SIG Testing Intro

Sen Lu (Google, @krzyzacy)
Jessie Zhu (Google, @jessiezcc)
SIG Testing

SIG Testing Chairs:
- Aaron Crickenberger (@spiffxp)
- Erick Fejta (@fejta)
- Steve Kuznetsov (@stevekuznetsov)
- Timothy St. Clair (@timothysc)

Charter:
https://github.com/kubernetes/community/blob/master/sig-testing/charter.md

Weekly Meetings:
- Tuesday 1pm PST
Agenda

- Prow & Github Automation
- Other projects that SIG Testing manages
- Case study: Knative
- Q/A
Agenda

● Prow & Github Automation
● Other projects that SIG Testing manages
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● Q/A
Run test containers on Jenkins VM?

Run test containers on K8S :-)

image source: https://wiki.jenkins.io/display/JENKINS/Logo
https://twitter.com/stray_engineer/status/984937360210014208
https://knowyourmeme.com/photos/1315939-this-is-fine

K8s test-infra history
logicalhan commented an hour ago

What this PR does / why we need it:
Fixes the linting errors in pkg/apis/bash directory (with the exception of latest.go, which has an interesting todo)

Release Note
NONE

k8s-ci-robot commented an hour ago

Hi @logicalhan. Thanks for your PR.
I'm waiting for a kubernetes member to verify that this patch is reasonable to test. If it is, they should reply with /ok-to-test on its own line. Until that is done, I will not automatically test new commits in this PR, but the usual testing commands by org members will still work. Regular contributors should join the org to skip this step.

I understand the commands that are listed here.

Details

k8s-ci-robot added kindling-change and removed needs-kind labels an hour ago

k8s-ci-robot commented an hour ago

[APPROVALNOTIFIER] This PR is NOT APPROVED
This pull request has been approved by: logicalhan
To fully approve this pull request, please assign additional approvers. We suggest the following additional approver: liggit
If they are not already assigned, you can assign the PR to them by writing /assign @liggit in a comment when ready.
The full list of commands accepted by this bot can be found here.

Details
Needs approval from an approver in each of these files:
- hack/OWNERS
- pkg/apis/OWNERS

Approvers can indicate their approval by writing /approve in a comment
Approvers can cancel approval by writing /approve: cancel in a comment

k8s-ci-robot requested review from deaths2k and lavalamp an hour ago
Prow & Github Automation
Prow & Github Automation

GitHub search query

is:pr+repo:kubernetes/test-infra+author:BenTheElder+head:govet-yikes

#9747  kubernetes/test-infra:master

[WIP] fix gofmt and govet errors for go 1.11

- 2 tests failed
  - pull-test-infra-bazel
  - pull-test-infra-verify-govet

Does not meet label requirements

Required Labels (Missing)

- \(^{\text{†}}\)

Forbidden Labels (Shouldn't have)

- do-not-merge/work-in-progress

Does not appear to have merge conflicts
Prow & Github Automation

Prow Architecture

Github

Hook

Tide

Horologium

Prowjob

Plugin (cat)

Plugin (trigger)

Sinker

Build Cluster

Legend:
- foo: Prow controller
- white: K8s cluster
- yellow: K8s Resource

prow.k8s.io

Serve

Create

Query status

Clean

List & update

Sinker

Create

Clean

Query status
Prow & Github Automation
(by @bentheelder)

Kubernetes - Cluster management.

Hook - Catches webhooks from Github.

Deck - All of the jobs on display.

Prow - The leading edge.

Testgrid - Detailed test result dashboards.

Horologium - Triggers periodic Continuous Integration tests.

Tide - Washes passing pull requests ashore for auto merge.

Plank - Launches a container for each test job.

