



KubeCon



CloudNativeCon

— North America 2018 —

# SIG Testing Intro

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# #sig-testing

  @beta@gayhorse.club  
@stillinbeta

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Robots emoji-reacting to other robots' messages in a bizarre facsimile of human interaction is the cyberpunk future we deserve



4:46 PM - 19 Dec 2017

3 Retweets 16 Likes

  3  16 

# PR Workflow

PR author must have signed CLA

PR must pass tests

PR must be approved

PR must be mergeable

Merge commit must pass tests



Review requested [Show all reviewers](#)

Review has been requested on this pull request. It is not required to merge. [Learn more](#).

Some checks haven't completed yet [Hide all checks](#)

1 pending and 14 successful checks

<span style="color: orange;">●</span>	<span style="color: green;">✓</span>	Submit Queue	Pending — PR does not have approved label.	<a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	cla/linuxfoundation	msau42 authorized	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-bazel-build	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-bazel-test	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-cross	Skipped	
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-e2e-gce	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-e2e-gce-device-plugin-gpu	Job succeeded.	<a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-e2e-gke	Skipped	
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-e2e-kops-aws	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-integration	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-kubemark-e2e-gce	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-local-e2e	Skipped	
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-node-e2e	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-typecheck	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>	<span style="color: green;">✓</span>	pull-kubernetes-verify	Job succeeded.	<span style="background-color: black; color: white;">Required</span> <a href="#">Details</a>
<span style="color: green;">✓</span>		This branch has no conflicts with the base branch	Merging can be performed automatically.	

# git.k8s.io/test-infra



## Automation

- boskos
- bootstrap
- config
- ghproxy
- greenhouse
- kubetest
- prow
- scenarios

## Visualization

- gcsweb
- gopherage
- gubernator
- kettle
- metrics
- testgrid
- triage
- velodrome

## Other

- commenter
- branchprotector
- issue-creator
- label\_sync
- logexporter
- migratestatus
- peribolos
- planter

# Explaining k/test-infra

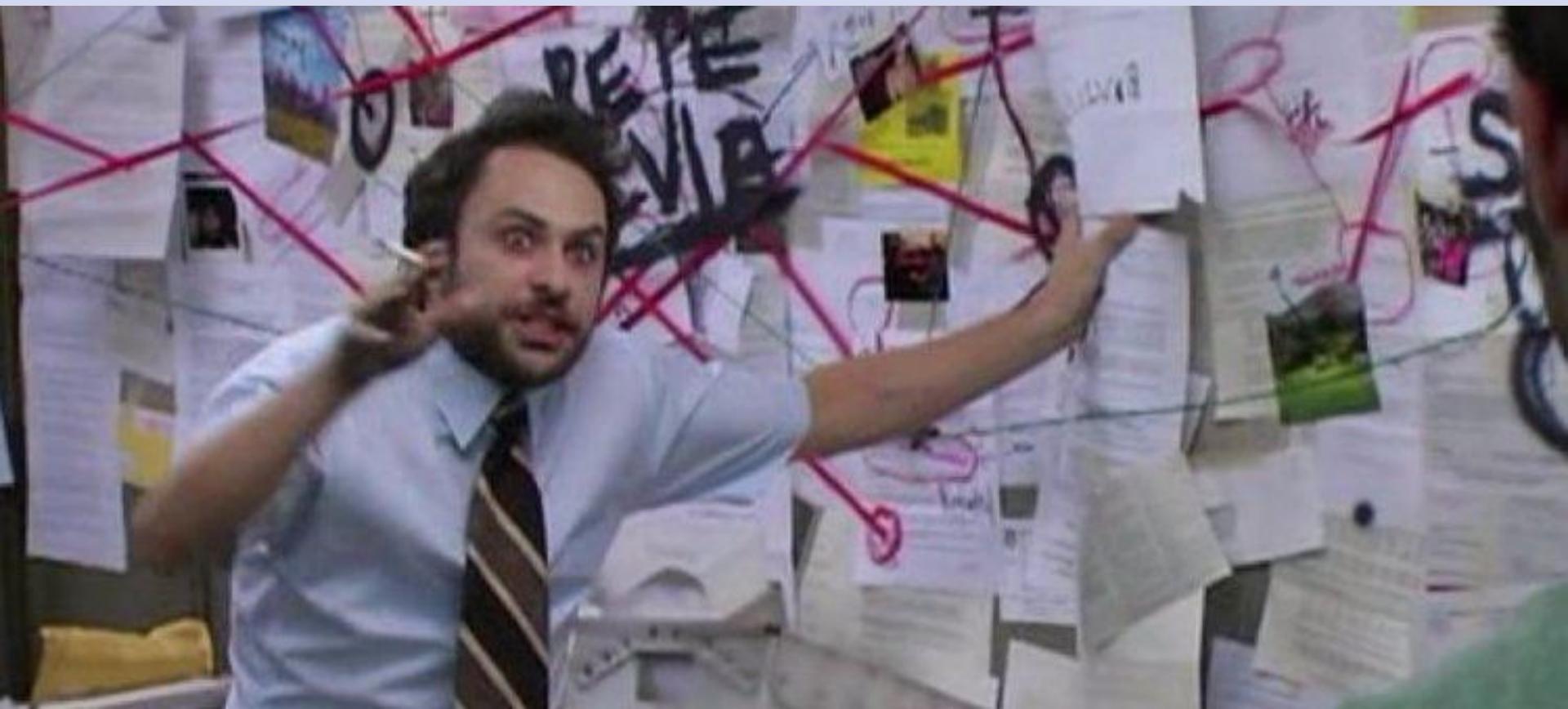


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# init



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prowjob

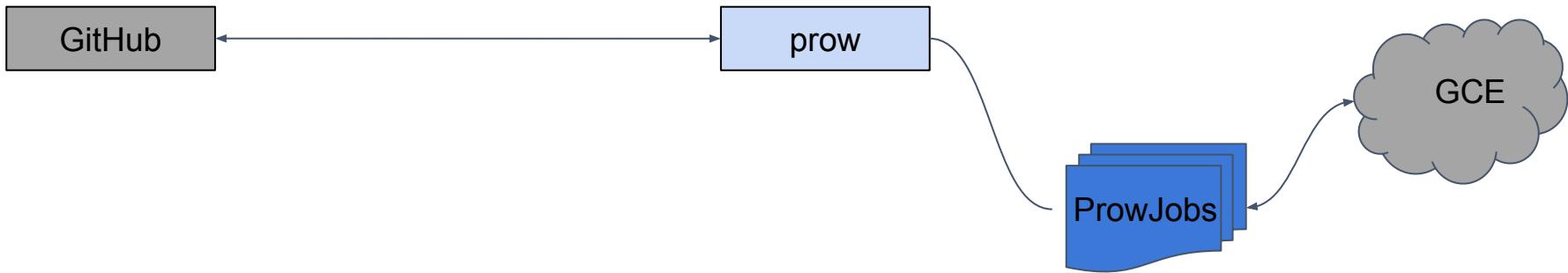
runs on k8s

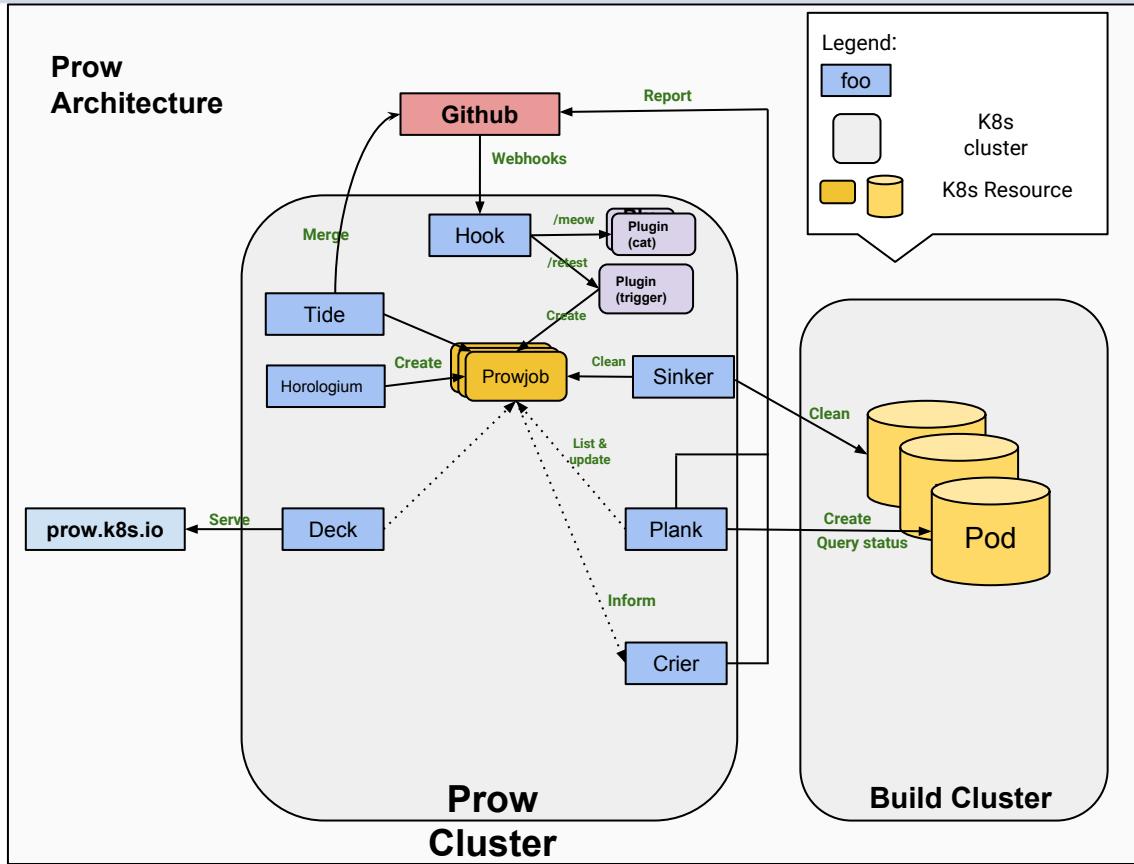
other

stock

cloud

# +prow





# More info - prow

[Getting Started](#) - create a cluster, deploy prow

[Prow Components](#) - hook, deck, tide, etc.

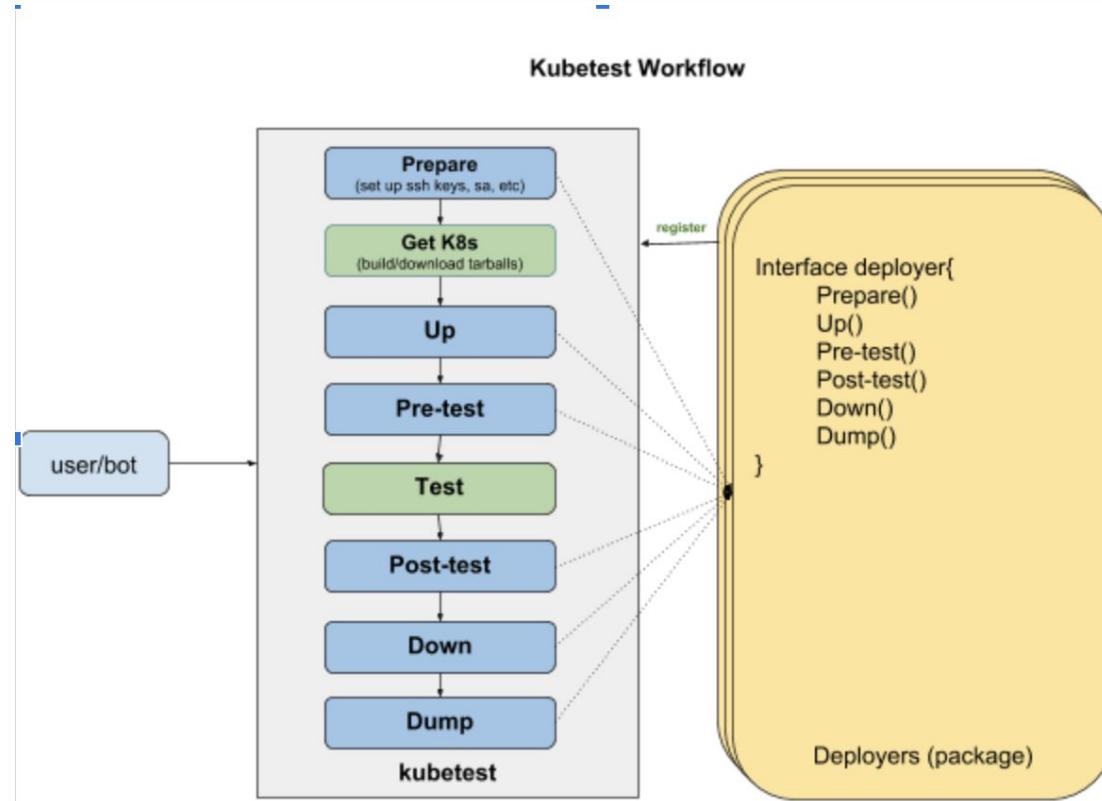
[Prow Plugins](#) - plugins.yaml, prow.k8s.io/plugins, external plugins

