



Pulumi - what, why and how

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Overview



Pulumi

- What is Pulumi?
- Main features?
- How Pulumi works?
- Why choose Pulumi over Terraform and why not?

What is Infrastructure as Code?

Infrastructure as code (IaC) is the process of managing and provisioning computer data centers through machine-readable definition files, rather than physical hardware configuration or interactive configuration tools.

IaC can save time and money by removing manual configuration, which carries the risk of human error as well.

What is Pulumi

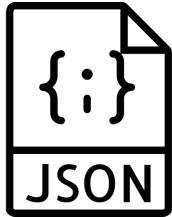
Pulumi is an Infrastructure as Code framework that you can use to deploy infrastructure in the cloud.



Benefits of Pulumi - language options



Benefits of Pulumi - language options



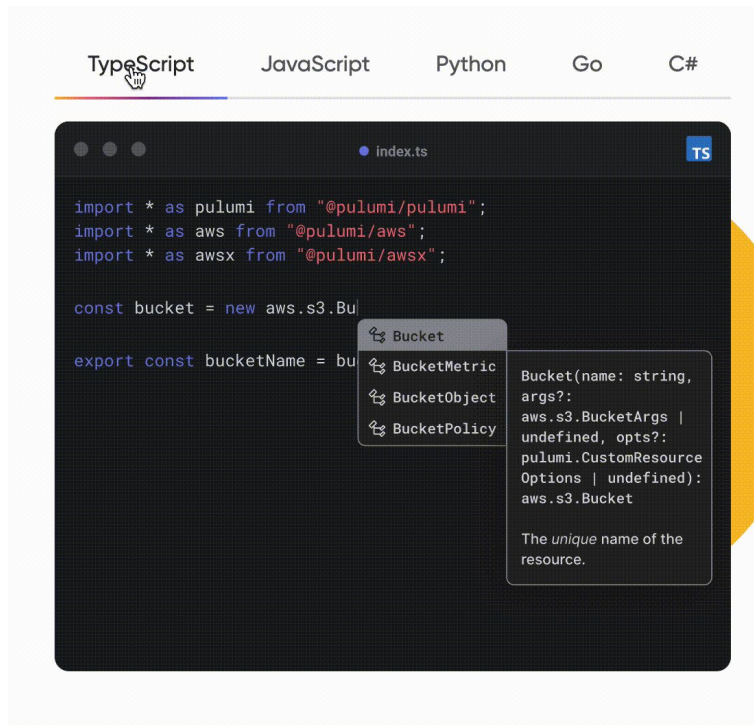
- Domain Specific Language, eg. HCL for Terraform
- YAML or JSON

Benefits of Pulumi - language options

What if you need more logic?

- Conditionals
- Loops
- Reuse functions

Benefits of Pulumi - language options



```
import * as pulumi from "@pulumi/pulumi";
import * as aws from "@pulumi/aws";
import * as awsx from "@pulumi/awsx";

const bucket = new aws.s3.Bu

export const bucketName = bu
```

Bucket

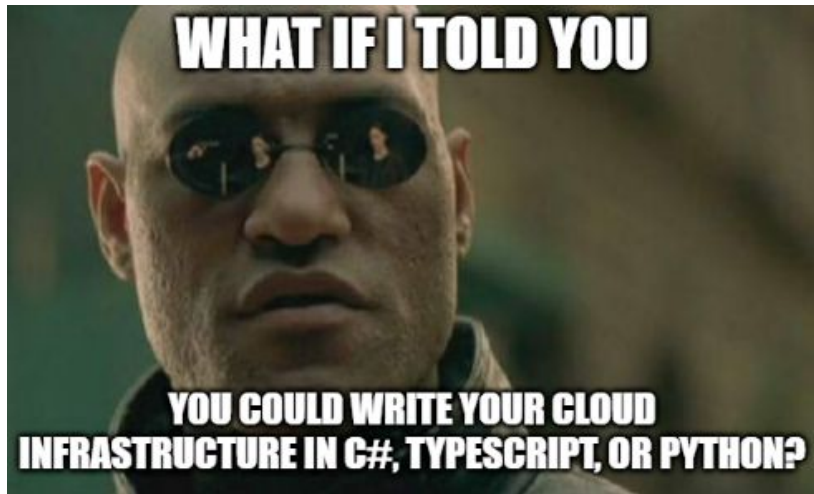
BucketMetric

BucketObject

BucketPolicy

Bucket(name: string, args?: aws.s3.BucketArgs | undefined, opts?: pulumi.CustomResourceOptions | undefined): aws.s3.Bucket

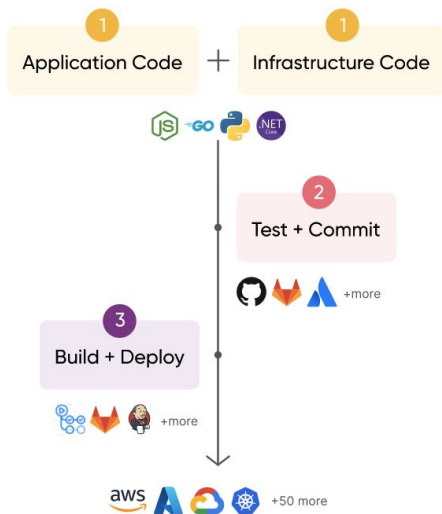
The unique name of the resource.



