

技术 or 非技术 参与 Kubernetes 社区丝滑路径

范宝发 Kubernetes SIG Storage 维护者

要海峰 Kubernetes, Istio等 CNCF 项目文档维护者



Content 目录

01 文档

02 实践

03 贡献

04 认证

05 演示

06 动态



Part 01

文档和社区



文档

面向用户的网站: k8s.io

- 年访问量过亿
- 全球贡献者

Pull Requests

Overview

SHOW SQL <>

kubernetes/website

Total PRs 33342

Creators 6781

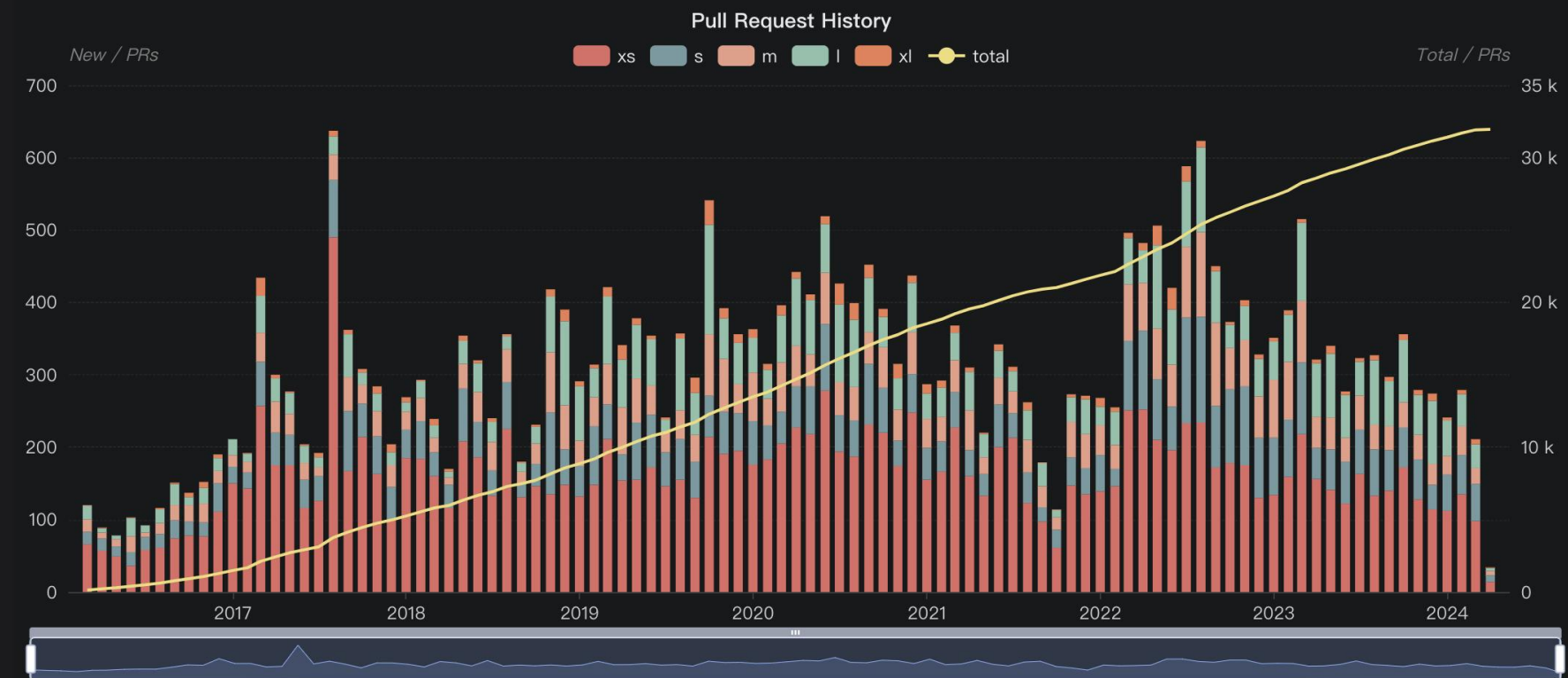
Reviews 55175

Reviewers 1596

Pull Request History

We divide the size of Pull Request into six intervals, from xs to xll (based on the changes of code lines). Learn more about [PR size](#).