[ProwJobs](#) - reference specs, env vars

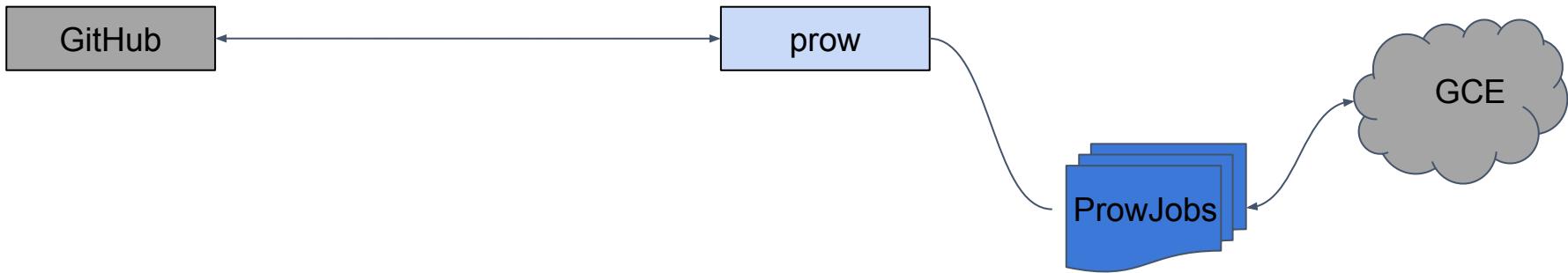
[Using Prow at Scale](#) - lessons we learned, so you don't have to

[Tide](#) - you know, for merging

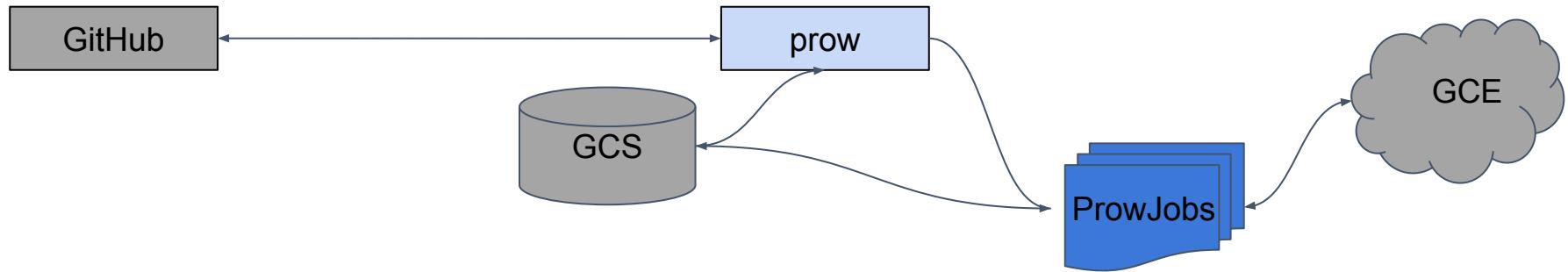
# kubetest



# prow



# +GCS



prowjob

runs on k8s

other

stock

cloud

## kubernetes-jenkins

/kubernetes-jenkins/logs/ci-kubernetes-gce-conformance-latest-1-13/27/artifacts/

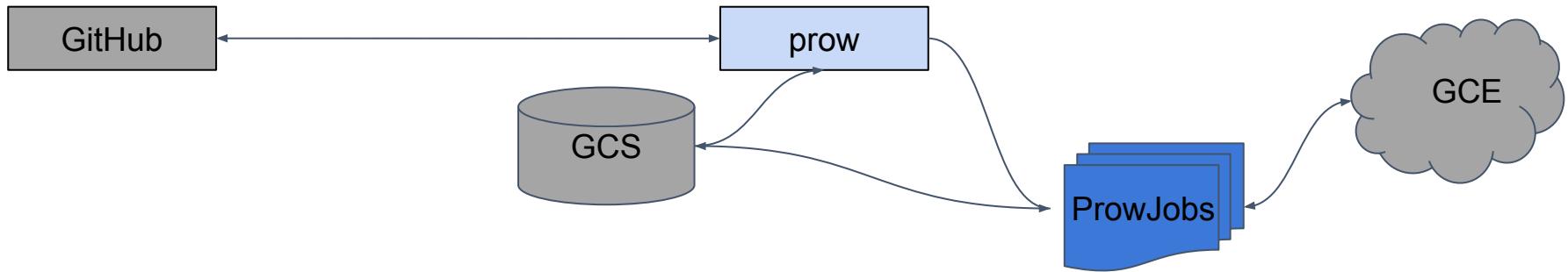
Name	Size	Modified
..	-	-
bootstrap-e2e-master/	-	-
bootstrap-e2e-minion-group-8zg1/	-	-
bootstrap-e2e-minion-group-d3lt/	-	-
bootstrap-e2e-minion-group-h05k/	-	-
images.json	98	14 Nov 2018 13:22:17
junit_01.xml	41580	14 Nov 2018 13:22:17
junit_runner.xml	388	14 Nov 2018 13:22:17
metadata.json	186	14 Nov 2018 13:22:17
nodes.yaml	20633	14 Nov 2018 13:22:17

## kubernetes-jenkins

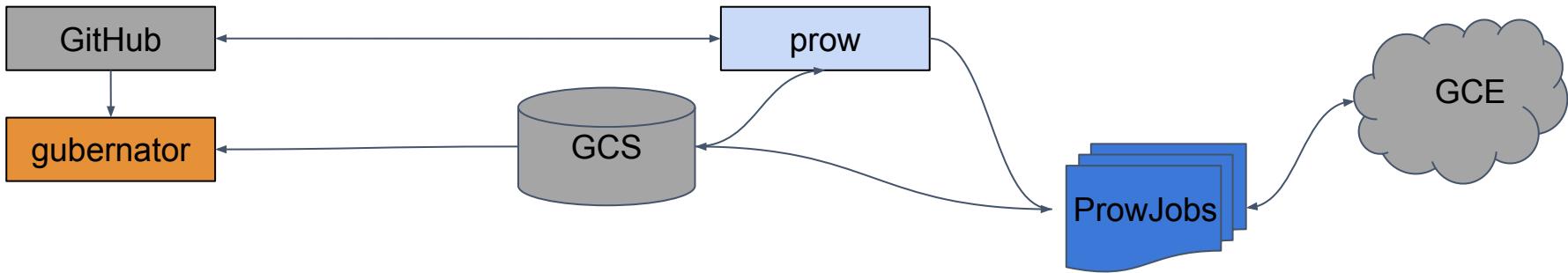
/kubernetes-jenkins/logs/ci-kubernetes-gce-conformance-latest-1-13/27/artifacts/bootstrap-e2e-master/

Name	Size	Modified
..	-	-
docker.log	343907	14 Nov 2018 13:22:18
etcd-events.log	2227	14 Nov 2018 13:22:18
etcd.log	3245	14 Nov 2018 13:22:18
glbc.log	2708	14 Nov 2018 13:22:18
kern.log	10311	14 Nov 2018 13:22:18
kube-addon-manager.log	3487	14 Nov 2018 13:22:18
kube-apiserver-audit.log	1324402	14 Nov 2018 13:22:19
kube-apiserver-audit.log-20181114-1542200434.gz	9621977	14 Nov 2018 13:22:18
kube-apiserver.log	3060074	14 Nov 2018 13:22:19
kube-container-runtime-monitor.log	106	14 Nov 2018 13:22:17
kube-controller-manager.log	968178	14 Nov 2018 13:22:19
kube-master-configuration.log	1761	14 Nov 2018 13:22:17
kube-master-installation.log	1120	14 Nov 2018 13:22:18
kube-scheduler.log	43992	14 Nov 2018 13:22:18
kubelet-monitor.log	121	14 Nov 2018 13:22:18
kubelet.log	1375721	14 Nov 2018 13:22:19
serial-1.log	11858	14 Nov 2018 13:22:18

# GCS



# +gubernator



prowjob runs on k8s other stock cloud

# gubernator



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 ci-kubernetes-gce-conformance-latest-1-13 #27

Recent runs

Result	SUCCESS
Tests	0 failed / 214 succeeded
Started	2018-11-14 19:32 CST
Elapsed	1h49m
Version	v1.13.0-beta.0.257+20b5777d454e56
Builder	gke-prow-default-pool-3c8994a8-6sn5
pod	e45515d5-e800-11e8-bc35-0a580a6c0111
infra-commit	e4c33a675
job-version	v1.13.0-beta.0.257+20b5777d454e56
master_os_image	cos-stable-65-10323-64-0
node_os_image	cos-stable-65-10323-64-0
pod	e45515d5-e800-11e8-bc35-0a580a6c0111
version	v1.13.0-beta.0.257+20b5777d454e56

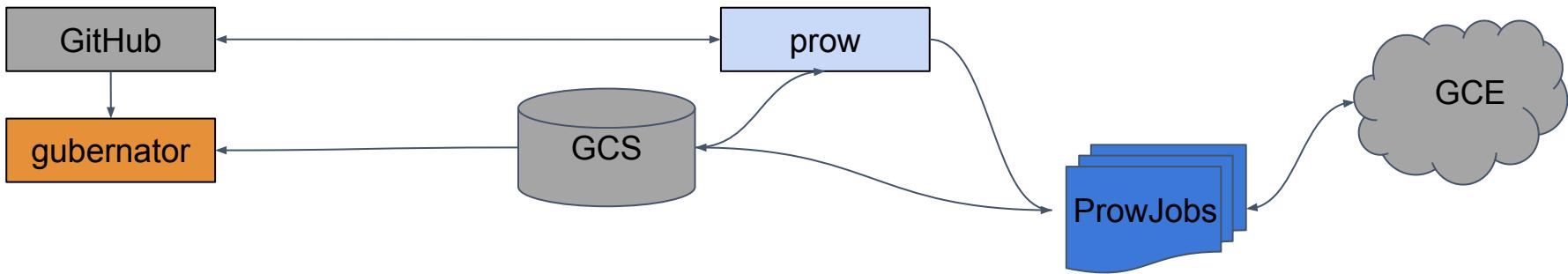
[artifacts](#) [build log](#)

No Test Failures!

[Show 214 Passed Tests](#)

[Show 1708 Skipped Tests](#)

