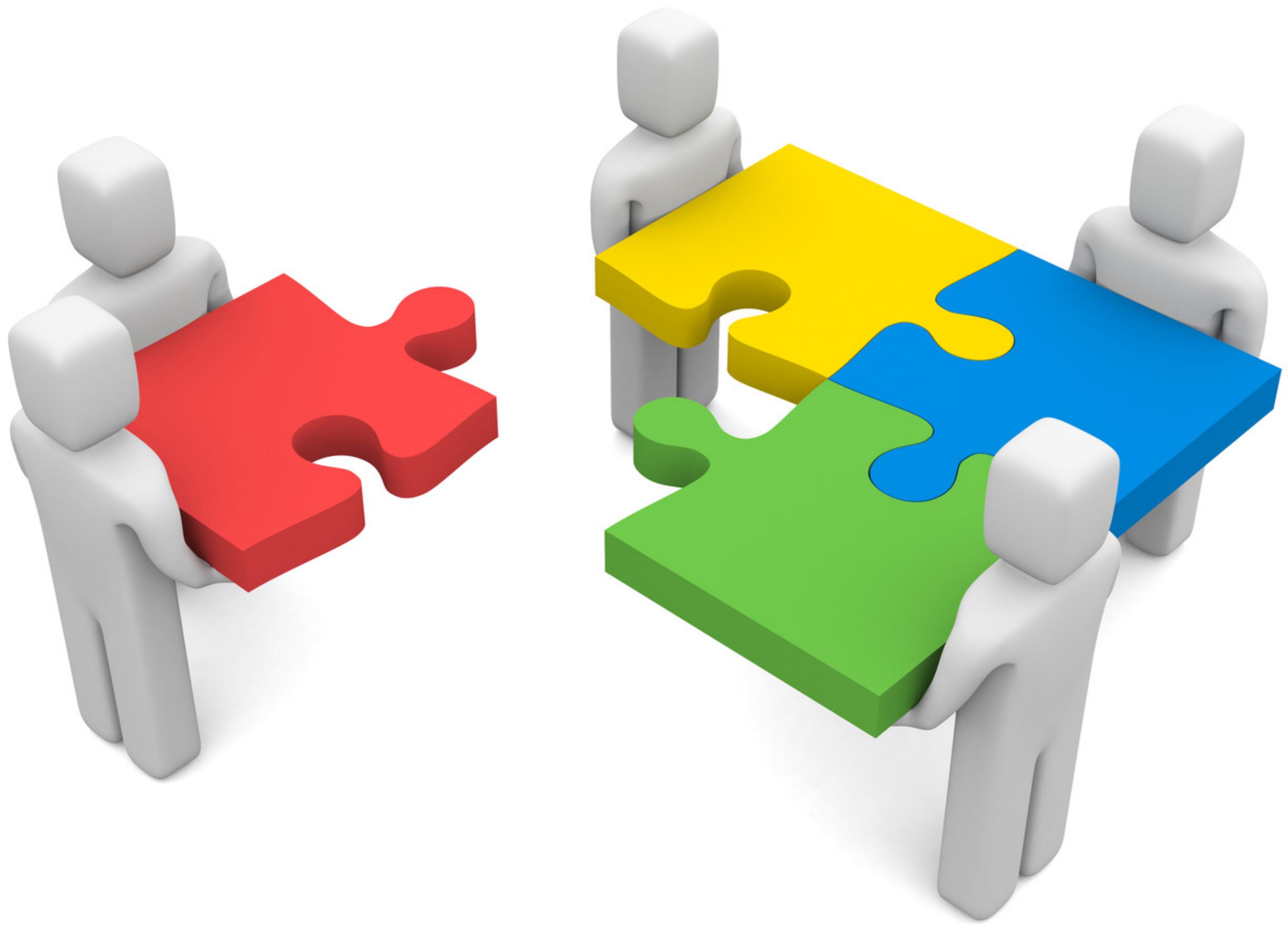
Security



Build



- Self-service
- Documentation
- Speed and Safety
- Version Control
- Validation



- ❑ Self-service
- ❑ Documentation
- ❑ Speed and Safety
- ❑ Version Control
- ❑ Validation
- ❑ Reusability

