


A nighttime photograph of a city skyline, likely Singapore, with numerous skyscrapers illuminated. The image is split diagonally from the top-left to the bottom-right. The left side is dark and semi-transparent, serving as a background for the title text. The right side shows the city lights and the water of a harbor, with the Marina Bay Sands hotel and other prominent buildings visible. The water reflects the city lights.

Maintain your resources with Terraform on Azure

Jaap Brasser
 jaap_brasser





Those who don't automate are doomed to repeat themselves



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**



Jaap Brasser

Tweets



jaap_brasser

Codes



jaapbrasser

Works

Developer Advocate @ Rubrik

Does

Blogger, Speaker, Tech Enthusiast

Likes

Cloud Automation & Quokkas



Jaap Brassers

Tweets



jaap_brassers

Codes



jaapbrassers

Works

Developer Advocate @ Rubrik

Does

Blogger, Speaker, Tech Enthusiast

Likes

Cloud Automation & Quokkas



Agenda



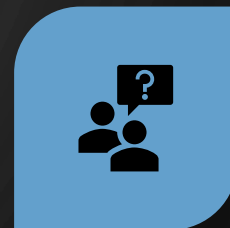
TERRAFORM



TERRAFORM
INTERNALS



TERRAFORM
ON AZURE

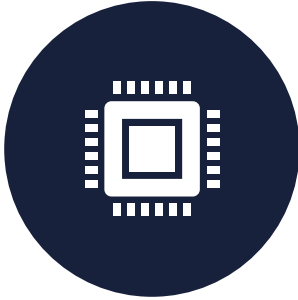


Q&A

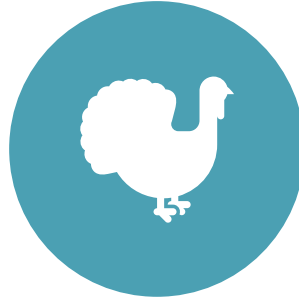
Introduction to Terraform

Hashicorp





WHAT IS
INFRASTRUCTURE AS
CODE



WHAT IS TERRAFORM

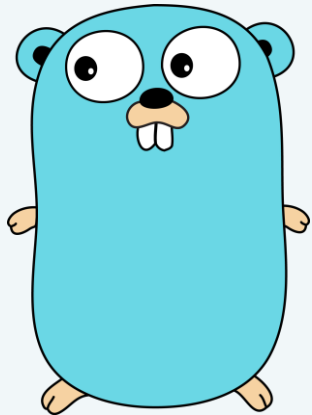


WHY USE
INFRASTRUCTURE AS
CODE



Terraform

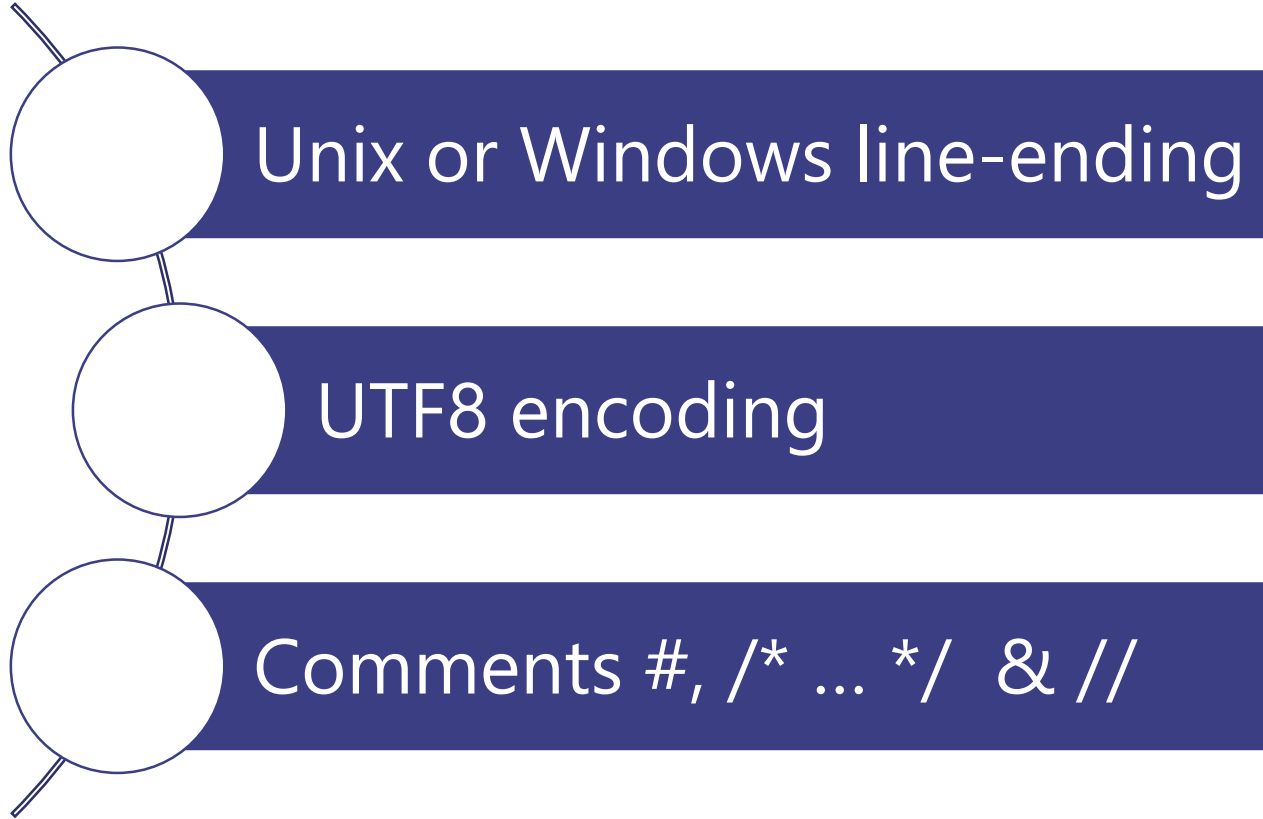
<https://www.terraform.io>



- 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

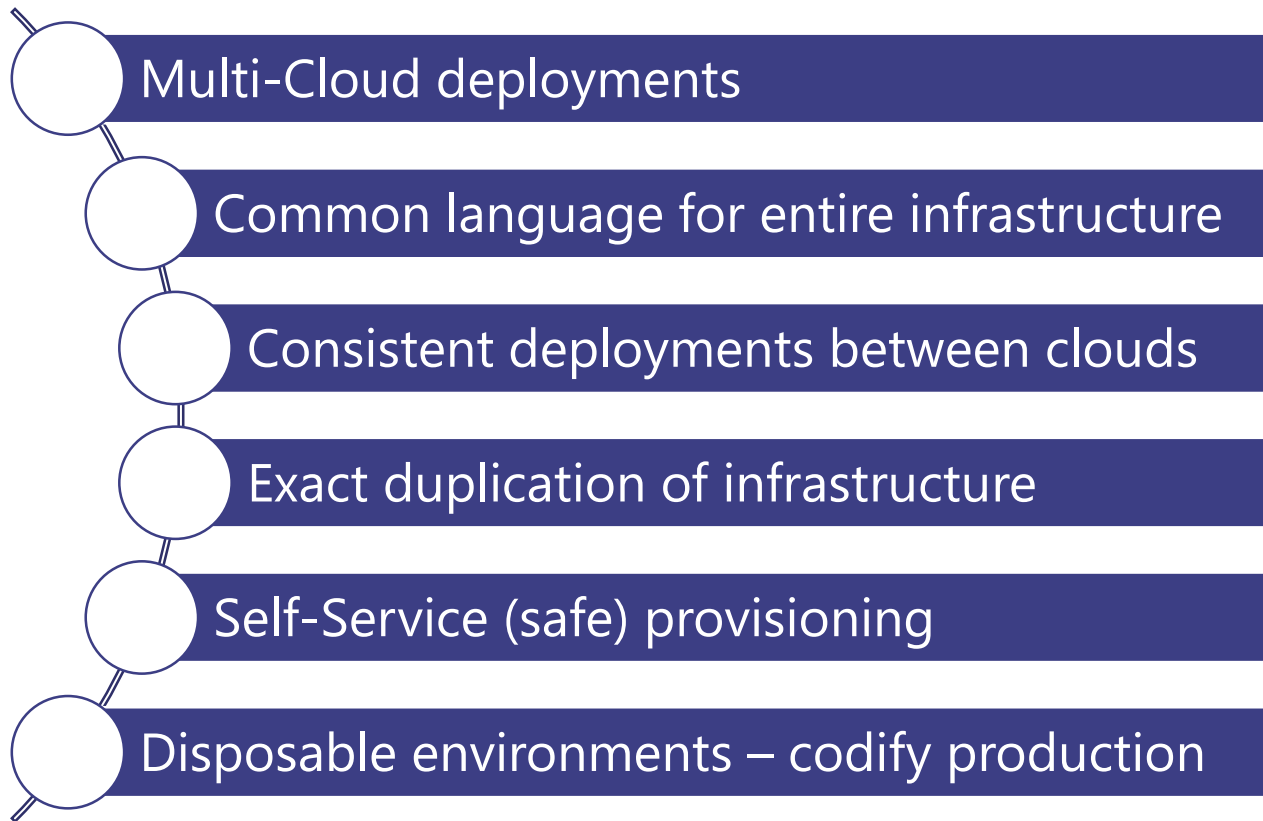
- Terraform code is written in a declarative style, where you just define the **end state** needed for your infrastructure.