# gubernator



prowjob

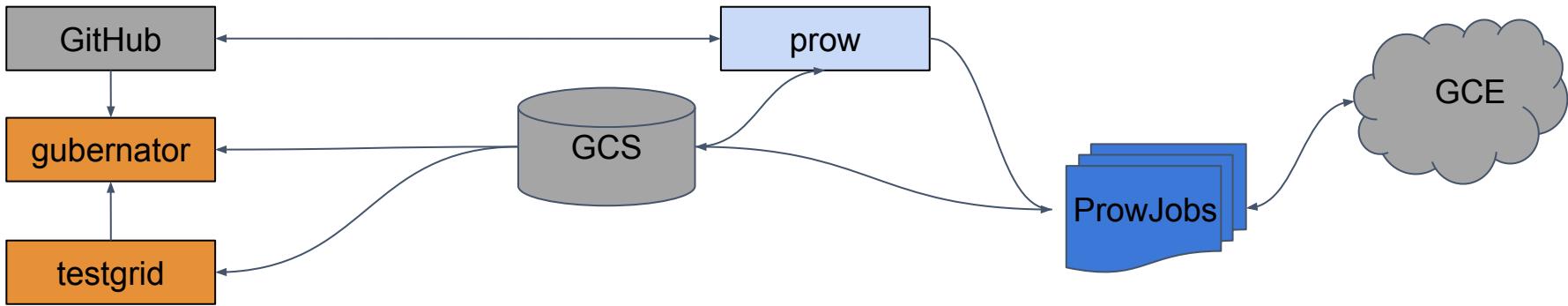
runs on k8s

other

stock

cloud

# +testgrid



Legend:  
prowjob runs on k8s other stock cloud

<a href="#">sig-release-master-blocking</a>	<a href="#">sig-release-master-kubectl-skew</a>	<a href="#">sig-release-master-upgrade</a>	<a href="#">sig-release-master-upgrade-optional</a>	<a href="#">sig-release-1.11-all</a>	<a href="#">sig-release-1.11-blocking</a>	<a href="#">sig-release-1.10-all</a>	<a href="#">sig-release-1.10-blocking</a>				
<a href="#">sig-release-etcd-upgrades</a>	<a href="#">sig-release-1.9-all</a>	<a href="#">sig-release-1.9-blocking</a>	<a href="#">sig-release-1.8-all</a>	<a href="#">sig-release-1.8-blocking</a>	<a href="#">sig-release-misc</a>						
<a href="#">Summary</a>	<a href="#">build-1.10</a>	<a href="#">verify-1.10</a>	<a href="#">integration-1.10</a>	<a href="#">bazel-build-1.10</a>	<a href="#">bazel-test-1.10</a>	<a href="#">periodic-bazel-build-1.10</a>	<a href="#">periodic-bazel-test-1.10</a>	<a href="#">gce-kubeadm-1.9-on-1.10</a>	<a href="#">ci-gce-kubeadm-1.10</a>	<a href="#">gci-gce-1.10</a>	<a href="#">gci-gce-slow-1.10</a>
<a href="#">gci-gce-serial-1.10</a>	<a href="#">gci-gce-alpha-features-1.10</a>	<a href="#">gci-gce-scalability-1.10</a>	<a href="#">gci-gce-ingress-1.10</a>	<a href="#">gci-gce-reboot-1.10</a>	<a href="#">gci-gke-1.10</a>	<a href="#">gci-gke-slow-1.10</a>	<a href="#">gci-gke-serial-1.10</a>	<a href="#">gci-gke-ingress-1.10</a>	<a href="#">gci-gke-reboot-1.10</a>	<a href="#">kops-aws-1.10</a>	
<a href="#">kubelet-1.10</a>	<a href="#">gce-gpu-1.10</a>	<a href="#">gce-device-plugin-gpu-1.10</a>	<a href="#">gke-device-plugin-gpu-1.10</a>								
<a href="#">Overall</a>											
Test											
[sig-storage] Volumes PD should be mountable with ext3											
[sig-apps] DisruptionController evictions: enough pods, replicaSet, percentage => should allow an eviction											
[sig-auth] Advanced Audit should audit API calls [DisabledForLargeClusters]											
[sig-storage] Volumes PD should be mountable with ext4											
[sig-instrumentation] Cluster level logging implemented by Stackdriver should ingest logs											
[sig-cli] Kubectl client [k8s.io] Kubectl apply apply set/view last-applied											
[sig-apps] CronJob should replace jobs when ReplaceConcurrent											
[sig-api-machinery] AdmissionWebhook Should mutate pod and apply defaults after mutation											
[sig-storage] Subpath [Volume type: hostPathSymlink] should support existing directory											
[sig-cli] Kubectl Port forwarding [k8s.io] With a server listening on 0.0.0.0 should support forwarding over websockets											
[sig-api-machinery] Garbage collector should delete RS created by deployment when not orphaning [Conformance]											
[sig-apps] Deployment test Deployment ReplicaSet orphaning and adoption regarding controllerRef											
[sig-apps] DisruptionController evictions: maxUnavailable allow single eviction, percentage => should allow an eviction											
[sig-instrumentation] Cluster level logging implemented by Stackdriver should ingest events											
[k8s.io] [sig-node] Pods Extended [k8s.io] Pods Set QOS Class should be submitted and removed [Conformance]											
[sig-api-machinery] Garbage collector should support cascading deletion of custom resources											
[sig-api-machinery] Garbage collector should delete jobs and pods created by cronjob											
[sig-api-machinery] Garbage collector should keep the rc around until all its pods are deleted if the deleteOptions says so [Confor											
[sig-api-machinery] Garbage collector should not be blocked by dependency circle [Conformance]											
[sig-api-machinery] Garbage collector should orphan RS created by deployment when deleteOptions.PropagationPolicy is Orphan											
[sig-cli] Kubectl client [k8s.io] Kubectl rolling-update should support rolling-update to same image [Conformance]											
[sig-scheduling] ResourceQuota should create a ResourceQuota and capture the life of a replica set.											
[sig-scheduling] ResourceQuota should create a ResourceQuota and capture the life of a replication controller.											
[sig-api-machinery] Garbage collector should not delete dependents that have both valid owner and owner that's waiting for depe											
[sig-cli] Kubectl client [k8s.io] Simple pod should return command exit codes											
[sig-storage] EmptyDir volumes volume on default medium should have the correct mode [Conformance]											
[sig-storage] Projected should be consumable from pods in volume as non-root with defaultMode and fsGroup set [Conformance]											
[sig-api-machinery] Aggregator Should be able to support the 1.7 Sample API Server using the current Aggregator											
[sig-auth] ServiceAccounts should allow opting out of API token automount [Conformance]											
[sig-cli] Kubectl client [k8s.io] Simple pod should support inline execution and attach											

About ▾ Size ▾ Options ▾ Graph ▾

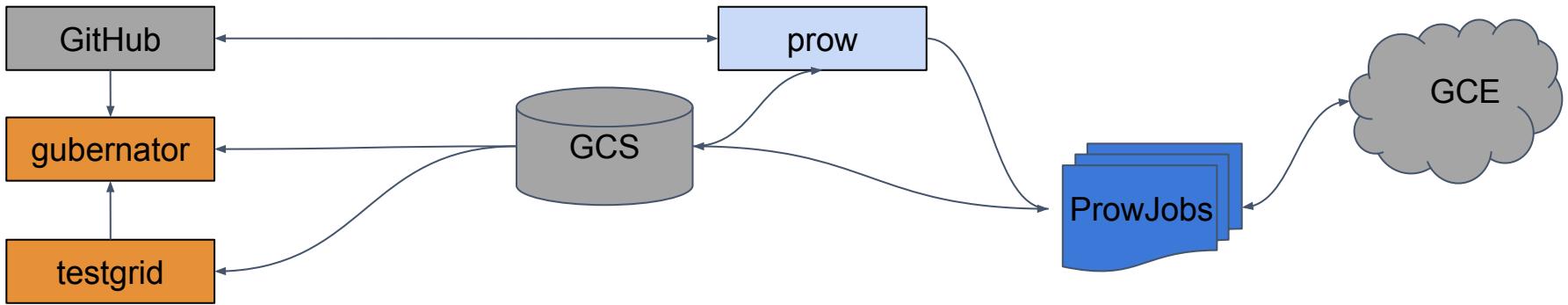
04-27 12:49 @1992 -- 04-13 14:04 @1826; Served from cache in 0.09 seconds

04-26 04-25 04-24 04-23 04-22 04-21 04-20 04-19 04-18 04-17 04-16 04-15 04-14

81753b10	7195f798	7195f7987	d79570ee:	efe3d3af	baab39921
	757a85776				75cff79b9 ff6991