Sinker - Cleans up dead jobs.

image source: https://bentheelder.io/posts/prow/
Deploy your own prow

What you need:
- k8s cluster
- starter.yaml

Then:
- Configure github
- Add workloads

https://github.com/kubernetes/test-infra/blob/master/prow/getting_started_deploy.md
Agenda

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Other projects that SIG Testing manages

Kubetest

End to End Testing in Kubernetes
Other projects that SIG Testing manages

TestGrid
Other projects that SIG Testing manages

Gubernator

kubernetes/test-infra PR #9748 pull-test-infra-verify-gofmt #16146

References
PR #9748 add some more logs for grandmarch

No Test Failures!

Error lines from build-log.txt

<table>
<thead>
<tr>
<th>Line</th>
<th>Message</th>
</tr>
</thead>
</table>
| 1090 | 21:17:38.408 | shouldSkipTest: false, testError:
| 1090 | 21:17:38.408 | action: getTestRequestFailed, shouldSkipJob: false, |
| 1090 | 21:17:38.408 | }
| 1090 | 21:17:38.408 | name: "error getting label: |
| 1090 | 21:17:38.408 | removeLabelErr: t, removeLabelErr: |
| 1090 | 21:17:38.408 | t, getIssueLabelErr: |
| 1090 | 21:17:38.408 | t, getIssueRequestChangeErr: t, getIssueRequestChangeErr: |
| 1090 | 21:17:38.408 | t, t |
| 1090 | 21:17:38.408 | }
| 1090 | 21:17:38.408 | },
Other projects that SIG Testing manages

kind

kind - Kubernetes IN Docker

Legend
- machine
- process(es)
- container
- kubernetes pod
- kubernetes build artifact
Other projects that SIG Testing manages

Gopherage

<table>
<thead>
<tr>
<th>File</th>
<th>master</th>
<th>1.12</th>
<th>1.11</th>
</tr>
</thead>
<tbody>
<tr>
<td>api/</td>
<td>▲49.8%</td>
<td>▲49.6%</td>
<td>48.1%</td>
</tr>
<tr>
<td>apis/</td>
<td>▲32.8%</td>
<td>▲32.6%</td>
<td>32.4%</td>
</tr>
<tr>
<td>auth/</td>
<td>9.8%</td>
<td>9.8%</td>
<td>9.8%</td>
</tr>
<tr>
<td>capabilities/</td>
<td>36.4%</td>
<td>36.4%</td>
<td>36.4%</td>
</tr>
<tr>
<td>client/</td>
<td>1.3%</td>
<td>1.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>controller/</td>
<td>30.2%</td>
<td>▲30.3%</td>
<td>28.1%</td>
</tr>
<tr>
<td>credentialprovider/</td>
<td>11.1%</td>
<td>11.1%</td>
<td>11.1%</td>
</tr>
<tr>
<td>features/</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>fieldpath/</td>
<td>51.4%</td>
<td>51.4%</td>
<td>51.4%</td>
</tr>
<tr>
<td>kubeadm/server/</td>
<td>2.8%</td>
<td>2.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>kubectl/</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>kubelet/</td>
<td>▲39.4%</td>
<td>▲39.0%</td>
<td>38.3%</td>
</tr>
<tr>
<td>master/</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
</tr>
<tr>
<td>printers/</td>
<td>2.1%</td>
<td>2.1%</td>
<td>2.1%</td>
</tr>
<tr>
<td>probe/</td>
<td>50.2%</td>
<td>50.2%</td>
<td>50.2%</td>
</tr>
<tr>
<td>proxy/</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
</tr>
<tr>
<td>quota/</td>
<td>▲6.7%</td>
<td>▼6.5%</td>
<td>6.9%</td>
</tr>
<tr>
<td>registry/</td>
<td>▲24.4%</td>
<td>▼24.2%</td>
<td>25.4%</td>
</tr>
</tbody>
</table>

Image by @bentheelder
Other projects that SIG Testing manages

Boskos
Other projects that SIG Testing manages

Velodrome
Agenda

● Prow & Github Automation
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● Case study: Knative
● Q/A
What is Knative

