

# Observability as Code for AI Apps with New Relic and Pulumi

**Piers Karsenbarg**

Senior Solutions Engineer

**Pulumi**

**Harry Kimpel**

Developer Relations Engineer

**New Relic**

# Housekeeping

---

- Be chatty in the **Chat** tab
- Ask questions in the **Q&A** tab
- Slides+Code are in the Handouts tab
- YouTube recording link will be sent in a follow-up email

# Agenda

---

- About Pulumi
- Pulumi ESC
- About New Relic
- New Relic AI monitoring
- Demo
- Questions and Answers

# About Pulumi



# What is Pulumi?

---



modern infrastructure as code (IaC)



uses familiar languages and tools



works with *any* major cloud

**Open Source**

Apache 2.0

[github.com/pulumi/pulumi](https://github.com/pulumi/pulumi)

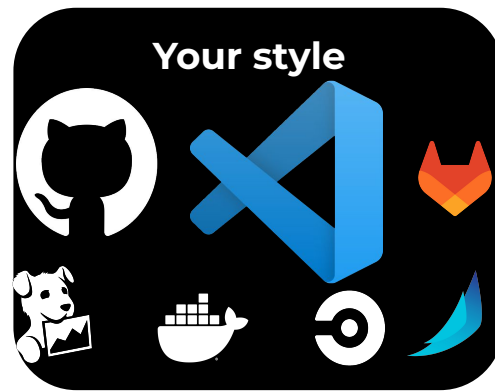
**Free Tier  
Managed SaaS**

[app.pulumi.com](https://app.pulumi.com)



Pulumi

# Pulumi Infrastructure as Code



**160+** Integrations

# Pulumi registry

The screenshot shows the Pulumi registry website at [pulumi.com/registry/](https://pulumi.com/registry/). The interface includes a navigation bar with the Pulumi logo, a "Get Started" button, and links for "Star" (19,636), "Slack", "Docs", and "Registry". Below the navigation bar, there are tabs for "Docs" and "Packages", with "Packages" being the active tab. A search bar is located on the right side of the "Packages" tab.

On the left side, there is a sidebar with the following sections:

- Featured packages
  - AWS Classic
  - Azure Native
  - Google Cloud Classic
  - Kubernetes
- A - Z packages
  - ACI
  - ACME
  - Aiven
  - Akamai
  - Alibaba Cloud
  - Amazon EKS
  - Aquasec
  - artifactory

The main content area displays "Featured Packages" with four cards:

- aws**  
**AWS Classic**  
v6.30.0
- Microsoft Azure**  
**Azure Native**  
v2.37.0
- Google Cloud**  
**Google Cloud Classic**  
v7.18.0
- kubernetes**  
**Kubern**  
v4.10.0

Below the featured packages, there is a "Filters" section with two dropdown menus: "Type" and "Use Case", and a search bar labeled "Filter by package name...".

At the bottom, there is a section for "A - Z Packages" with a badge indicating 163 packages, and a link to "Contribute your own packages".

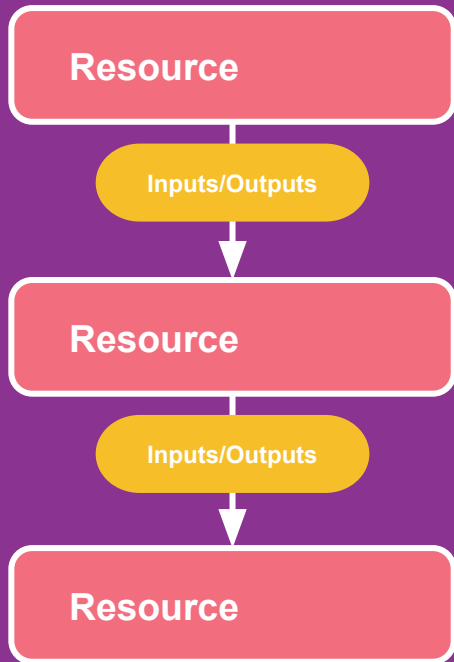
# Pulumi vs. others

	Pulumi	Terraform	CDK	CloudFormation
Language	✓ General purpose (multiple)	HCL	✓ General purpose (multiple)	YAML
Resources	✓ Any cloud	✓ Any cloud	AWS only	AWS only
Deployment Model	✓ Local CLI	✓ Local CLI	CloudFormation Service	CloudFormation Service
Secrets Handling	✓ Built-in (state and config)	Requires Vault	Not built-in (can use AWS KMS)	Not built-in (can use AWS KMS)