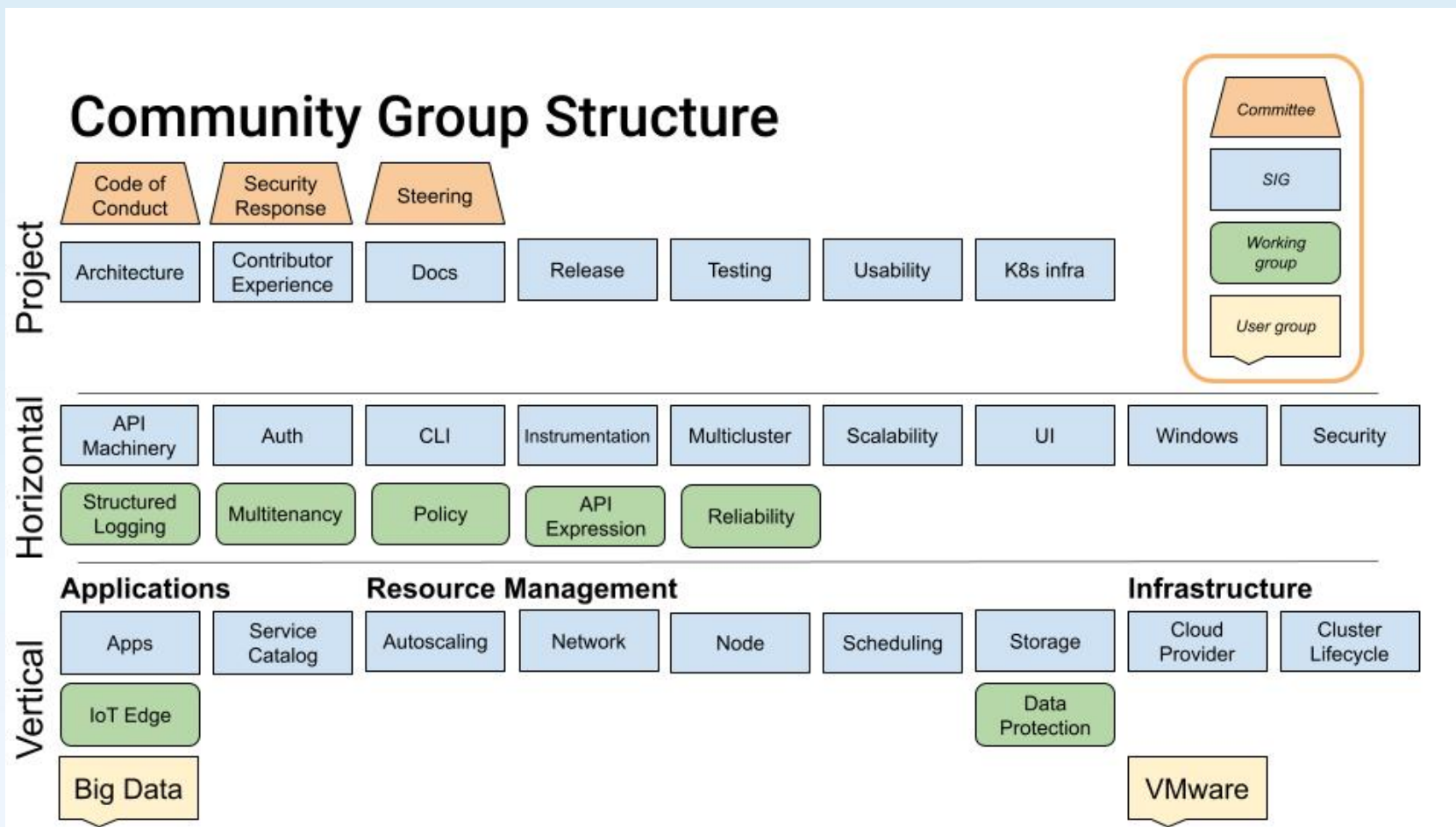
SHOW SQL <>



社区

面向贡献者的网站: k8s.dev

- 了解和参与[社区](#)
- Committee
- SIG
- WG
- [Slack](#)
- [例会](#)



Part 02

教程和实践



教程

参阅 [Tutorials](#)

- [kind](#) 和 [Minikube](#)
- 熟悉基本操作

```
$ time kind create cluster
Creating cluster "kind" ...
  ✓ Ensuring node image (kindest/node:v1.16.3) 📦
  ✓ Preparing nodes 📦
  ✓ Writing configuration 📄
  ✓ Starting control-plane 📡
  ✓ Installing CNI 🖱️
  ✓ Installing StorageClass 💾
Set kubectl context to "kind-kind"
You can now use your cluster with:

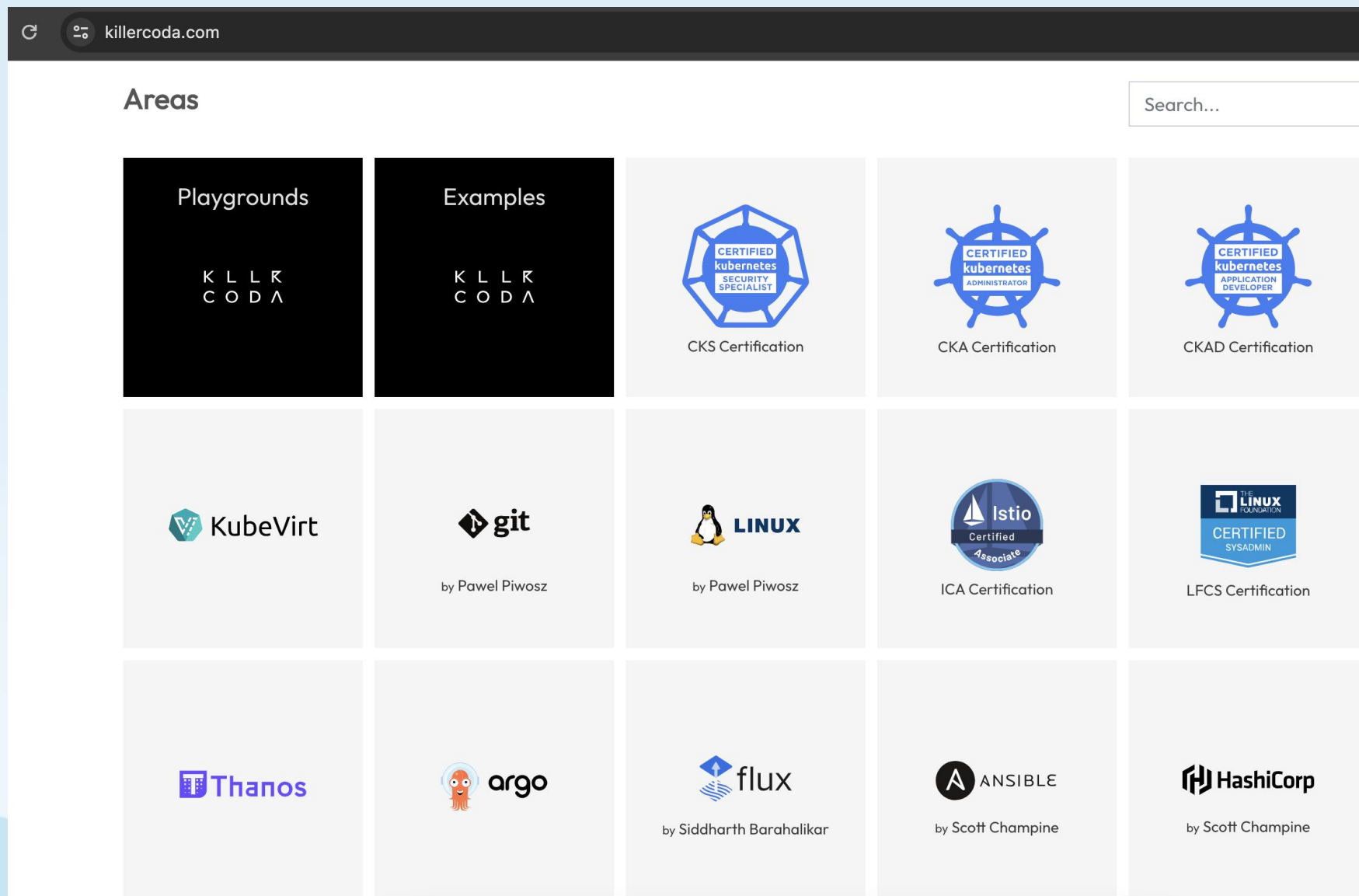
kubectl cluster-info --context kind-kind

Not sure what to do next? 😊 Check out https://kind.sigs.k8s.io/docs/user/quick-start/

real    0m21.890s
user    0m1.278s
sys     0m0.790s
```

