



AUTOMATION BROKER

# Kubernetes Automation with automationbroker.io

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# 1. MetaContainer as the App Definition



# Provisioning

- Create a full stack of cluster resources
  - DB
  - API Service
  - Frontend
- Integrate with external services
  - Legacy applications
  - Traditional DB cluster
  - Appliances
- Post-install bootstrapping
  - Initialize a DB
  - Restore from backup
  - Create resources in the application

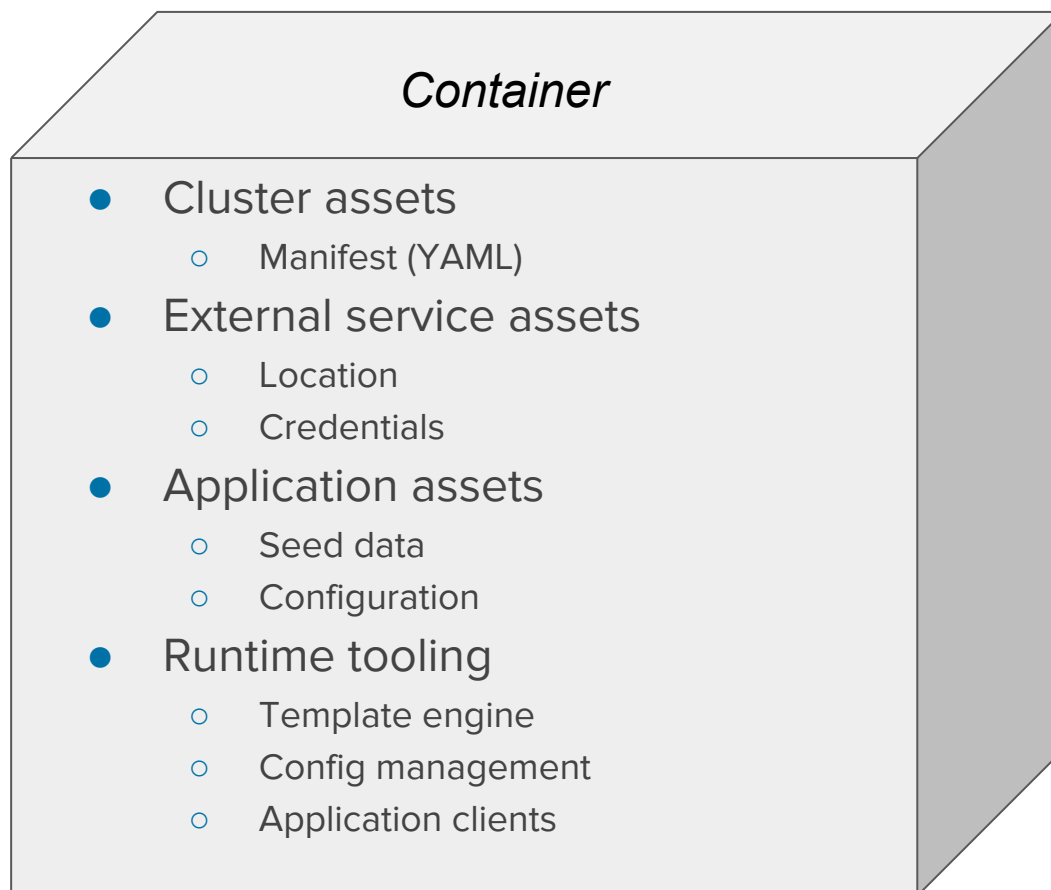


# Post-Install Bootstrapping

- Run a single Pod to completion
- Run a Job
- Use config management
- Perform manual tasks



# Requirements for Provisioning



# MetaContainer / Service Bundle

- Bundles everything you need at provision time
- Runs to completion as a pod in your cluster
- Testable and reproducible
  - Suitable for a full CI lifecycle



