



**Cloud-Native &  
Platform Engineering  
Bulgaria**

**Pulumi: Kickstarting Your Journey to  
Modern Infrastructure Automation**



# Hello!

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I am **Engin Diri**,

- Working at Pulumi as Customer Experience Architect
- Cloud Transformation and Enablement
- Continuous everything...



# Disclaimer

Everything in this presentation is either OSS or part of a free tier!

# Amazon Web Services

## Compute

 EC2  
Virtual Servers in the Cloud

 Lambda  
Run Code in Response to Events

 EC2 Container Service  
Run and Manage Docker Containers

## Storage & Content Delivery

 S3  
Scalable Storage in the Cloud

 Elastic File System PREVIEW  
Fully Managed File System for EC2

 Storage Gateway  
Integrates On-Premises IT Environments with Storage

 Glacier  
Archive Storage in the Cloud

 CloudFront  
Global Content Delivery Network

## Database

 RDS  
MySQL, Postgres, Oracle, SQL Server, Aurora

 DynamoDB  
Predictable and Scalable NoSQL Database

 ElastiCache  
In-Memory Cache

 Redshift  
Managed Petabyte-Scale Data Warehouse Service

## Networking

 VPC  
Isolated Cloud Resources

 Direct Connect  
Dedicated Network Connection to AWS

 Route 53  
Scalable DNS and Domain Name Registration

## Administration & Security

 Directory Service  
Managed Directories in the Cloud

 Identity & Access Management  
Access Control and Key Management

## Trusted Advisors

## Application Services

 SQS  
Message Queue Service

 SWF  
Workflow Service for Coordinating Application Components

## DevOps

 Container Registry

 App Insights

 Log Analytics

 Automation

 Azure Portal

 Visual Studio Team Services

 Dev Test Labs

## Mobile

 App Service - Mobile

 Mobile Engagement

 Logic Apps

 Media Services

 Hockey App

 API App

## Application

 Web Apps

 Service Bus

 API Management

 Event Hub

 Scheduler

 Queue

## Infra

 Virtual Machine Scale Sets

 Virtual Machine

 App Services

 Express Route

 CDN

 Data Lake

 Load Balancer

 Application Gateway

 Azure DNS

 Container Services

 Azure Virtual Network

 StorSimple

 Azure Storage

 Functions

 Batch

 Service Fabric

 Cloud Services

 Managed Git Repositories

 CodePipeline  
Continuous Delivery

## Analytics

 EMR  
Managed Hadoop Framework

 Kinesis  
Real-time Processing of Streaming Big Data

 Data Pipeline  
Orchestration for Data-Driven Workflows

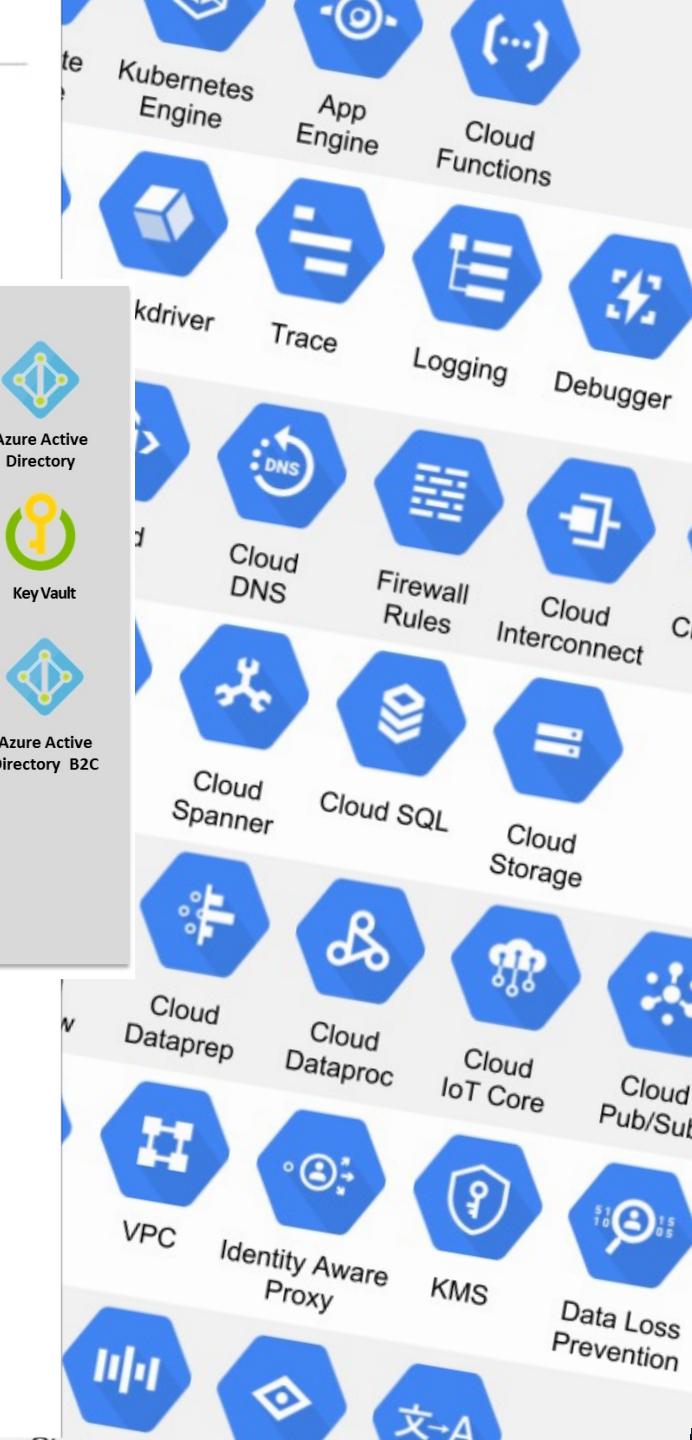
 Machine Learning  
Build Smart Applications Quickly and Easily

## Enterprise Applications

 WorkSpaces  
Desktops in the Cloud

 WorkDocs  
Secure Enterprise Storage and Sharing Service

 WorkMail PREVIEW  
Secure Email and Calendaring Service





# Infrastructure as Code

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There are two ways to approach IaC:

# Infrastructure as Code

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- declarative

# Infrastructure as Code

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There are two ways to approach IaC:

- declarative
- Imperative

# Infrastructure as Code

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Benefits of IaC:

# Infrastructure as Code

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## Benefits of IaC:

- Cost reduction



# Infrastructure as Code

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## Benefits of IaC:

- Cost reduction



- Increase in speed of deployment

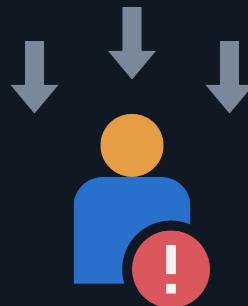


# Infrastructure as Code

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## Benefits of IaC:

- Reduce errors



# Infrastructure as Code

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## Benefits of IaC:

- Reduce errors
- Improve infrastructure consistency



# Infrastructure as Code

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## Benefits of IaC:

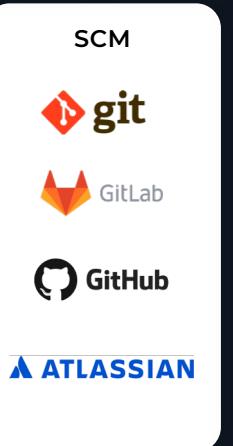
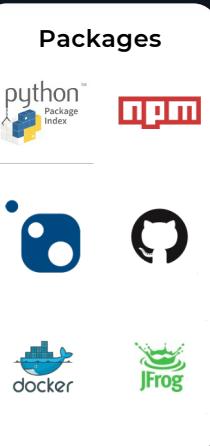
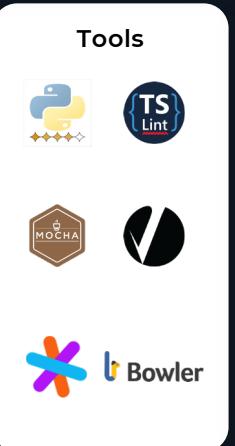
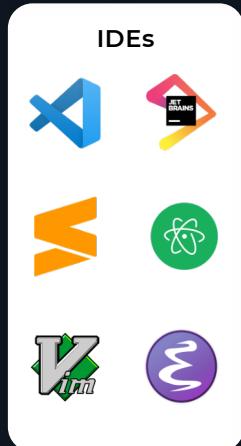
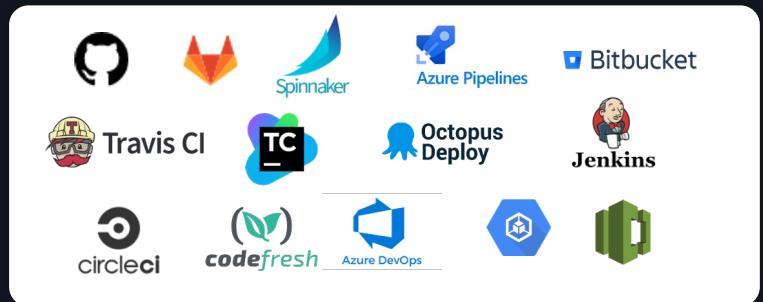
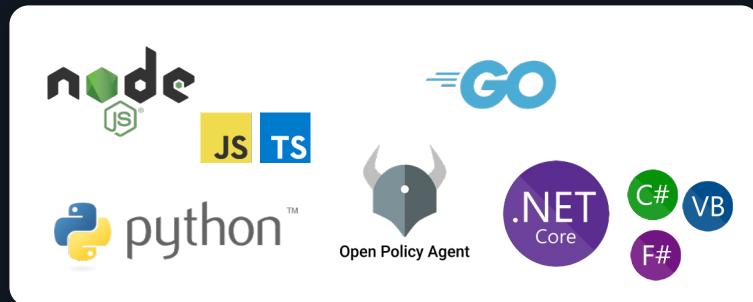
- Eliminate configuration drift