## Project

### Program



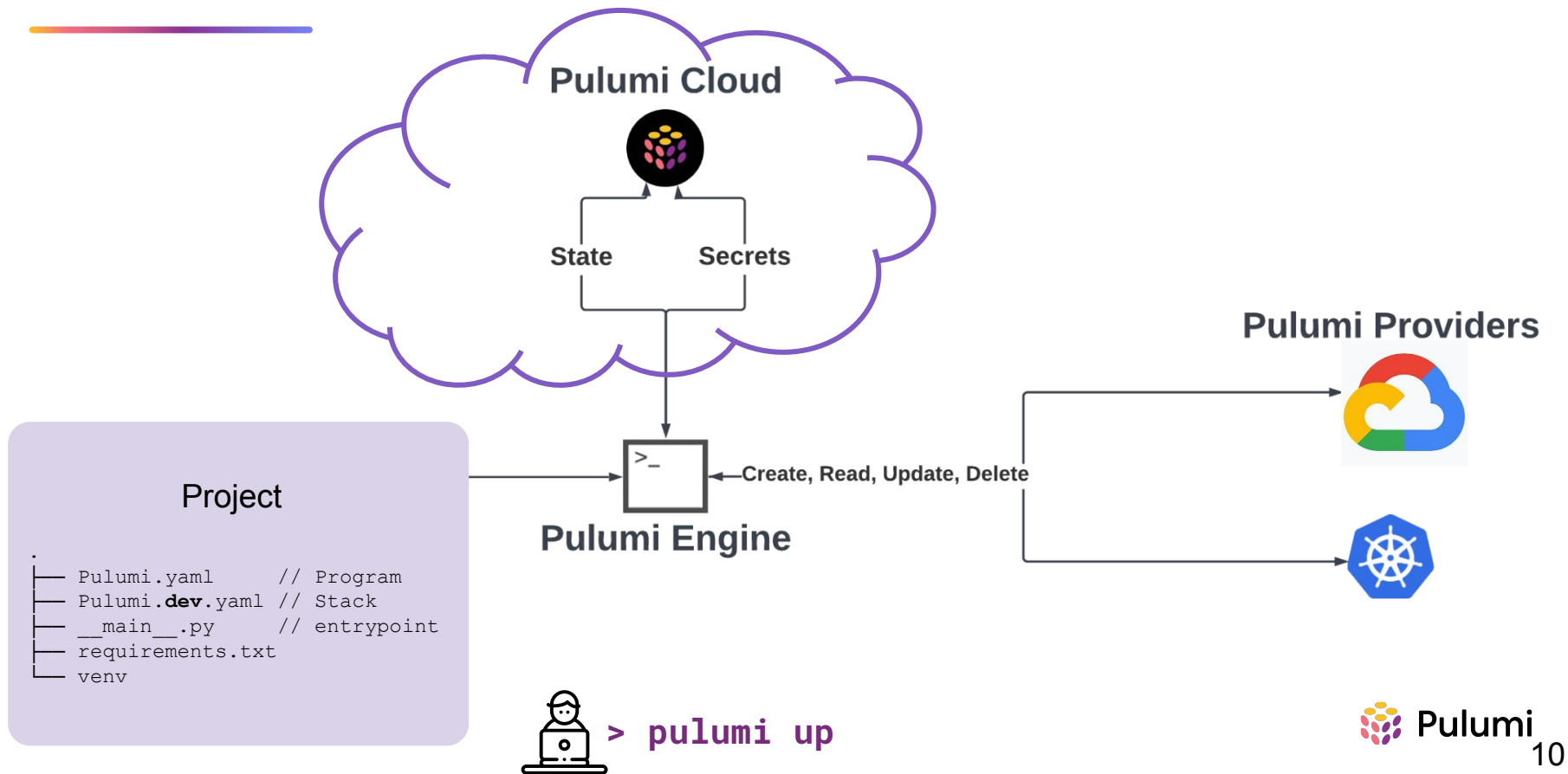
Stack (DEV)