实践


- 推荐 [killercode](https://killercode.com)
- 从网页上直接进入终端
- 在线体验 kubectl 等命令



测试和练习

推荐 [KWOK](#)

- 随意一台笔记本电脑
- 就能创建和管理集群
- 构建几千个节点
- 练习 `kubectl` 命令

 KWOK

[Home](#)
[User Guide](#)
[All-in-one Image](#)
[Github Action](#)
[Installation](#)
[kwok in Cluster](#)
[kwok out of Cluster](#)
[kwokctl Manage Clusters](#)
[Manage Nodes and Pods](#)
[kwokctl Advanced Usage](#)
[Tools](#)
[Configuration](#)
[Design](#)
[Contributing](#)
[Blog](#)
[Adopters](#)
[Roadmap](#)
[Source Code](#)

3. Getting Started

The animation below shows a test process to work with the latest version of `kwok` / `kwokctl`.

```
~/sigs.k8s.io/kwok$  
~/sigs.k8s.io/kwok$ # Get all pods.  
~/sigs.k8s.io/kwok$ kubectl get pod -o wide  
NAME                READY   STATUS    RESTARTS   AGE   IP           NODE           NOM  
INATED NODE   READINESS GATES  
pod-85c8447cdd-7vb4t 1/1     Running   0           5s    10.0.1.1     node-000001    <no  
ne>             <none>  
pod-85c8447cdd-9cl6k 1/1     Running   0           5s    10.0.0.2     node-000000    <no  
ne>             <none>  
pod-85c8447cdd-fr5nc 1/1     Running   0           5s    10.0.0.3     node-000000    <no  
ne>             <none>  
pod-85c8447cdd-hwbjs 1/1     Running   0           5s    10.0.1.2     node-000001    <no  
ne>             <none>  
pod-85c8447cdd-nn27n 1/1     Running   0           5s    10.0.0.1     node-000000    <no  
ne>             <none>  
~/sigs.k8s.io/kwok$  
~/sigs.k8s.io/kwok$ # Delete the cluster.  
~/sigs.k8s.io/kwok$ kwokctl delete cluster  
Cluster is stopping                                cluster=kwok  
Cluster is stopped                                elapsed=0.3s cluster=kwok  
Cluster is deleting                                cluster=kwok  
Cluster is deleted                                elapsed=0.4s cluster=kwok  
~/sigs.k8s.io/kwok$  
~/sigs.k8s.io/kwok$ # That's
```

Welcome to [get started](#) with the installation, basic usage, custom configuration, and [contribution](#) to KWOK.