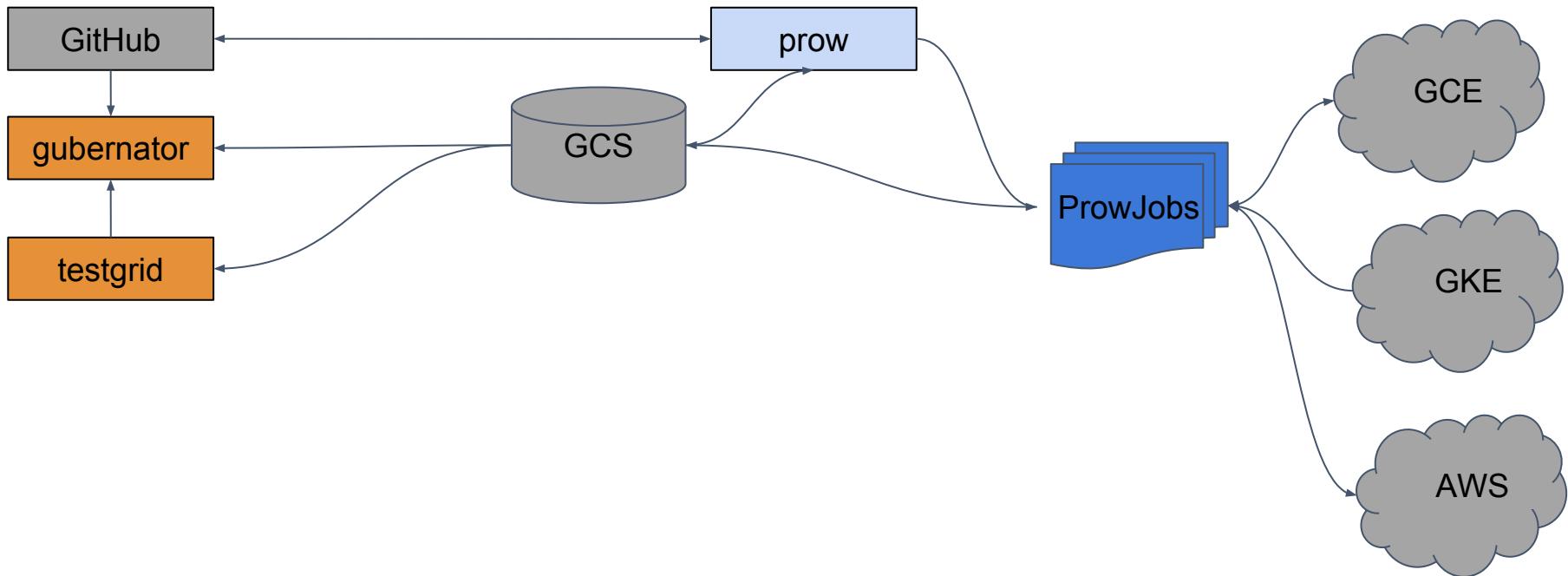


# testgrid



prowjob runs on k8s other stock cloud

# +clouds



prowjob

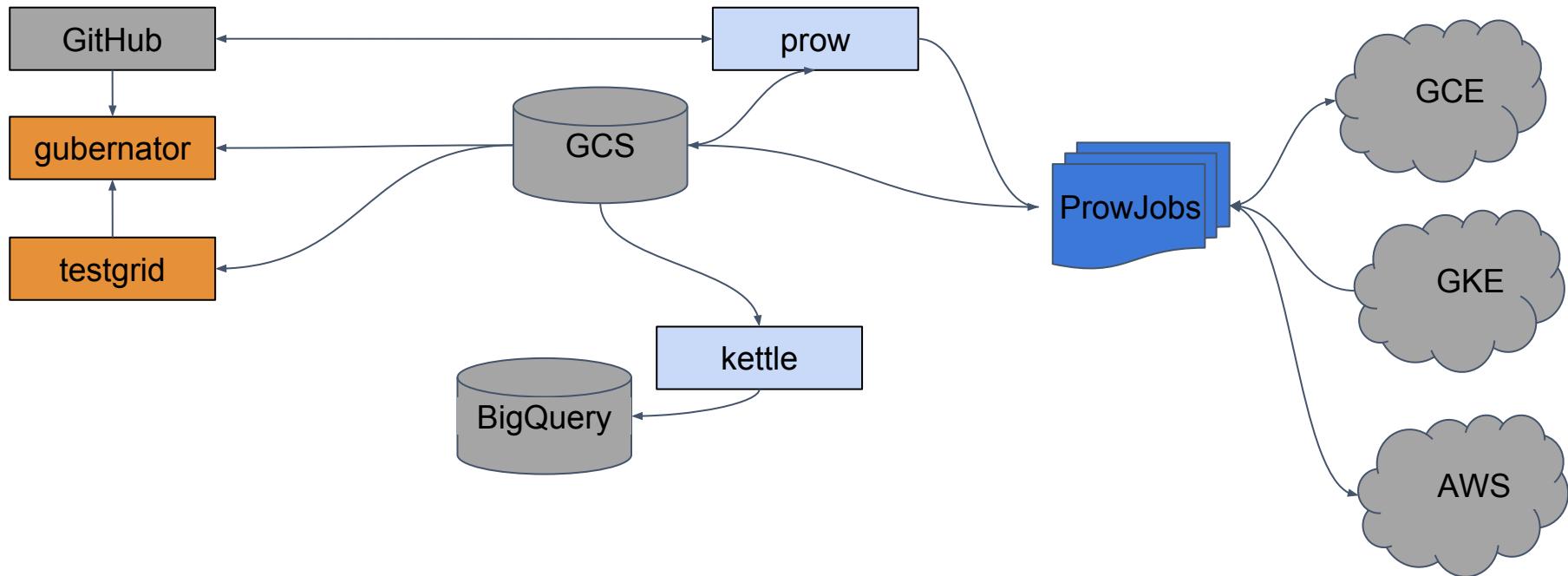
runs on k8s

other

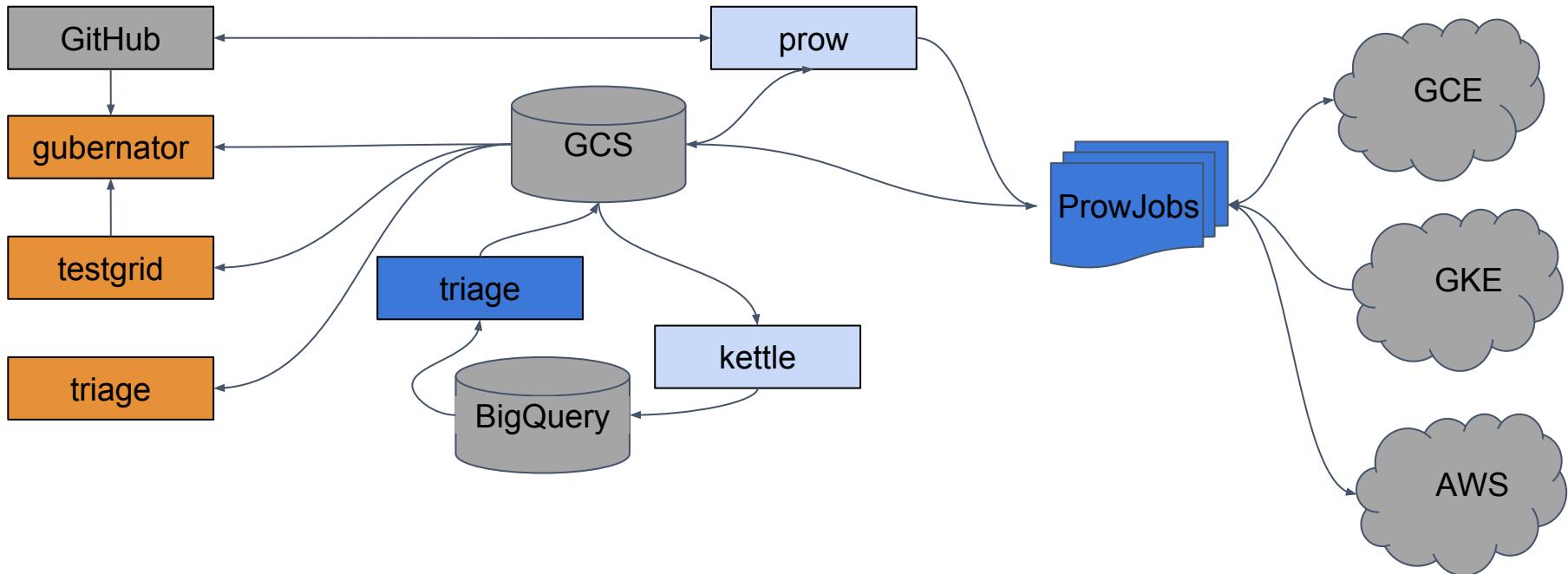
stock

cloud

# +kettle



# +triage



prowjob

runs on k8s

other

stock

cloud

## Kubernetes Aggregated Failures from today

Show clusters for SIG: [api-machinery](#) [apps](#) [autoscaling](#) [big-data](#) [cli](#) [cluster-lifecycle](#) [multicluster](#) [instrumentation](#) [network](#) [node](#) [scalability](#) [scheduling](#) [storage](#) [testing](#) [ui](#)

Sort by  total count  count in last day  error message

Include results from:  CI  PR

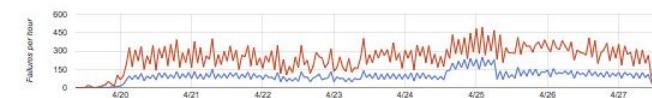
Filter (these are regexes):

Failure text

Job

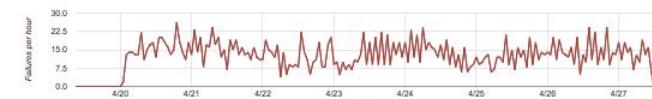
Test

982 clusters of 48383 failures (6535 in last day) out of 74969 builds from 4/19/2018, 9:03:57 AM to 4/27/2018, 12:01:34 PM.



### 2433 FAILURES (336 TODAY) MATCHING [e685c87c70236748fafe](#) [github search](#) [testing]

error during ./hack/ginkgo-e2e.sh --ginkgo.skip=\\$(Slow\)|\[Serial\]|\[Disruptive\]|\[Flaky\]|\[Feature:.+\] --minStartupPods=8 --report-dir=/workspace/\_artifacts --disable-log-dump=true: exit status 1



#### Latest Failures

Time	Job	Test
4/27/2018, 11:12:11 AM	ci-kubernetes-e2e-gke-staging-default-parallel	Test
4/27/2018, 11:17:17 AM	ci-kubernetes-e2e-gce-gci-qu-master	Test
4/27/2018, 11:17:20 AM	ci-kubernetes-e2e-gke-staging-stable1-parallel	Test
4/27/2018, 11:12:14 AM	ci-kubernetes-e2e-gce-ubuntu1-k8stable1-default	Test
4/27/2018, 11:08:12 AM	ci-kubernetes-e2e-gce-gci-qu-m65	Test

- Failed in 60 Jobs
- Failed in 1 Test
- 2433 Test

### 801 FAILURES (263 TODAY) MATCHING [d1f08hc7ff9hb8c60180](#) [github search](#) [testing]

error creating cluster: error during gcloud container clusters create --quiet --project=k8s-e2e-gke-prod-parallel --zone=us-central1-f --machine-type=n1-standard-2 --image-type=gci --num-nodes=3 --network=bootstrap-e2e --cluster-version=1.11.0-alpha.1.82+afa68cc28749c0 bootstrap-e2e: exit status 1

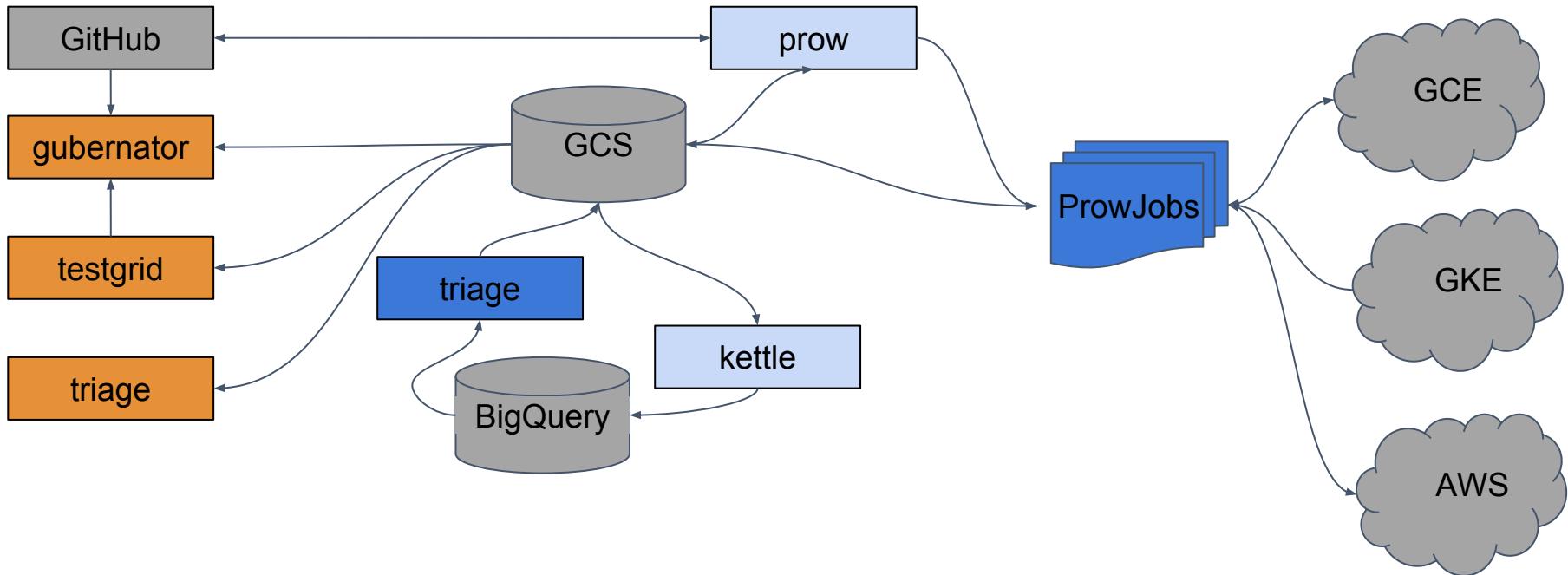


#### Latest Failures

Time	Job	Test
4/27/2018, 11:19:13 AM	ci-kubernetes-e2e-gke-td-logging-gci-latest	Up
4/27/2018, 11:18:12 AM	ci-kubernetes-e2e-gke-stackdriver	Up
4/27/2018, 11:14:13 AM	ci-kubernetes-e2e-gke-master-new-gci-kubectl-skew-serial	Up
4/27/2018, 11:02:15 AM	ci-kubernetes-e2e-gke-regional-serial	Up
4/27/2018, 11:02:13 AM	ci-kubernetes-e2e-gke-master-new-gci-kubectl-skew	Up