Pulumi

# Your Cloud, Your Language, Your Way

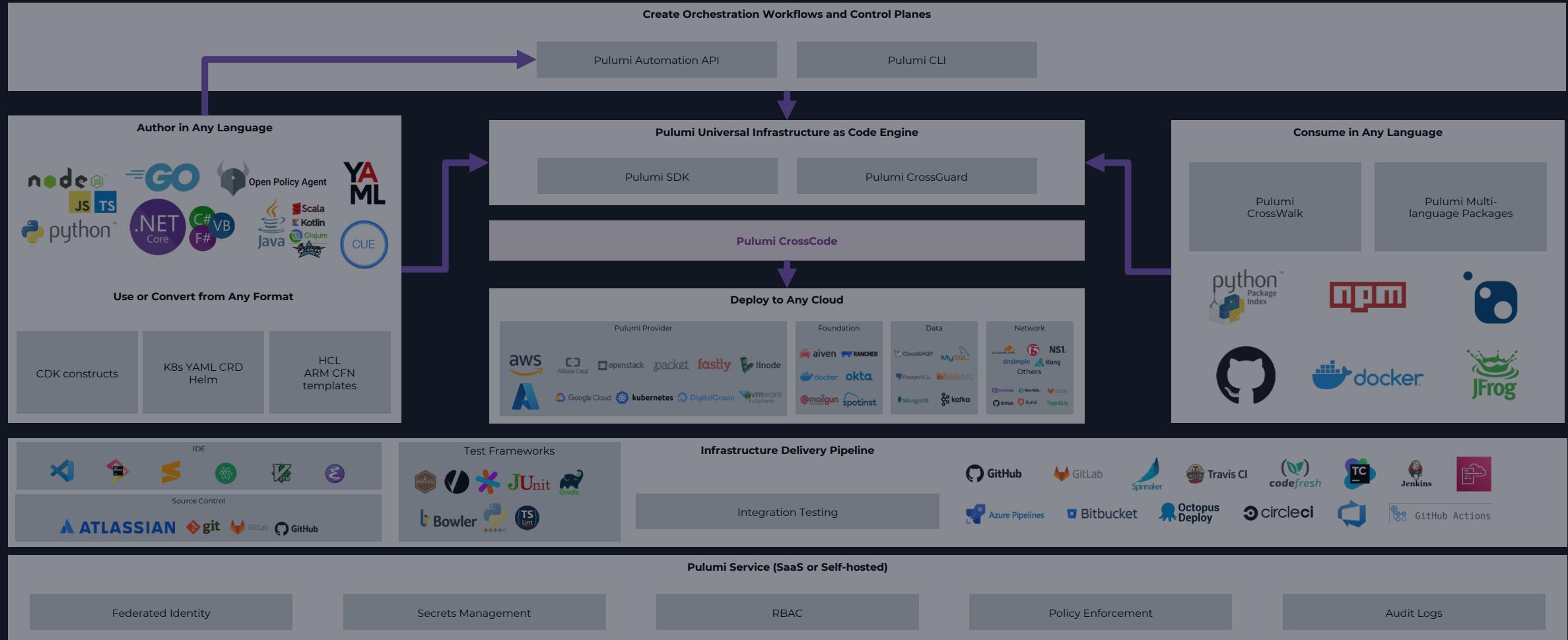


Build

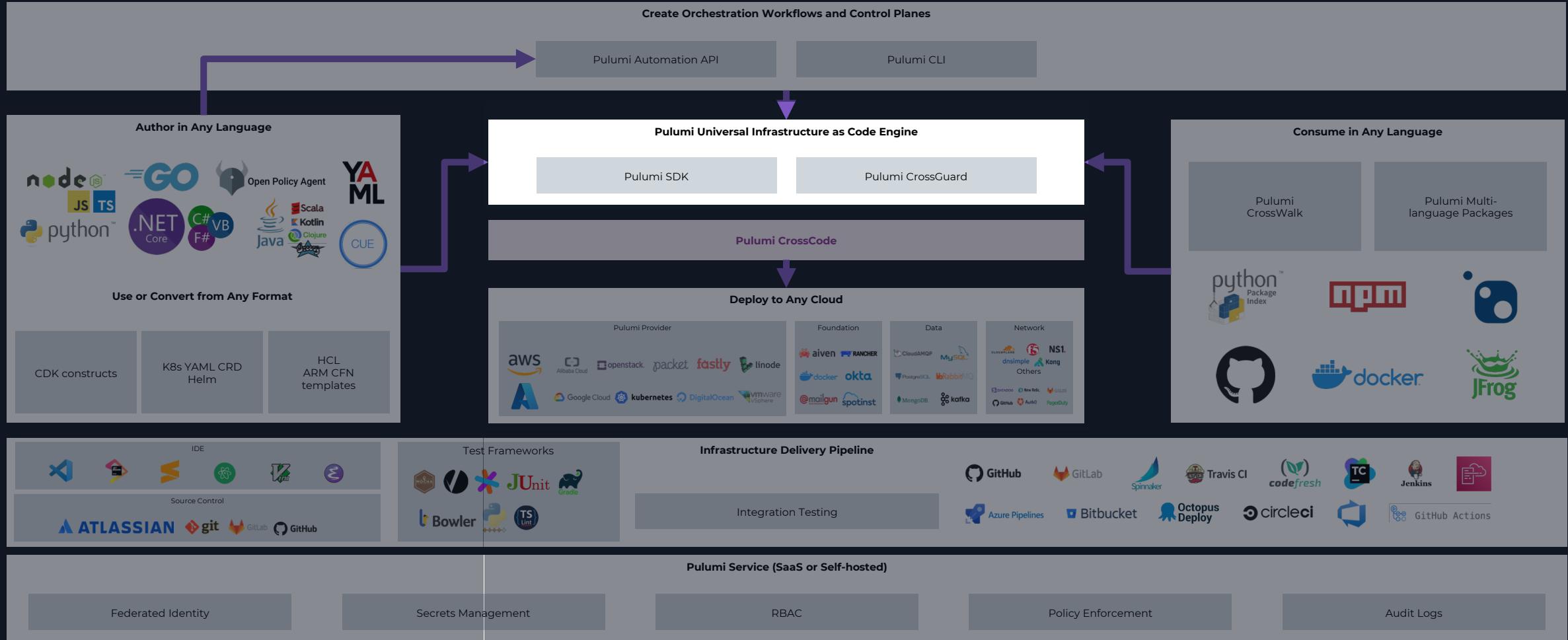
Deploy

Manage

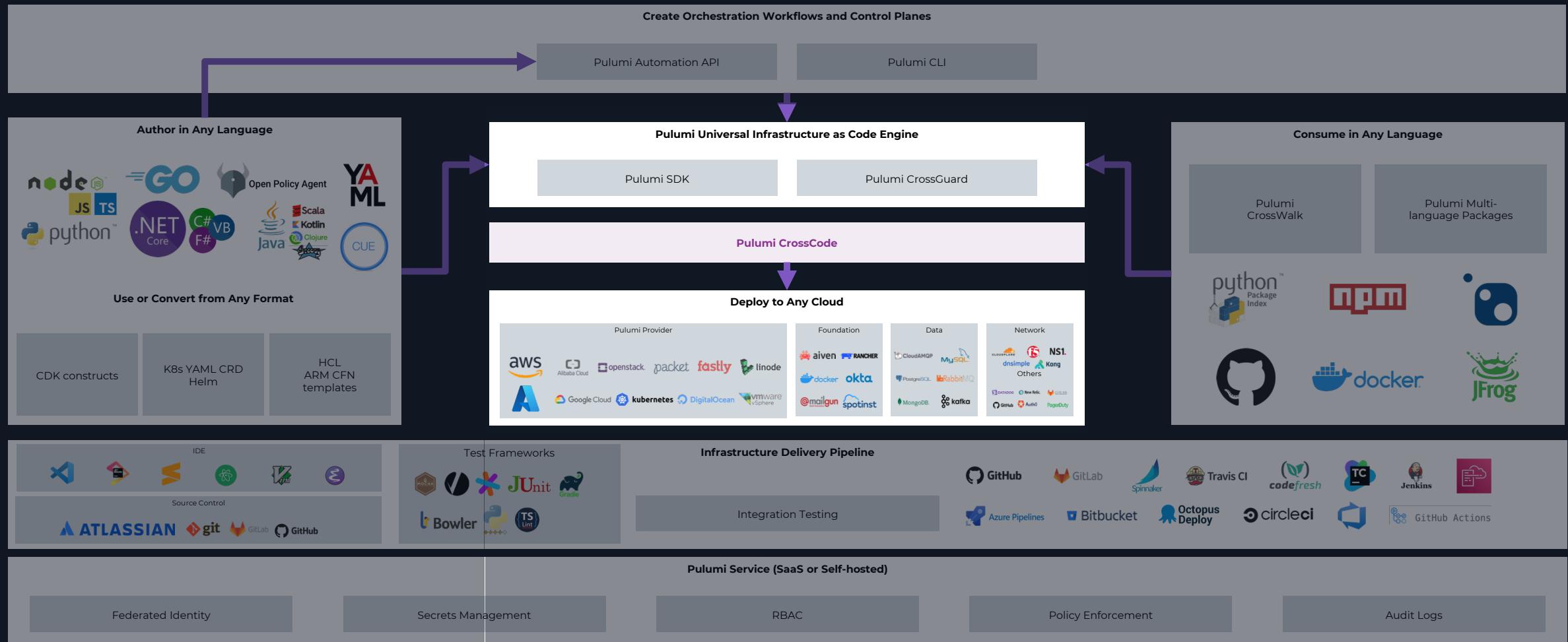
# Pulumi: The Cloud Engineering Platform



