Microsoft

Taking Spring Apps for a Spin on Microsoft Azure Cloud

Bruno Borges
@brunoborges

Microsoft

Java Cloud Native on Azure – Landscape

Azure Services

CosmosDB | Service Fabric | App Service | Container Instances | Container Registry | Kubernetes Service | Serverless Functions | App Insights | Azure DevOps | SQL Service | Event Grid | Event Hub | Service Bus | Active Directory

Multi-Cloud Platforms

JVMs, Frameworks, Runtimes

Tools

DevOps

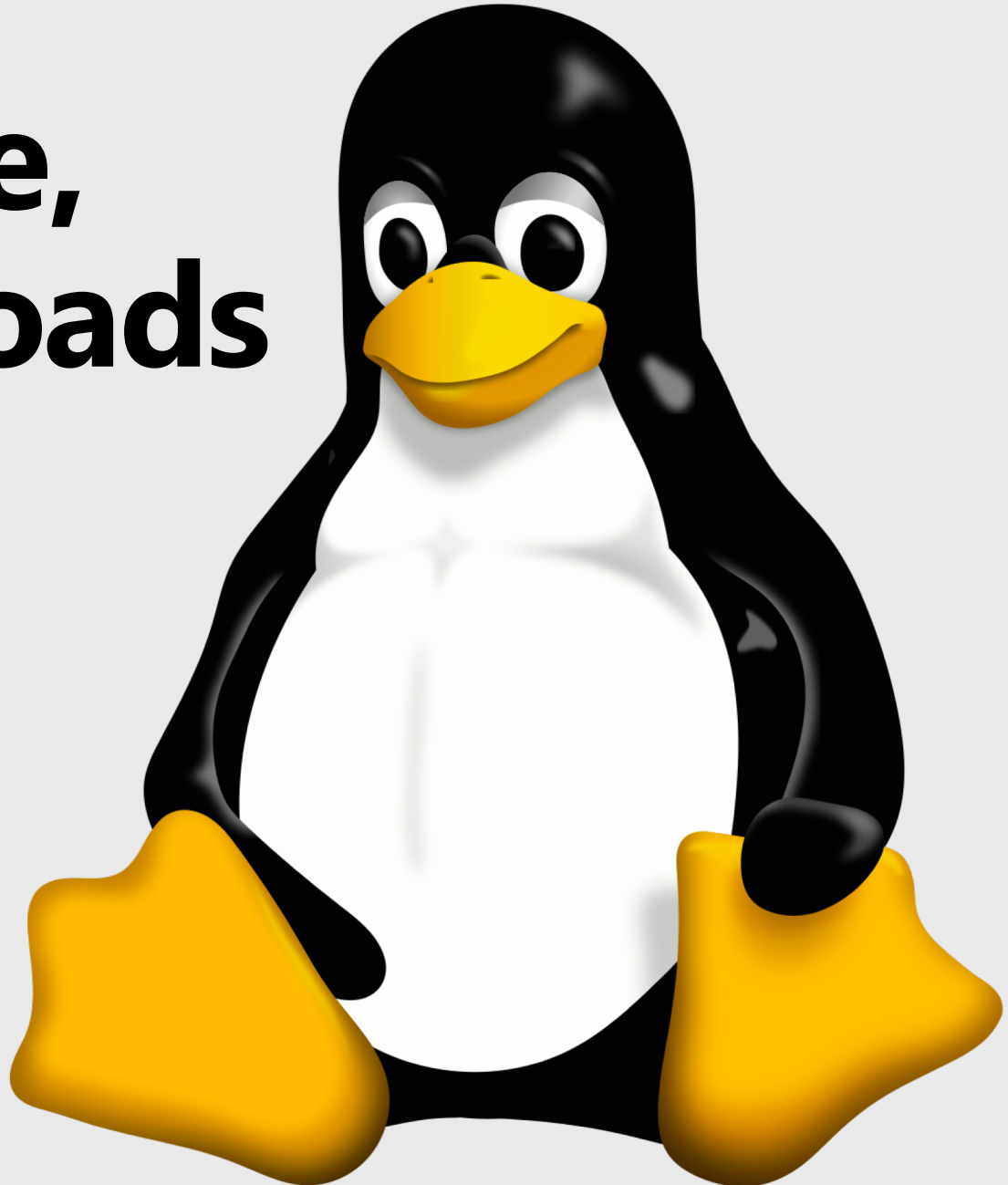
IaaS – Linux Distributions

Cloud Automation

Kubernetes & Containers

OSS Foundations

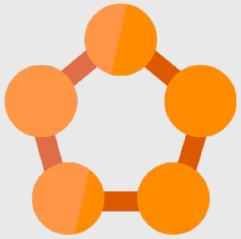
On Microsoft Azure, over 50% of workloads are Linux-based.



1st Class Support for Java on Azure Services

Native and idiomatic support for Java applications.

Azure Functions
- Java SE 8
- Java SDK
- Plugins for Maven, Eclipse, and IntelliJ
- VS Code Extension (manage; local/remote debug)



Azure Service Fabric *Mesh*
- Java API
- Java SDK
- Maven Dependencies and Plugins
- Eclipse Plugins and VS Code Extensions

Azure App Service
- Java SE 8
- Tomcat 8.5, 9.0
- Maven Plugin
- Eclipse & IntelliJ Plugins
- VS Code Extension (Manage)

Azure Cosmos DB
- Java SDK for synchronous connections
- Java SDK for asynchronous (reactive) style
- Support for MongoDB/Cassandra APIs
- Open Source SDKs

Azure Application Insights
- Java SDK for user-defined instrumentation
- Java Agents for auto instrumentation
- Eclipse Plugin
- Open Source SDKs