- Failed in 26 Jobs
- Failed in 1 Test
- 801 Up

# triage



prowjob

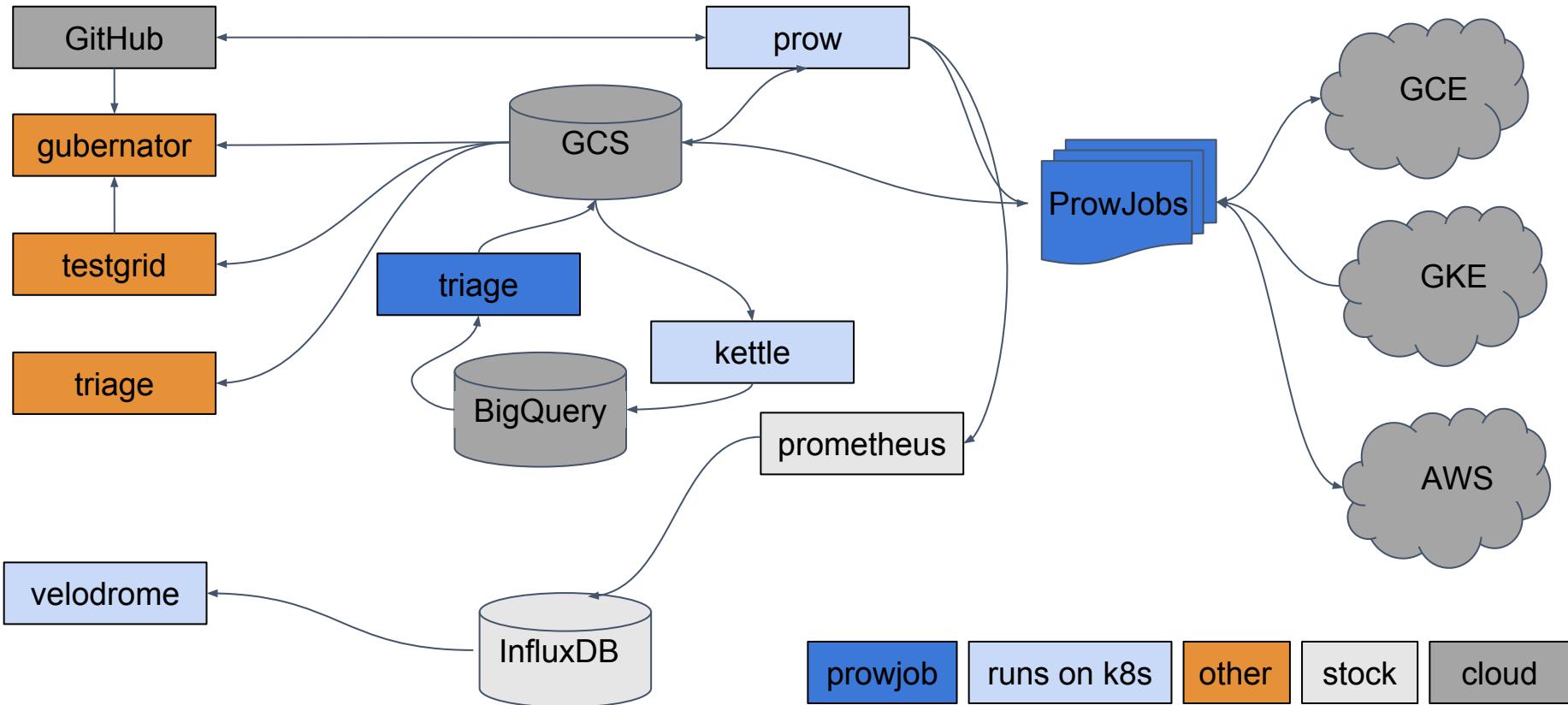
runs on k8s

other

stock

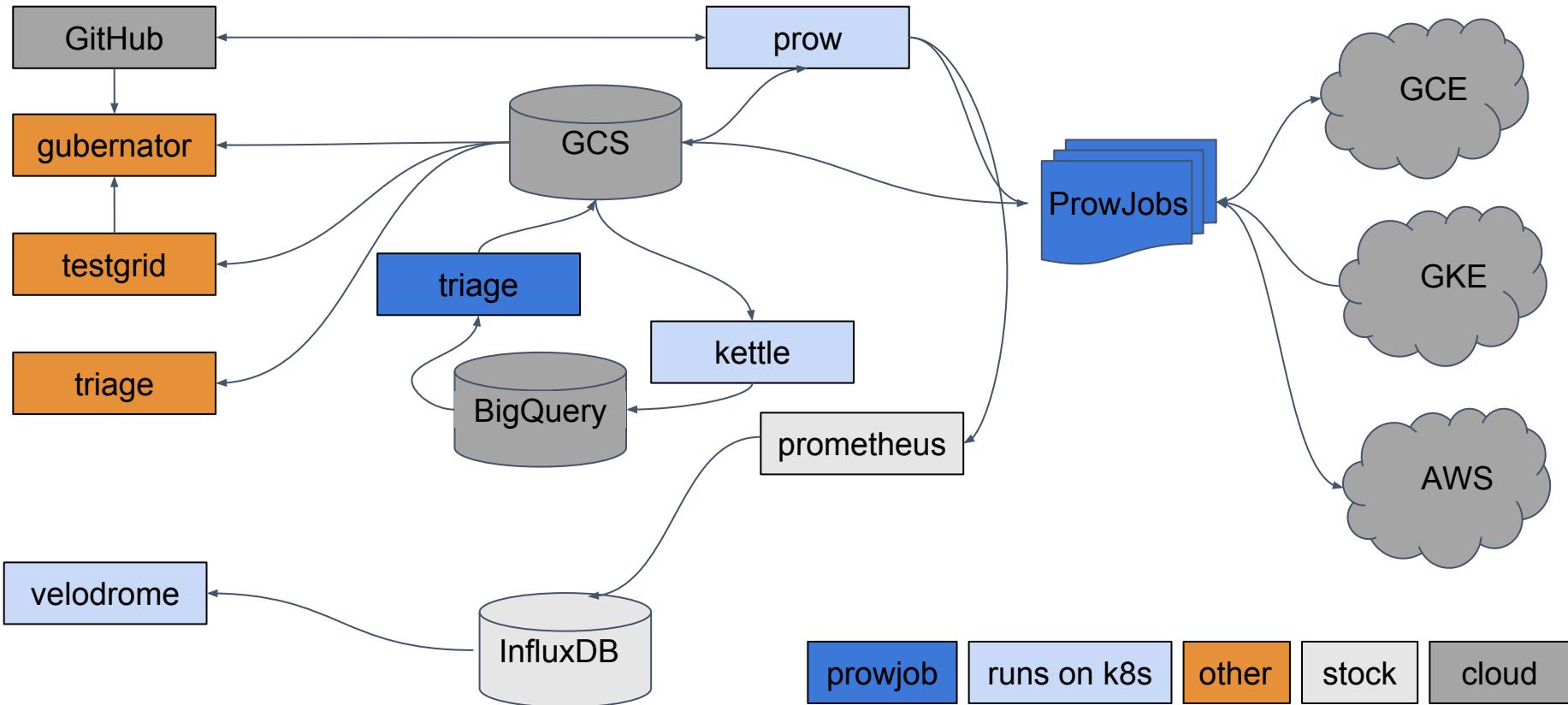
cloud

# +velodrome

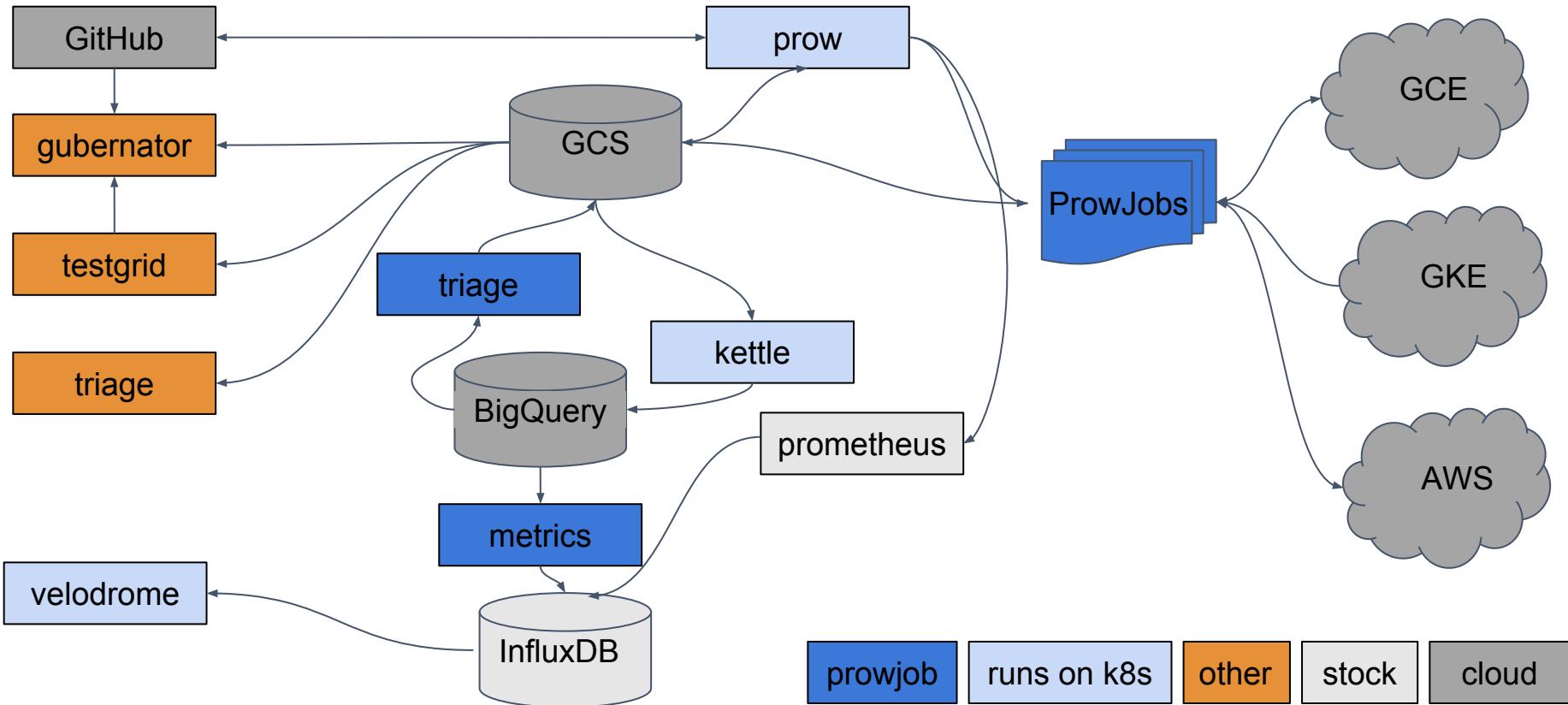


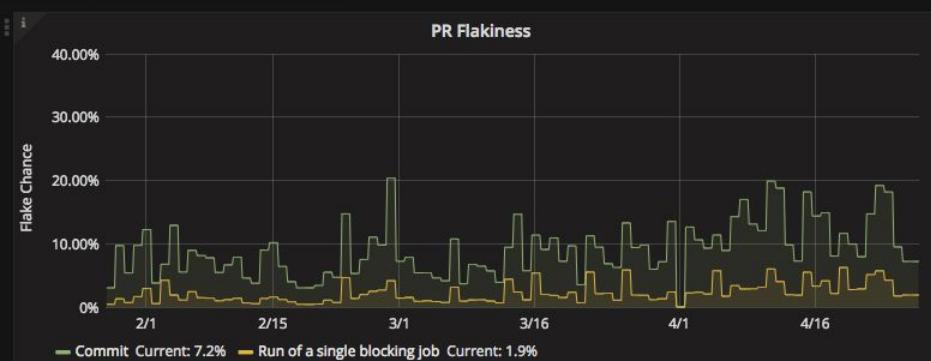


# velodrome



# +metrics





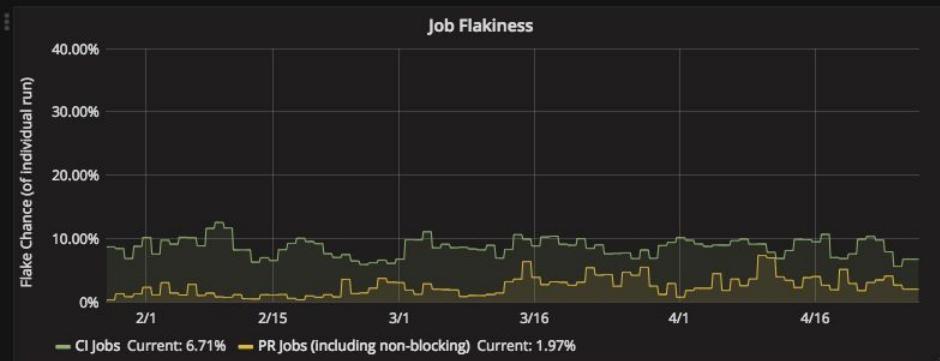
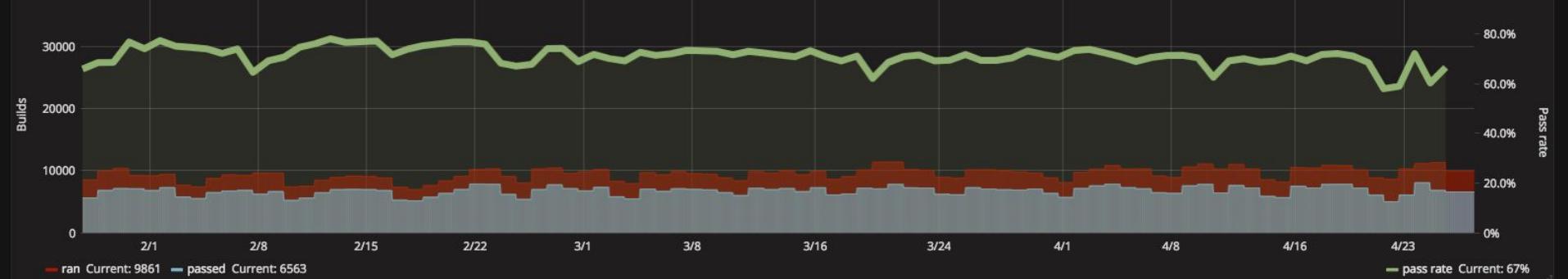
### Longest Failing PR Jobs

Job	Failing Days
pr:pull-kubernetes-e2e-gce-big-performance	37
pr:kubeflow-hp-tuning-presubmit	7
pr:pull-cadvisor-e2e	5
pr:pull-cloud-provider-azure-lint	4
pr:pull-test-infra-verify-labels	4
pr:pull-cloud-provider-azure-unit	4
pr:kubeflow-testing-presubmit	3

### Flakiest PR Jobs (past week)

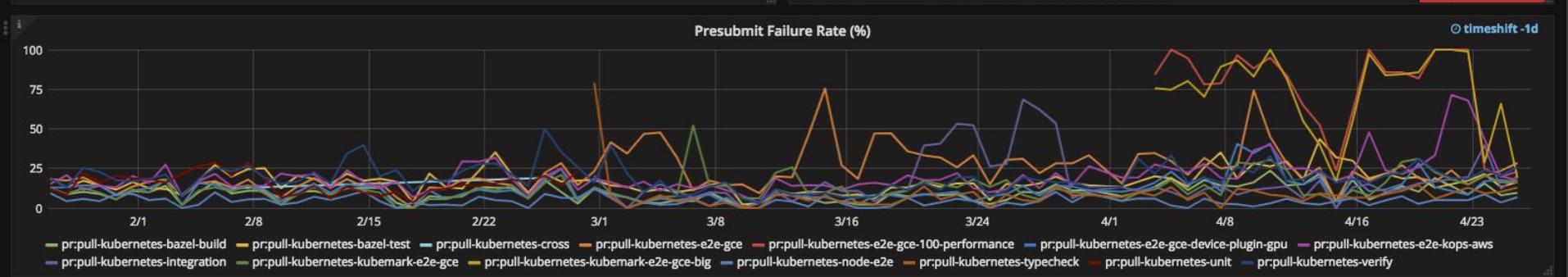
Job	Flakes	Flakiest Test	2nd Flakiest Test
pr:pull-kubernetes-e2e-kops-aws	79	67 flakes: Up	8 flakes: Timeout
pr:pull-kubernetes-kubemark-e2e-gce-big	62	66 flakes: Up	4 flakes: Timeout
pr:pull-kubernetes-integration	60	50 flakes: k8s.io/kubernetes/test/integration/etc TestEtcdStoragePath	9 flakes: k8s.io/kubernetes/test/integration/garbagecollector TestCustomResourceCascadingDeletion
pr:pull-kubernetes-e2e-gce-100-performance	57	52 flakes: Up	9 flakes: [sig-scalability] Density [Feature:Performance] should allow starting 30 pods per node using {ReplicationController} with 0 secrets, 0 configmaps and 0 daemons
pr:pull-kubernetes-e2e-gce	35	12 flakes: [sig-api-machinery] Aggregator Should be able to support the 1.7 Sample API Server using the current Aggregator	9 flakes: Up
pr:pull-kubernetes-kubemark-e2e-gce	31	21 flakes: Up	6 flakes: Build
pr:pull-kubernetes-e2e-gce-device-plugin-gpu	24	16 flakes: Up	10 flakes: Build