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

1 to 50 of 80

<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
<input type="checkbox"/>		i-0d15c1	t2.medium	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-037139	t2.small	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0d176f	t2.small	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0616d1	t2.small	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0c85f9	t2.small	us-west-2c	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0d8681	t2.small	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-004cd0	t2.micro	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0cff322	t2.medium	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-03d594	t2.medium	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0017f8	t2.micro	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0d9e91	m3.large	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0c78cc	m3.large	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-017c43	t2.micro	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-015b50	t2.micro	us-west-2c	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-03a4e7	t2.micro	us-west-2c	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-092b21	t2.medium	us-west-2b	red stopped		None		-
<input type="checkbox"/>		i-016164	t2.medium	us-west-2b	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-08bf73	t2.medium	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-0ac7ea	t2.medium	us-west-2a	green running	green 2/2 checks ...	None		-
<input type="checkbox"/>		i-07a056	t2.micro	us-west-2a	green running	green 2/2 checks ...	None		-

- ❑ Self-service
- ❑ Documentation
- ❑ Speed and safety
- ❑ Version control
- ❑ Validation
- ❑ Reusability
- ❑ Happiness

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INFRASTRUCTURE AS CODE

Self-service

Documentation

Speed and safety

Version control

Validation

Reusability

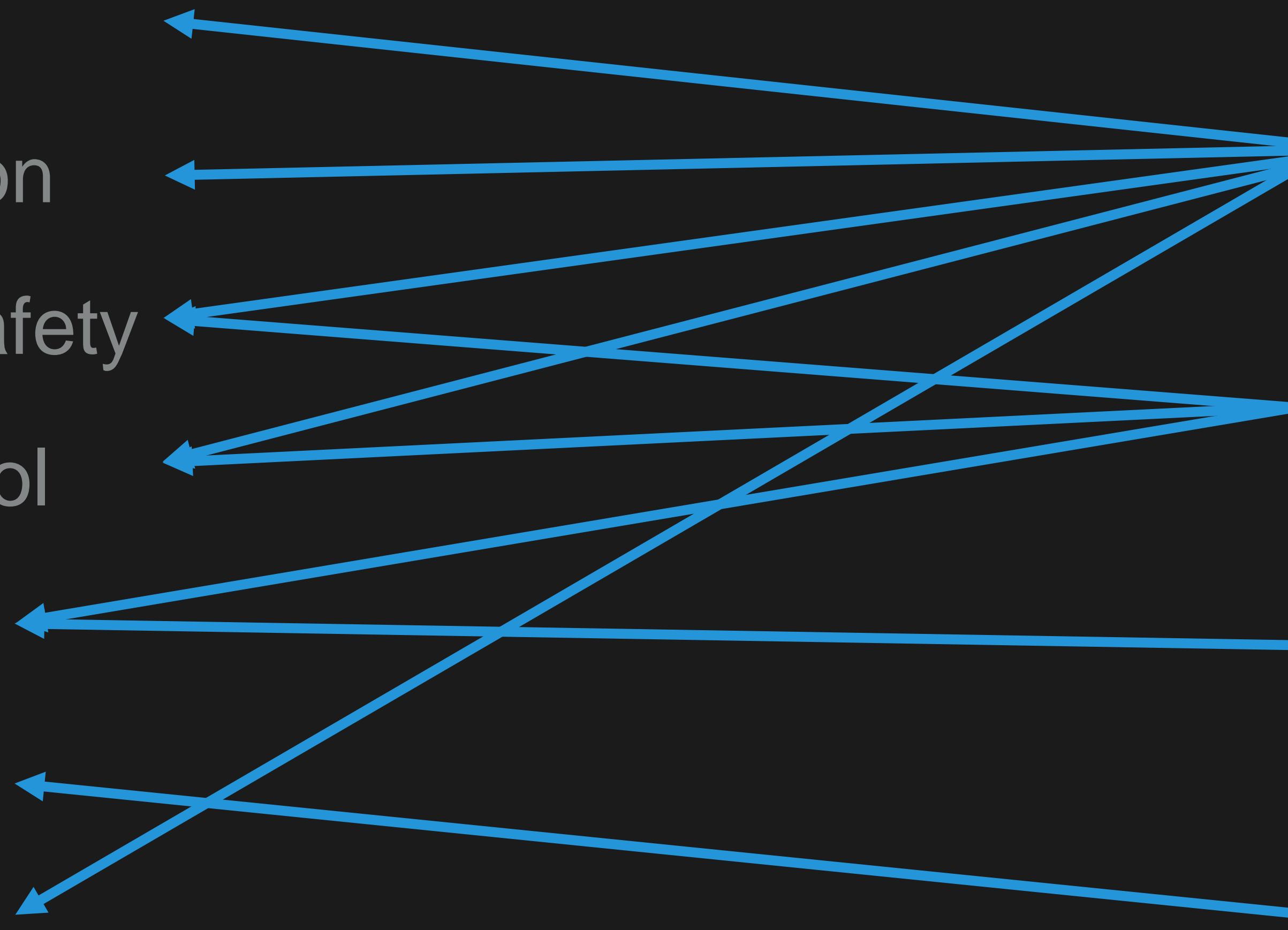
Happiness

Maintainability

Security

Testability

Reusability





CODE IS
POWERFUL

	Source	Cloud Type	Infrastructure	Language	Agent	Master	Community	Maturity	
Chef	Open	All	Config Mgmt	Mutable	Procedural	Yes	Yes	Large	High
Puppet	Open	All	Config Mgmt	Mutable	Declarative	Yes	Yes	Large	High
Ansible	Open	All	Config Mgmt	Mutable	Procedural	No	No	Large	Medium
SaltStack	Open	All	Config Mgmt	Mutable	Declarative	Yes	Yes	Medium	Medium
CloudFormation	Closed	AWS	Provisioning	Immutable	Declarative	No	No	Small	Medium
Heat	Open	All	Provisioning	Immutable	Declarative	No	No	Small	Low
Terraform	Open	All	Provisioning	Immutable	Declarative	No	No	Medium	Low

* Terraform: Up and Running

INTRO TO TERRAFORM

› Providers

- › Alicloud
- › Archive
- › Arukas
- › AWS
- › Bitbucket
- › CenturyLinkCloud
- › Chef
- › Circonus
- › Cloudflare
- › CloudStack
- › Cobbler
- › Consul
- › Datadog
- › DigitalOcean
- › DNS
- › DNSMadeEasy
- › DNSimple
- › Docker
- › Dyn
- › External
- › Fastly
- › GitHub
- › Gitlab
- › Google Cloud
- › Grafana
- › Heroku
- › HTTP
- › Icinga2
- › Ignition

- › InfluxDB
- › Kubernetes
- › Librato
- › Local
- › Logentries
- › Mailgun
- › New Relic
- › Nomad
- › NS1
- › Microsoft Azure
- › Microsoft Azure (Legacy ASM)
- › MySQL
- › 1&1
- › Oracle Public Cloud
- › OpenStack
- › OpsGenie
- › OVH
- › Packet
- › PagerDuty
- › PostgreSQL
- › PowerDNS
- › ProfitBricks
- › RabbitMQ
- › Rancher
- › Random
- › Rundeck
- › Scaleway
- › SoftLayer
- › StatusCake
- › Spotinst
- › Template