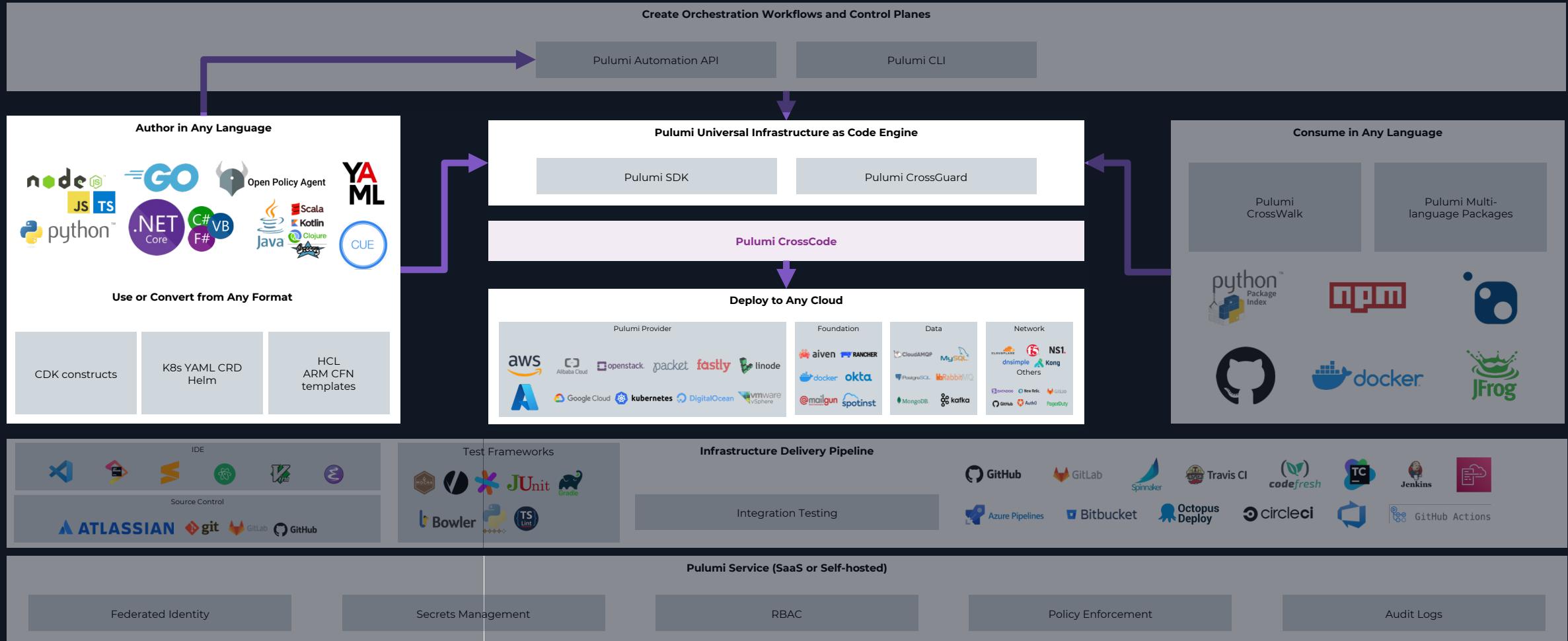
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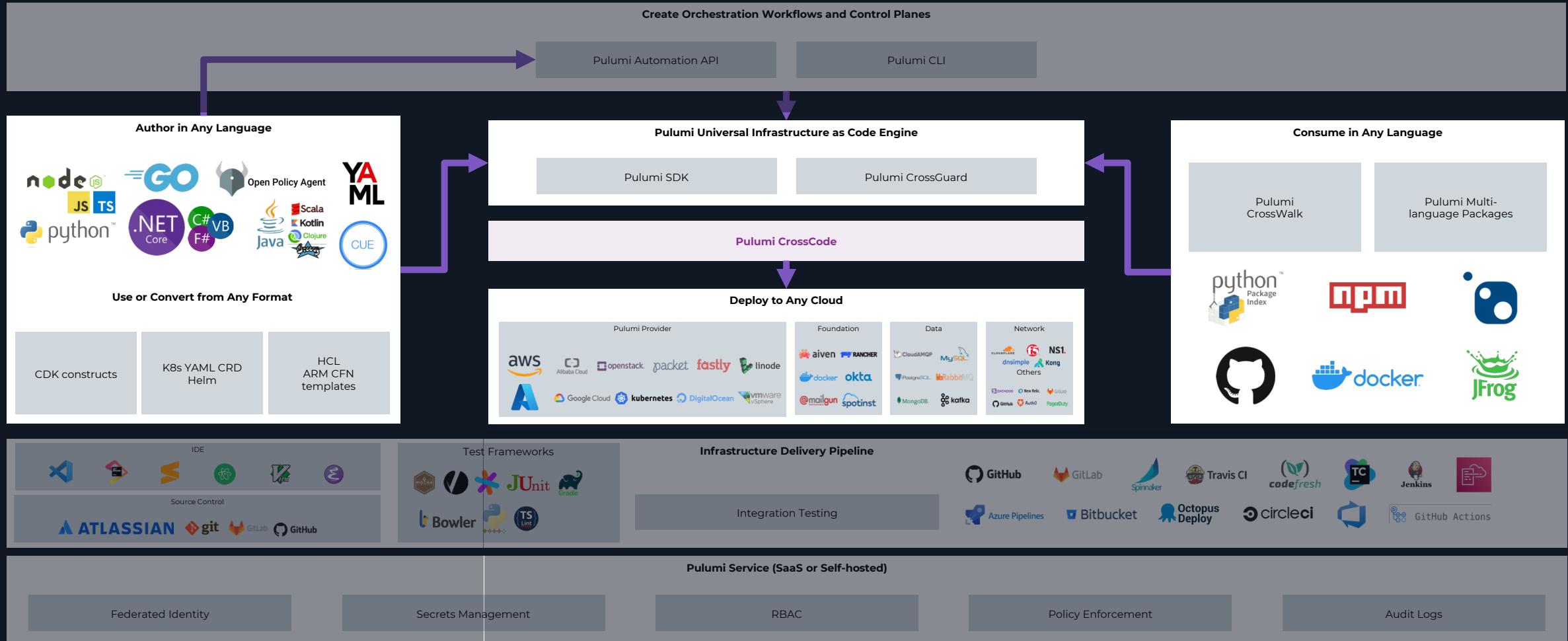
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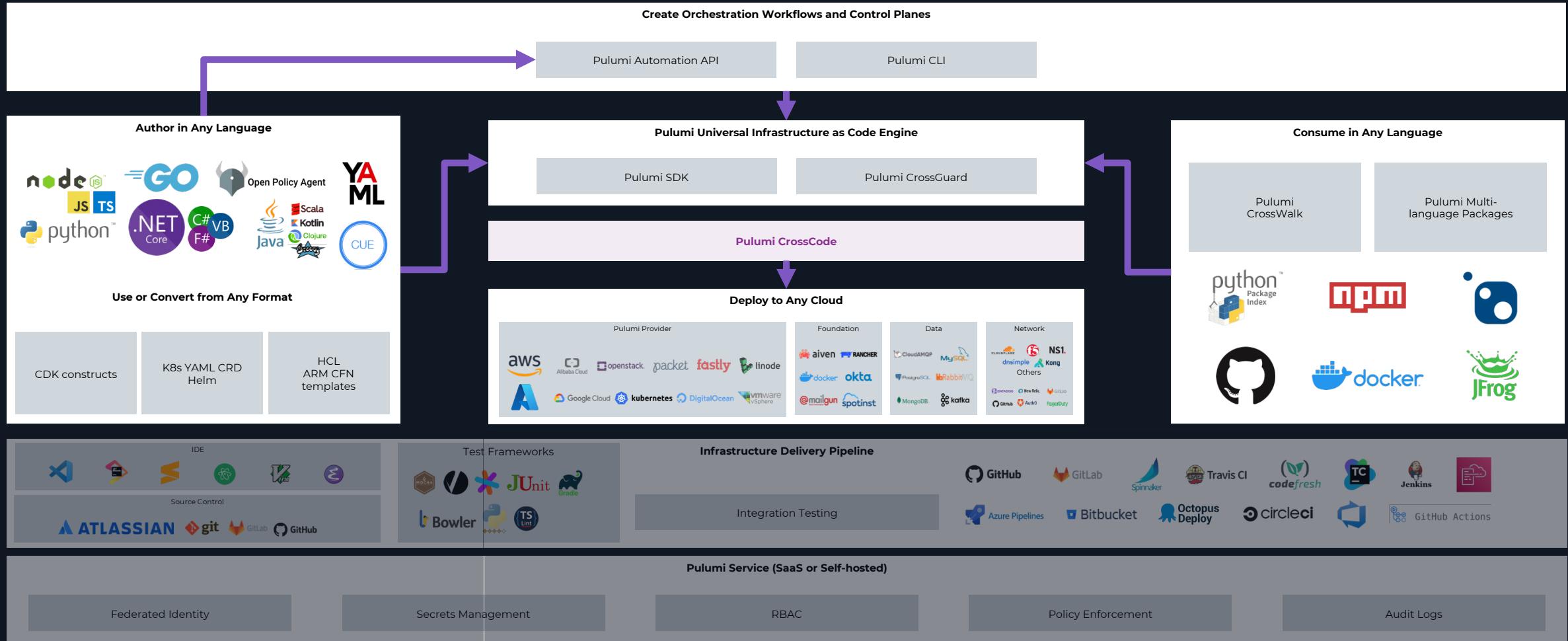
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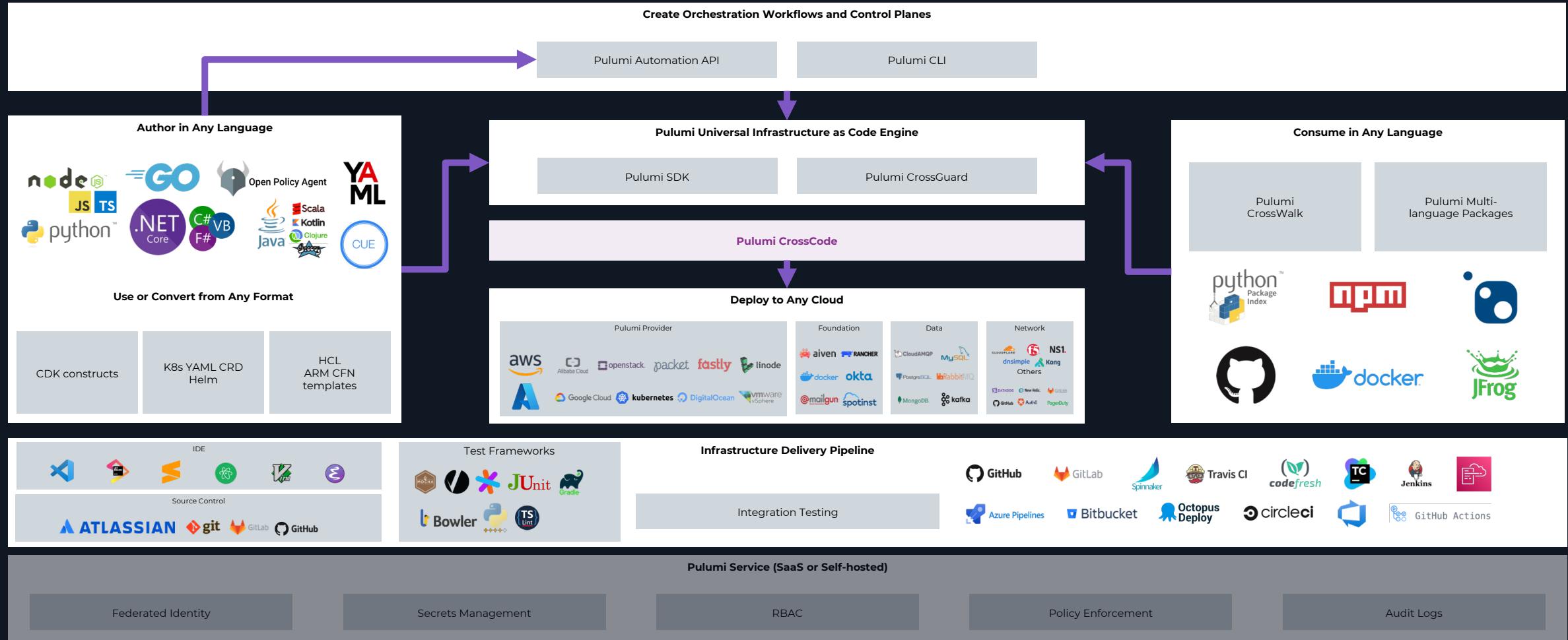
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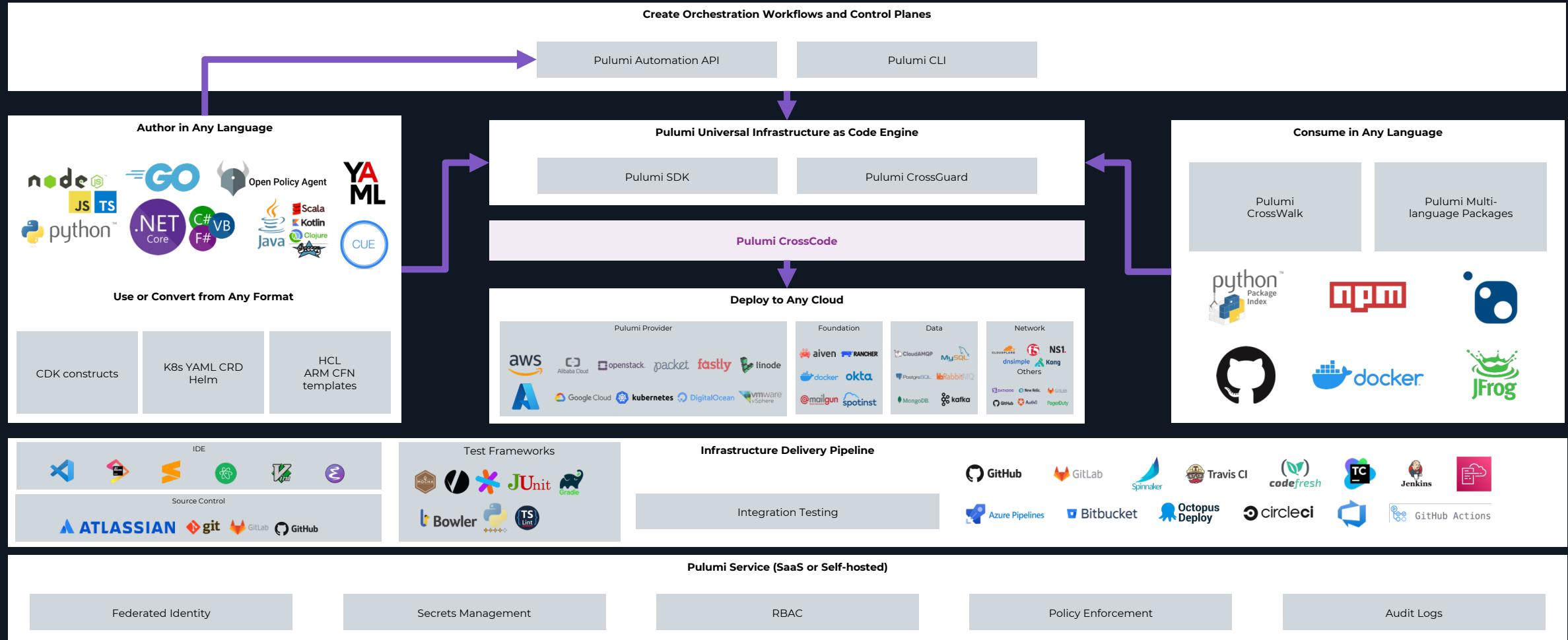
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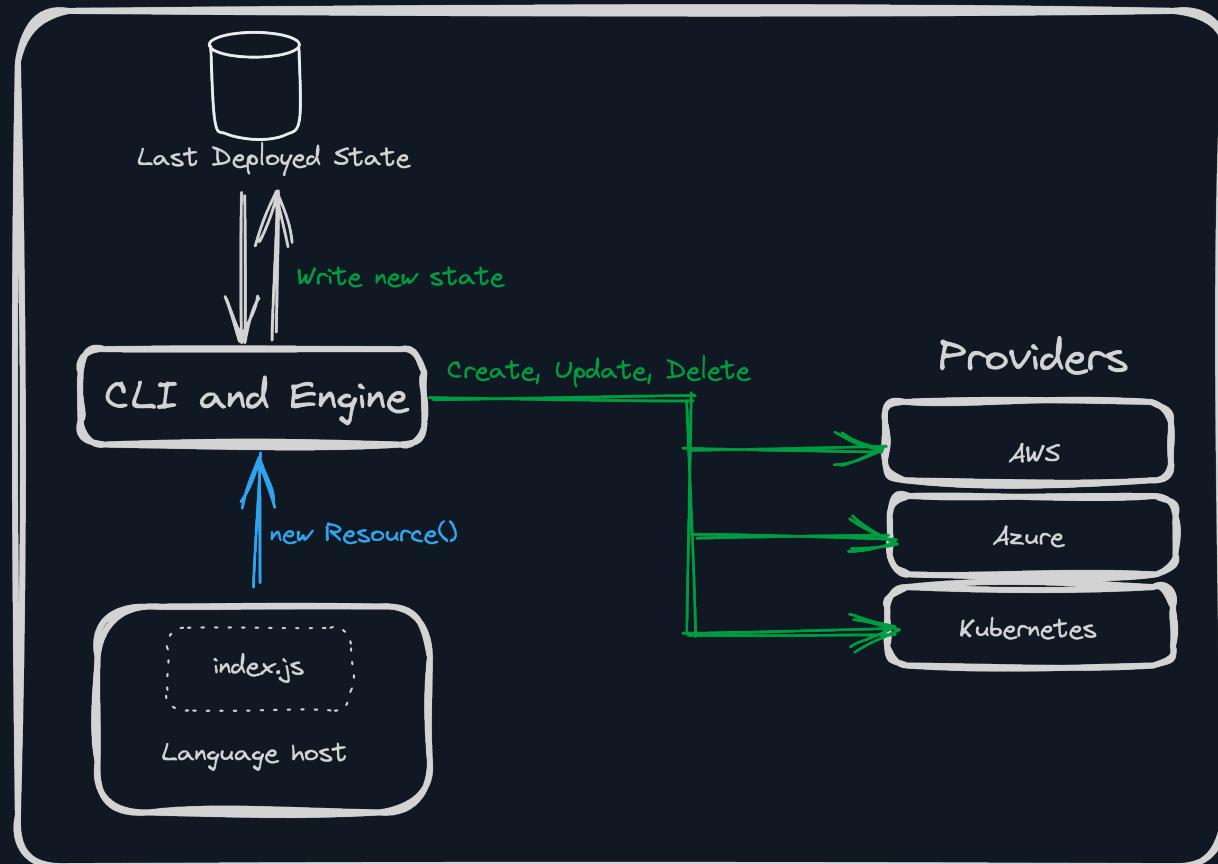