Azure SDKs for Java
- Management APIs (CRUD Azure services)
- REST-to-Java APIs (idiomatic low-level REST
- Fluent APIs (idiomatic service features)
- **Over 50+ services covered**
- Open Source SDKs

1st Class Java Tooling Support – Development and CI/CD

Extensions by Microsoft, Partners, and 3rd-parties to enable and enhance Java tooling support

Visual Studio Code – Extensions

By Microsoft
- Debugger for Java
- Remote Function Debug
- Java Extension Pack
- Apache Maven
- Test Runner (JUnit)
- Spring Initializr
- Azure Terraform

By Partners
- *Red Hat*: Java Language Support
- *Pivotal*: Spring, CloudFoundry, Bosh

Azure DevOps Extensions

By Microsoft
- Jenkins Integration
- GitHub Integration
- Apache Tomcat
- Ansible

By Partners and 3rd party
- *CloudBees*: Jenkins Platform
- *JFrog*: Artifactory

Extensions by Microsoft, Pivotal, and Red Hat

Debugger for Java vscjava.vscode
Microsoft | 3,813,106 | ★★★★★
A lightweight Java debugger for Visual Studio Co

Spring Initializr Java Support
Microsoft | 57,150 | ★★★★★ | F
A lightweight extension based on Spring Initializr t

Maven for Java vscjava.vscode-mav
Microsoft | 2,829,432 | ★★★★★
Manage maven projects, execute goals, generate

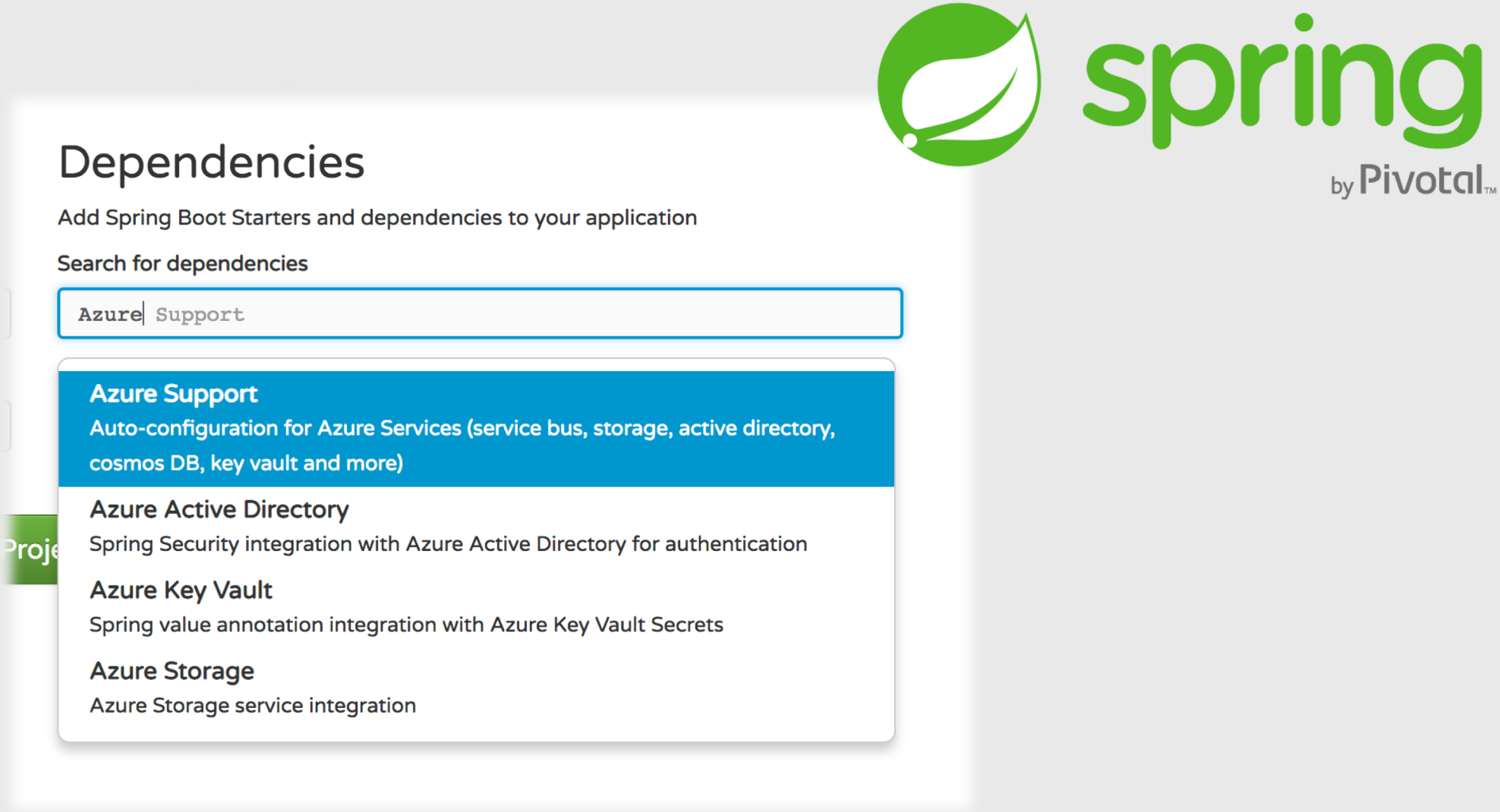
Java Test Runner vscjava.vscode-
Microsoft | 2,702,505 | ★★★★½
Run and debug JUnit test cases.