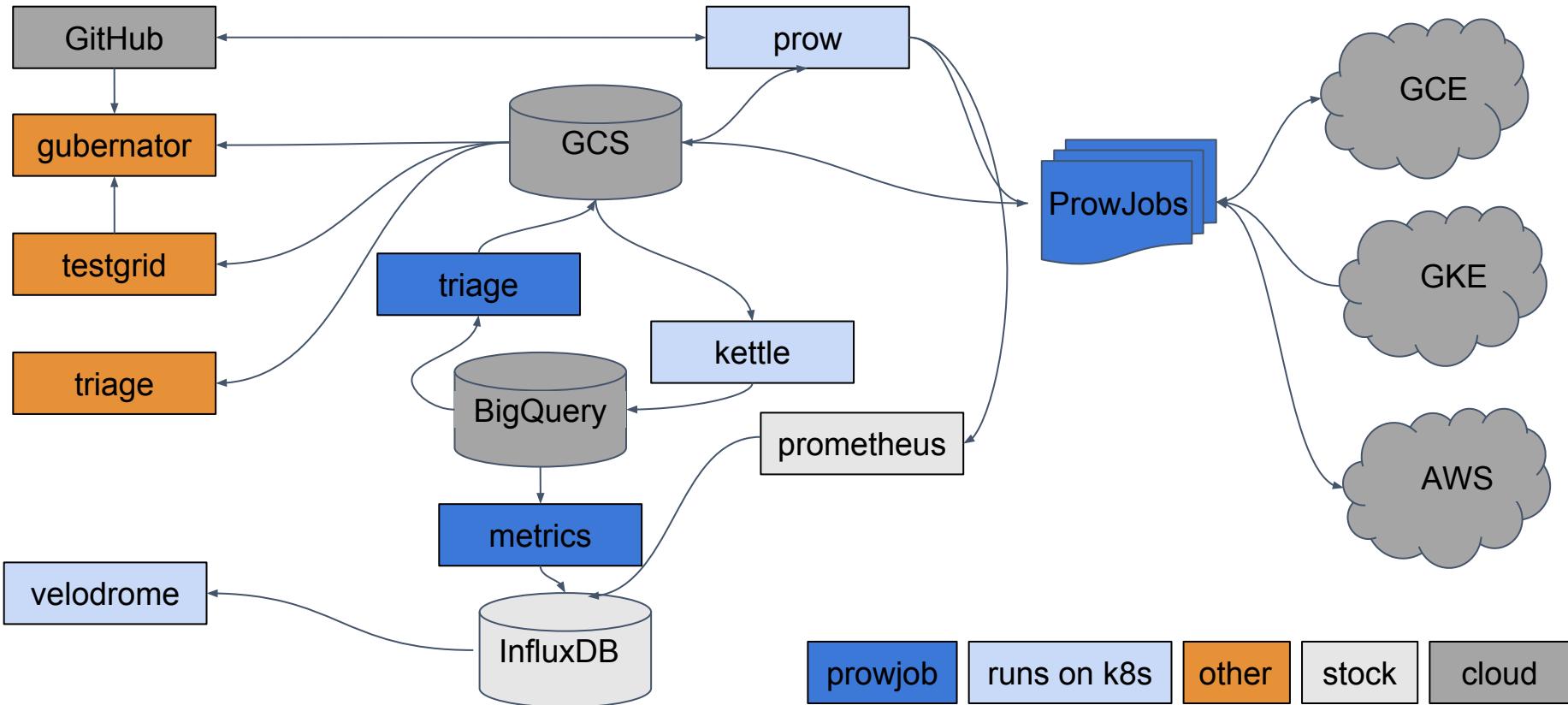


### Longest Failing Jobs

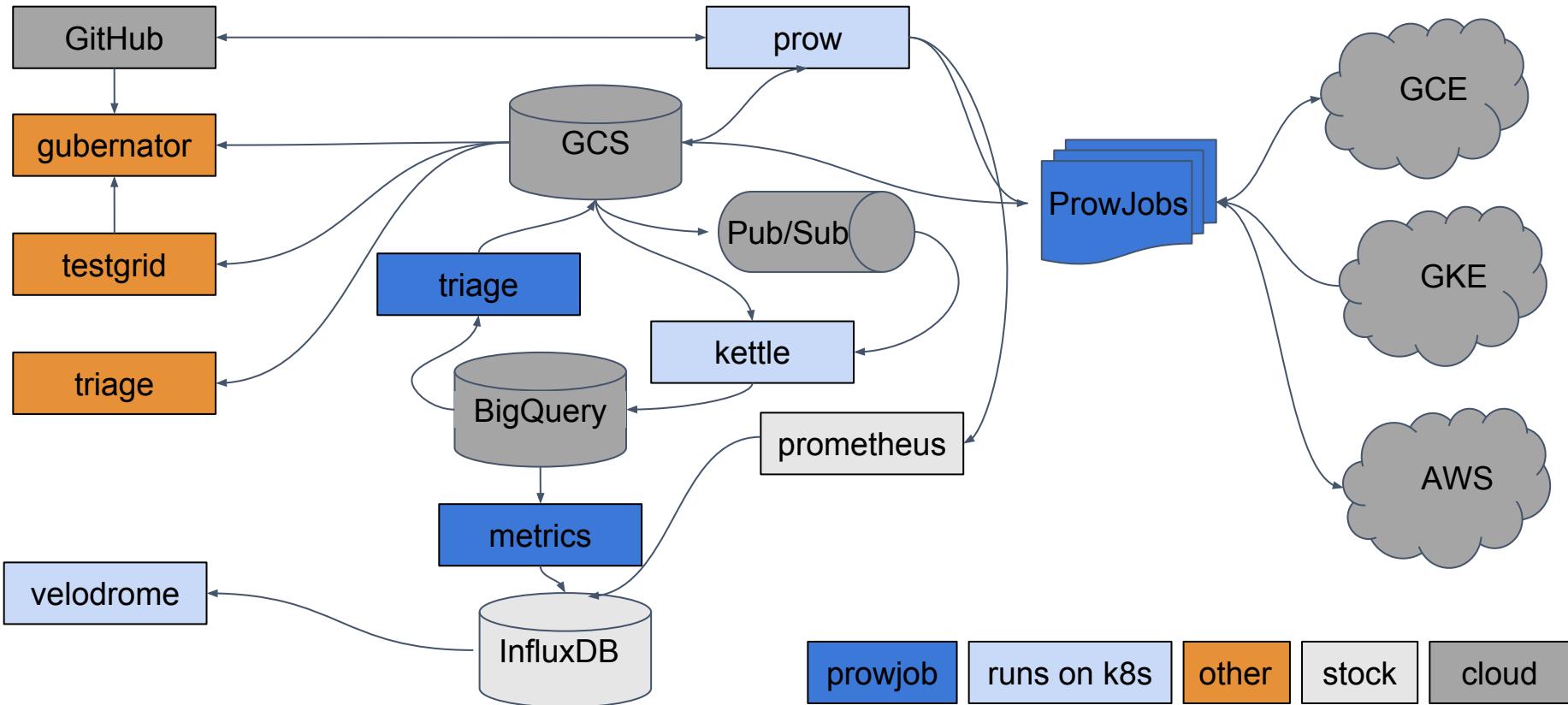
Job	Failing Days
ci-kubernetes-soak-cos-docker-validation	184
ci-kubernetes-e2e-gci-gce-ipvs	164
ci-kubernetes-e2e-kops-aws-ena-nvme	145
ci-kubernetes-e2e-gke-gci-stable3-gci-stable1-upgrade-master	142
ci-kubernetes-e2e-gke-gci-stable3-gci-stable1-upgrade-cluster	142
ci-kubernetes-e2e-gke-gci-new-gci-master-upgrade-master	129
ci-kubernetes-e2e-gke-gci-new-gci-master-upgrade-cluster	129