# Pulumi High Level View

# Pulumi - High Level View

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## Pulumi Architecture

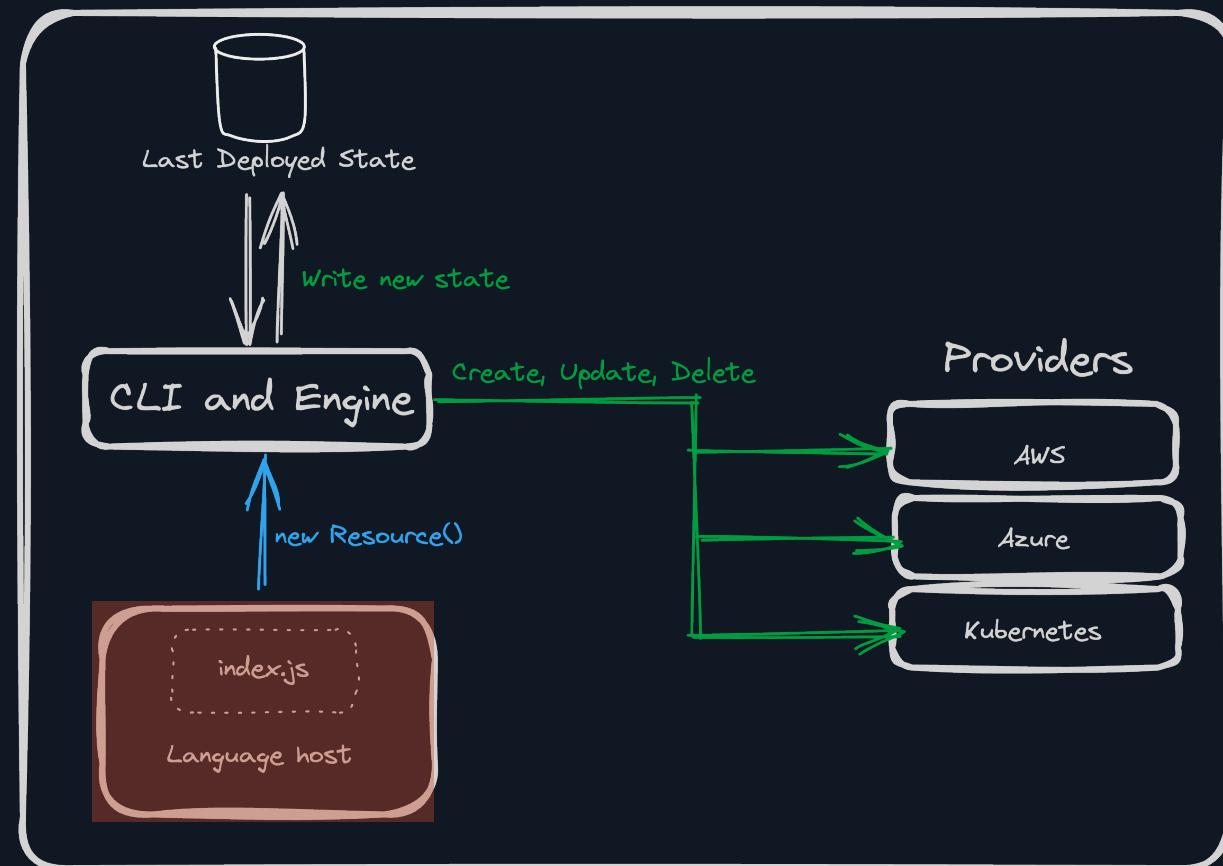


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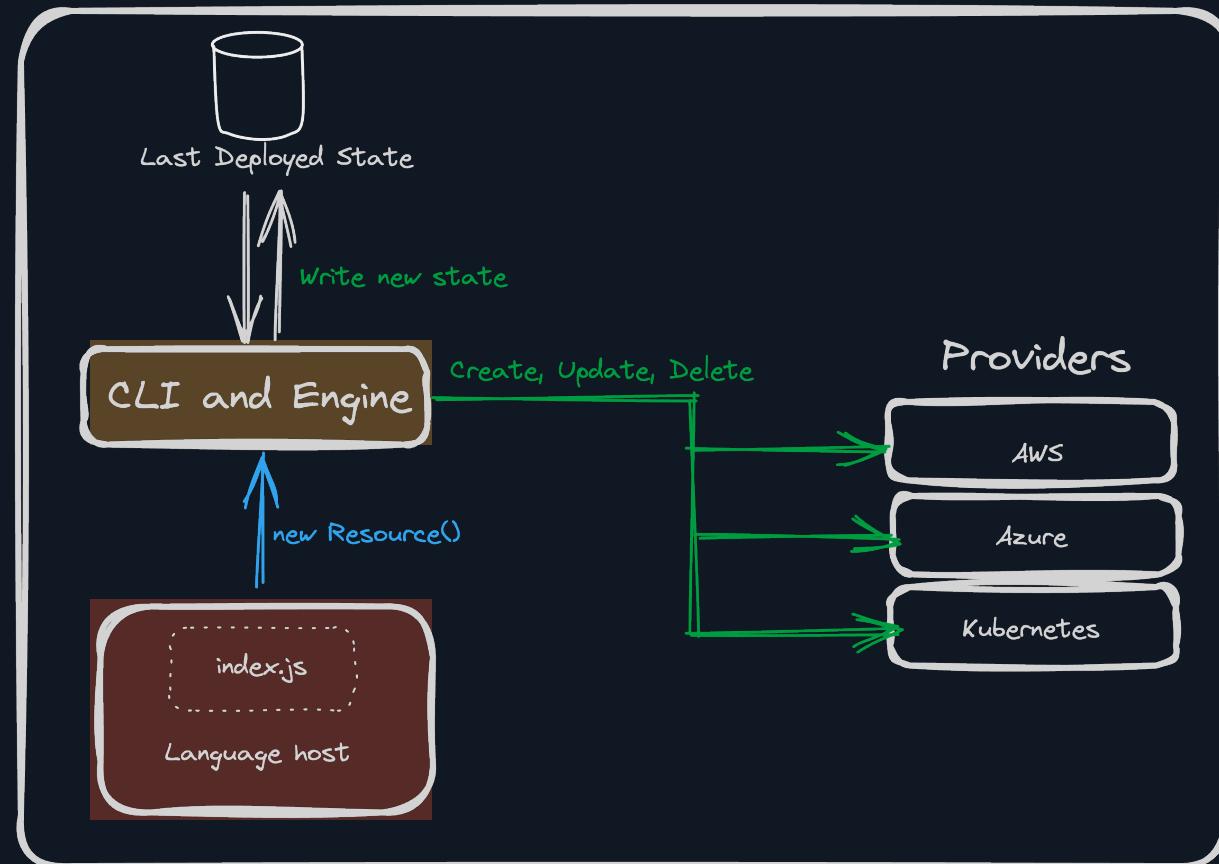
- Language Host



# Pulumi - High Level View

## Pulumi Architecture

- Language Host
- CLI & Engine
- Providers
- State Backend
  - Pulumi Cloud
  - Cloud Storage (S3, ...)