Pulumi

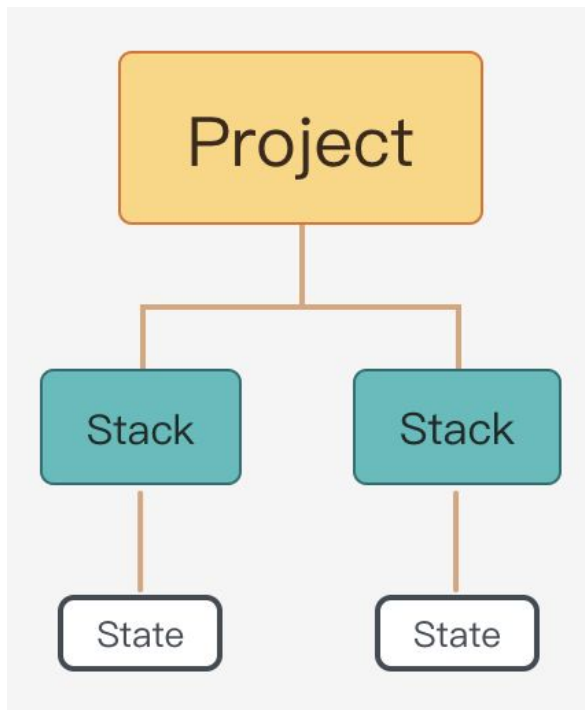
Benefits of Pulumi - infrastructure & applications together

One Pipeline for Everyone



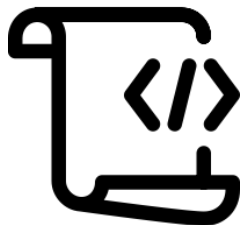
IT WORKS
on my machine

How Pulumi works?



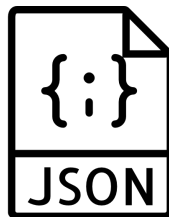
- Project
- **Stack**: denote different phases of development or features
- State

How Pulumi works?



What to be created, deleted or changed in the infrastructure

DESIRED STATE



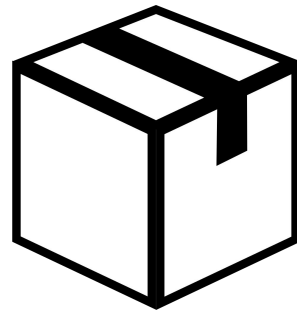
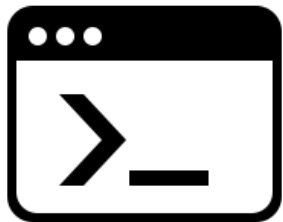
Information about the last deployed infrastructure

CURRENT STATE

How Pulumi works?



Pulumi



```
using Pulumi;
using Pulumi.Azure.Core;
using Pulumi.Azure.Storage;

class MyStack : Stack
{
    public MyStack()
    {
        // Create an Azure Resource Group
        var resourceGroup = new ResourceGroup("resourceGroup");

        // Create an Azure Storage Account
        var storageAccount = new Account("storage", new AccountArgs
        {
            ResourceGroupName = resourceGroup.Name,
            AccountReplicationType = "LRS",
            AccountTier = "Standard"
        });

        // Export the connection string for the storage account
        this.ConnectionString = storageAccount.PrimaryConnectionString;
    }

    [Output]
    public Output<string> ConnectionString { get; set; }
}
```

How Pulumi works?

- Pulumi Preview
- Pulumi Up
- Pulumi Destroy

Previewing update (sam):

	<u>Type</u>	<u>Name</u>	<u>Plan</u>
+	pulumi:pulumi:Stack	pltest-sam	create
+	└─ azure:core:ResourceGroup	resourceGroup	create
+	└─ azure:storage:Account	storage	create

Resources:

+ 3 to create

Do you want to perform this update? yes

Updating (sam):

	<u>Type</u>	<u>Name</u>	<u>Status</u>
+	pulumi:pulumi:Stack	pltest-sam	created
+	└─ azure:core:ResourceGroup	resourceGroup	created
+	└─ azure:storage:Account	storage	created

Why Pulumi? Why not Pulumi?



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Why Pulumi?

- Pulumi support real programming languages

How many of you would willing to learn HCL language just to use Terraform?

Which IDE to use?

How to write logical code?

How to write tests?

Why Pulumi?

- Pulumi support real programming languages
- Pulumi has better secrete management

Why not Pulumi?

- Pulumi support real programming languages
- Pulumi has better secrete management
- Terraform has better documentation and community

Why not Pulumi?

- Pulumi support real programming languages
- Pulumi has better secrete management
- Terraform has better documentation and community
- Terraform is Better at Structuring Large Projects

Conclusion / Takeaway

- IaC is useful and efficient; IaC tools boost that even further
- Pulumi's support for general programming language gives it great advantage
- Pulumi & Terraform are both great tools, choose based on your need

Thank you!

Questions?