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



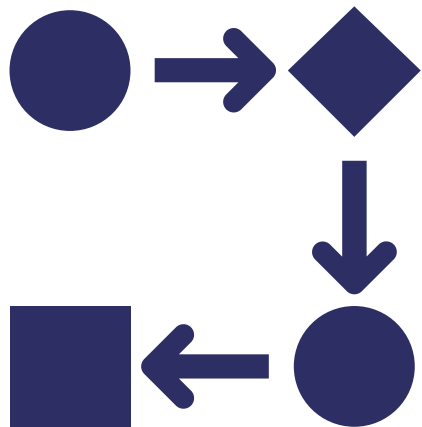
Use-cases of Terraform

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



Terraform Providers







Provider Plugins for HashiCorp Terraform

San Francisco, CA <https://www.terraform.io> hello@hashicorp.com Verified

Repositories 109 **People** 1 **Projects** 0

Report abuse

Pinned repositories

 terraform-provider-aws Terraform AWS provider Go ★ 2.6k 🍴 2.3k	 terraform-provider-google Terraform Google Cloud Platform provider Go ★ 667 🍴 519	 terraform-provider-azurerm Terraform provider for Azure Resource Manager Go ★ 880 🍴 820
 terraform-provider-vsphere Terraform VMware vSphere provider Go ★ 207 🍴 161	 terraform-provider-alicloud Terraform AliCloud provider Go ★ 140 🍴 118	 terraform-provider-kubernetes Terraform Kubernetes provider Go ★ 428 🍴 296