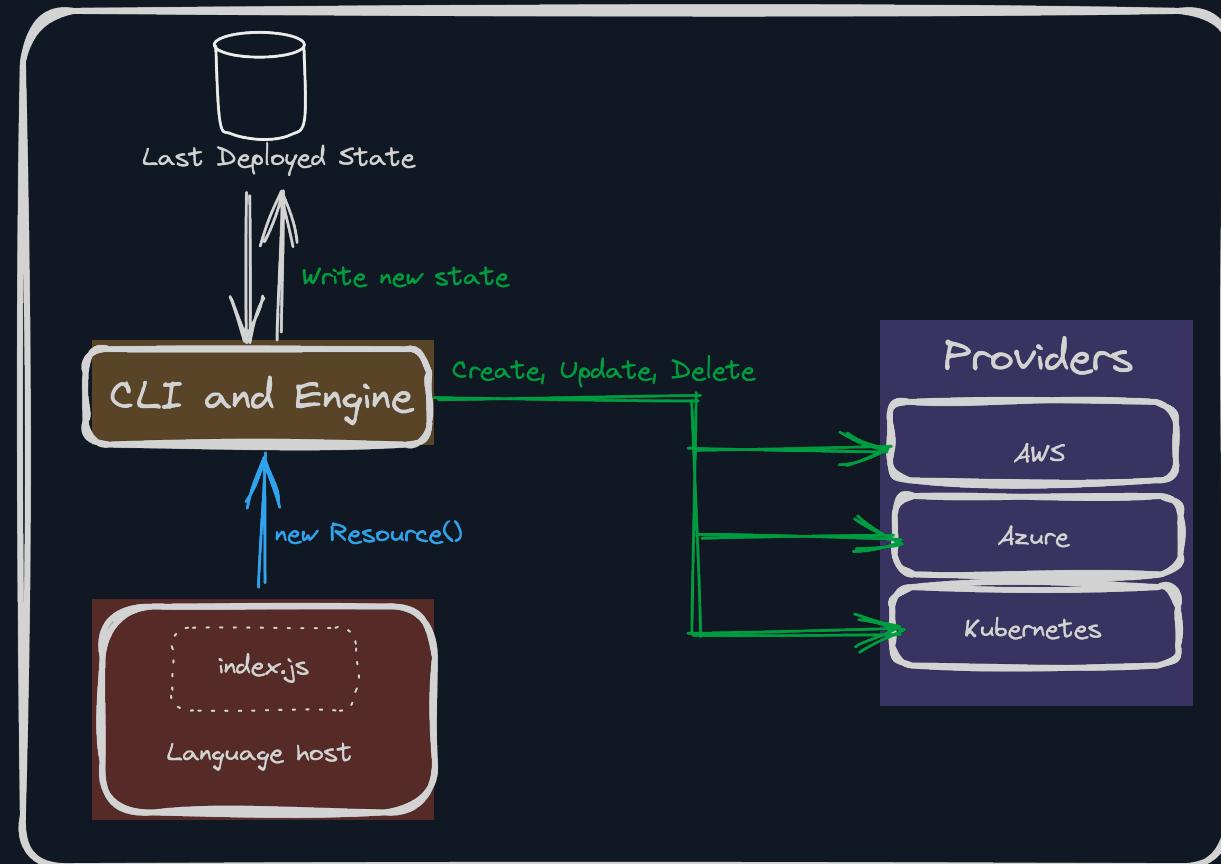


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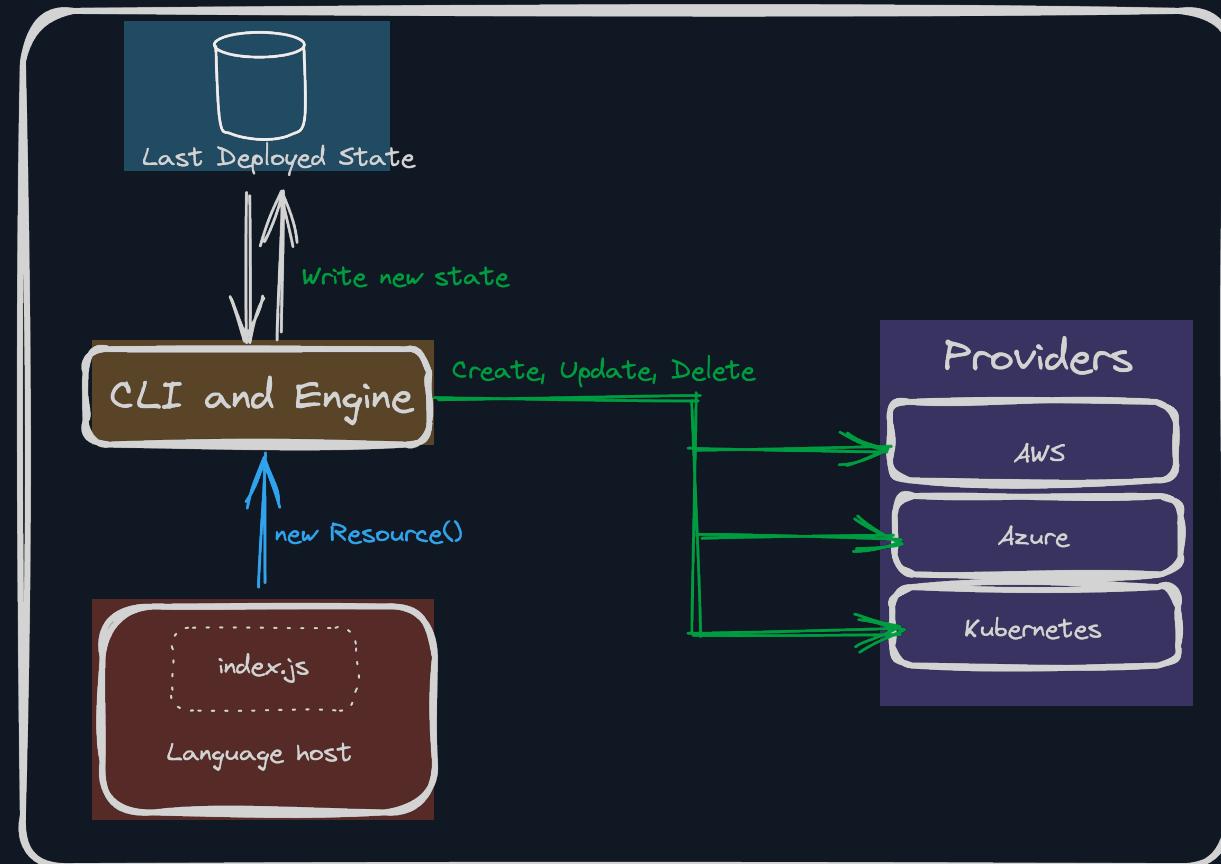
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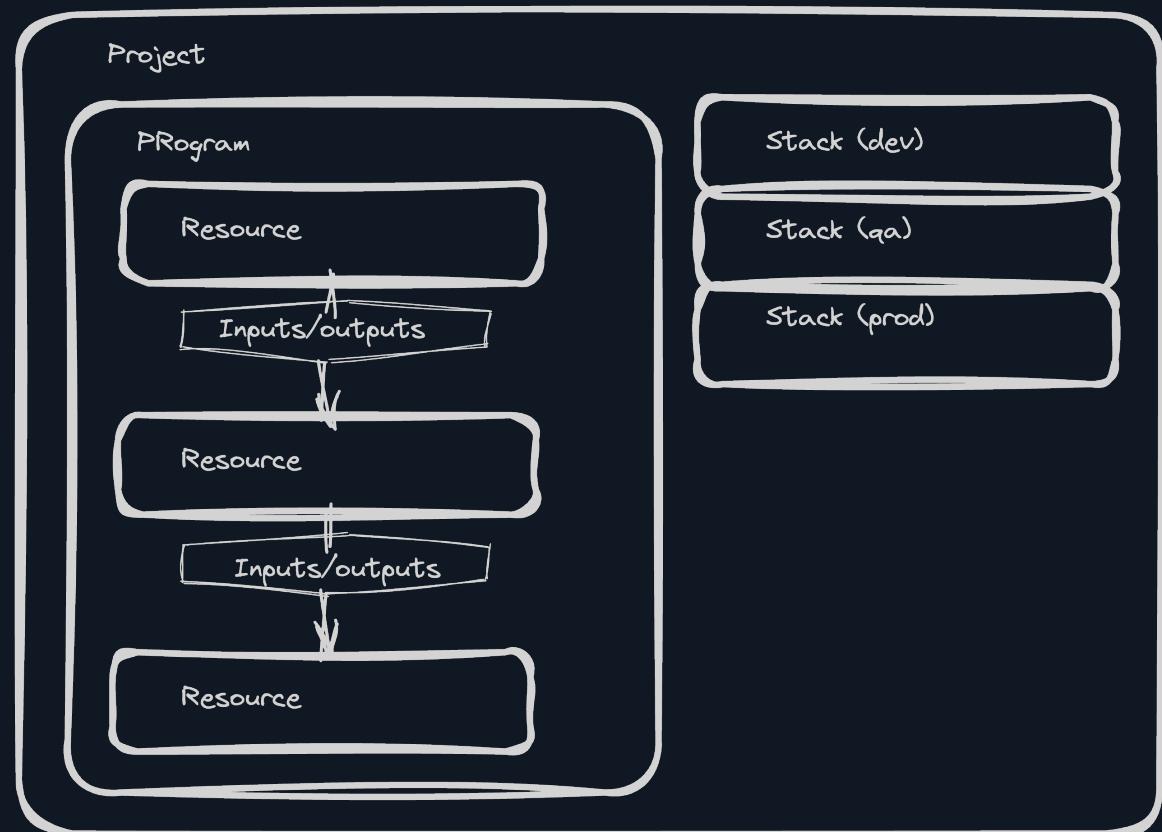
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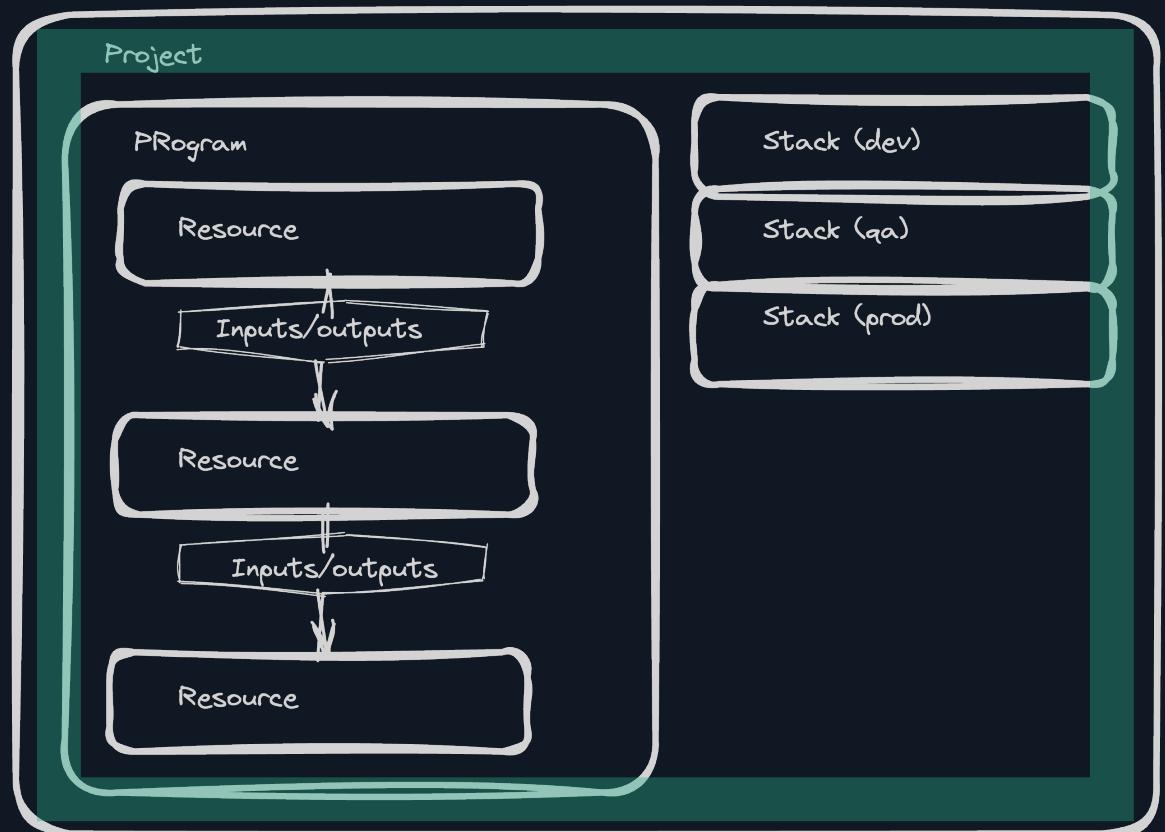
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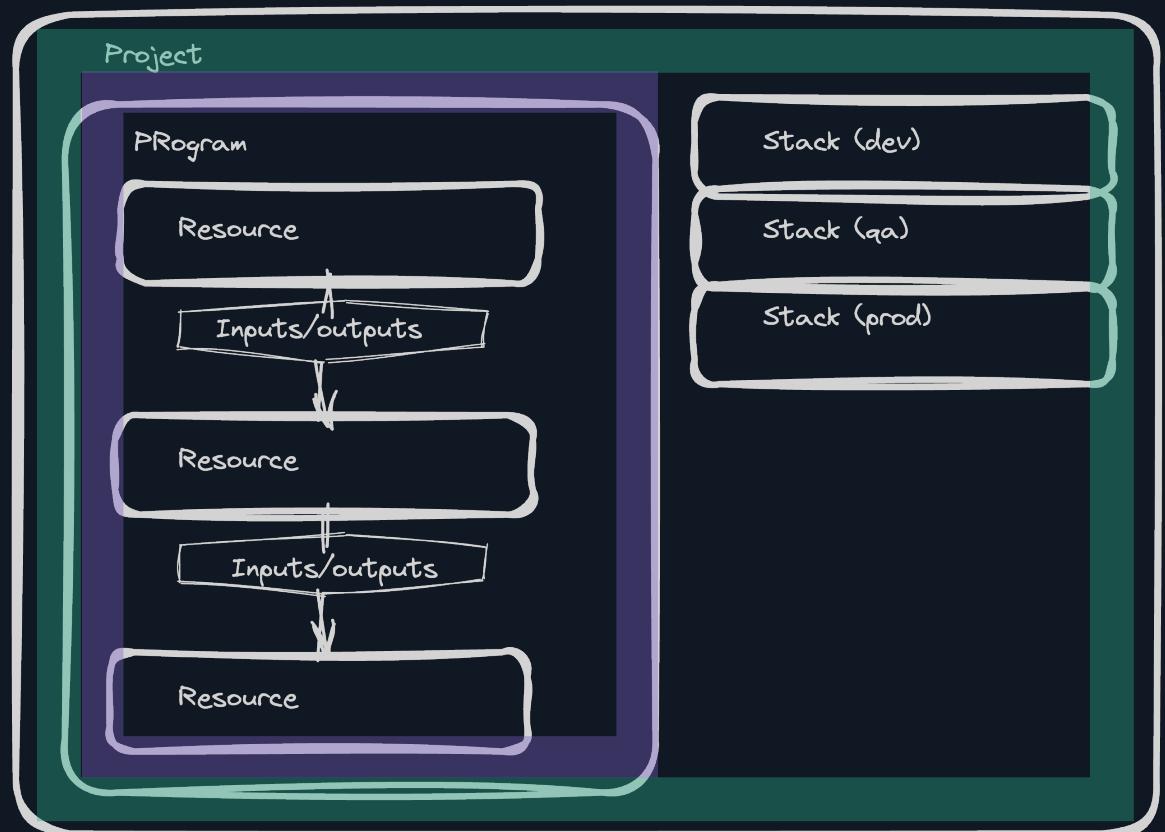
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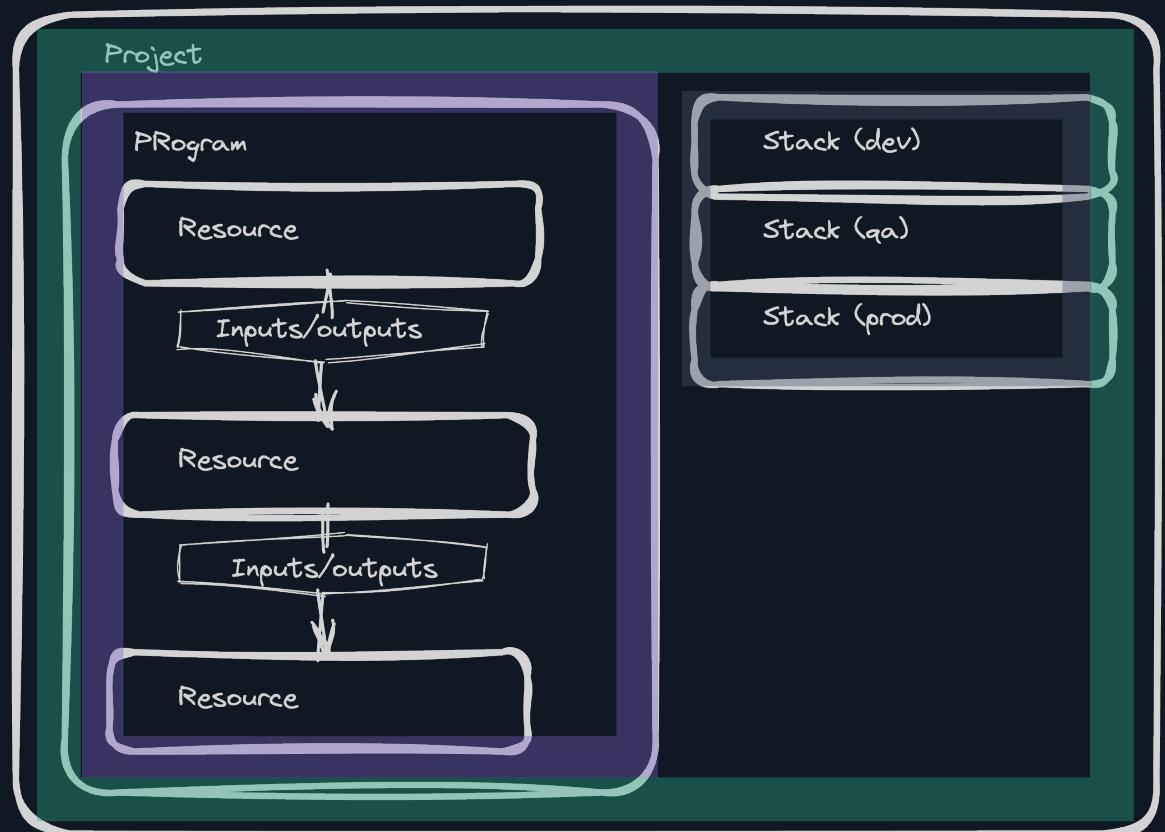