Part 03

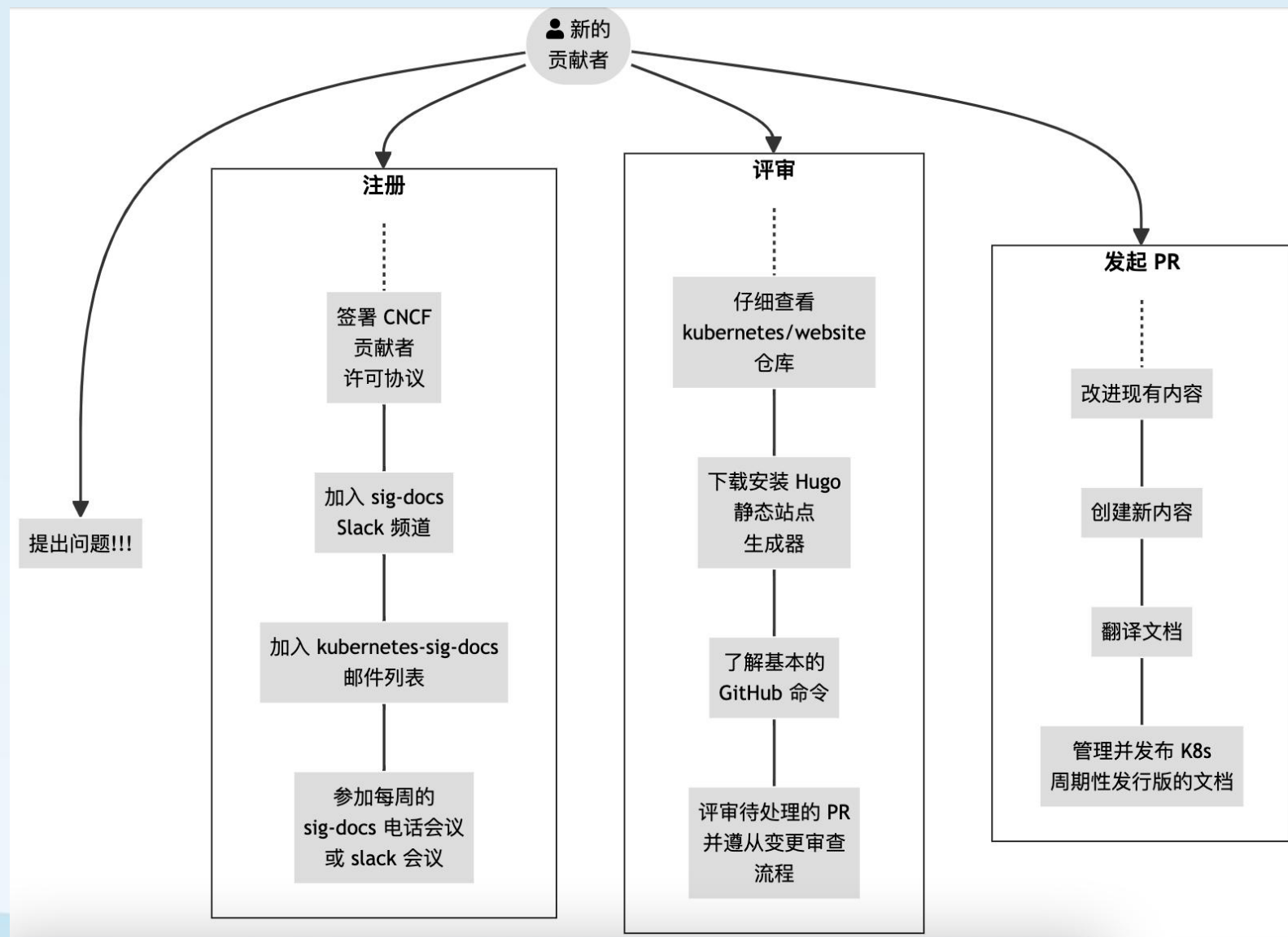
做贡献



做贡献

参照文档练习后，尝试做一些贡献：

- [了解流程和规则](#)
- [Issue 列表](#)
- [Slack 讨论](#)
- 贡献代码
- 编写和修复文档
- 本地化翻译



Part 04

认证考试



认证



参加认证考试，提高技术含金量：

- [LFOSSA 培训站](#)

- [K8s 培训认证站](#)

- KCNA
- KCSA
- CKA
- CKS
- CKAD

[首页](#)[认证](#)[课程](#)[套购](#)[活动](#)[新闻](#)[下载](#)[招聘](#)[帮助](#)[官方导师](#)[奖学金计划](#)[证书查询](#)[登录](#)[注册](#)

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**LINUX基金会官方课程**

获得Kubernetes程序开发员认证与管理
员认证

**开源领域的权威领导力**

为中国开发者打造的培养专业开源技能

**LINUX基金会认证导师**

拥有Linux基金会官方认证的导师资源，更值得信赖。

Linux Foundation 官方认证一览

Linux Foundation开源软件学园提供Linux基金会所有官方认证考试，以及配套的本土化服务，为中国开发者获得认证提供便利，为企业输送更多优秀人才。



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CKS (Certified Kubernetes Security Specialist)
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CKAD (Certified Kubernetes Application Developer)
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Part 05

代码贡献演示

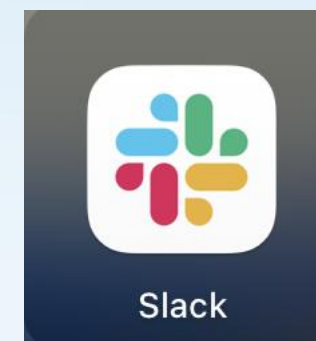
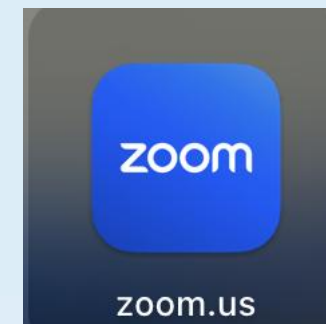