Language Support for Java
Red Hat | 7,738,407 | ★★★★½
Java Linting, Intellisense, formatting, refactorin

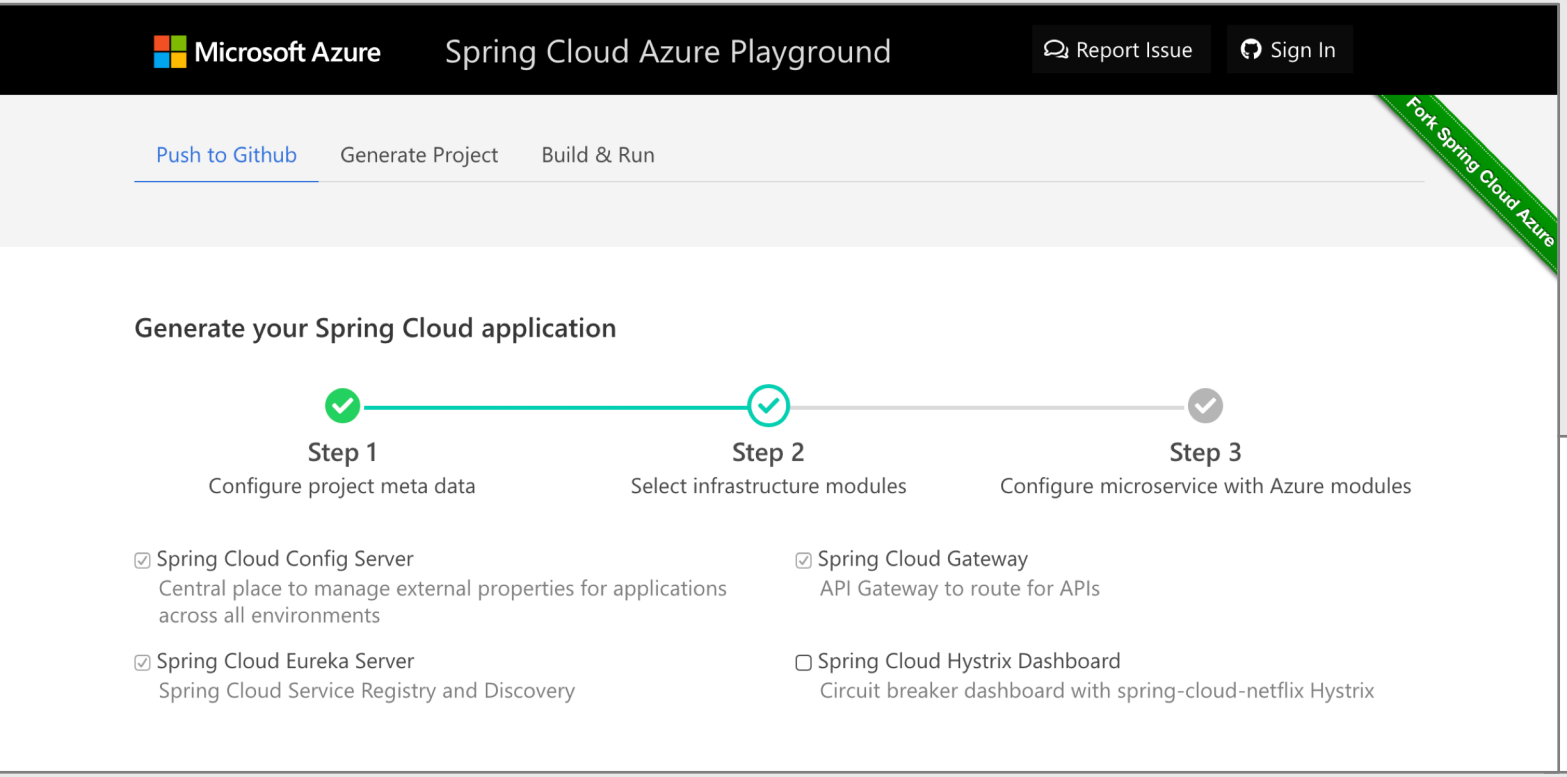
Spring Boot Tools pivotal.vscod
Pivotal | 126,993 | ★★★★★ |
Provides validation and content assist for Sprir

