Maintain your resources with Terraform on Azure

Jaap Brasser
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Rakuten

Those who don't automate are doomed to repeat themselves

Microsoft

PowerShell

Connector of the Hybrid Cloud

From **ANY** client

Manage **ANY** server

Running in **ANY** cloud*

*Or on-premises using **ANY** hypervisor

And **ANY** storage

THOSE WHO DON'T AUTOMATE ARE DOOMED TO REPEAT THEMSELVES

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Codes	jaapbrasser
Works	Developer Advocate @ Rubrik
Does	Blogger, Speaker, Tech Enthusiast
Likes	Cloud Automation & Quokkas

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Agenda

TERRAFORM

TERRAFORM INTERNALS

TERRAFORM ON AZURE

Q&A

Introduction to Terraform

Hashicorp

HashiCorp
Terraform

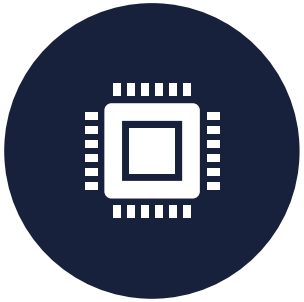
HashiCorp
Vault

HashiCorp
Consul

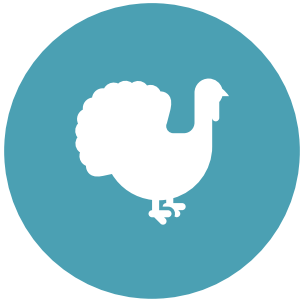
HashiCorp
Nomad

HashiCorp
Vagrant

HashiCorp
Packer



WHAT IS INFRASTRUCTURE AS CODE

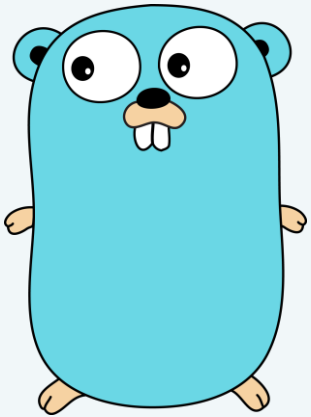


WHAT IS TERRAFORM

WHY USE INFRASTRUCTURE AS CODE

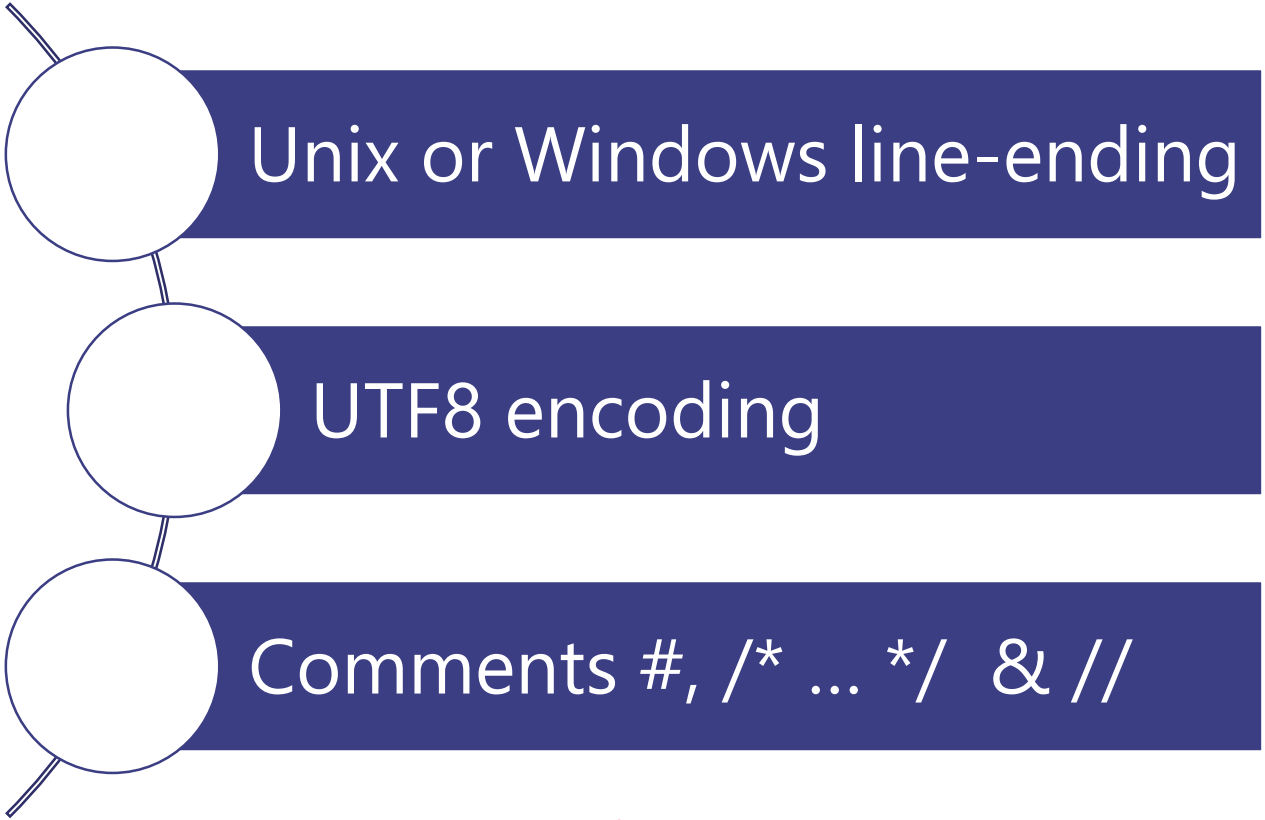
Terraform

https://www.terraform.io



- Multi-platform
- Written in Go
- Open source (CLI) or Enterprise (SaaS) versions
- JSON / HCL language files for configuration
- Relies on *Providers*
- Extendable with *modules*
- Visualize provisioning with *graphs*
- *Provisioners* aid execution via scripts or commands

HCL Language



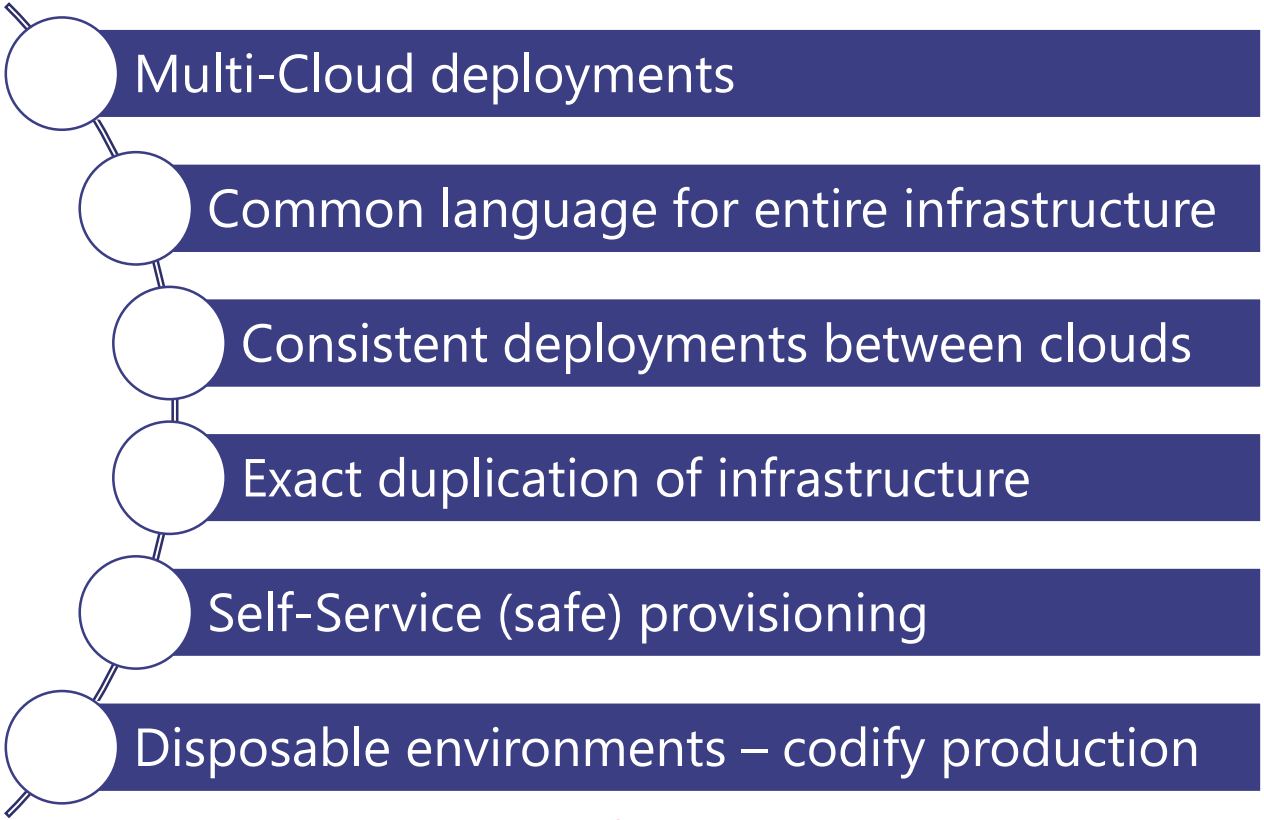
Declarative

- Terraform code is written in a declarative style, where you just define the **end state** needed for your infrastructure.

```
resource "ec2_instance" "example" {
 count = 5
 ami = "ami-afd15ed0"
 instance_type = "t2.micro"
}
```