沟通协作

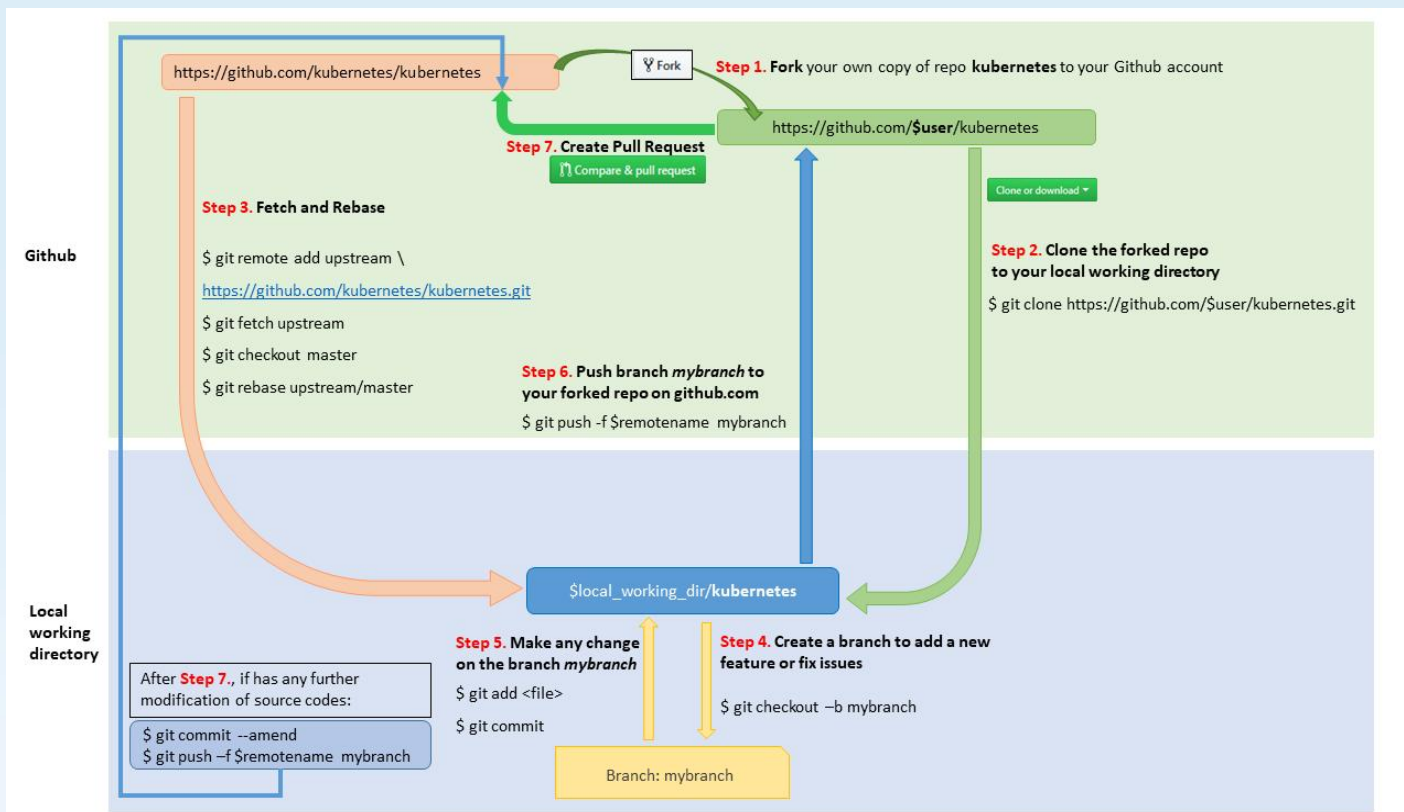
SIG 定期（通常每周一次）举行视频会议，与会者讨论设计决策、新功能、错误、测试、入职或与团队相关的任何其他内容。

参加这些会议是了解该项目的最佳方式。

视频 <https://www.youtube.com/@KubernetesCommunity/playlists>



开发



<https://www.kubernetes.dev/docs/>

1. 同步上游变化到本地，不要使用 `git pull`
`git fetch upstream master`
`git rebase upstream/master`
2. 避免产生多次提交记录
`git add .`
`git commit -a --amend --no-edit`
`git push -f`
3. cherry pick 用脚本
`hack/cherry_pick_pull.sh`
`upstream/release-1.27 124124`
4. 拆分单个提交为多个
`git reset --soft 95a6f`

Filters

is:pr is:open

Labels 203

Milestones 8

New pull request

708 Open 78,250 Closed

Author Label Projects Milestones Reviews Assignee Sort

chore/refactor(e2e tests): Solidify Contract for and Cleanup WaitForPodsRunningReady

area/e2e-test-framework

1

10

area/test cncf-cla: yes kind/cleanup kind/flake needs-ok-to-test needs-priority needs-triage release-note-none sig/testing size/M

#124205 opened 1 hour ago by mkarrmann

[WIP] Test CI with leader-elect=true

cncf-cla: yes do-not-merge/needs-kind do-not-merge/needs-sig

do-not-merge/release-note-label-needed do-not-merge/work-in-progress needs-priority needs-triage size/XS