# Service Bundle - not just for provisioning!

- Deprovision
- Bind / Unbind
- Update
- Other management actions



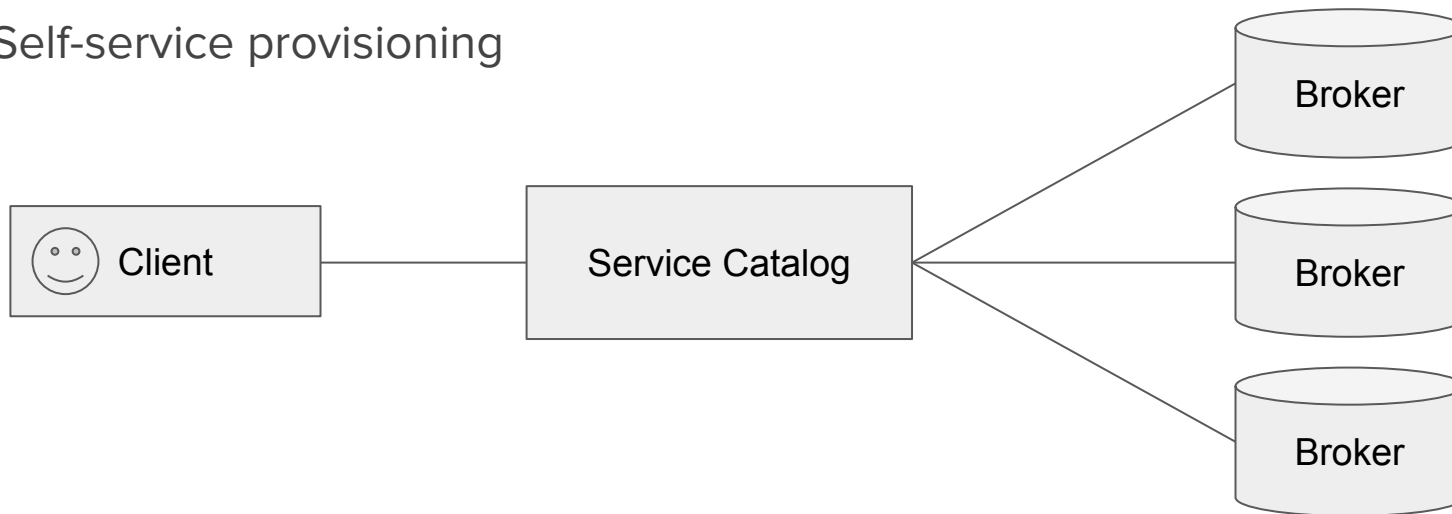
## 2. Service Catalog





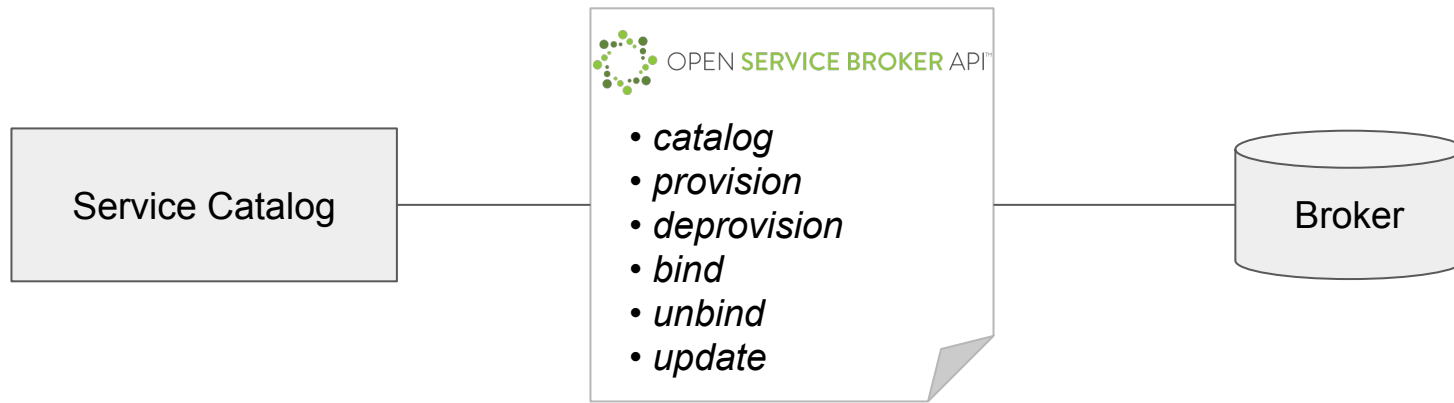
# Service Catalog

- Provides composable services to applications
- Actions
  - Provision / Deprovision
  - Bind / Unbind
- Self-service provisioning





# OPEN SERVICE BROKER API™



redhat.

Pivotal.



