



SIG Apps Introduction

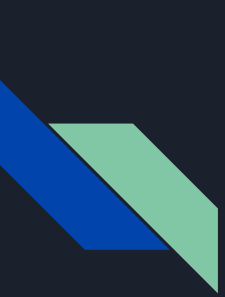
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SIG co-Chairs

- Current
 - Adnan Abdulhusein (@prydonius), Bitnami
 - Kenneth Owens (@kow3ns), Google
 - Matt Farina (@mattfarina), Samsung SDS
- Recently Retired
 - Michelle Noorali (@michelleN), Microsoft, K8s Steering Committee





Goals

- Discuss running and defining applications in Kubernetes (e.g., APIs, SDKs, Controllers, package management tools, etc.)
- Improve the Workloads API to better support application development, deployment, and lifecycle management.
- Work with other SIGs (Node, Storage, API Machinery, CLI, Scheduling, and Network) to ensure that the nucleus primitives and features support popular workloads
- Be the voice of the people running applications in Kubernetes (developers, operations, and devops)
- Encourage contributions to the community (both core and surrounding ecosystem)
- Show early features/demos of tools that make developing, deploying, and running apps easier



SIG Apps Meetings

1 hour meeting at 9am PST every Monday

- Agenda: Intro + announcements + survey sometimes
- Demos
- Project Updates
- 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 fugable 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 (batch/v1)
- DaemonSet will use default scheduler
- Topology aware disruption budgets.
 - Allows for failure domain aware rolling updates.
- Storage aware scheduling
 - Integration between the volume provisioner and the scheduler will allow volume provisioning to respect scheduling precicates
- Under replication checks for Pods.
 - Support ElasticSearch and other distributed inverted indices.
- Termination reason signal for Pods.
 - Allow workloads to re-replicate during termination
 - Particularly useful for local storage integration

Helm

- Helm 2
 - 2.9 released
 - Stability focused - bug fixes
- Helm 3
 - Proposal merged
 - Building has begun <https://github.com/kubernetes-helm/community/tree/master/helm-v3>
 - Tiller is gone, and there is only one functional component (helm)
 - Charts are updated with libraries, schematized values, and the ext directory
 - Helm will use a "lifecycle events" emitter/handler model.
 - Helm has an embedded Lua engine for scripting some event handlers. Scripts are stored in charts.
 - State is maintained with two types of object: Release and a release version Secret
 - Resources created by hooks will now be managed
 - For pull-based DevOps workflow, a new Helm Controller project will be started
 - Cross platform plugins in Lua that only have a runtime dependency on Helm
 - A complementary command to helm fetch to push packages to a repository



Charts and Apps

- Charts

- Looking for contributors and maintainers (<https://github.com/kubernetes/charts/issues>)
- Has an hour meeting every other Tuesday

- KubeApps

- 0.6.0 released
- Helm upgrade support added

- 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>



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 simple, easy and declarative way to define and deploy applications to Kubernetes by writing very concise application definitions
- 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
- Scaffold - Facilitates continuous development for Kubernetes applications
- Kubeless - A Kubernetes Native Serverless
- Many, Many, Many more