pulumi

Developer Friendly Platforms

With Kubernetes & Infrastructure as Code

$(whoami)

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What we’ll cover today

Platforms

We’ll talk about what a “platform” might look like, and why you might want to build one at your organization

IaC

We’ll introduce Infrastructure as Code in the context of a platform, and explore some of the gaps and problems with existing tooling

Developer Friendly

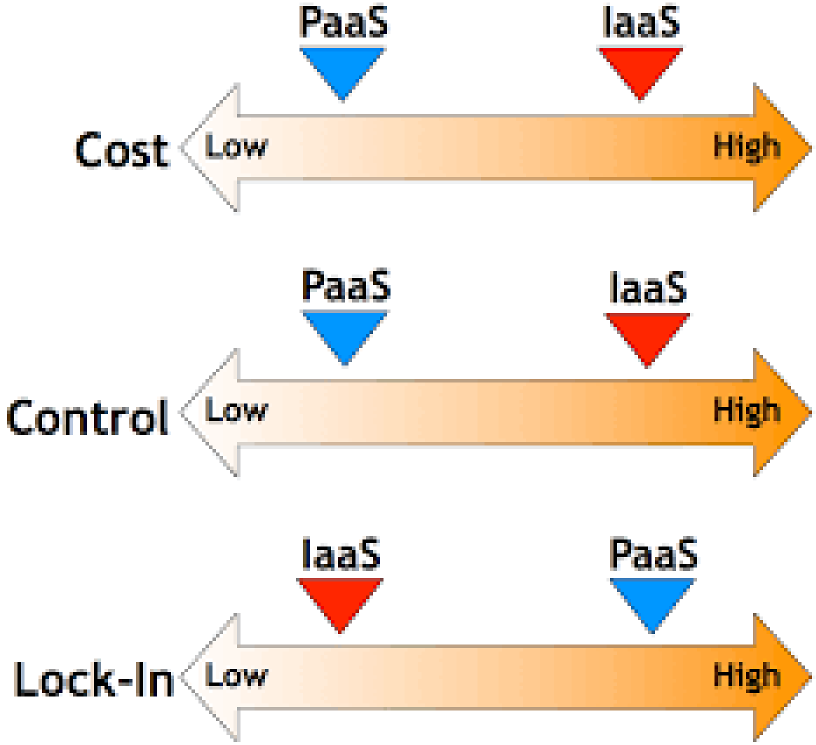
We’ll talk about what it means to be developer friendly and bring the previous two topics

Infrastructure Platforms

What are they, and might you need one?

IaaS vs PaaS

- Two widely used acronyms
- Which is right for you?

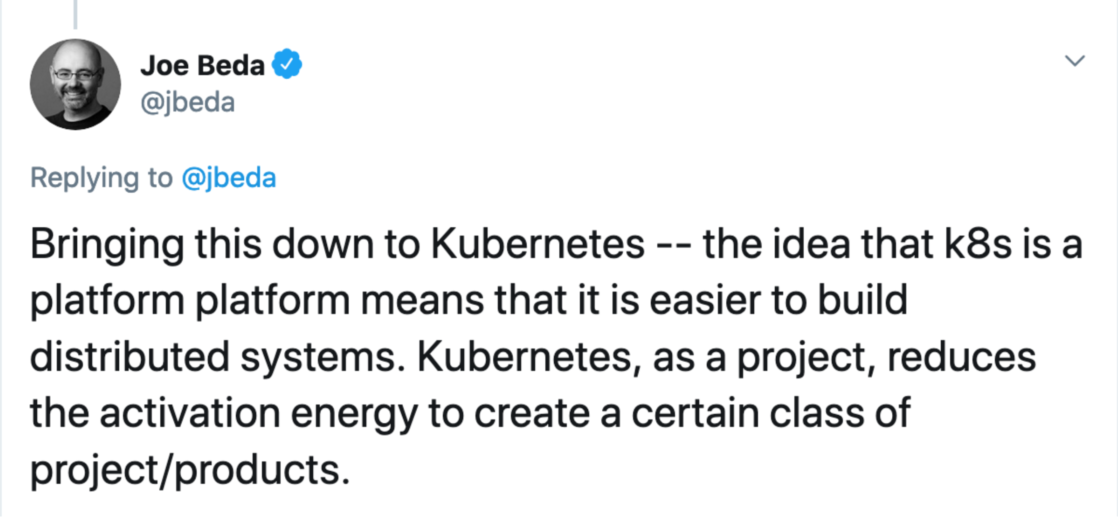


Building a Platform

- Public platforms are opinionated
  - You have to follow defined model and workflows
- Your business logic - your way
  - Tailor your platform to suit your needs

Kubernetes: The platform platform

- Kubernetes makes it easier to build platforms for your business
- Define [illegible] asy to build on



Joe Beda
@jbeda

Replying to @jbeda

Bringing this down to Kubernetes -- the idea that k8s is a platform platform means that it is easier to build distributed systems. Kubernetes, as a project, reduces the activation energy to create a certain class of project/products.

Infrastructure as Code

What is it, and why do you need it?

In a nutshell

“Infrastructure as code is the practice of managing and provisioning computer systems and services through machine readable definitions rather than interactive configuration tools”

Why?

- Auditing
- Peer review
- Consistency & Repeatability
- Efficiency

Configuration v Languages

- Almost all IaC tools define infrastructure using configuration languages
  - JSON
  - YAML
- Programming languages have control flow, conditionals but extra work needed for idempotence.

What is Pulumi?

Modern Infrastructure as Code

Any Cloud, Any Cloud Architecture

Familiar Programming Languages and Tools

For the Entire Cloud Engineering Organization

OPEN SOURCE
SAAS FOR TEAMS AND ENTERPRISES

Supported Languages

- JavaScript
- TypeScript
- Python
- Go
- F#
- C#

Developer Friendly Platforms

Bringing platforms & IaC togerher

Communication

- Developers appreciate APIs
  - Machine readable language
- Developers appreciate SDKs
  - Developer readable language

Tooling

- Package management
  - Use the native installations methods developers are familar with
- Development Environment
  - Use your familiar IDE
  - IntelliSense
- Languages
  - Use the language that’s right for you
  - Use Pulumi’s powerful features to pass properties between languages

Demo time!

ComponentResources

- “Packageable” resources delivered directly to your users
    - Grab them directly from your languages’ package manager
- Mix & Match cloud resources & Kubernetes workloads
    - Deliver production ready applications with cloud backed services

Stack References

- Export the important properties from your infrastructure stacks
- Build infrastructure in the language you feel comfortable with
  - Infrastructure in Python
  - Application in Go
  - Database in C#
- Expose only the properties others need

Kube2Pulumi

- Convert complex, K8s YAML manifests to any languages
  - Convert to a language developers know
  - Enable their learning and understanding
- Remove the need for templating languages

Automation API

- Ship your automation interface in familiar terms
  - Build CLI tools that abstract complexity from users
  - Build GUI tools that guide your users
- Infrastructure + Complex workflows