› Terraform

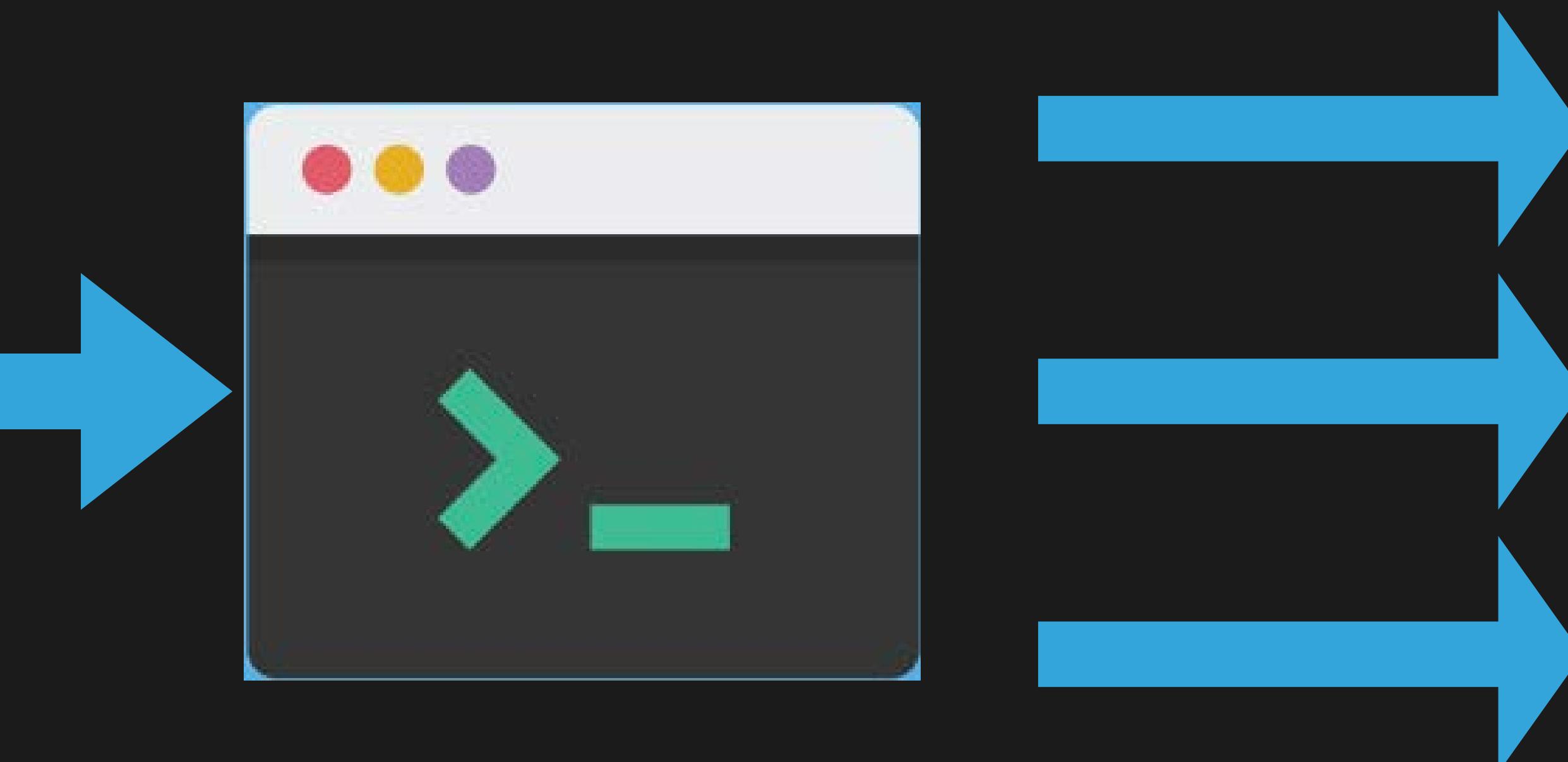
- › Terraform Enterprise
- › TLS
- › Triton
- › UltraDNS
- › Vault
- › VMware vCloud Director
- › VMware vSphere

```
provider "aws" {
  region = "us-east-1"
}

resource "aws_instance" "example" {
  ami           = "ami-40d28157"
  instance_type = "t2.micro"

  tags {
    Name = "terraform-example"
  }
}
```