#124203 opened 10 hours ago by Jefftree

hacks: build main target without g

needs-triage release-note-none sig/h

#124195 opened 18 hours ago by bart0sh

util/proxy: fix unexpected close on

needs-triage release-note sig/api-ma

#124194 opened 18 hours ago by xdauidwu











Update applyconfiguration gener

kind/bug kind/regression lgtn

#124193 opened 19 hours ago by soltysh

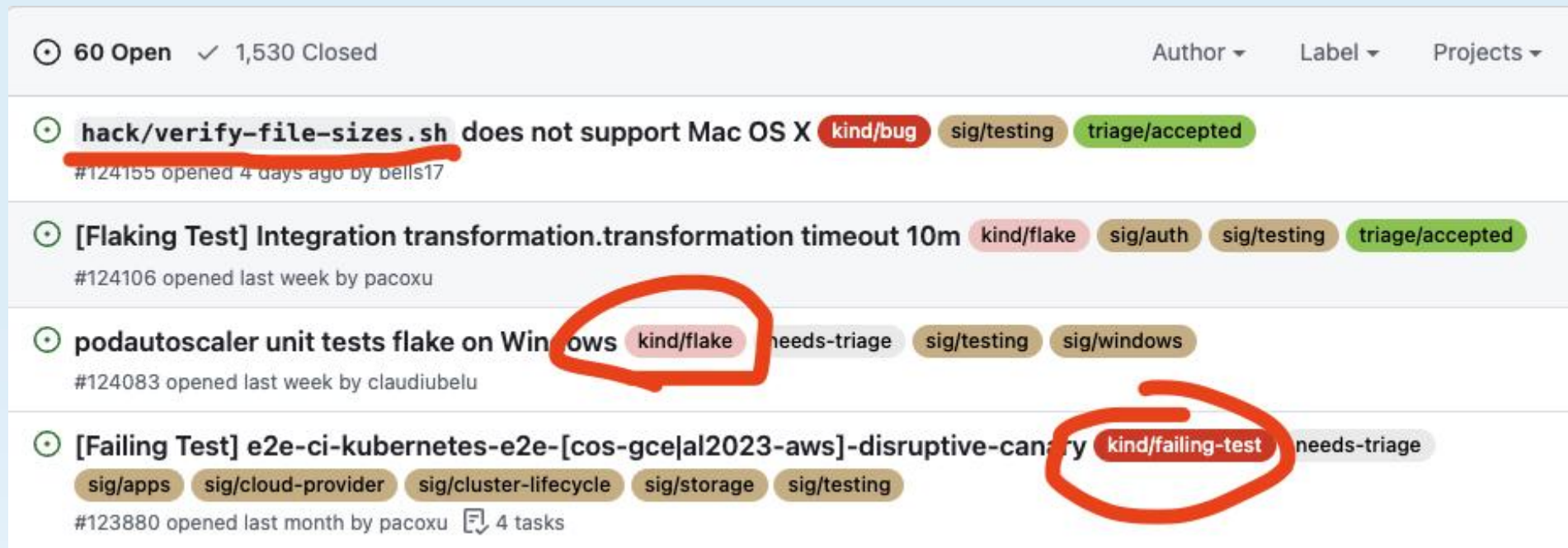
kubernetes-jenkins

/kubernetes-jenkins/pr-logs/pull/124023/pull-kubernetes-e2e-gce-cos-alpha-features/1775059730411032576/

Name	Size	Modified
 ..	-	-
 artifacts/	-	-
 build-log.txt	79691	02 Apr 2024 07:55:15
 clone-log.txt	70473	02 Apr 2024 07:17:25
 clone-records.json	78399	02 Apr 2024 07:17:25
 finished.json	264	02 Apr 2024 07:55:16
 podinfo.json	65822	02 Apr 2024 07:55:21
 prowjob.json	11666	02 Apr 2024 07:55:21
 sidecar-logs.json	17734	02 Apr 2024 07:55:15
 started.json	317	02 Apr 2024 07:17:25

测试

- 单元测试
- 集成测试
- 端到端测试



A screenshot of a GitHub repository's issue list. The top bar shows '60 Open' and '1,530 Closed' issues. The right side has filters for 'Author', 'Label', and 'Projects'. The issue list contains five items, each with a title, a 'kind' label, and various 'sig' and 'triage' labels. The first issue is 'hack/verify-file-sizes.sh does not support Mac OS X' with a red 'kind/bug' label. The second is '[Flaking Test] Integration transformation.timeout 10m' with a pink 'kind/flake' label. The third is 'podautoscaler unit tests flake on Windows' with a pink 'kind/flake' label. The fourth is '[Failing Test] e2e-ci-kubernetes-e2e-[cos-gce|al2023-aws]-disruptive-canary' with a red 'kind/failing-test' label. The fifth is 'fix pull-kubernetes-e2e-gce-storage-slow job failures' with a blue 'kind/flake' label. The labels 'kind/bug', 'kind/flake', and 'kind/failing-test' are circled in red.