# metrics



# +pub/sub



# +boskos

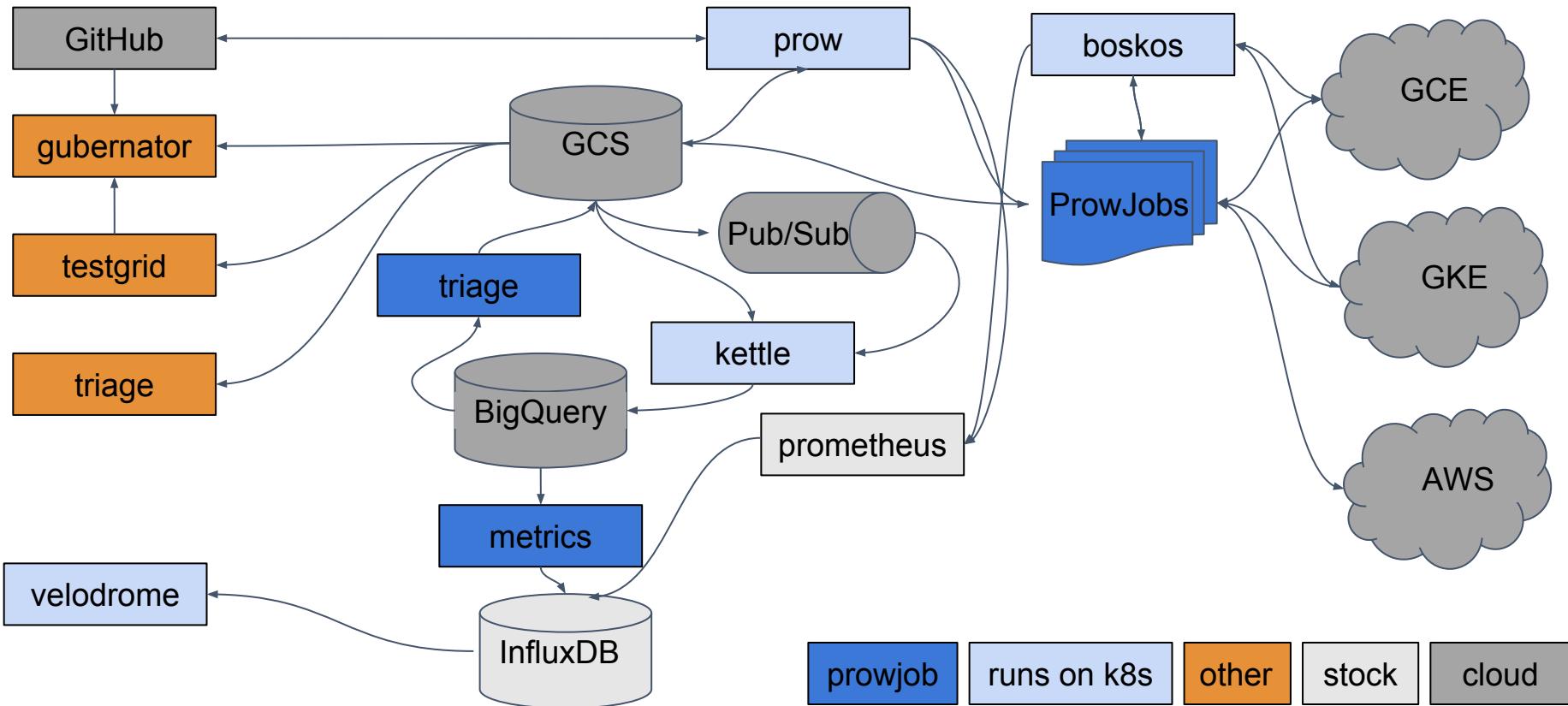


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# +greenhouse

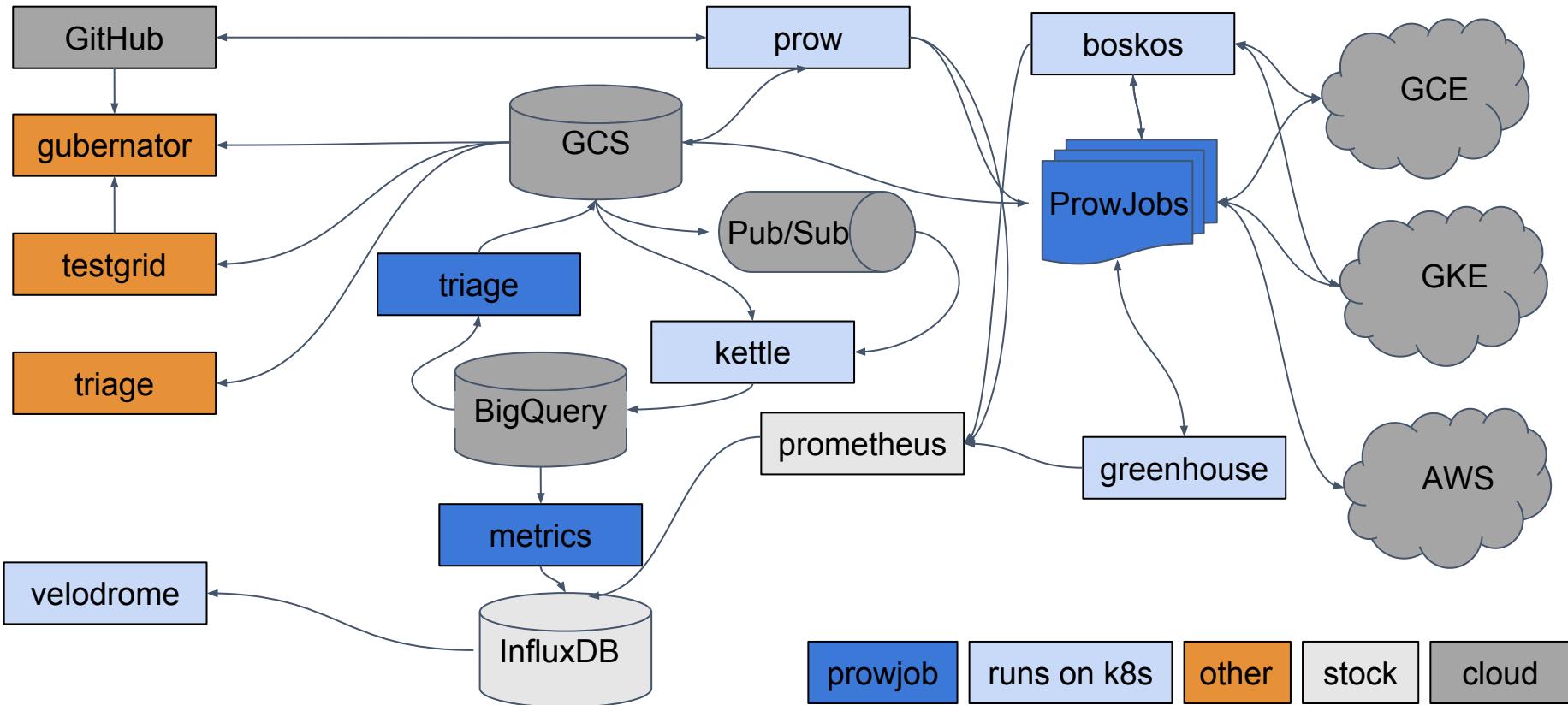


KubeCon

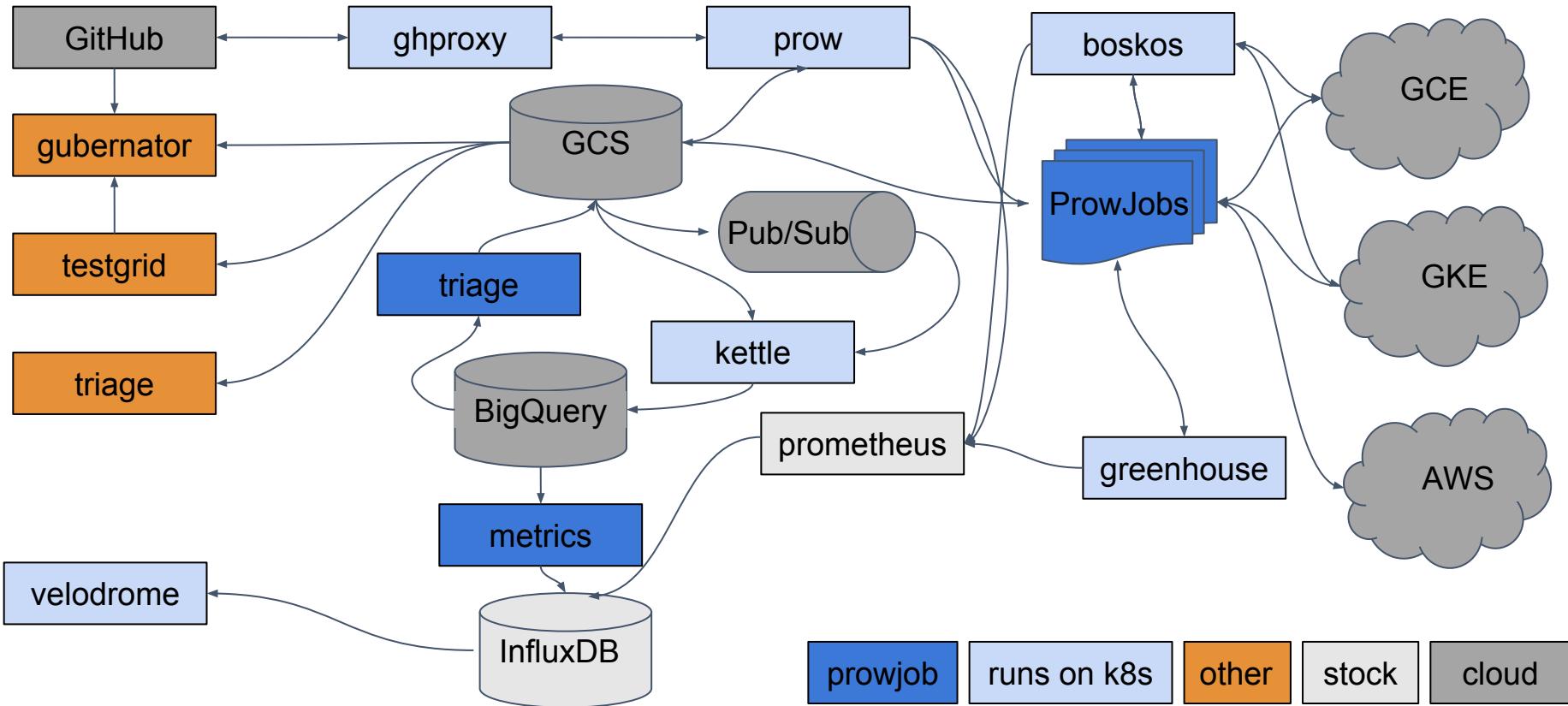


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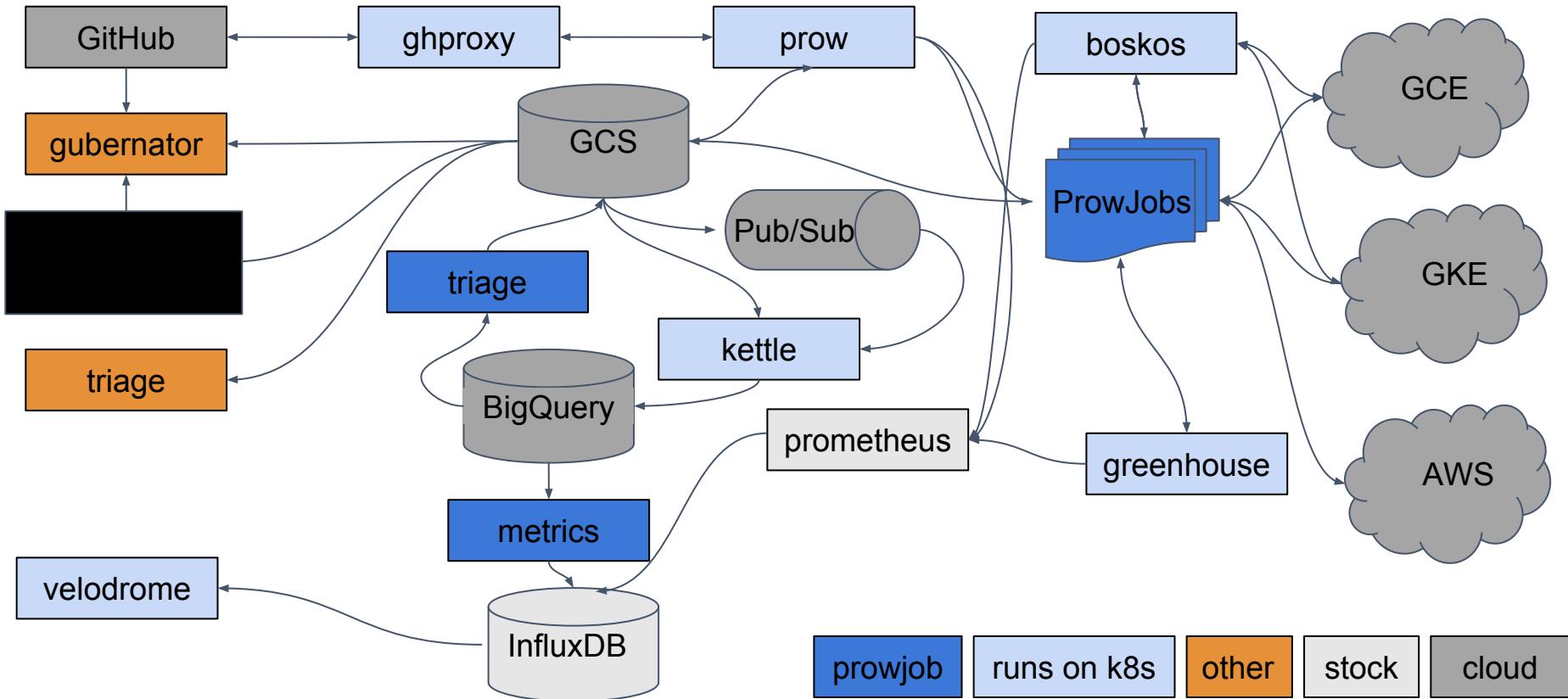
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# +ghproxy



# Open Source



# **sigs.k8s.io/kind**



**It has come to my attention that you appreciate containers**



**Thus I have created a lightweight project to run the leading container orchestration platform inside of a container for expedient development**

# sigs.k8s.io/kind

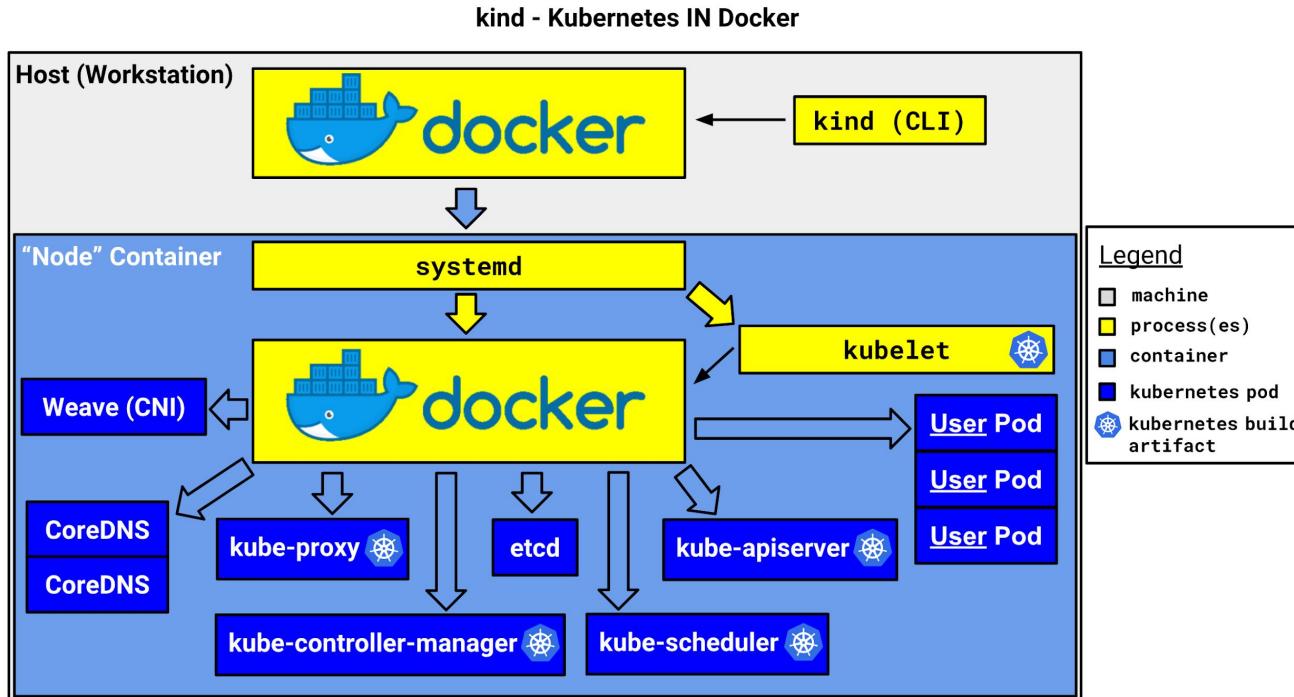


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# Adopting Prow

So you've got a new repo. Why adopt Prow for your CI?