Products:
- Serverless Containers on GCF
- Pivotal Function Service
- riff
- GKE Serverless Add-on
- IBM Cloud Functions
- OpenFaaS
- SAP Kyma
- Red Hat Cloud Functions
- Jazz

Primitives:
- Build
- Serving
- Events

Platform:
- Kubernetes
Knative Repo Stats

- 10 repos
- 400 contributors
- 160 PR weekly
- ~60 new issues weekly
Case study: Knative

Productivity Matters!
Case study: Knative
## Case study: Knative

### Nutrition Facts

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>1 repo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amounts Per Serving:</td>
<td></td>
</tr>
<tr>
<td><strong>Serverless Component</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

### Productivity Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TimeToTriage</td>
<td>&lt;1day</td>
</tr>
<tr>
<td>TimeToMerge</td>
<td>&lt;2days</td>
</tr>
<tr>
<td>Code Coverage</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Test Flakiness</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Test Duration</td>
<td>&lt;30min</td>
</tr>
<tr>
<td>Release</td>
<td>1/day</td>
</tr>
</tbody>
</table>
Knative Contributor Productivity

- Issue mgmt
- PR mgmt
- Release mgmt
Knative Contributor Productivity

- Issue mgmt

```<!--
Pro-tip: You can leave this block commented, and it still works!

Select the appropriate areas for your issue:

/area API
/area autoscale
/area build
/area monitoring
/area networking
/area test-and-release

Classify what kind of issue this is:

/kind question
/kind bug
/kind cleanup
/kind doc
/kind feature
/kind good-first-issue
/kind process
/kind spec

-->

```

knative-prow-robot added area/API area/networking kind/bug labels 3 hours ago
Knative Contributor Productivity

- PR mgmt
  - code review
  - approval
  - automated tests
  - automated merge
Knative Contributor Productivity

- Automated coverage detection

The following is the coverage report on pkg/

Say /test pull-knative-serving-go-coverage to re-run this coverage report

<table>
<thead>
<tr>
<th>File</th>
<th>Old Coverage</th>
<th>New Coverage</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>pkg/activator/stats_reporter.go</td>
<td>78.2%</td>
<td>78.4%</td>
<td>0.2</td>
</tr>
<tr>
<td>pkg/apis/serving/v1alpha1/revision_validation.go</td>
<td>97.6%</td>
<td>93.8%</td>
<td>-3.7</td>
</tr>
<tr>
<td>pkg/autoscaler/multiscaler.go</td>
<td>92.4%</td>
<td>93.7%</td>
<td>1.3</td>
</tr>
<tr>
<td>pkg/reconciler/v1alpha1/autoscaling/kpa_scaler.go</td>
<td>86.8%</td>
<td>83.8%</td>
<td>-2.9</td>
</tr>
<tr>
<td>pkg/reconciler/v1alpha1/autoscaling/kpa_scaler.go</td>
<td>79.5%</td>
<td>79.0%</td>
<td>-0.5</td>
</tr>
</tbody>
</table>

- Prompted action

PR Dashboard

<table>
<thead>
<tr>
<th>Repo</th>
<th>Number</th>
<th>Author</th>
<th>Status</th>
<th>Updated</th>
<th>Assignees</th>
<th>Size</th>
<th>Title</th>
<th>ACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>knative/serving</td>
<td>2309</td>
<td>tonghia</td>
<td>Needs Review</td>
<td>Oct 25</td>
<td>ImJasonH, jessiezc</td>
<td>XXL</td>
<td>[WIP] Start testing our code with Istio 1.1.0 prerelease</td>
<td></td>
</tr>
<tr>
<td>knative/serving</td>
<td>2303</td>
<td>tonghia</td>
<td>Needs Review</td>
<td>Oct 24</td>
<td>adrcunha, jessiezc, steuhs</td>
<td>L</td>
<td>Refactor building part of hack/release.sh into generate-yamls.sh</td>
<td></td>
</tr>
<tr>
<td>knative/test-infra</td>
<td>208</td>
<td>dprotasso</td>
<td>Needs Review</td>
<td>Oct 24</td>
<td>adrcunha, jessiezc, steuhs</td>
<td>XS</td>
<td>Expose docker daemon in knative/build e2e tests</td>
<td></td>
</tr>
</tbody>
</table>
Automated nightly release