17,267,593

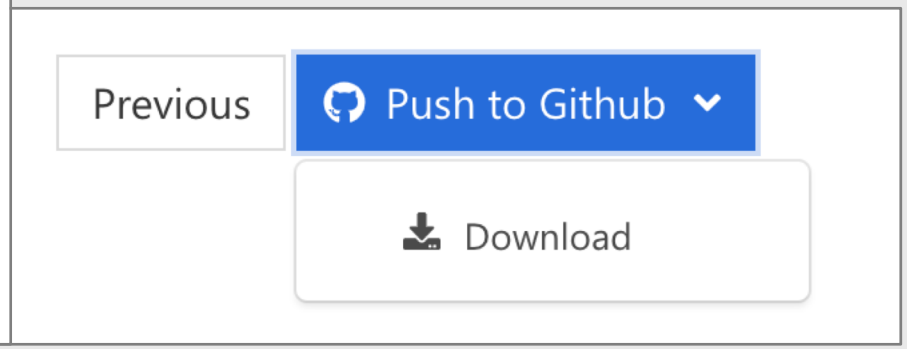
Spring Starters for Azure



Spring Initializers: on Azure and VS Code

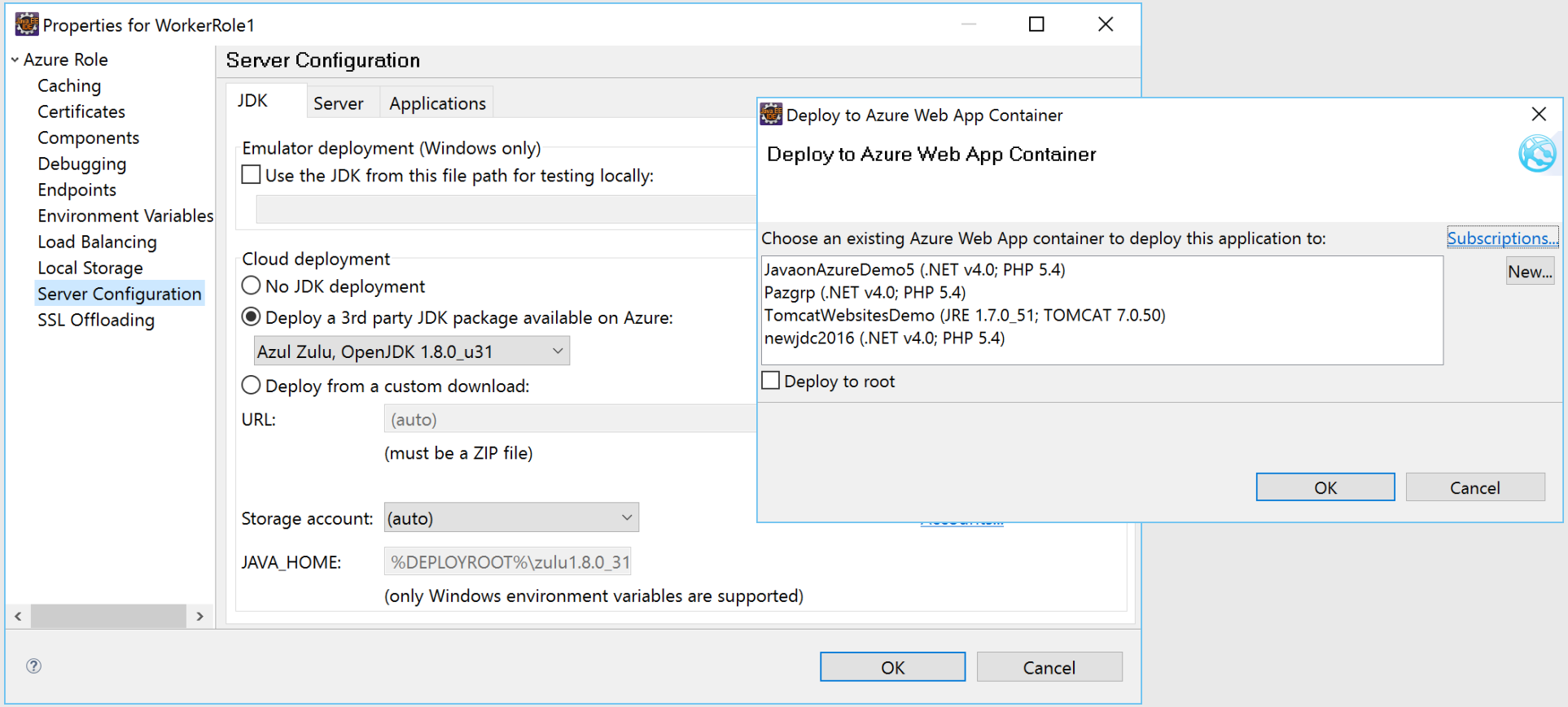


aka.ms/spring-init-azure

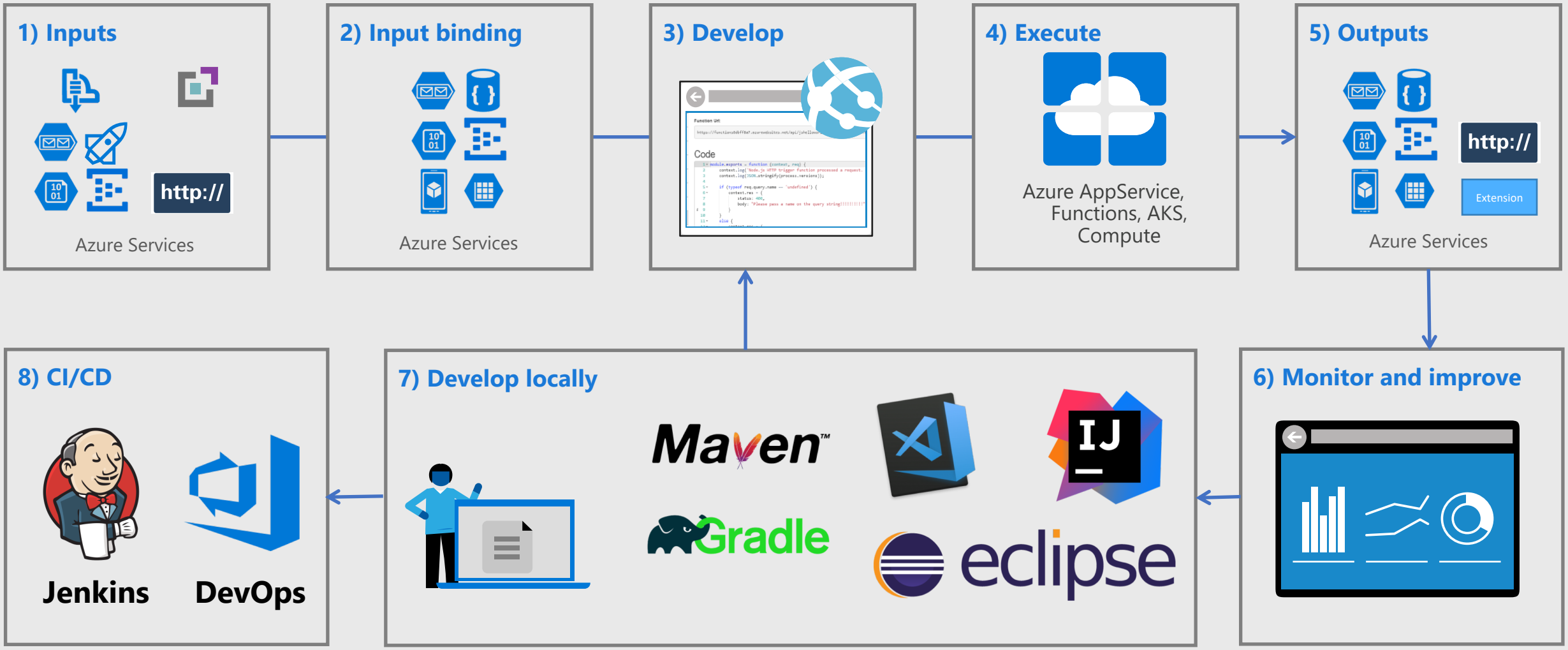


Azure Toolkits for Eclipse & IntelliJ

