SIG Apps Introduction

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SIG Leads

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SIG Apps covers developing, deploying, and operating applications on Kubernetes with a focus on the application developer and application operator experience.

- **Code, Binaries and Services**
  - APIs used for running applications (e.g., Workloads API)
  - Tools and documentation to aid in ecosystem tool interoperability around apps (e.g., Application CRD/Controller)
  - Grandfathered in tools used to aide in development of and management of workloads (e.g., Kompose)

- **Cross-cutting and Externally Facing Processes**
  - A discussion platform for solving app development and management problems
  - Represent the needs and persona of application developers and operators
SIG Apps Meetings

1 hour meeting at 9am PST every Monday

- Agenda: Intro + announcements + survey sometimes
- Demos
- Scheduled Discussion Topics
- Open discussion
Workloads API

- Deployment (api: apps/v1)
  - Used to implement Rolling Updates and Rollbacks for Pods managed by ReplicaSets
- ReplicaSet (api: apps/v1)
  - Used to schedule N fuggable Pods
  - Useful for stateless serving workloads.
  - Implementation detail of Deployments
- ReplicationController (api: core/v1)
  - This is not the API object you are looking for!
  - Use a Deployment instead
- StatefulSet (api: apps/v1)
  - Deploys N unique, identifiable Pods with durable storage.
  - Useful for distributed systems and databases
- Job (api: batch/v1)
  - Used to schedule one or more Pods that run to completion and either succeed or fail.
- CronJob (api: batch/v1beta1)
  - Used to repetitively launch Jobs at a configurable duration.
- DaemonSet (api: apps/v1)
  - Used to schedule a Pod on a set of Nodes (potentially all)
  - Useful for cluster addons, log shippers, metrics collectors, networking plugins, DFS data nodes
Workloads API Future Directions

- CronJob to GA
- TTL controller for Jobs garbage collection (alpha in 1.12)
- DaemonSet to use default scheduler (beta in 1.12)
- Storage aware scheduling (stable in 1.13)
  - Integration between the volume provisioner and the scheduler will allow volume provisioning to respect scheduling predicates
- Topology aware disruption budgets
  - Allows for failure domain aware rolling updates
Helm, Charts and Apps

- Helm: now hosted by CNCF
- Charts
  - Looking for contributors and maintainers (https://github.com/helm/charts)
  - Has an hour meeting every other Tuesday
  - Distributed search site instead of a central chart repository
- KubeApps
  - 1.0.0 released
- Application CRD
  - Working to define what a common extension to develop and interact with Applications on Kubernetes
  - Contributions and opinions welcome
  - https://github.com/kubernetes-sigs/application
# Apps Recommended Labels

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Example</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>app.kubernetes.io/name</td>
<td>The name of the application</td>
<td>mysql</td>
<td>string</td>
</tr>
<tr>
<td>app.kubernetes.io/instance</td>
<td>A unique name identifying the instance of an application</td>
<td>wordpress-abcxyz</td>
<td>string</td>
</tr>
<tr>
<td>app.kubernetes.io/version</td>
<td>The current version of the application (e.g., a semantic version, revision hash, etc.)</td>
<td>5.7.21</td>
<td>string</td>
</tr>
<tr>
<td>app.kubernetes.io/component</td>
<td>The component within the architecture</td>
<td>database</td>
<td>string</td>
</tr>
<tr>
<td>app.kubernetes.io/part-of</td>
<td>The name of a higher level application this one is part of</td>
<td>wordpress</td>
<td>string</td>
</tr>
<tr>
<td>app.kubernetes.io/managed-by</td>
<td>The tool being used to manage the operation of an application</td>
<td>helm</td>
<td>string</td>
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</tbody>
</table>
Other Ecosystem Projects

- Kompose - Translates a Docker Compose file into Kubernetes resources files
- Monocular - Web UI for Helm Chart repositories
- ChartMuseum - Helm Chart Repository with support for Amazon S3 and Google Cloud Storage
- Kedge - a deployment tool for Kubernetes artifacts by using a simplified version of the Kubernetes spec
- Metacontroller- Framework for lightweight, CRD based cluster extensions.
- audit2rbac - turns API Server audit logs into the RBAC rules
- Netsil - Kubernetes monitoring
- Draft - Makes it easy to build applications that run on Kubernetes
- Skaffold - Facilitates continuous development for Kubernetes applications
- Kubeless - A Kubernetes Native Serverless
- Many, Many, Many more ....