- Consistent UX with the Kubernetes ecosystem
  - /retest, /lgtm, /approve
- Automatic support from Gubernator and TestGrid for job overviews and historical data, flake detection
- No test throughput limits

# Writing Your First Job



```
0 | # test-infra/config/jobs/${org}/${repo}/${org}-${repo}-presubmits.yaml
1 | presubmits:
2 |   ${org}/${repo}:
3 |     - name: pull-ci-${org}-${repo}-unit
4 |       agent: kubernetes
5 |       decorate: true
6 |       spec:
7 |         containers:
8 |           - image: docker.io/golang:1.10
9 |             command:
10 |               - go
11 |             args:
12 |               - test
13 |               - ./...
```

# Decoration?

`decorate: true` is the Prow-ism for enabling background utilities that let you focus on writing the content of your test, not adapting it to work with the infra. Your test script can assume:

- the repository under test is checked out appropriately
- the script being called has the repository under test as its working directory
- any files placed in the `$ARTIFACTS` directory will be uploaded to GCS after the test has run
- metadata for Gubernator and TestGrid will automatically be generated and uploaded
  - anything extra in `metadata.json` will be forwarded to GCS

# A Job In Action



We're going to take a look at the [pull-test-infra-verify-codegen job](#).

We can see the job reporting on a [pull request](#)

Or look at historical results in the [Prow overview](#)

Or browse patterns for the job in [TestGrid!](#)

# A Job In Action

We're going to take a look at the [pull-test-infra-verify-codegen job](#).

```
- name: pull-test-infra-verify-codegen
  path_alias: "k8s.io/test-infra"
  decorate: true
  spec:
    containers:
      - image: gcr.io/k8s-testimages/kubekins-e2e:v20181205-915278e90-experimental
        command:
          - ./hack/verify-codegen.sh
```

# A Job In Action



We can see the job reporting on a [pull request](#)

  k8s-ci-robot merged commit **d6f7bb8** into **kubernetes:master** 4 days ago [Hide details](#)

**12 checks passed**

- ✓ **cla/linuxfoundation** ayj authorized [Details](#)
- ✓ **pull-test-infra-verify-codegen** Job succeeded. [Details](#)

# A Job In Action

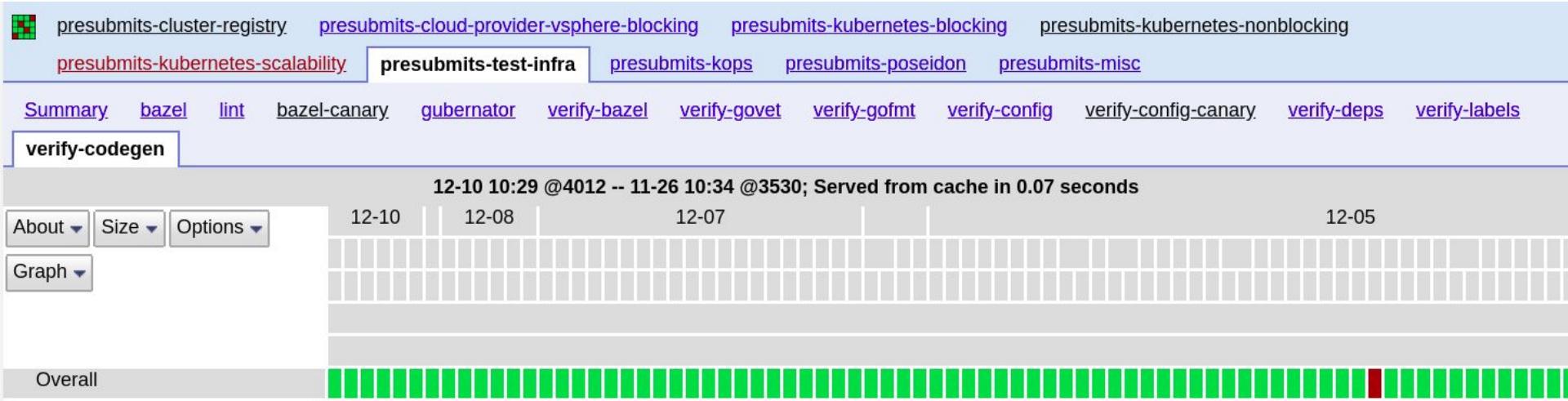
Or look at historical results in the [Prow overview](#)

The screenshot shows a table of historical Prow job results for the repository `kubernetes/test-infra`. The table includes columns for Repository, Revision, Job, Started, and Duration. All jobs listed have passed, indicated by green checkmarks in the first column.

Repository	Revision	Job	Started	Duration
kubernetes/test-infra	#10396 (aa1d247) by mskonovalov	pull-test-infra-verify-codegen	10:28:53	1m8s
kubernetes/test-infra	#10397 (703ce9f) by lubinsz	pull-test-infra-verify-codegen	10:27:31	1m32s
kubernetes/test-infra	#10400 (c2f660c) by krzysied	pull-test-infra-verify-codegen	08:24:35	59s
kubernetes/test-infra	#10399 (75e13b0) by adelina-t	pull-test-infra-verify-codegen	07:04:28	1m33s
kubernetes/test-infra	#10400 (3de1f13) by krzysied	pull-test-infra-verify-codegen	06:38:45	1m16s
kubernetes/test-infra	#10400 (fe202c1) by krzysied	pull-test-infra-verify-codegen	06:27:38	1m23s

# A Job In Action

Or browse patterns for the job in [TestGrid!](#)



# Write a Job

Let's see some samples

- I want a presubmit that runs:
  - a script in my repo
  - something from the container image
- I want a periodic that makes sure everything runs well with k/k HEAD
- I want to build and push images whenever something merges to master

# SIG Testing Talks



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**Tuesday**, December 11 • 11:40am - 12:15pm

[Behind Your PR: How Kubernetes Uses Kubernetes to Run Kubernetes CI - Sen Lu & Benjamin Elder, Google](#)

**Wednesday**, December 12 • 2:35pm - 3:10pm

[Using Prow for Testing Outside of K8s - Matt Landis, Amazon Web Services](#)

**Thursday**, December 13 • 3:40pm - 4:15pm

[Deep Dive: Testing SIG - Cole Wagner & Katharine Berry, Google](#)

# SIG Testing Contact



[git.k8s.io/community/sig-testing](https://git.k8s.io/community/sig-testing)

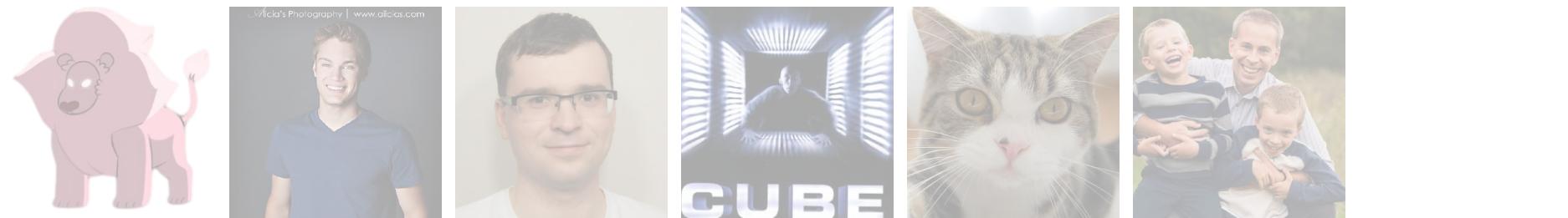
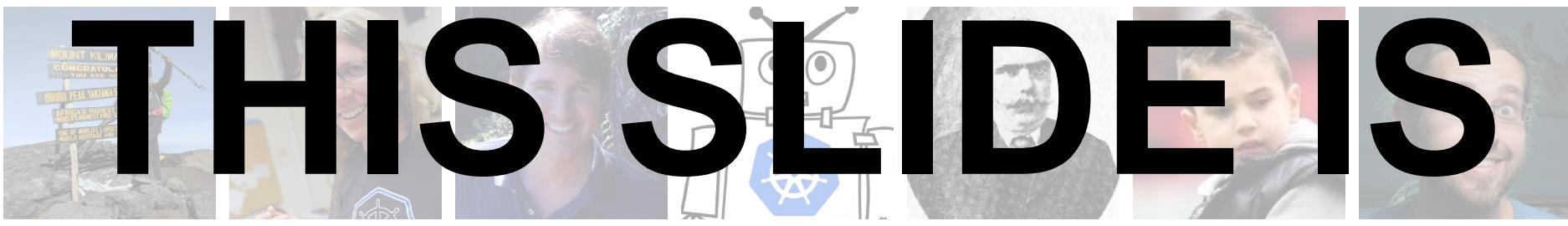
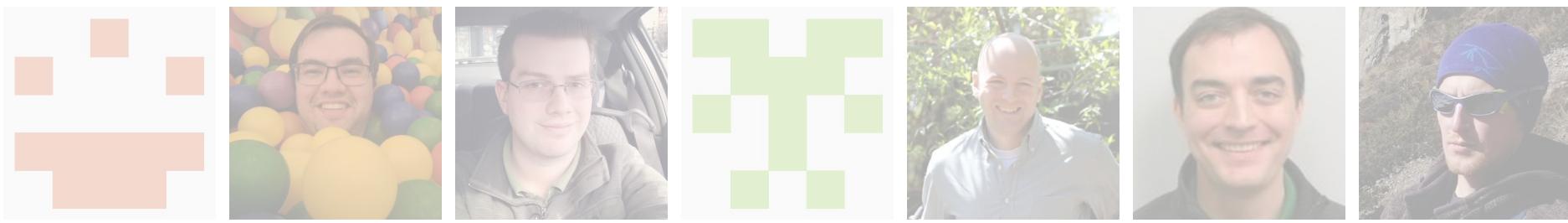
[git.k8s.io/test-infra](https://git.k8s.io/test-infra)

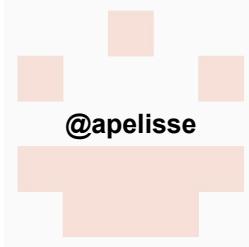
[sigs.k8s.io/kind](https://sigs.k8s.io/kind)

[sigs.k8s.io/testing\\_frameworks](https://sigs.k8s.io/testing_frameworks)

[kubernetes-sig-testing@googlegroups.com](mailto:kubernetes-sig-testing@googlegroups.com)

#testing-ops / #sig-testing / #prow / #kind





@apelisse



@bentheelder



@cblecker



@cjwagner



@eparis



@fejta



@gmarek



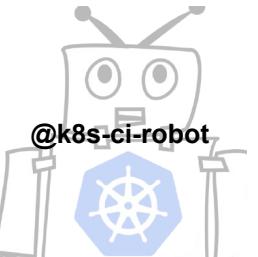
@grodriques3



@ixdy



@justinsb



@k8s-ci-robot



@kargakis



@krzyzacy



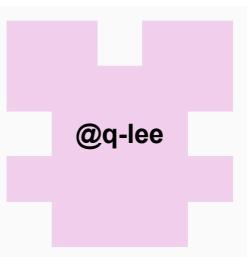
@lavalamp



@michelle192837



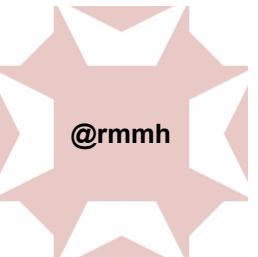
@oomichi



@q-lee



@qhuynh96



@rmmh



@shymjvs



@spiffxp



@spxtr



@stevekuznetsov



@wojtek-t



@zmerlynn



@marun



@timothysc



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