Issue Title	Kind	Labels
hack/verify-file-sizes.sh does not support Mac OS X	kind/bug	sig/testing, triage/accepted
[Flaking Test] Integration transformation.timeout 10m	kind/flake	sig/auth, sig/testing, triage/accepted
podautoscaler unit tests flake on Windows	kind/flake	needs-triage, sig/testing, sig/windows
[Failing Test] e2e-ci-kubernetes-e2e-[cos-gce al2023-aws]-disruptive-canary	kind/failing-test	needs-triage, sig/apps, sig/cloud-provider, sig/cluster-lifecycle, sig/storage, sig/testing
fix pull-kubernetes-e2e-gce-storage-slow job failures	kind/flake	

常见错误

修复/优化示例:

1. [fix pull-kubernetes-e2e-gce-storage-slow job failures](#) (修改 CI 的配置)
2. [Fix the dirname command in macOS does not have a -z option](#) (适配不同平台)
3. [Fix flaking test: CSI Mock workload info CSI PodInfoOnMount Update](#) (由不确定行为导致的测试逻辑缺陷)
4. [flaky test: ephemeral should support multiple inline ephemeral volumes](#) (外部依赖导致的)
5. [Slow Unit Test](#) (优化测试, 减少测试耗时的N种方法)

单元测试



```
1 func TestXXX(t *testing.T) {  
2     testCases := []struct{  
3         name string // the name of this case.  
4         // defines input and expected output fields.  
5     }{  
6  
7         // iterate over all test cases.  
8         for _, test := range testCases {  
9             t.Run(test.name, func(t *testing.T) {  
10                t.Parallel() // mark this test case as parallel if it can be. (optional)  
11                tCtx := ktesting.Init(t) // initialize a test context. (optional)  
12                // call your function here and check the result.  
13                // i.e. assert.Equal(t, expected, actual)  
14            })  
15        }  
16    }
```

Mock Lister

```
1 func TestGetDefaultClass(t *testing.T) {
2     ...
3     for _, tc := range testCases {
4         t.Run(tc.name, func(t *testing.T) {
5             // Create a new informer factory and add the storage classes to the store.
6             informerFactory := informers.NewSharedInformerFactory(nil, controller.NoResyncPeriodFunc())
7             for _, c := range tc.classes {
8                 informerFactory.Storage().V1().StorageClasses().Informer().GetStore().Add(c)
9             }
10            // Get the lister from the informer factory
11            lister := informerFactory.Storage().V1().StorageClasses().Lister()
12            // GetDefaultClass returns a default sc for a given lister.
13            actual, err := GetDefaultClass(lister)
14            if err != nil {
15                t.Errorf("Expected no error, got %v", err)
16                return
17            }
18            if tc.expect != actual {
19                t.Errorf("Expected %v, got %v", tc.expect, actual)
20            }
21        })
22    }
23 }
```

https://github.com/kubernetes/kubernetes/blob/6673e7a93d8f0e81343309350e3ec7e7afc7fd73/pkg/volume/util/storageclass_test.go#L29

Fake client

```
1 // NewSimpleClientset returns a clientset that will respond with the provided objects.
2 // It's backed by a very simple object tracker that processes creates, updates and deletions as-is,
3 // without applying any validations and/or defaults. It shouldn't be considered a replacement
4 // for a real clientset and is mostly useful in simple unit tests.
5 func NewSimpleClientset(objects ...runtime.Object) *Clientset {
6     o := testing.NewObjectTracker(scheme, codecs.UniversalDecoder())
7     for _, obj := range objects {
8         if err := o.Add(obj); err != nil {
9             panic(err)
10        }
11    }
12
13    cs := &Clientset{tracker: o}
14    cs.discovery = &fakeDiscovery.FakeDiscovery{Fake: &cs.Fake}
15    cs.AddReactor("*", "*", testing.ObjectReaction(o))
16    cs.AddWatchReactor("*", func(action testing.Action) (handled bool, ret watch.Interface, err error) {
17        gvr := action.GetResource()
18        ns := action.GetNamespace()
19        watch, err := o.Watch(gvr, ns)
20        if err != nil {
21            return false, nil, err
22        }
23        return true, watch, nil
24    })
25
26    return cs
27 }
28
```

常见用法:

1. 填充假数据
2. 模拟调用错误
3. 对比期望调用和实际调用

https://github.com/kubernetes/kubernetes/blob/master/pkg/controller/volume/pvprotection/pv_protection_controller_test.go#L97

端到端测试



```
3 # If you want to compile kubectl from source code, please use `make WHAT=cmd/kubectl`  
4 # and then copy the binary to your PATH. Or you can install it via brew.  
5 brew install kubernetes-cli  
6  
7 # This script will download and install etcd in third_party.  
8 hack/install-etcd.sh  
9 # A convenient way to use etcd is to add it to your PATH. the following command only works for  
10 # the current terminal session.  
11 export PATH="$GOPATH/src/k8s.io/kubernetes/third_party/etcd:${PATH}"  
12  
13 brew install kind  
14 go install github.com/onsi/ginkgo/v2/ginkgo
```

```
4 # Build the node image from kubernetes source code.  
5 kind build node-image  
6 # Create a cluster with the custom node image and the custom configuration.  
7 kind create cluster --image kindest/node:latest --config kind-config.yaml  
8  
9 # Or use binary which is built from source code.  
10 hack/local-up-cluster.sh  
11  
12 # Run e2e test. i.e.  
13 ginkgo --focus "Services should complete a service status lifecycle" \  
14 |...|...|...|...| -v \  
15 |...|...|...|...| test/e2e -- --num-nodes=0 --allowed-not-ready-nodes=-1 --e2e-verify-service-account=false  
16 ✨
```