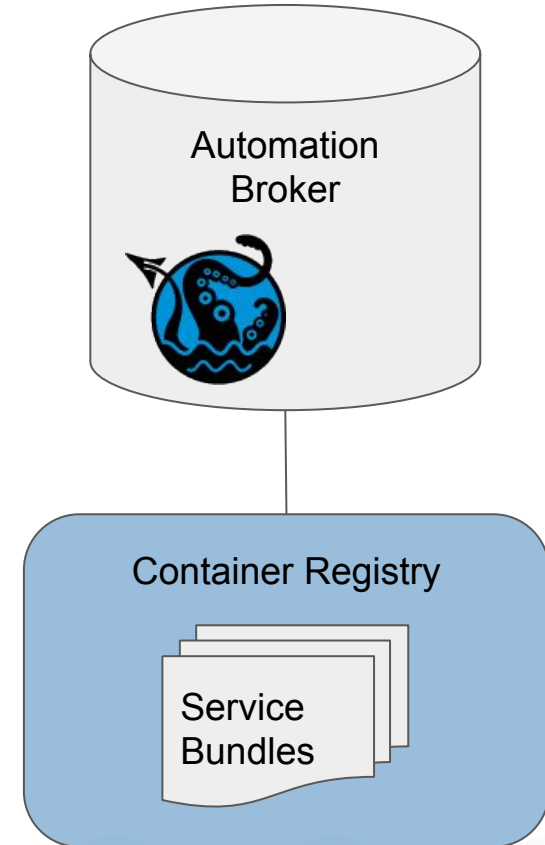
### 3. Automation Broker



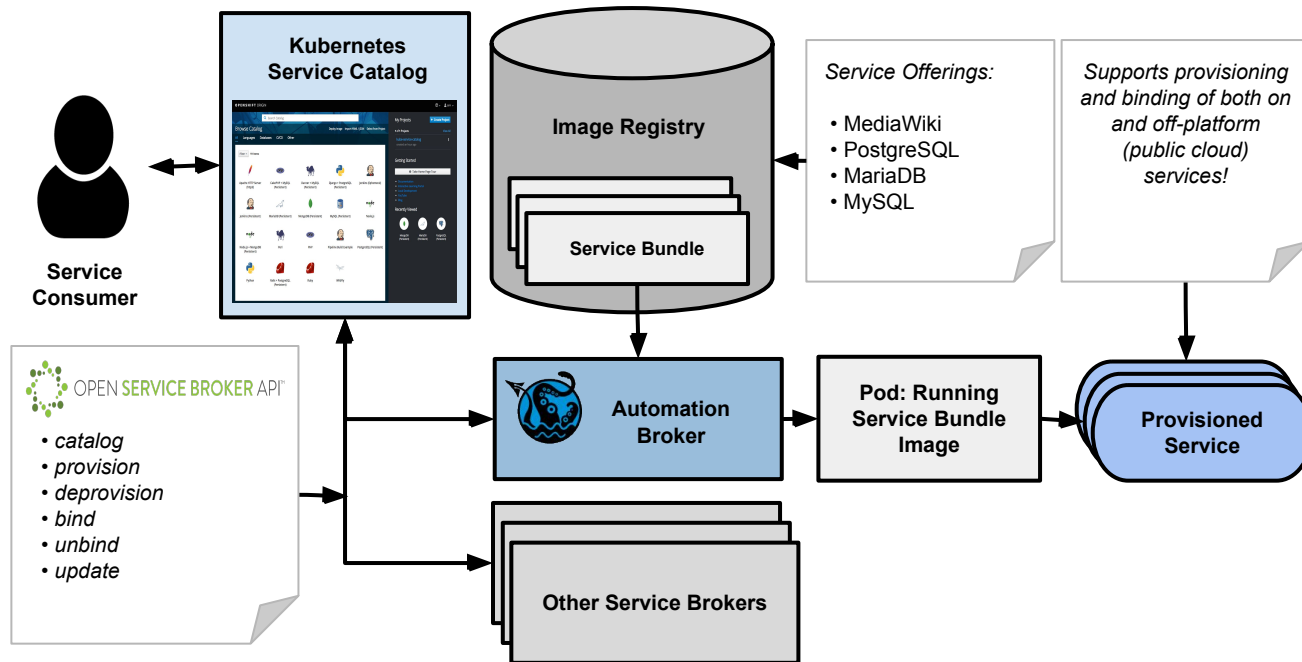
# Automation Broker

## Service Bundles

- Are Catalog entries
- Run to completion for each operation
- Run in a secure sandbox
- Remove need to make your own broker



# Automation Broker Workflow



# Service bundle

- Actions
  - Must implement Provision and Deprovision
  - May implement Bind and Unbind