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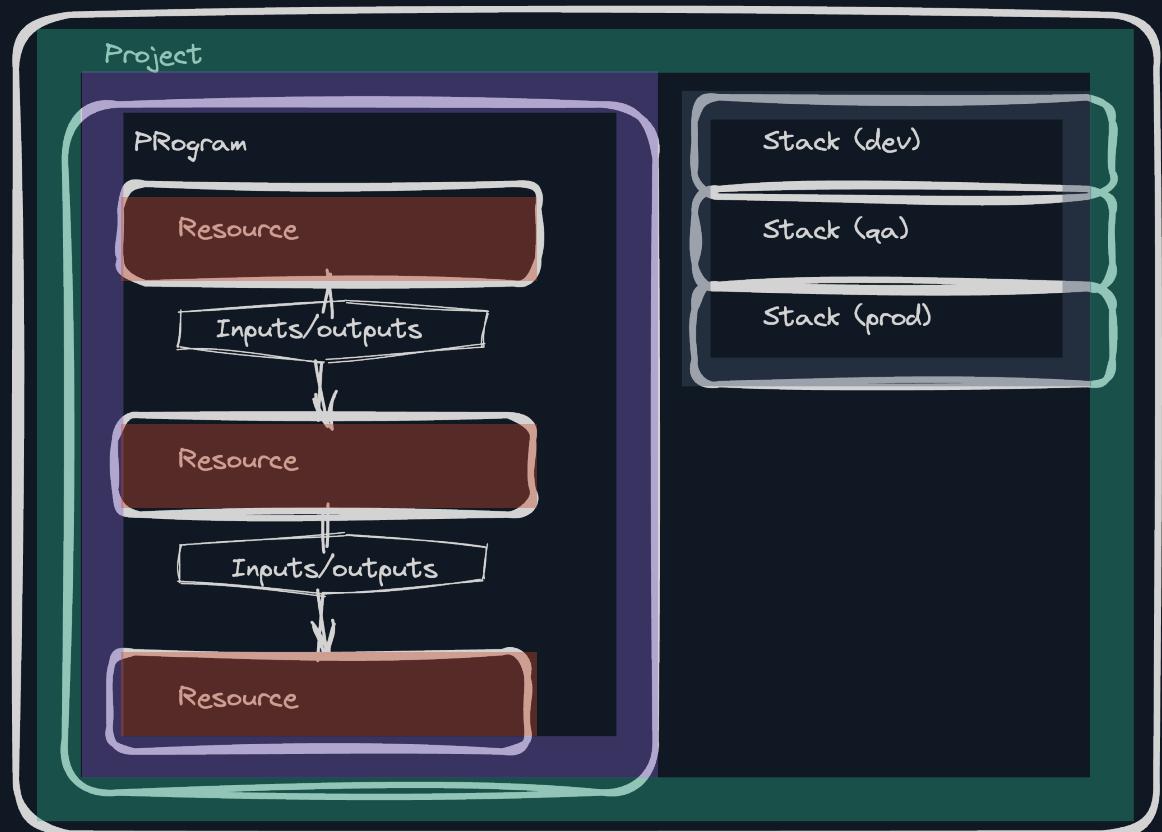
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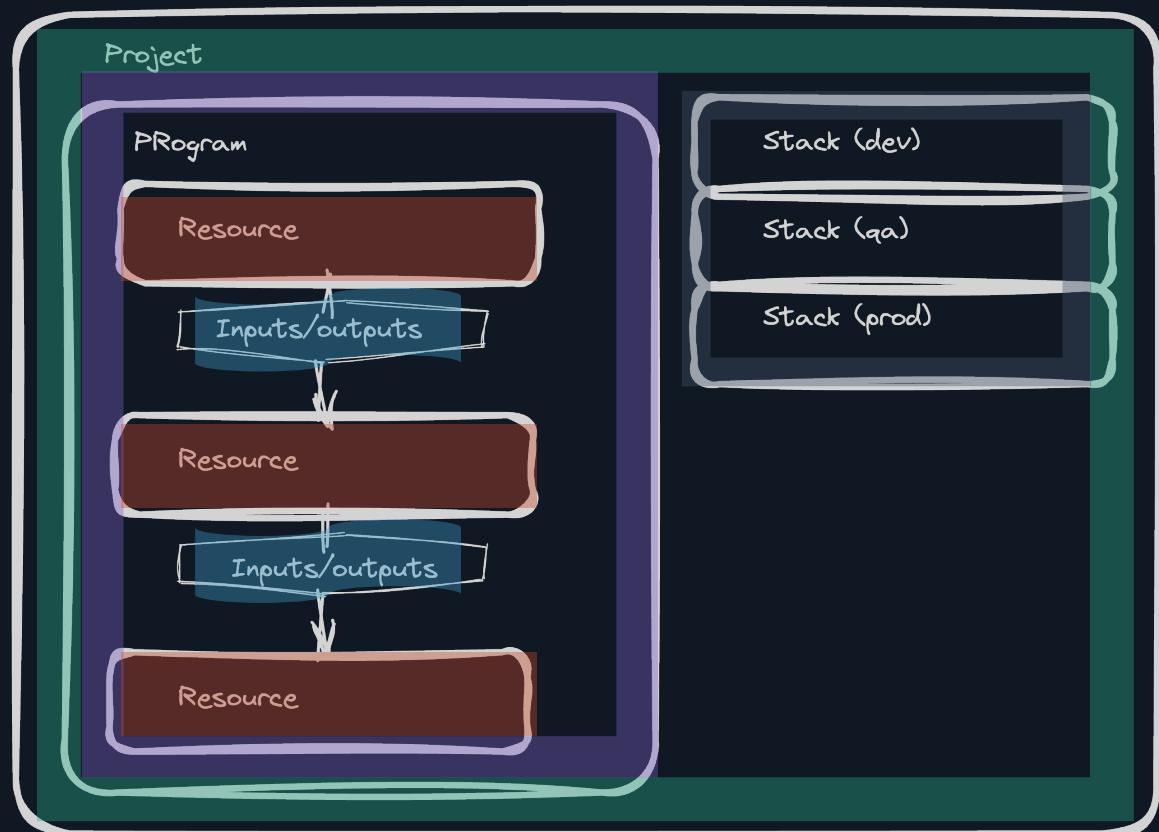
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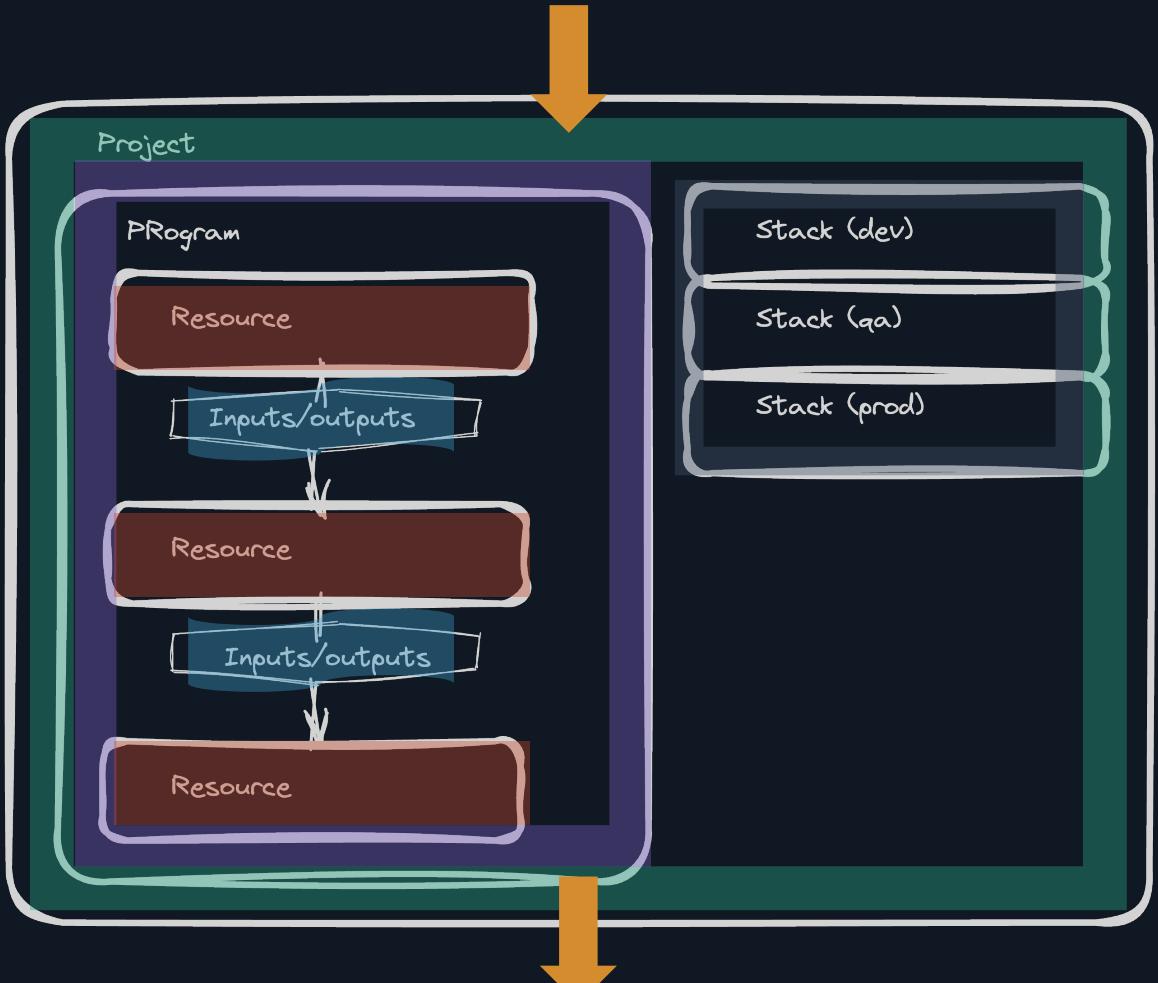
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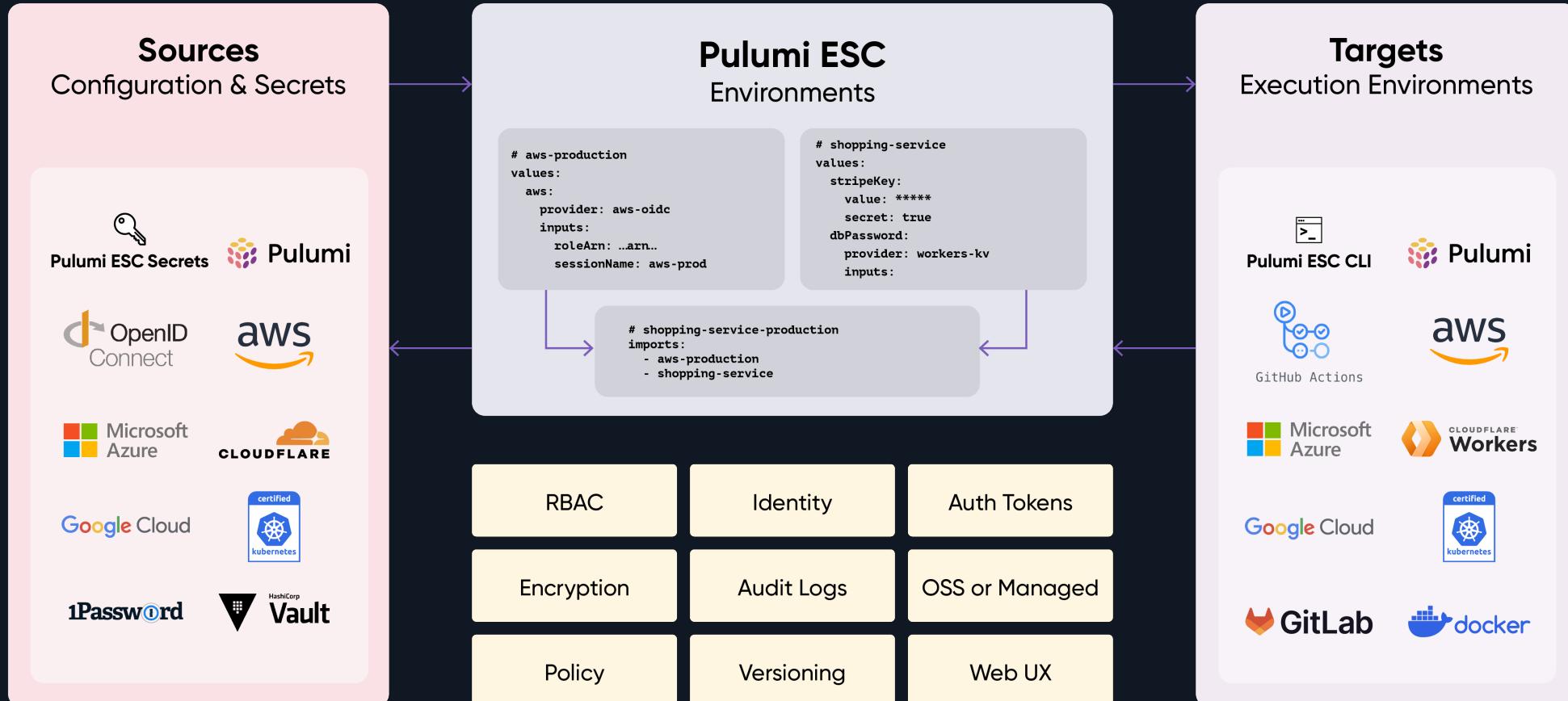
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  - have **inputs/outputs**: read or set values for your **resource**
- One project can use **info** from another project as input