录制与回放

参数:

test_context.go

Files

master

+

Q

Go to file

t

> .githubhooks

> .github

> api

> cmd

> docs

> hack

> internal

> keps

> NNNN-kep-template

README.md

kep.yaml

> prod-readiness

> provider-aws

> sig-api-machinery

> sig-apps

> sig-architecture

> sig-auth

> sig-autoscaling

> sig-cli

> sig-cloud-provider

enhancements / keps / NNNN-kep-template /

↑ Top

README.md

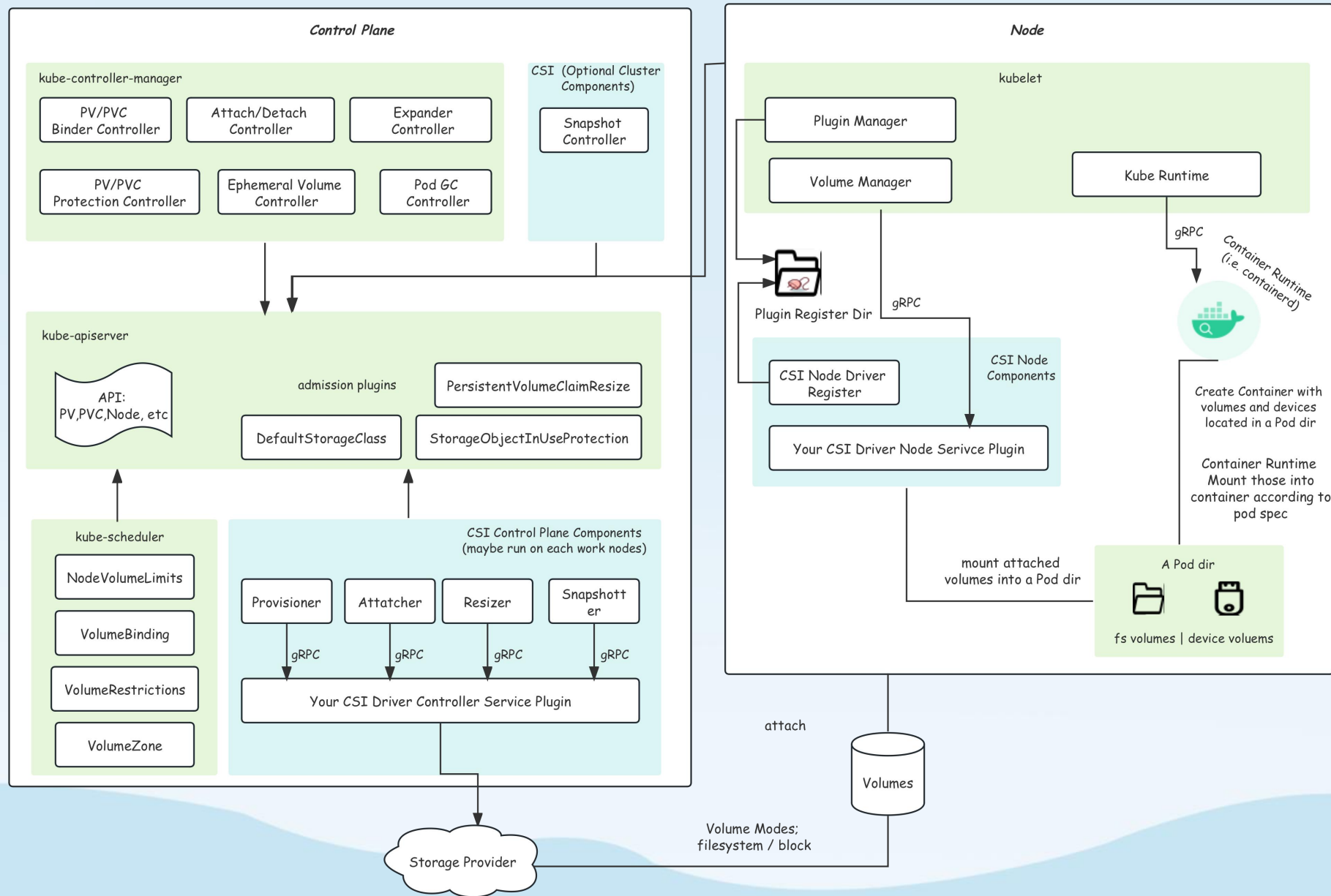
✎

☰

KEP-NNNN: Your short, descriptive title

- [Release Signoff Checklist](#)
- [Summary](#)
- [Motivation](#)
 - [Goals](#)
 - [Non-Goals](#)
- [Proposal](#)
 - [User Stories \(Optional\)](#)
 - [Story 1](#)
 - [Story 2](#)
 - [Notes/Constraints/Caveats \(Optional\)](#)
 - [Risks and Mitigations](#)
- [Design Details](#)
 - [Test Plan](#)
 - [Prerequisite testing updates](#)
 - [Unit tests](#)
 - [Integration tests](#)
 - [e2e tests](#)
 - [Graduation Criteria](#)
 - [Upgrade / Downgrade Strategy](#)
 - [Version Skew Strategy](#)
- [Production Readiness Review Questionnaire](#)
 - [Feature Enablement and Rollback](#)

理解组件之间的联系



Part 06

发布与动态



发布与动态

了解社区动态：

- [K8s 每周开发动态](#)
- [主题讨论](#)
- v1.30 计划于 [4.17 发布](#)，查看[主要变更](#)





Thanks.

