

Manage your Azure Infrastructure as Code with Terraform



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

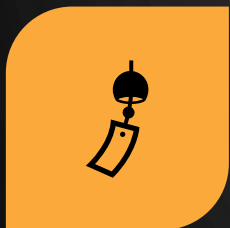
Blogger, Speaker, Coder

Likes

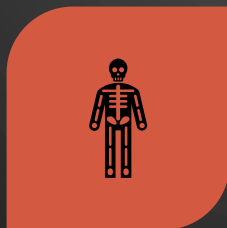
Cloud Automation & Security



Agenda



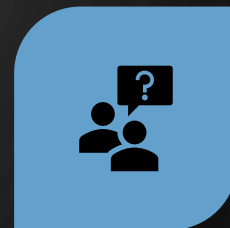
TERRAFORM



TERRAFORM
INTERNALS



TERRAFORM
ON AZURE



Q&A

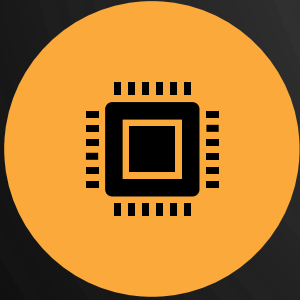
Introduction to Terraform

Hashicorp



Hashicorp





WHAT IS
INFRASTRUCTURE AS
CODE



WHAT IS TERRAFORM



WHY USE
INFRASTRUCTURE AS
CODE

Terraform

terraform.io



- Multi-platform
- Written in Go
- Open source (CLI) or Enterprise (SaaS)
- JSON / HCL configuration files

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 solve

- Multi-Cloud deployments
- Common language for entire infrastructure
- Consistent deployments between clouds
- Exact duplication of infrastructure
- Self-Service (safe) provisioning
- Disposable environments – codify production

Terraform internals

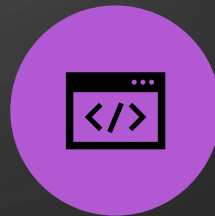
Terraform Components



EXECUTABLE



FILES



PLUGINS



STATE


Terraform Workflow



terraform **init**
terraform **validate**
terraform **fmt**
terraform **plan**
terraform **apply**
terraform **destroy**

Providers

Responsible for understanding API interactions and exposing resources

**Terraform**

Terraform Providers

Provider Plugins for HashiCorp Terraform


San Francisco, CA <https://www.terraform.io> hello@hashicorp.com Verified [Report abuse](#)

Repositories 109

People 1


Projects 0

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



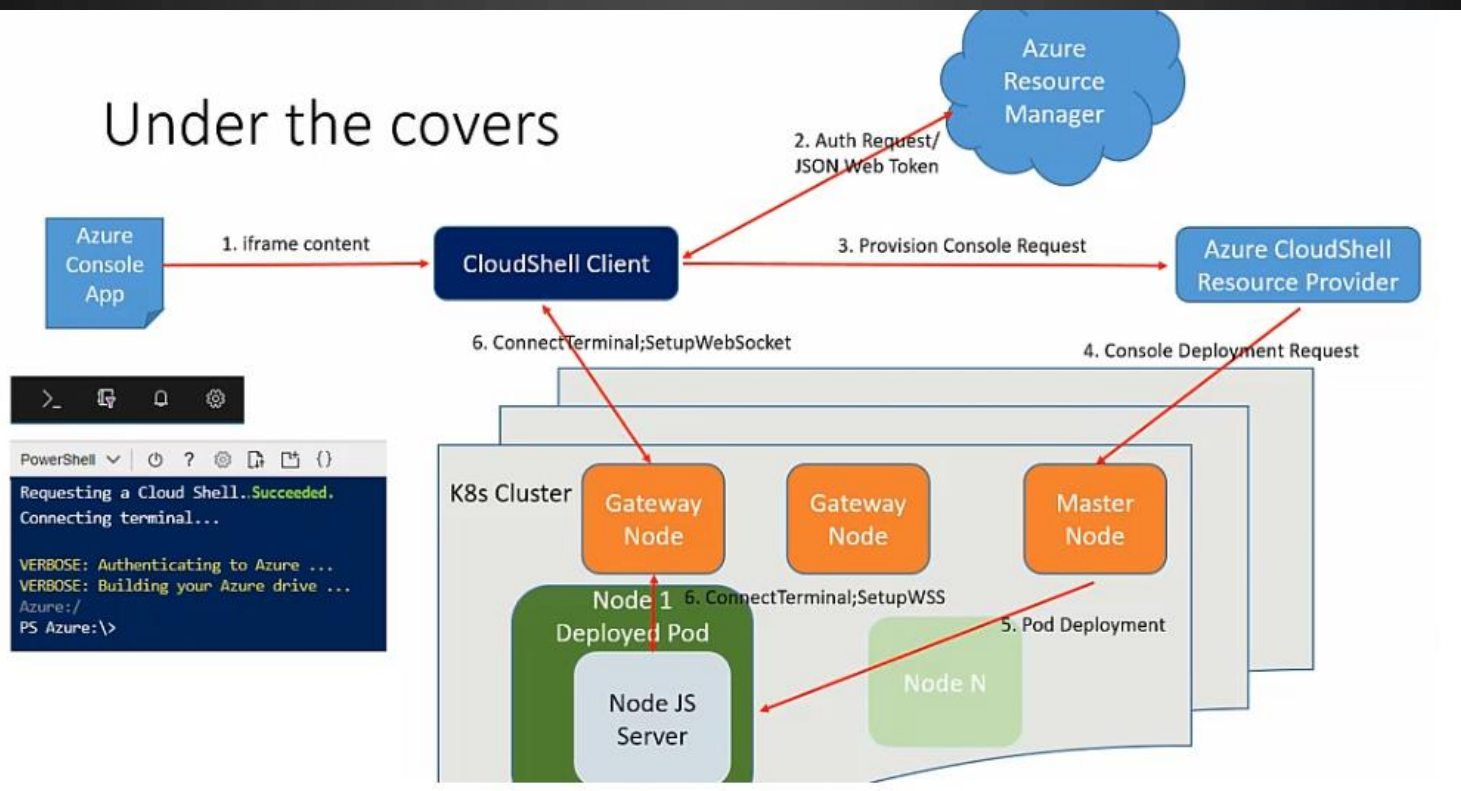
Storage
Account



Shell skills

Components of Cloud Shell

Under the covers



Language support

Language	Version
.NET Core	2.2.402
Go	1.9
Java	1.8
Node.js	8.16.0
PowerShell	7.0.0
Python	2.7 and 3.5 (default)


Tools on Cloud Shell

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

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

Secrets Management

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





Open Source

Regular updates, well documented, endless opportunity to contribute back to the community.



Manage Infrastructure as Code

Code becomes source of truth for your infrastructure, collaborate on changes and use CI to deploy new or update configurations.



Incremental Improvement

Start small with manageably sized tasks, add resources as needed, and deploy changes in a consistent fashion.

QUESTIONS?