App Services and Containers

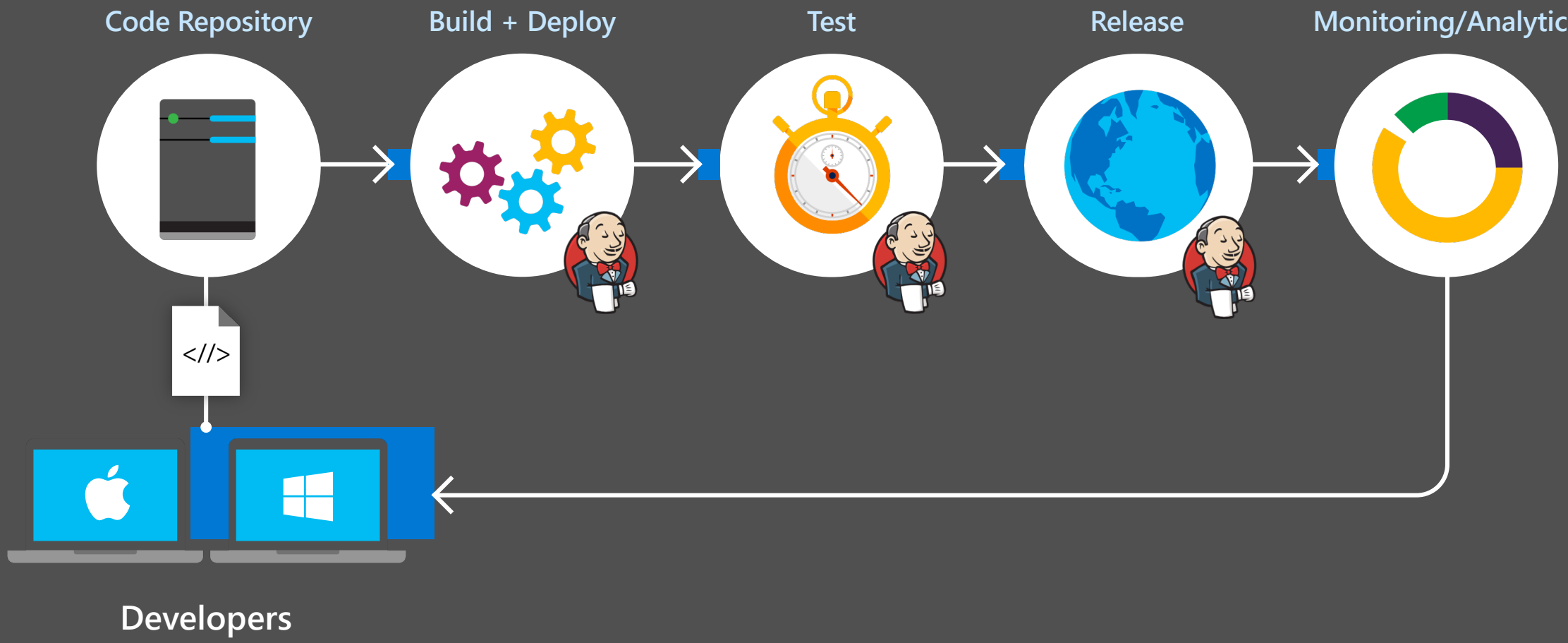


The Java Development Lifecycle on Azure



Azure DevOps Services and Jenkins Integration

Complete Java DevOps solution



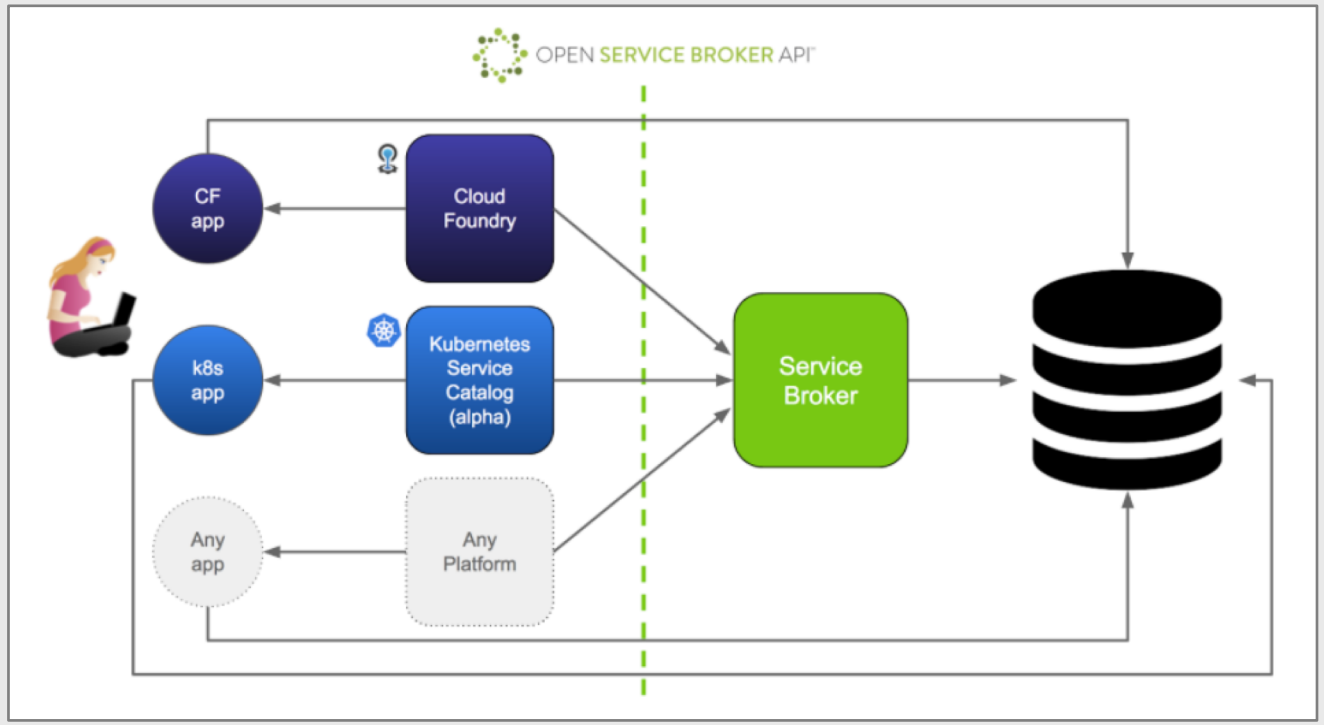
Open Service Broker for Azure

Easily connect apps to Azure services