- Discovered by image name and label
- **apb** tool helps you make one



# \$ apb init self

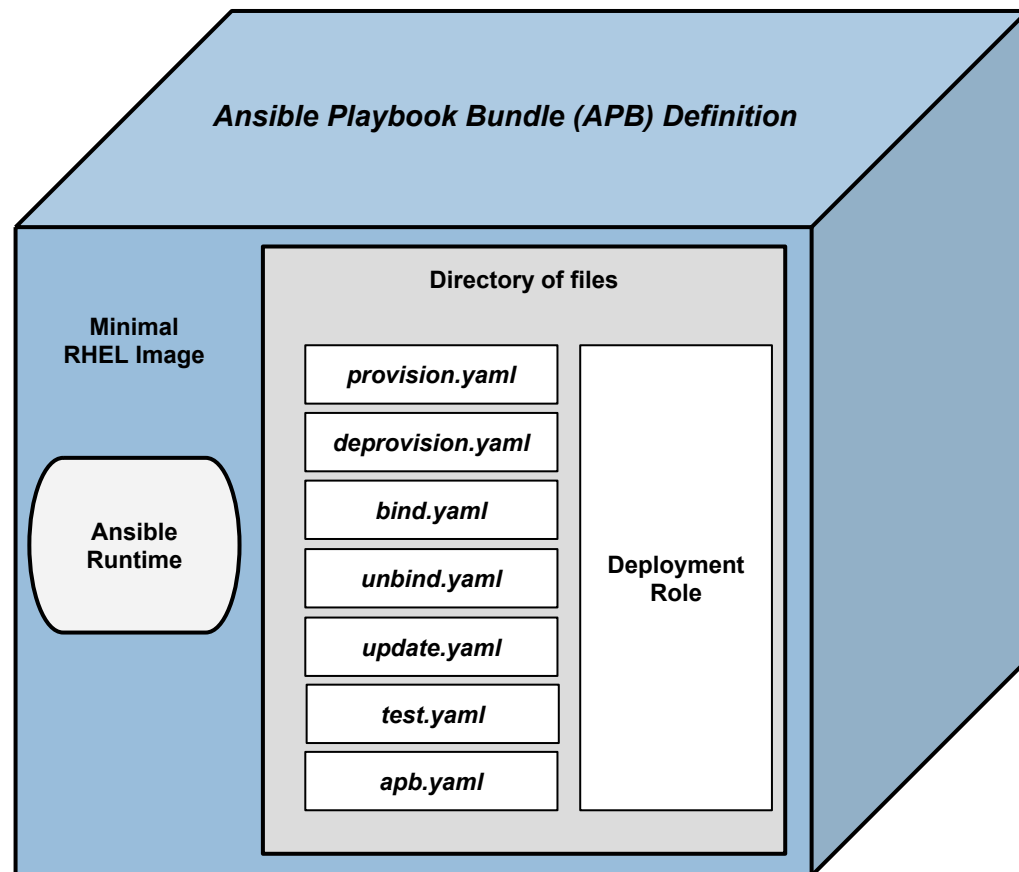
## apb.yml

```
version: 1.0
name: self
description: This is a sample application generated by apb init
bindable: False
async: optional
metadata:
  displayName: self
plans:
  - name: default
    description: This default plan deploys self
    free: True
    metadata: {}
    parameters: []
```