Stack (QA)

Stack (PROD)

# Pulumi Program Model

# Behind the scenes



# Pulumi ESC

TAME YOUR SECRETS AND CONFIGURATION SPRAWL

---

## Encrypt

all sensitive data in-transit and at-rest.

## Equip

teams to securely store API keys, tokens, credentials, certificates, etc

## Centralize

management of cloud configuration and secrets at scale.

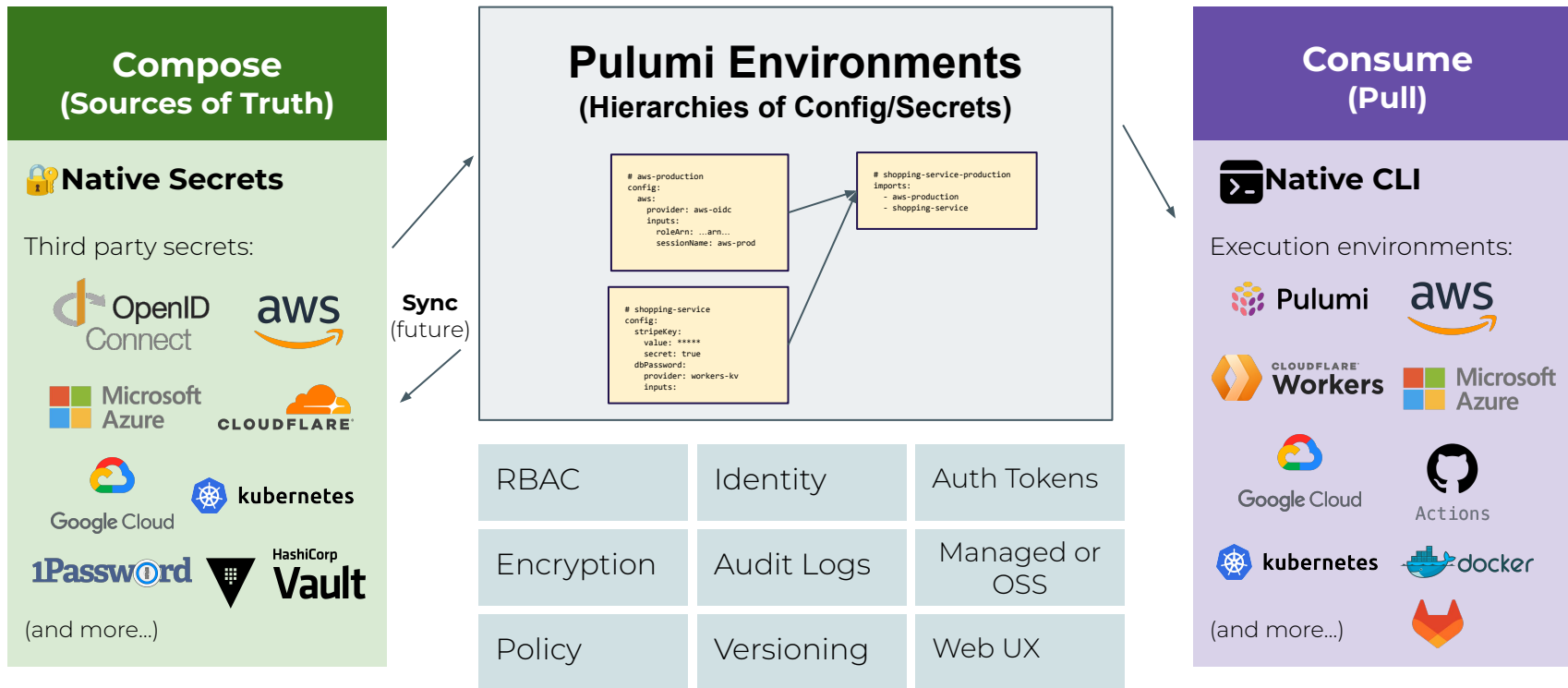
## Enforce

security best practices by-default, such as short-lived credentials.