Azure Cloud Shell

Requirements



Azure
Subscription



Browser,
Extension, App



Storage
Account



Shell skills

Browser Support



Chrome



Edge



Firefox



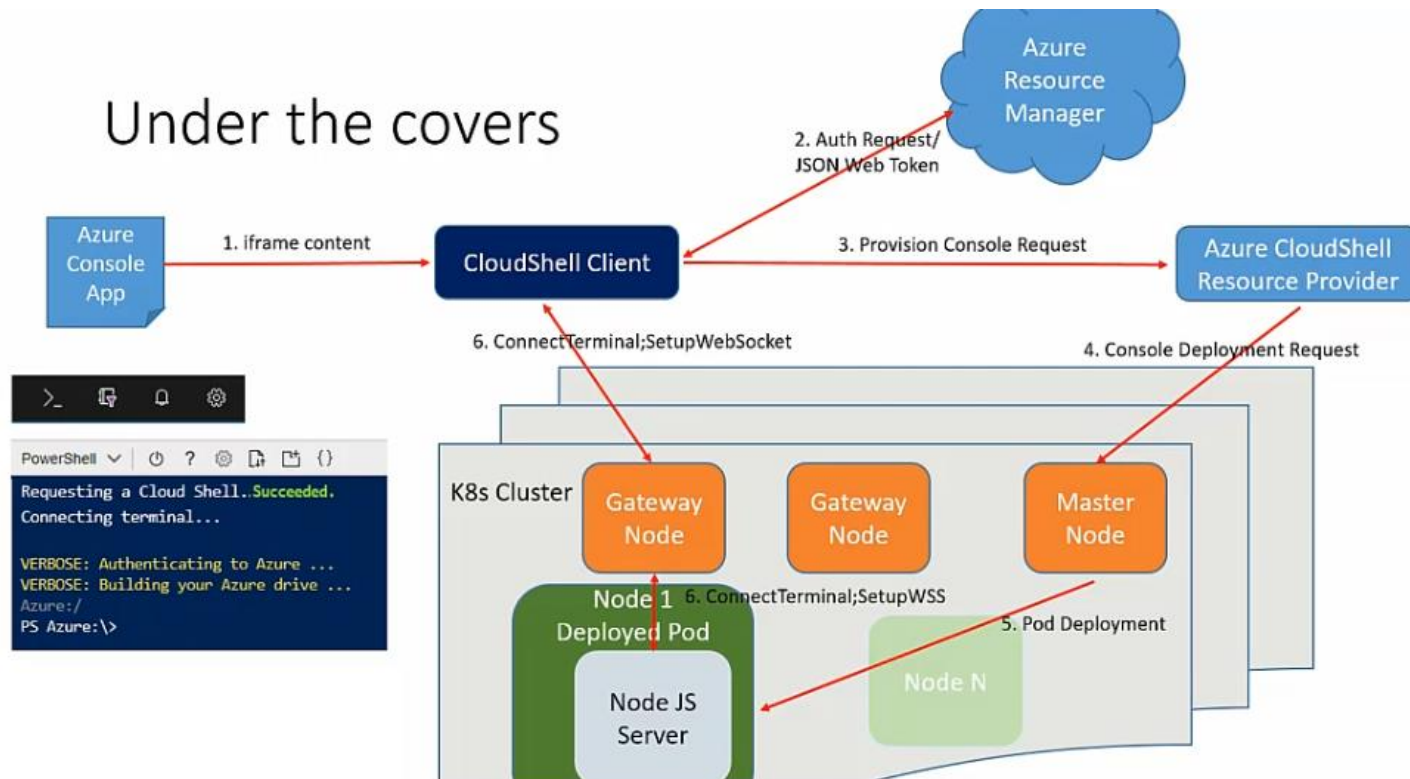
Safari




IE

Components of Cloud Shell

Under the covers





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 = "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxx"  
  client_id       = "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxx"  
  client_secret   = "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxx"  
  tenant_id      = "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxx"  
}
```

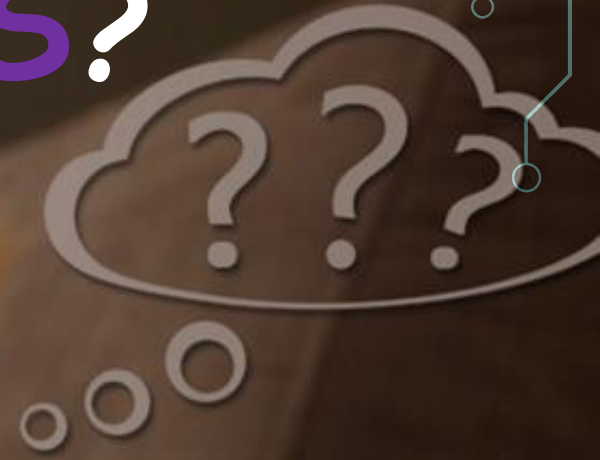
Demo – Terraform on Azure





Summary

QUESTIONS?



Jaap Brasser
jaap_brasser