# Ansible Playbook Bundle (APB) Definition

- Is a Service Bundle
- Ansible runtime
- Playbook per action
- Developer tooling available for simple, guided approach to APB creation
- Easily modified or extended
- Several example APB's available for popular RHSCCL services





# Kubernetes UX

\$ `svcat get classes`

```

+-----+-----+-----+
mysql-persistent      MySQL database service, with persistent storage. For more information
                        about using this template, including OpenShift considerations, see
                        https://github.com/sclorg/mysql-container/blob/master/5.7/root/usr/share/container-scripts/mysql/README.md.
                        NOTE: Scaling to more than one replica is not supported. You must have persistent volumes available in
                        your cluster to use this template.
                        f1a201f3-2365-11e8-aa33-68f72877eaca

django-psql-persistent  An example Django application with a PostgreSQL database. For more information about using this template,
                        including OpenShift considerations, see https://github.com/openshift/django-ex/blob/master/README.md.
                        f1a7745e-2365-11e8-aa33-68f72877eaca

nodejs-mongo-persistent  An example Node.js application with a MongoDB database. For more information about using this template,
                        including OpenShift considerations, see https://github.com/openshift/nodejs-ex/blob/master/README.md.
                        f1ab7d00-2365-11e8-aa33-68f72877eaca

jenkins-pipeline-example  This example showcases the new Jenkins Pipeline integration in OpenShift, which performs continuous
                        integration and deployment right on the platform. The template contains a Jenkinsfile - a definition of
                        a multi-stage CI/CD process - that leverages the underlying OpenShift platform for dynamic and scalable
                        f1ae9a44-2365-11e8-aa33-68f72877eaca

















```



# Kubeapps

Kubeapps Applications **Charts** Functions Service Instances Configuration

## Charts

 <b>acs-engine-autoscaler</b> 2.1.1 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>aerospike</b> v3.14.1.2 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>anchore-engine</b> 0.1.6 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>artifactory</b> - <span style="background-color: #FF8C00; color: white; padding: 2px;">incubator</span>
 <b>artifactory</b> 5.8.4 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>buildkite</b> 3 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>burrow</b> 0.17.1 <span style="background-color: #FF8C00; color: white; padding: 2px;">incubator</span>	 <b>cassandra</b> - <span style="background-color: #FF8C00; color: white; padding: 2px;">incubator</span>
 <b>catalog</b> - <span style="background-color: #333; color: white; padding: 2px;">svc-cat</span>	 <b>centrifugo</b> 1.7.3 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>cert-manager</b> 0.2.3 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>	 <b>chaoskubernetes</b> 0.6.1 <span style="background-color: #0070C0; color: white; padding: 2px;">stable</span>
			



# OpenShift UX

The screenshot displays the OpenShift Web Console interface in a Google Chrome browser window. The page title is "OpenShift Web Console [172.17.0.1:8443] - Google Chrome". The browser address bar shows the URL "https://172.17.0.1:8443/console/project/foo/catalog".

The console header includes the "OPENSIFT ORIGIN" logo, a navigation menu with "foo" selected, a search bar labeled "Search Catalog", and an "Add to Project" button. The left sidebar contains navigation options: Overview, Applications, Builds, Resources, Storage, Monitoring, and Catalog (which is currently selected).