- cron: "1 8 * * *" # Run at 08:01 PST every day (08:01 UTC)
- name: ci-knative-serving-release
- agent: kubernetes
- labels:
  - preset-service-account: "true"
  - preset-bazel-scratch-dir: "true"
  - preset-bazel-remote-cache-enabled: "true"
- spec:
  - containers:
    - image: gcr.io/knative-tests/test-infra/prow-tests:latest
    - imagePullPolicy: Always
    - args:
      - --scenario=kubernetes_execute_bazel
      - --clean
      - --job=${JOB_NAME}
      - --repo=github.com/knative/serving
      - --root=/go/src
      - --service-account=/etc/service-account/service-account.json
      - --upload=gs://knative-prow/logs
      - --timeout=900 # 1.5h
      - # end bootstrap args, scenario args below
      - # end kubernetes_execute_bazel flags (consider following flags as text)
      - ./hack/release.sh
      - --publish
      - --tag-release
Knative Product Health

- Code coverage
- Release velocity
- Build refreshness
- Performance
- Test flakiness
- Test duration

```
how 35 total tests (no results in last 10+ runs)

<table>
<thead>
<tr>
<th>Test Path</th>
<th>10-25</th>
<th>10-24</th>
<th>10-23</th>
<th>10-22</th>
<th>10-21</th>
<th>10-20</th>
<th>10-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>github.com/knative/serving/pkg/activator/dedupe.go</td>
<td>91.6</td>
<td>91.7</td>
<td>91.8</td>
<td>91.8</td>
<td>91.9</td>
<td>91.9</td>
<td>91.9</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/handler/concurrency_reporter.go</td>
<td>93.1</td>
<td>93.1</td>
<td>93.1</td>
<td>93.1</td>
<td>93.1</td>
<td>93.1</td>
<td>93.1</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/handler/enforce_length_handler.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/handler/filtering_handler.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/handler/handler.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/handler/requestevent_handler.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/revision.go</td>
<td>81.0</td>
<td>81.0</td>
<td>81.0</td>
<td>82.1</td>
<td>82.1</td>
<td>82.1</td>
<td>82.1</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/status_reporter.go</td>
<td>78.4</td>
<td>78.2</td>
<td>78.2</td>
<td>78.2</td>
<td>78.2</td>
<td>78.2</td>
<td>78.2</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/util/header.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/util/rewinder.go</td>
<td>92.9</td>
<td>92.9</td>
<td>92.9</td>
<td>92.9</td>
<td>92.9</td>
<td>92.9</td>
<td>92.9</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/activator/util/transport.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/apis/autoscaling/v1alpha1/Kpa_defaults.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/apis/autoscaling/v1alpha1/kpa_types.go</td>
<td>63.2</td>
<td>63.2</td>
<td>63.2</td>
<td>63.2</td>
<td>63.2</td>
<td>63.2</td>
<td>63.2</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/apis/autoscaling/v1alpha1/kpa_validation.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/apis/autoscaling/v1alpha1/register.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>github.com/knative/serving/pkg/apis/networking/v1alpha1/cluster ingress_defaults.go</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
```
Knative - Take Away

- What is “Nutrition Facts” for your products?
- How “SIG Testing” can help?
Contribute!

Everyone can contribute to sig-testing!

Look for ‘help-wanted’ labels & Send us a PR!
Where to find us?

Slack:
#sig-testing
#prow
#testing-ops

Mailing list:
kubernetes-sig-testing@googlegroups.com

Github:
file issues in kubernetes/test-infra
Thanks Our Contributors!
Agenda

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Thanks!

image source: https://knowyourmeme.com/photos/1315939-this-is-fine