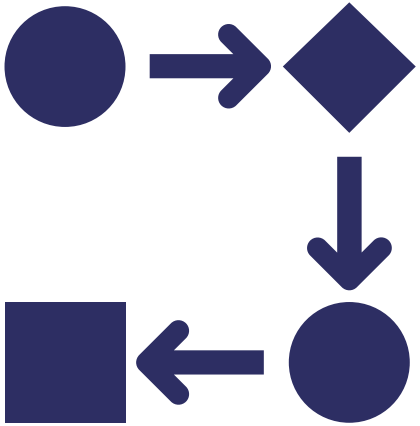
Use-cases of Terraform

What problems does it help solve?



Terraform internals

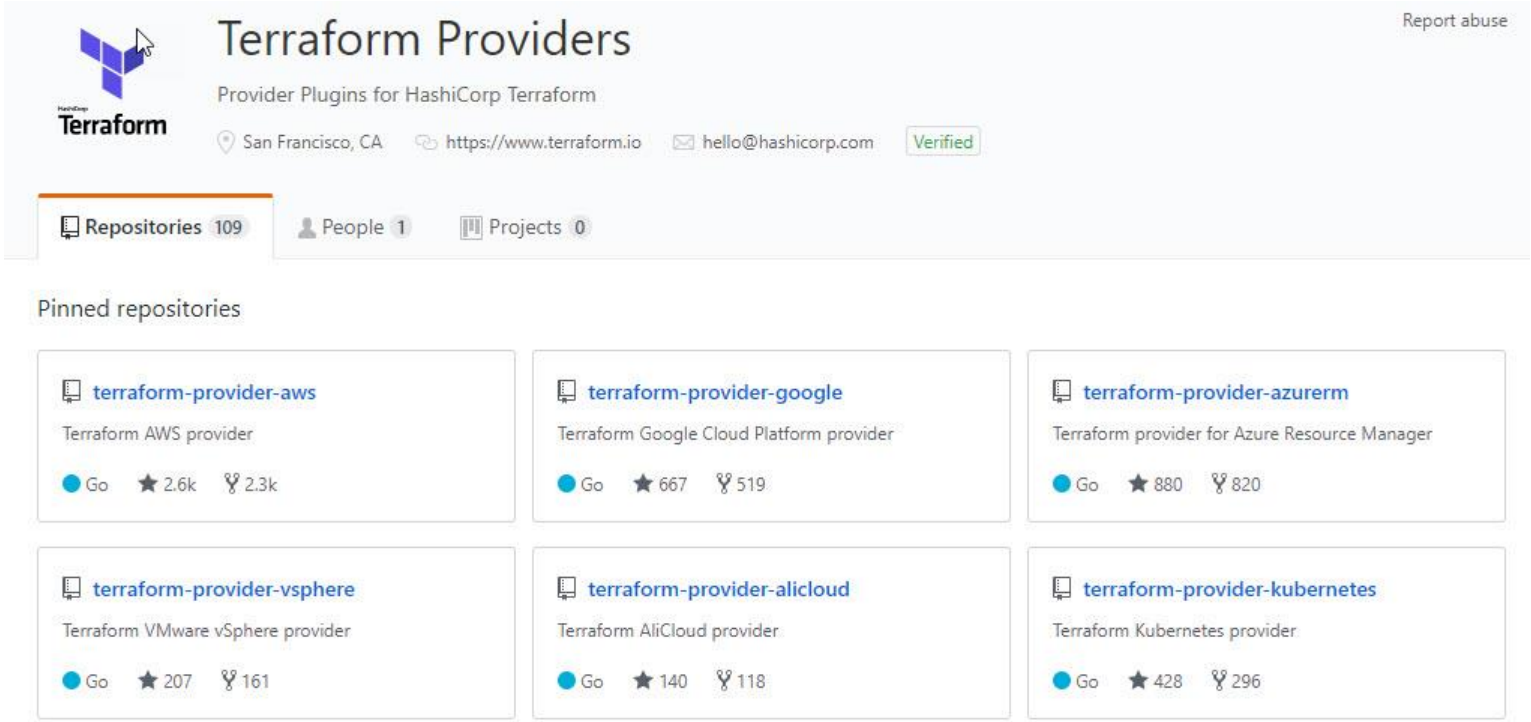
Terraform workflow



```
C:\>terraform init
C:\>terraform validate
C:\>terraform fmt
C:\>terraform plan
C:\>terraform apply
C:\>terraform destroy
```

Providers

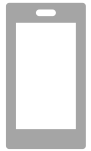
Responsible for understanding API interactions and exposing resources