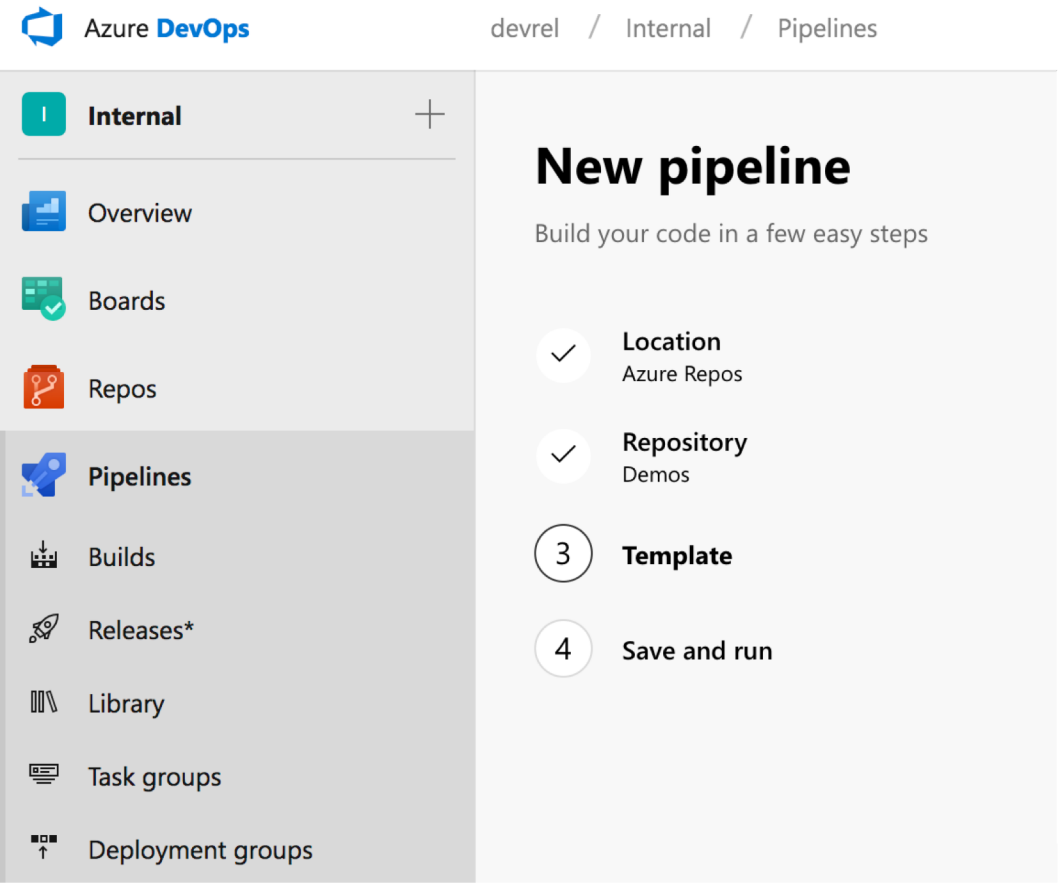
- Azure Database for MySQL
- Azure Database for PostgreSQL
- Azure SQL Database
- Azure Cosmos DB
- Azure Event Hubs
- Azure Key Vault
- Azure Redis Cache
- Azure Search
- Azure Service Bus
- Azure Storage
- Azure Text Analytics