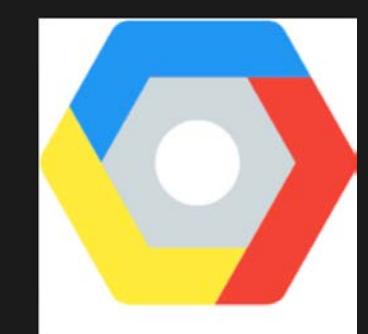
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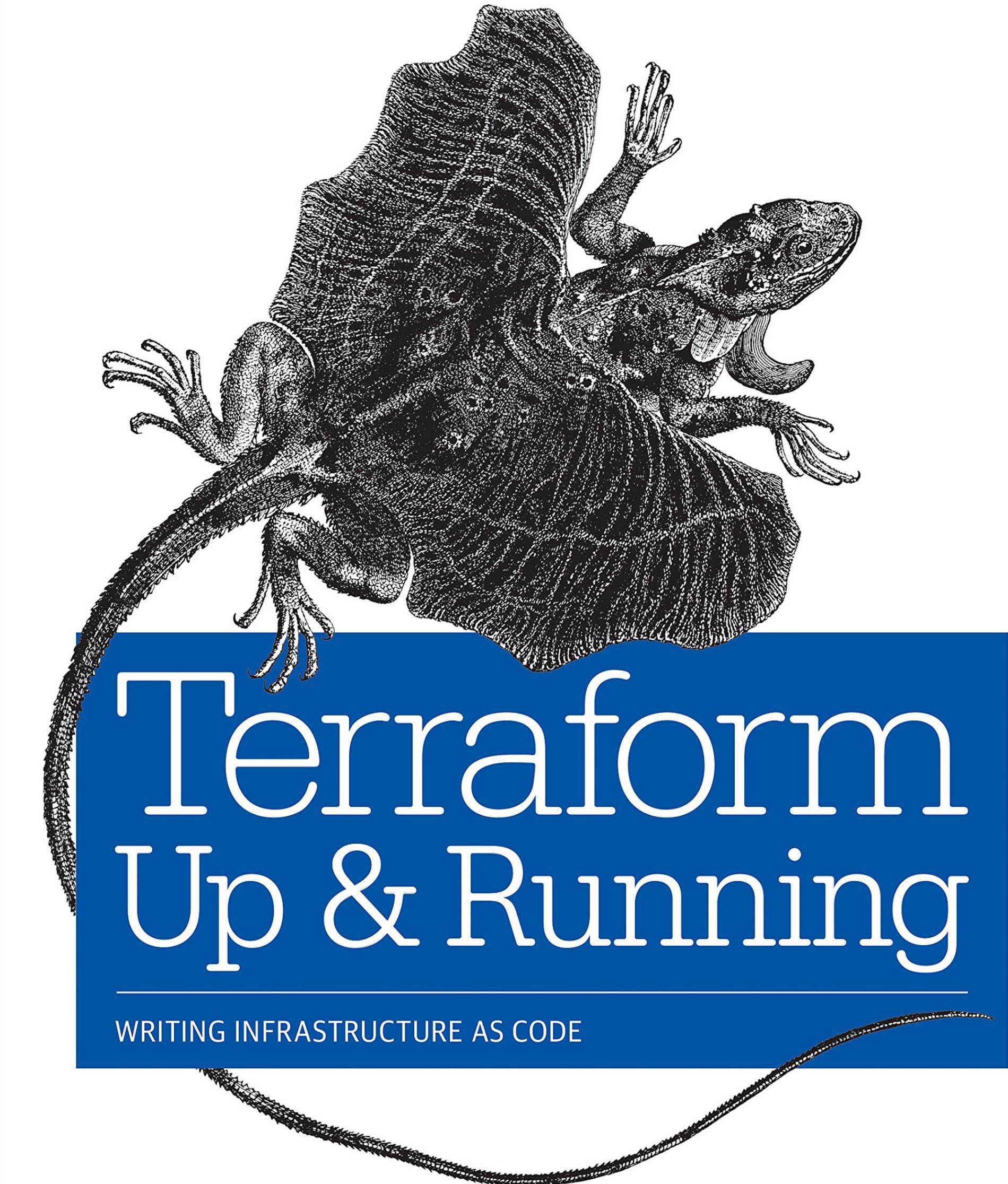
*.TF FILES

TERRAFORM

API CALLS



O'REILLY®



Yevgeniy Brikman

Source Code

https://github.com/arturopie/iac_with_terraform



CODE IS
POWERFUL

THANK YOU

Code is powerful

Q&A

Arturo Pie - @arturo_pie

Source Code

https://github.com/arturopie/iac_with_terraform

Code is powerful

Q&A

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Source Code

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NO SILVER BULLET

Maintainability

Security

Testability

Reusability