Azure Cloud Shell

Requirements

Azure Subscription



Browser, Extension, App

Storage Account

Shell skills

Browser Support

Chrome

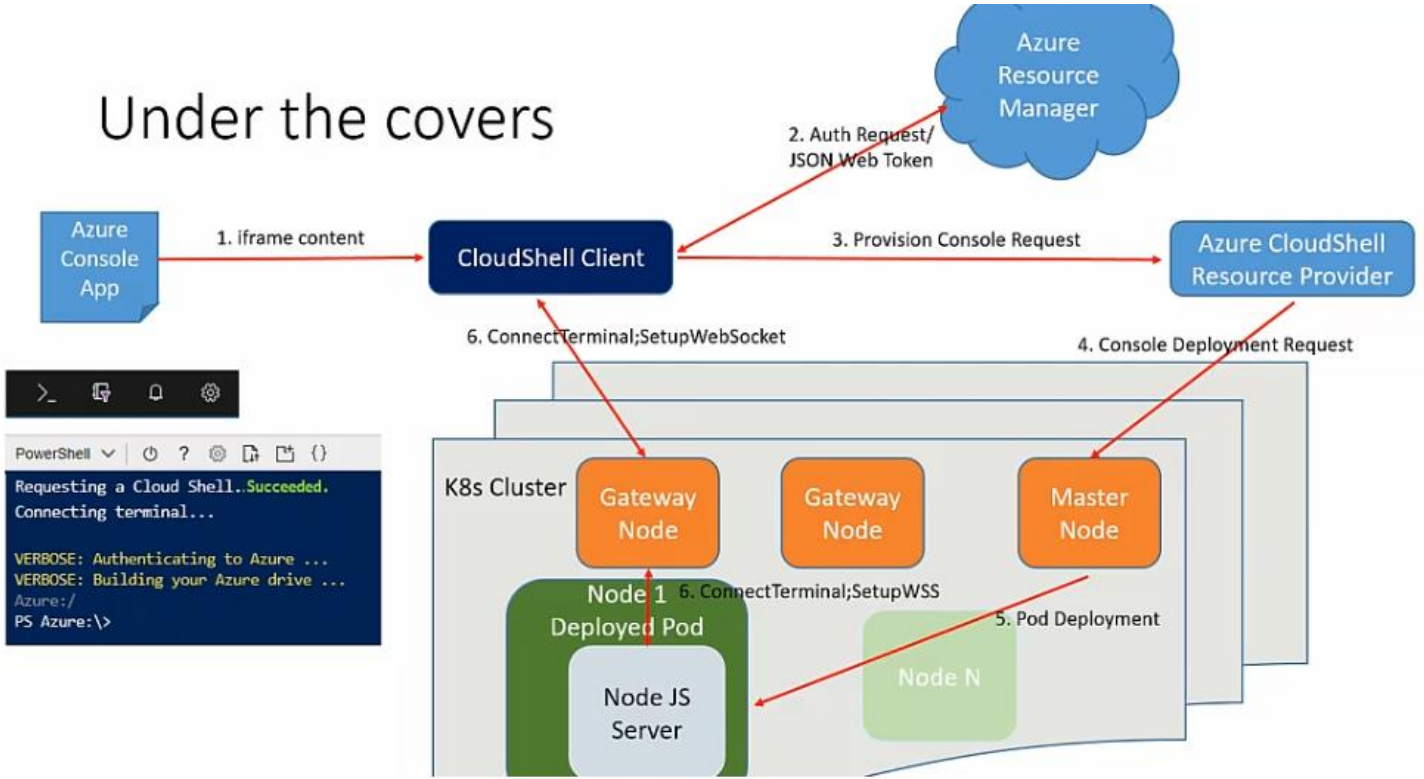
Edge

Firefox

Safari

IE

Components of Cloud Shell



Language Support

Language support

Language	Version
.NET Core	2.0.0
Go	1.9
Java	1.8
Node.js	8.9.4
PowerShell	6.2.0
Python	2.7 and 3.5 (default)

Linux tools	bash
	zsh
	sh
	tmux
	dig
Azure tools	Azure CLI and Azure classic CLI
	AzCopy
	Service Fabric CLI
	Batch Shipyard
	blobxfer
Text editors	vim
	nano
	emacs
	code
Source control	git
Build tools	make
	maven
	npm
	pip

Containers	Docker Machine
	Kubectl
	Helm
	DC/OS CLI
Databases	MySQL client
	PostgreSql client
	sqlcmd Utility
	mssql-scripter
Other	iPython Client
	Cloud Foundry CLI
	Terraform
	Ansible
	Chef InSpec

Available tools

Secrets Management - Authentication

tf

Copy

```
provider "azurerm" {
    subscription_id = "xxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
    client_id       = "xxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
    client_secret   = "xxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
    tenant_id       = "xxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
}
```

Demo – Terraform on Azure

Summary

QUESTIONS?

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