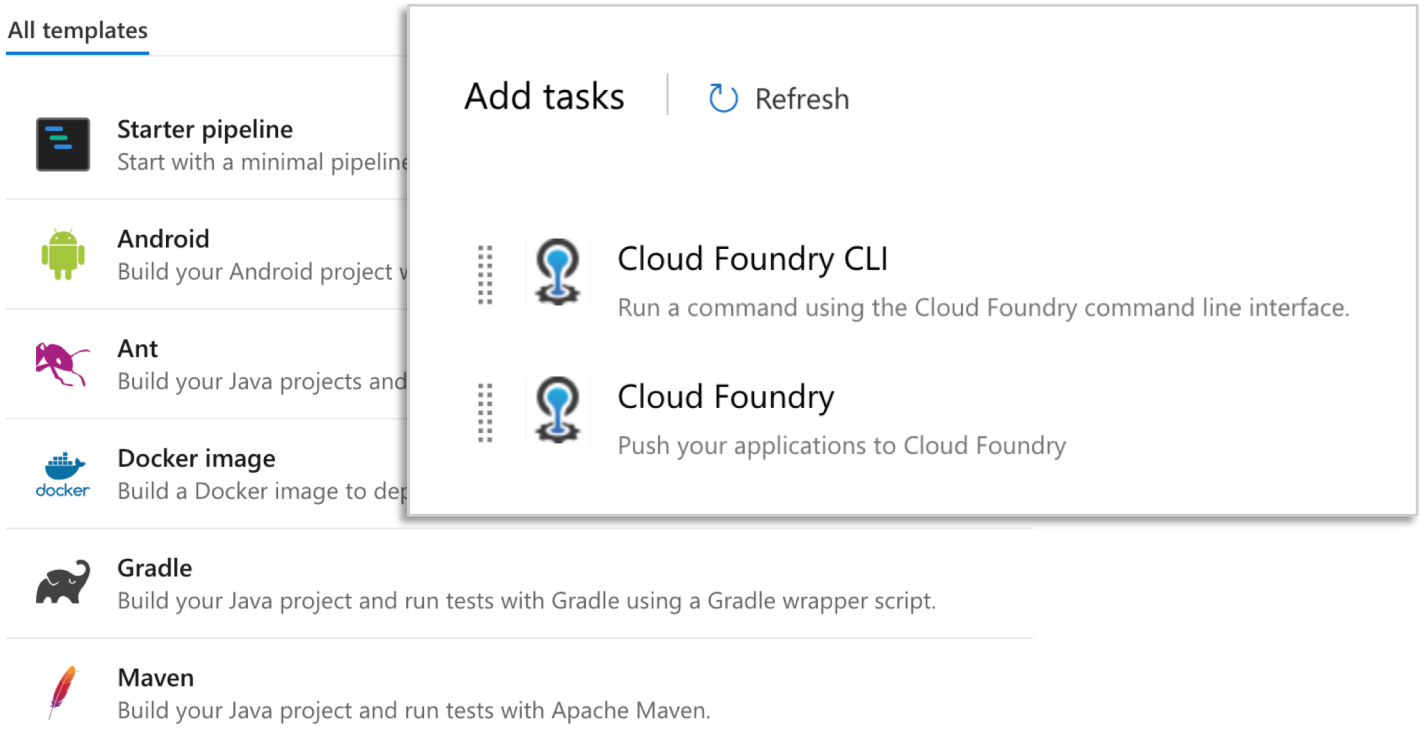
OPEN SERVICE BROKER API™ for Azure

https://osba.sh/

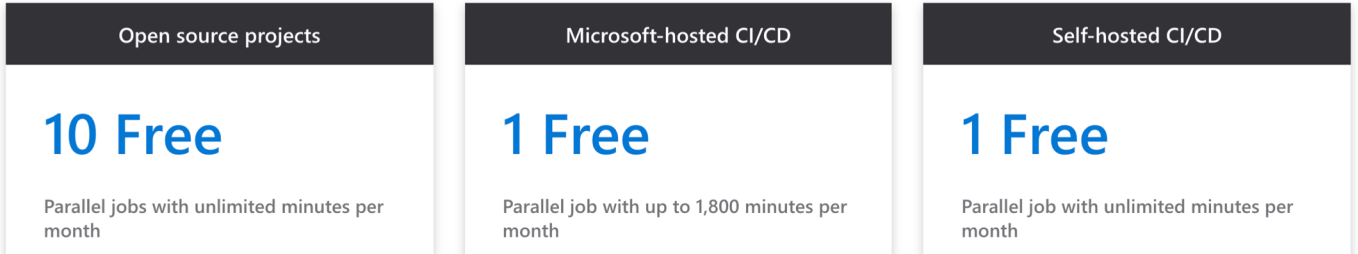


Automate Deployments with Azure DevOps





Build on Linux, macOS, and Windows



Where do Java applications run on Azure?

Serverless Functions

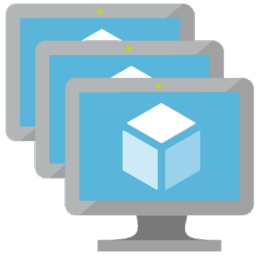
Web Apps Service

Serverless Containers

Kubernetes Service

Pivotal Cloud Foundry®

Virtual Machines



VM Scale Sets

Deploy Spring to Azure using Maven Plugins

Azure Functions

```
<plugin>
    <groupId>com.microsoft.azure</groupId>
    <artifactId>azure-functions-maven-plugin</artifactId>
    <configuration>
        <resourceGroup>myResourceGroup</resourceGroup>
        <appName>myfuncapp</appName>
        <appSettings>
            <property>
                <name>FUNCTIONS_EXTENSION_VERSION</name>
                <value>beta</value>
            </property>
        </appSettings>
    </configuration>
</plugin>
```

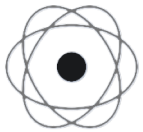
Spring Cloud Function

$ mvn package azure-functions:deploy

Azure App Service Web Apps

```
<plugin>
    <groupId>com.microsoft.azure</groupId>
    <artifactId>azure-webapp-maven-plugin</artifactId>
    <configuration>
        <!-- Web App information -->
        <resourceGroup>myResourceGroup</resourceGroup>
        <appName>petclinicapp</appName>
        <pricingTier>S3</pricingTier>

        <!-- Java Runtime Stack for Web App on Linux-->
        <linuxRuntime>tomcat 9.0-jre8</linuxRuntime>
    </configuration>
</plugin>
```