# Pulumi ESC

EXTENSIBLE ARCHITECTURE - SOURCES AND SINKS

NOW GA



# New Relic All-in-one Observability Platform

## Data Cloud

Agents  
eBPF/Pixie  
OpenTelemetry  
700+ Integrations  
Prometheus  
Ingest APIs

Unified Metrics, Events, Logs, and Traces  
High Cardinality  
Multi-cloud  
Continuous Relationship Mapping  
Highly Scalable  
Role-based Access Control  
FedRAMP, HIPAA, +

Application Performance Monitoring

Infrastructure Monitoring

Log Management

Incident Management

Customization

Analysis

AI

Testing

Security

## Insight Cloud

APM 360  
Distributed Tracing  
Session Replay  
Browser Monitoring  
Mobile Monitoring  
Website Performance  
SAP Monitoring

Error Tracking  
CodeStream  
Code Profiling  
Service Maps  
CI/CD Monitoring  
Business Observability/Pathpoint

Log Management  
Live Archives

Logs in Context  
Log Patterns

Host Monitoring  
Container Monitoring  
Kubernetes Monitoring  
AWS Monitoring  
Azure Monitoring

GCP Monitoring  
Serverless Monitoring  
Network Monitoring  
Database Monitoring  
Kafka Monitoring

Custom Queries (NRQL & AI)  
Customizable Dashboard

Custom Apps  
APIs

Alerts  
AIOps  
Change Tracking

Root Cause Analysis  
Workflow Integrations  
Notification Workflow

New Relic AI  
AI Monitoring

OpenAI Monitoring

Dashboards  
Entity Explorer

Service Levels  
Service Catalog

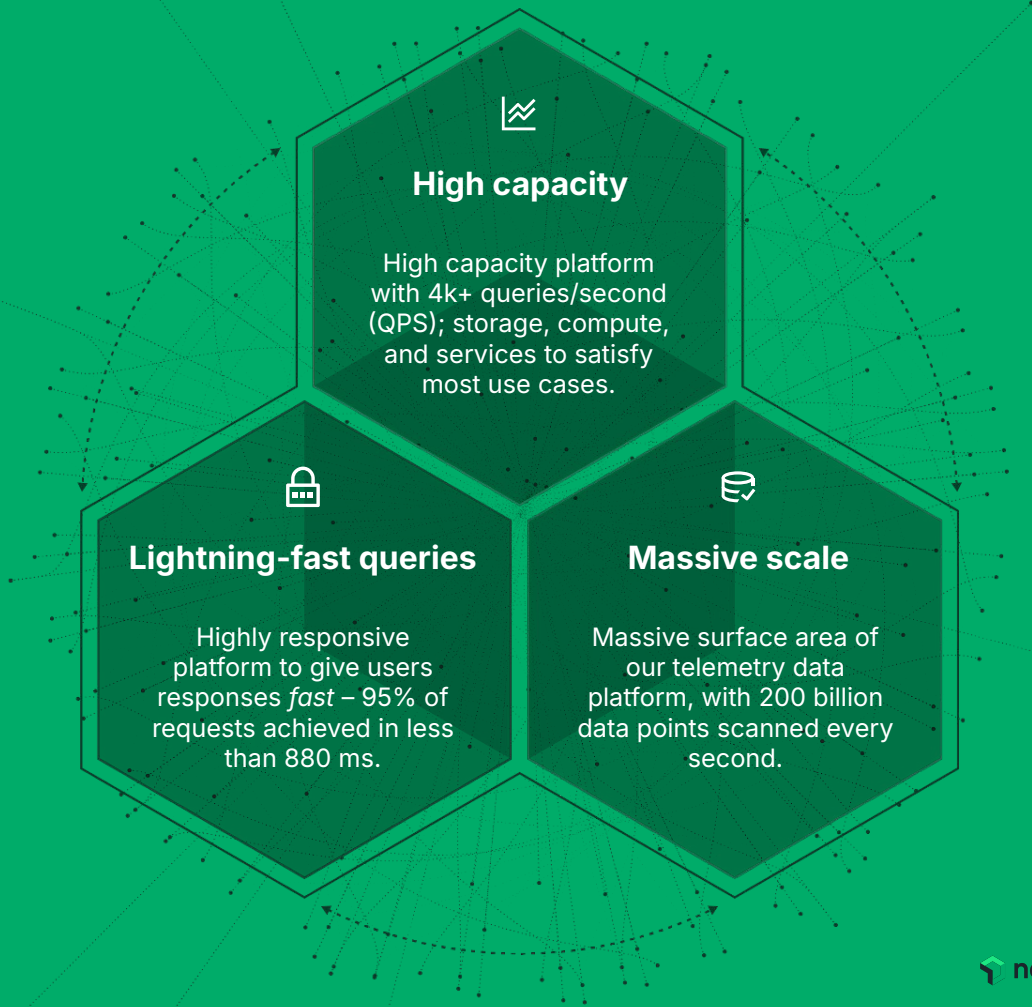
Vulnerability Management

Interactive Application Security Testing

Synthetic Browser Monitoring  
Synthetic API Monitoring

Synthetic Scripted Monitoring  
Continuous Automated Testing

The world's most  
powerful telemetry  
platform – at a low,  
per-GB cost.



# Market Trends



70%

**\*Organizations currently in explorative mode with generative AI**

Source

\* [Gartner Poll](#)



40%

**\*\*Enterprise applications will have conversational AI embedded by 2024**

\*\* [Gartner Insights Generative AI](#)