# Pulumi Environments, Secrets and Configuration

# Pulumi ESC: Environments, Secrets and Configuration



# Pulumi Templates

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Deploy infrastructure *faster* with best practices for  
any programming language

# Pulumi Cloud

# Pulumi Cloud

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# Pulumi Cloud

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- Built-in **state** and **secret management**



SCAN ME

# Pulumi Cloud

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- Built-in **state** and **secret** management
- Pulumi Deployments (+Review Stacks)



SCAN ME

# Pulumi Cloud

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SCAN ME

- Built-in state and secret management
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- Pulumi Insights (Resource Search - AI Assist)

# Pulumi Cloud

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- Built-in state and secret management
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- Pulumi Policy as Code



SCAN ME

# Pulumi Cloud

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- Built-in state and secret management
- Pulumi Deployments (+Review Stacks)
- Pulumi Insights (Resource Search - AI Assist)
- Pulumi Policy as Code
- Webhooks (MS Teams!), Dashboards, and much more.



SCAN ME

# Pulumi Insights

# Pulumi Insights

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# Pulumi Insights

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**Intelligence** - Be more productive with the power of AI

# Pulumi Insights

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**Intelligence** - Be more productive with the power of AI

**Search** - Find anything in any cloud

# Pulumi Insights

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**Intelligence** - Be more productive with the power of AI

**Search** - Find anything in any cloud

**Analytics** - Deep insights with dashboards and export

# Pulumi Policy as Code

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What is it?

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- Enforce security, compliance and best practices

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# Pulumi Policy as Code

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What is it?

- Enforce security, compliance and best practices
- Use general purpose programming languages\*
- Write expressive policies
- Enforce gated deployments

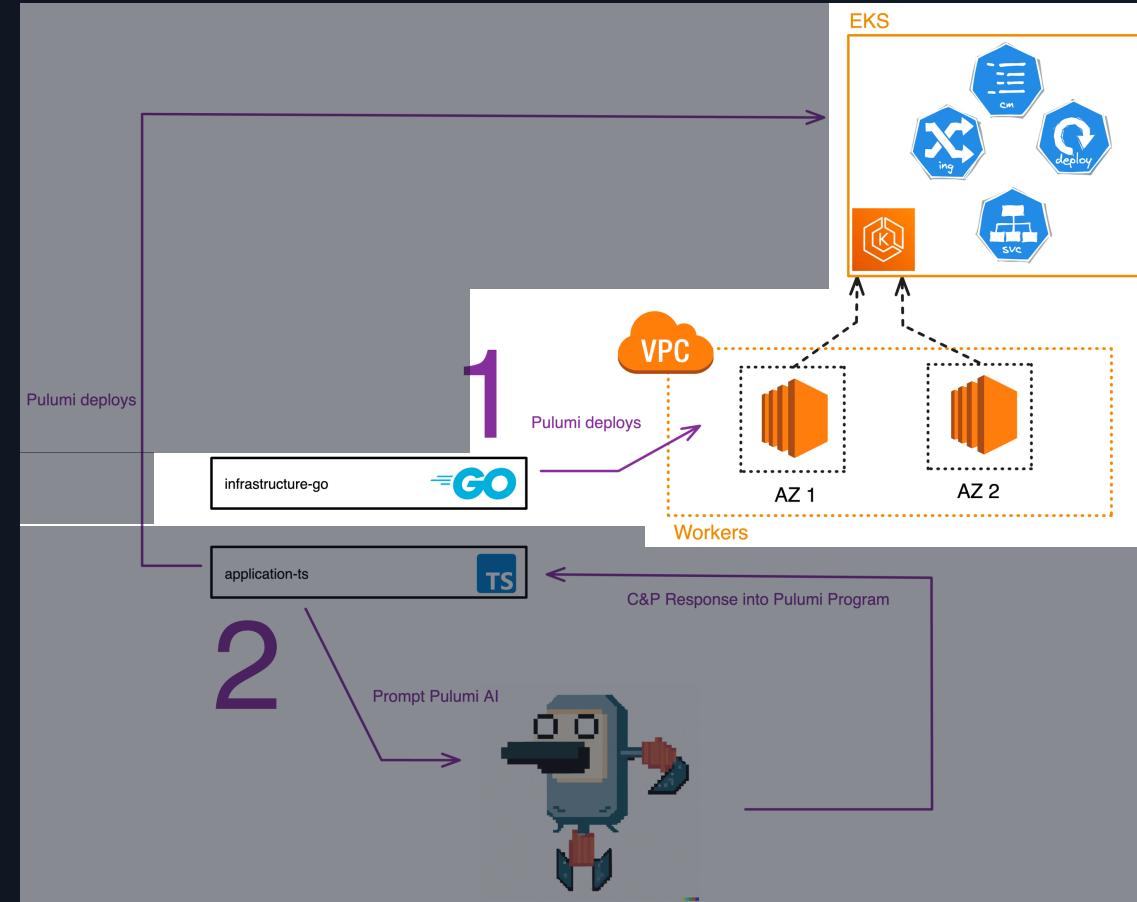
# Demo time!