Spring Boot Reactive

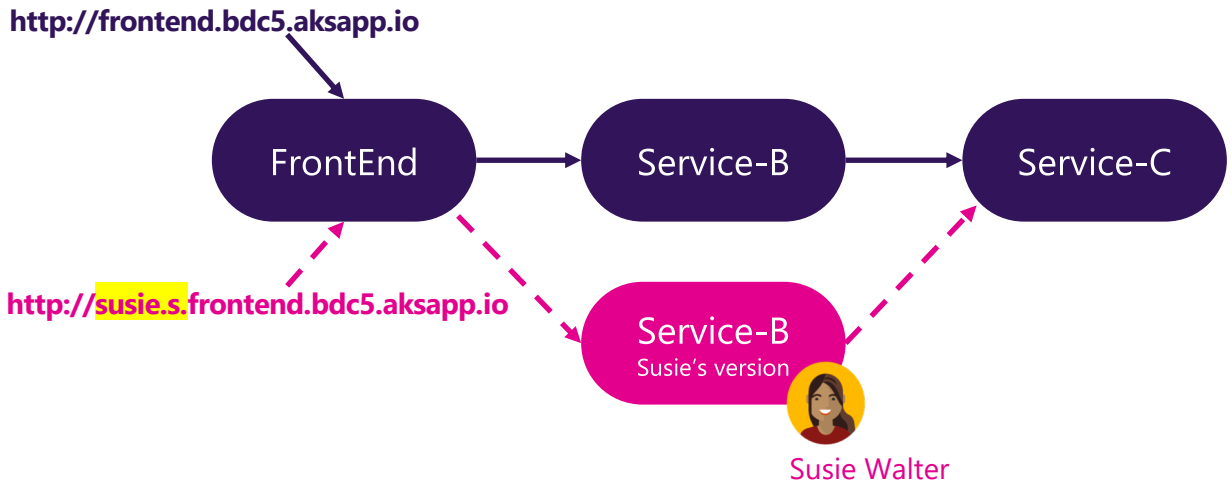
$ mvn package azure-webapp:deploy

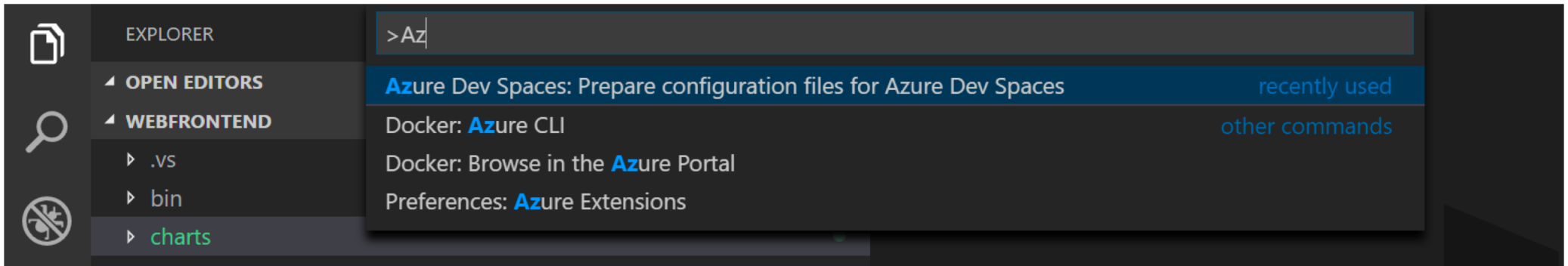
Azure Dev Spaces

Rapidly iterate and debug containers in Kubernetes

Collaborate in a shared cluster

Test code end-to-end without simulating dependencies

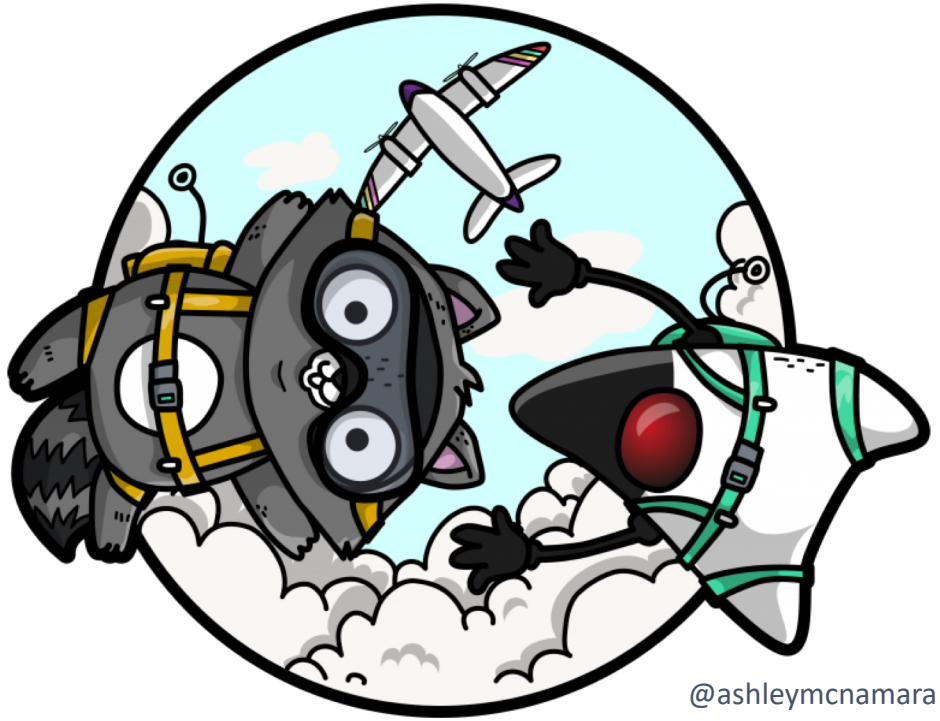




Free Java Production Support on Microsoft Azure and Azure Stack. For all LTS versions of Java.

(Microsoft + Java) ^ Spring

Spring on Azure	aka.ms/spring-on-azure
PCF on Azure	aka.ms/pcf-on-azure
VS Code for Java	aka.ms/code-for-java
K8S Dev Spaces	aka.ms/dev-spaces-java
Azure DevOps	dev.azure.com
Azul OpenJDK on Azure	aka.ms/azul-jdk-azure
Microsoft Learn	microsoft.com/learn



spring


Thank you!
@ashleymcnamara