75%

**\*\*\*Consumers are concerned about the misinformation from AI**

\*\*\* [Forbes AI Statistics](#)



# Challenges monitoring AI applications

---



## Increased complexity

---

AI tech stacks include new components like LLMs, vector data stores and orchestration frameworks.



## New telemetry

---

AI applications introduce new challenges with quality of responses (Bias, Hallucination and Toxicity) and cost of managing models



## Security & Compliance

---

AI regulations are still emerging and customers don't trust sharing proprietary information with AI/LLM providers

**Customers need new operational capabilities to be able to monitor/debug/fix AI/LLM latency, cost and response quality.**



# New Relic AI Monitoring

---

**Industry's first end-to-end APM solution that empowers engineers to build and run AI applications confidently with in-depth insights across the AI application stack to optimize performance, quality and cost**

# Compliance: security & data protection measures

---

## Disable AIM

- disable AIM during the agent installation
- see [Customize agent for AI monitoring](#)

## Disable content

- enable AIM but disable sending message contents, where sensitive data might exists
- see [Customize agent for AI monitoring](#)

## Drop filters

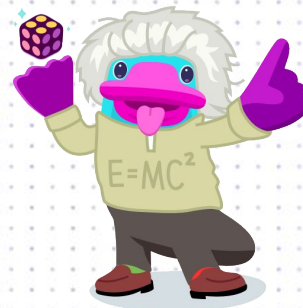
- enable AIM and messages content
- create drop filters to remove any data which match potential sensitive data (e.g. phone, email etc.)
- based on regex
- see [Drop sensitive data with drop filters](#)

 **Learn more!**  


Stay tuned on upcoming  
workshops and in-person  
events!

[pulumi.com/resources](https://pulumi.com/resources)

# Thank you



[@PulumiCorp](https://twitter.com/PulumiCorp)



[slack.pulumi.com](https://slack.pulumi.com)



[PulumiTV](https://www.youtube.com/PulumiTV)



[github.com/pulumi](https://github.com/pulumi)