# The Demo

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# The Demo

- Deployment of AWS EKS infrastructure

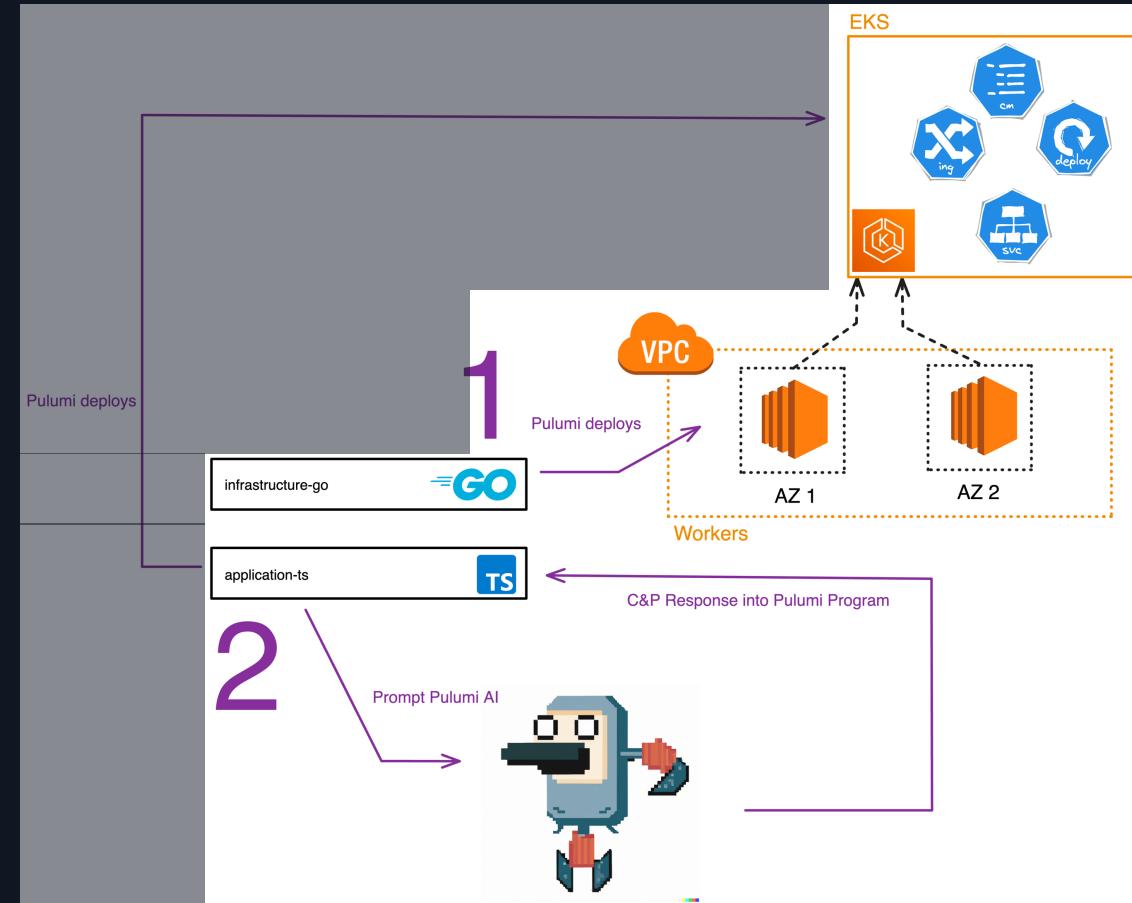


# The Demo

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- Deployment of AWS EKS infrastructure
- Using Pulumi AI to generate K8s Nginx

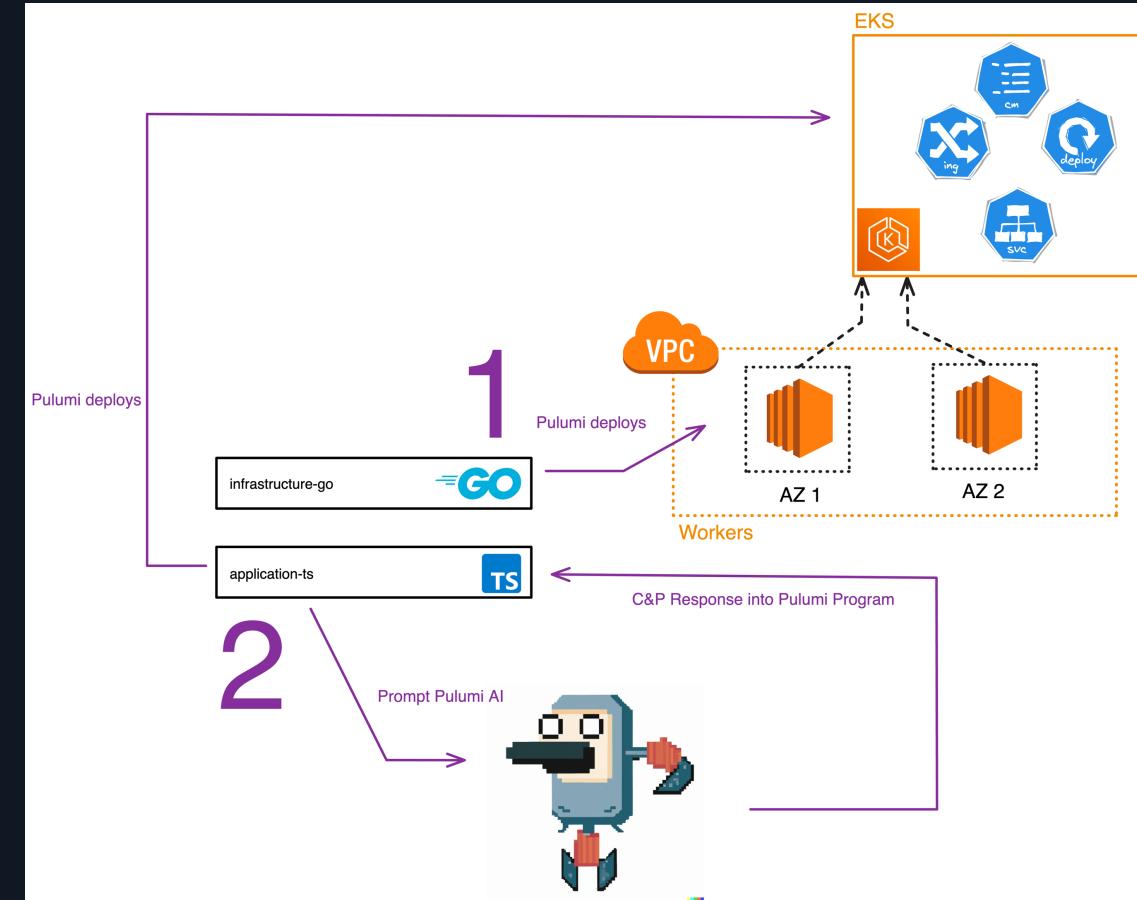
## Deployment



# The Demo

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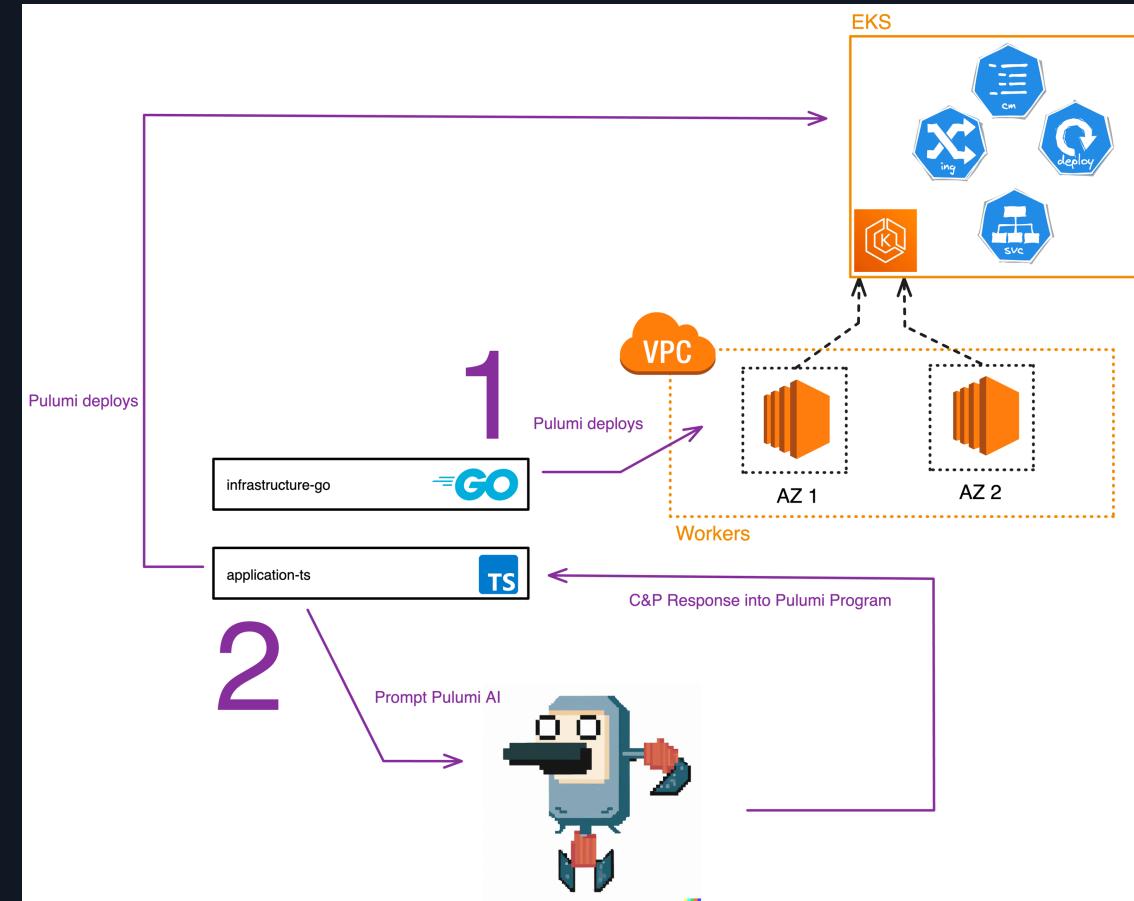
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- Deployment of AI generated workload



# The Demo

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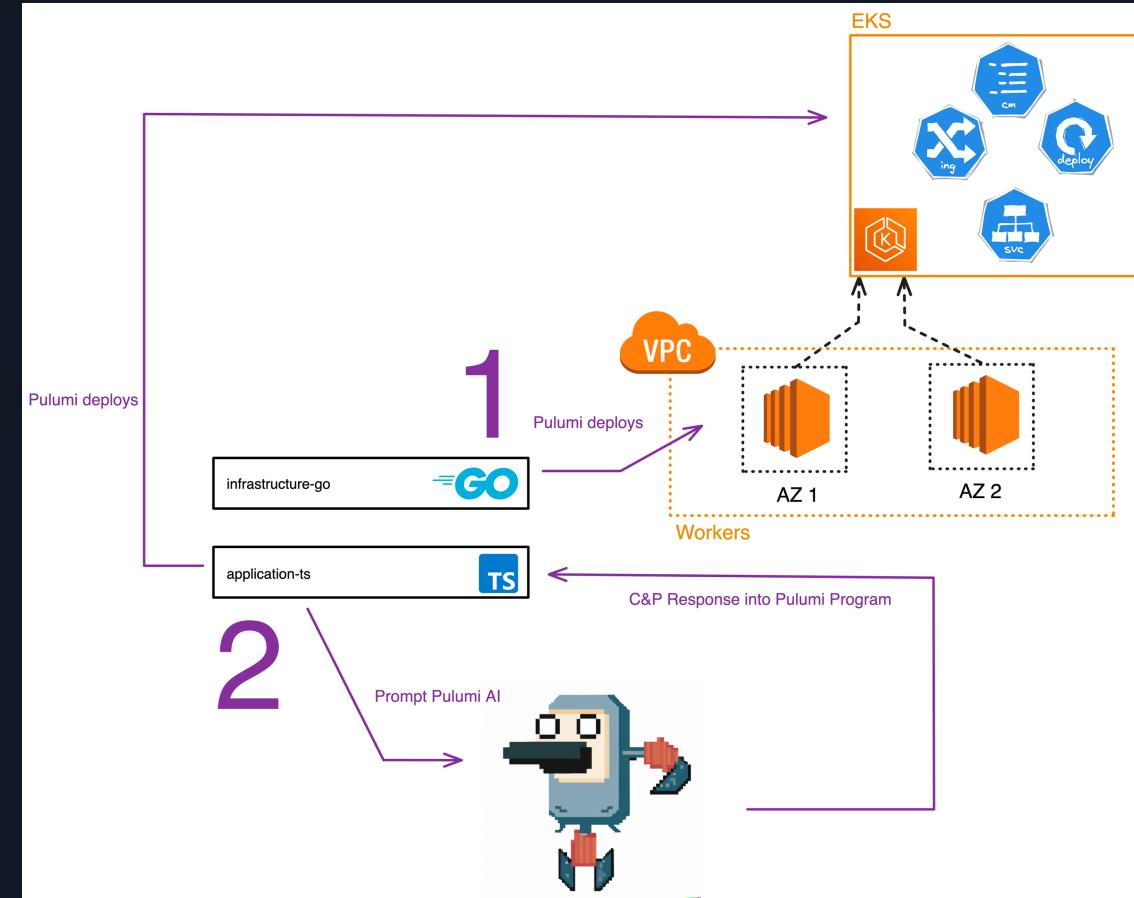
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- Language Go and Typescript



# The Demo

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- Deployment of AWS EKS infrastructure
- Using Pulumi AI to generate K8s Nginx Deployment
- Deployment of AI generated workload
- Language Go and Typescript
- Bonus points: Pulumi Policy as Code



# Wrap up!