The main content area is titled "Select an item to add to the current project". It features a filter dropdown set to "24 Items" and a grid of application templates. The templates are categorized by tabs: All, Languages, Databases, Middleware, CI/CD, and Other. The visible templates include:

- .NET Core Builder Images
- Apache HTTP Server (httpd)
- BIND (APB)
- CakePHP + MySQL
- Dancer + MySQL
- Django + PostgreSQL
- Jenkins
- MariaDB
- Mediawiki (APB)
- MongoDB
- MySQL
- Nginx HTTP server and a reverse proxy (nginx)
- Node.js
- Node.js + MongoDB
- Perl
- PHP
- Pipeline Build Example
- PostgreSQL
- PostgreSQL (APB)
- Python
- Rails + PostgreSQL
- redis (helm bundle)
- Ruby
- WildFly



# Powering AWS Service Broker

- **Deploy AWS Services right from Service Catalog**

- Take advantage of hybrid service deployment from a single user interface

- **Implementation based on OpenShift Ansible Broker**

- Leverages APB application definition in conjunction CloudFormation template to provision AWS services

- **Broker is deployable in the cloud as well as on-premise**

- AWS services always run in the cloud

- **Distributed by AWS (not included by default with OCP)**

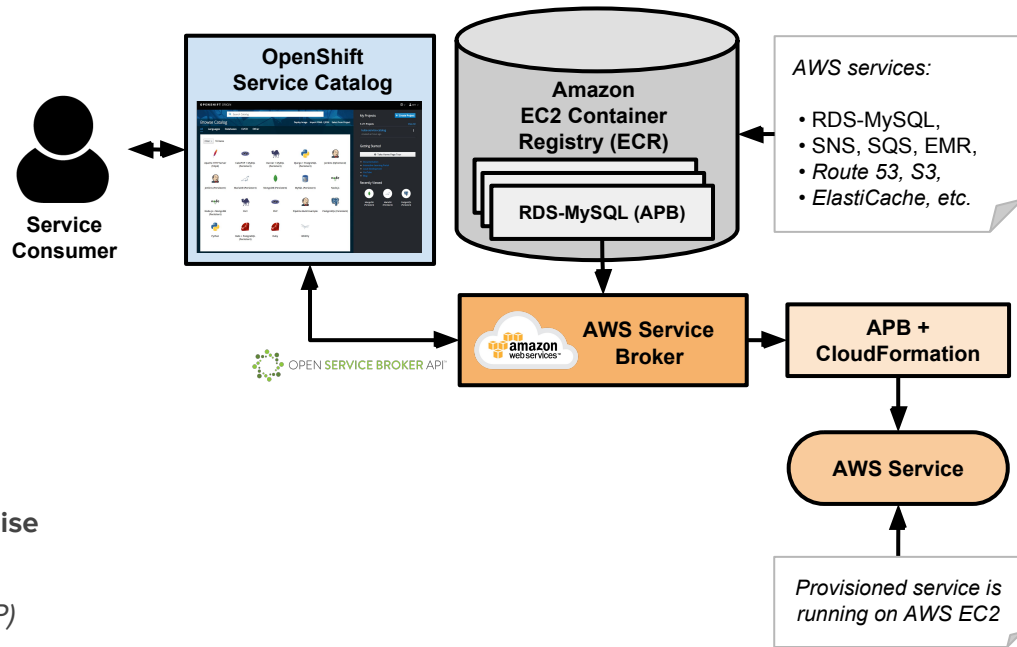
- Customer support issues are handled by Red Hat

- **Initial release provides support for 10 AWS Services:**

- Amazon ElastiCache, Amazon SQS, Amazon RDS, Amazon EMR, Amazon Redshift, Amazon Route 53, Amazon DynamoDB, Amazon S3, Amazon SNS, Amazon Athena
- As new services are introduced, they will be made available to AWS Service Broker

- **Publicly available now**

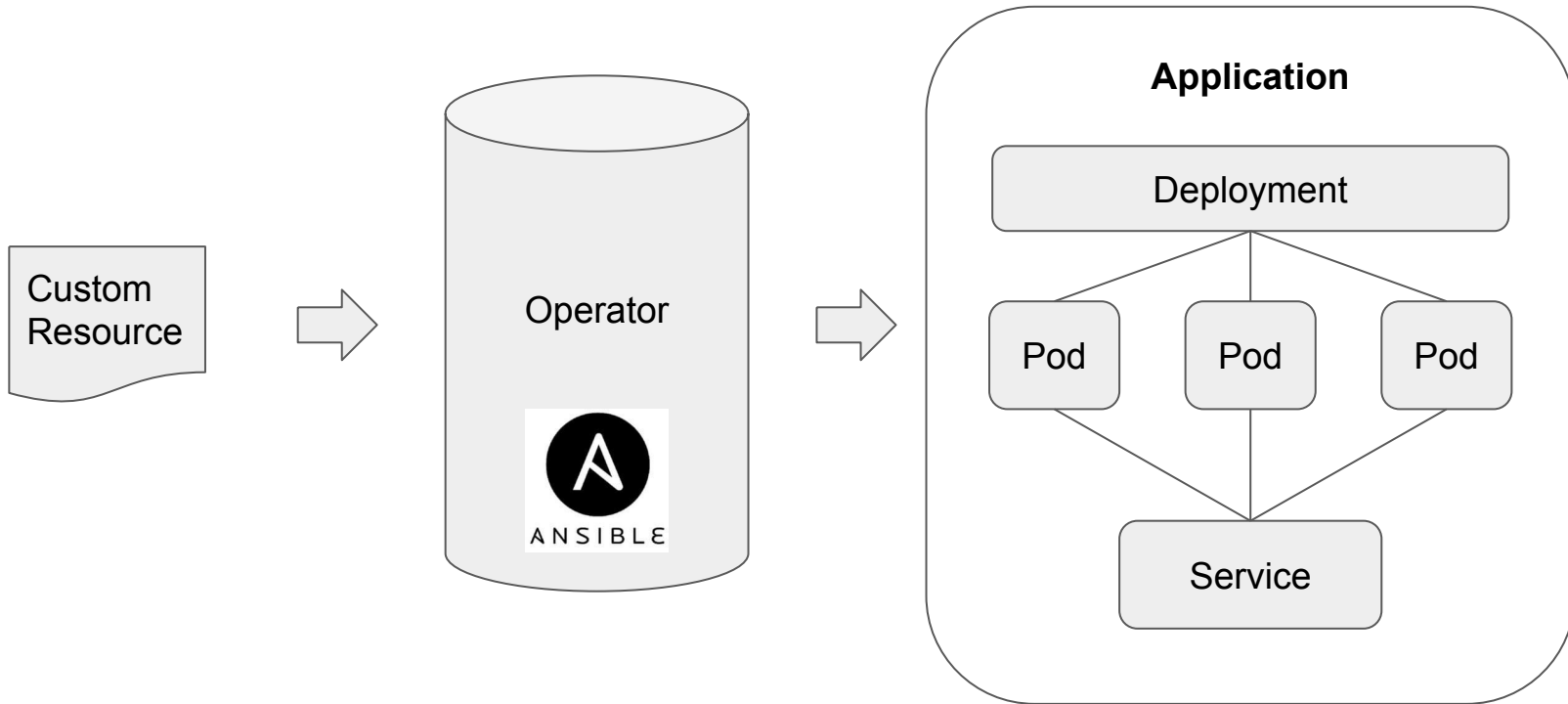
- More information: <https://aws.amazon.com/partners/applicationplatforms/>
- Documentation: <https://github.com/aws-labs/aws-servicebroker-documentation/blob/master/getting-started.md>



## 4. Automation Operator



# Automation Operator



# Stickers



# Questions?

[automationbroker.io](http://automationbroker.io)

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