Cloud Lab 6

Dylan O'Donnell

C00272192

Task 1 – [Knative Functions]

https://knative.dev/docs/getting-started/about-knative-functions/

Install Knative (Serving and Eventing)

Verify Knative Serving pods:

Verify Knative Eventing pods:

```
PS C:\WINDOWS\system32> kubectl get pods -n knative-serving
NAME                       READY   STATUS            RESTARTS   AGE
activator-5656895fc6-p2v6k    1/1   Running   0          3m31s
autoscaler-7f4754ffb4-jp5pw   1/1   Running   0          3m31s
controller-cc7d86698-dws26    1/1   Running   0          3m31s
webhook-f65b5d96-42skb        1/1   Running   0          3m31s
PS C:\WINDOWS\system32> kubectl get pods -n knative-eventing
NAME                              READY   STATUS             RESTARTS   AGE
eventing-controller-6c44fd765b-cplzq   0/1   Running            0          11s
eventing-webhook-d5d5bf8c6-dk7xp       0/1   ContainerCreating  0          11s
job-sink-575d56585c-dpmf4              1/1   Running            0          11s
PS C:\WINDOWS\system32> kubectl get pods -n knative-eventing
NAME                              READY   STATUS    RESTARTS   AGE
eventing-controller-6c44fd765b-cplzq   1/1   Running   0          2m19s
eventing-webhook-d5d5bf8c6-dk7xp       1/1   Running   0          2m19s
job-sink-575d56585c-dpmf4              1/1   Running   0          2m19s
PS C:\WINDOWS\system32>
```

Had to figure out how to get func to install and work on windows, I found the release on github and added it to my environment variables on windows control panel using admin access, here running func version shows it is successful

```
PS C:\knative> winget install knative.func
The `msstore` source requires that you view the following agreements before using.
Terms of Transaction: https://aka.ms/microsoft-store-terms-of-transaction
The source requires the current machine's 2-letter geographic region to be sent to the backend service to function properly (ex. "US").

Do you agree to all the source agreements terms?
[Y] Yes  [N] No: y
No package found matching input criteria.
PS C:\knative> winget source update
Updating all sources...
Updating source: msstore...
Done
Updating source: winget...
Done
PS C:\knative> winget search knative
No package found matching input criteria.
PS C:\knative> winget search func
Name                              Id                                       Version    Match                              Source
-----------------------------------------------------------------------------------------------------------------------------
EFApp Executive Functions App     9P370RXVSSFW                             Unknown                                       msstore
FunChatBot                        9NBLGGH4T9RN                             Unknown                                       msstore
Graph 2 Function Free             9NBLGGH4MLMN                             Unknown                                       msstore
Inventory of Executive Functions  9N6VR5P83XHW                             Unknown                                       msstore
Multi Function Display            9NBLGGH6268L                             Unknown                                       msstore
Visit Funchal                     9NBLGGH557MP                             Unknown                                       msstore
functions of opencv               XP8C8ZJKFLNVDT                           Unknown                                       msstore
Azure Functions Core Tools        Microsoft.Azure.FunctionsCoreTools       4.0.7030   Command: func                      winget
func-e                            Tetrate.func-e                           1.1.4                                         winget
SwiftSearch                       wfunction.SwiftSearch                    7.5.1                                         winget
Groovy 2                          Apache.Groovy.2                          2.5.23     Tag: functional-programming       winget
Groovy 3                          Apache.Groovy.3                          3.0.24     Tag: functional-programming       winget
Groovy 4                          Apache.Groovy.4                          4.0.26     Tag: functional-programming       winget
Gleam                             Gleam.Gleam                              1.10.0     Tag: functional-programming       winget
Standard ML of New Jersey         SMLNJ.SMLNJ.Legacy                       110.99.4   Tag: functional-programming       winget
Fission CLI                       Fission.Fission.CLI                      1.21.0     Tag: functions                    winget
Janet                             JanetLang.Janet                          1.38.0     Tag: functional-language          winget
Serverless Framework              Serverless.Serverless                    3.39.0     Tag: azure-functions              winget
RHash                             RHash.RHash                              1.4.4      Tag: hash-functions               winget
Scala CLI                         VirtusLab.ScalaCLI                       1.7.1      Tag: functional                   winget
sbt                               sbt.sbt                                  1.10.11    Tag: functional                   winget
SDRangel                          f4exb.sdrangel                           7.22.6     Tag: funcube-dongle               winget
gqrx                              gqrx-sdr.gqrx                            2.17.6     Tag: funcube-dongle               winget
PS C:\knative> func version
v0.44.0
PS C:\knative>
```

Created a function


```
gqrx                             gqrx-sdr.gqrx
PS C:\knative> func version
v0.44.0
PS C:\knative> func create -l go my-func
Created go function in C:\knative\my-func
PS C:\knative>
```

func build -v


```
Copying SBOM lifecycle.sbom.cdx.json to /layers/sbom/build/buildpacksio_lifecycle/sbom.cdx.json
Copying SBOM lifecycle.sbom.spdx.json to /layers/sbom/build/buildpacksio_lifecycle/sbom.spdx.json
Copying SBOM lifecycle.sbom.syft.json to /layers/sbom/build/buildpacksio_lifecycle/sbom.syft.json
Copying SBOM launcher.sbom.cdx.json to /layers/sbom/launch/buildpacksio_lifecycle/launcher/sbom.cdx.json
Copying SBOM launcher.sbom.spdx.json to /layers/sbom/launch/buildpacksio_lifecycle/launcher/sbom.spdx.json
Copying SBOM launcher.sbom.syft.json to /layers/sbom/launch/buildpacksio_lifecycle/launcher/sbom.syft.json
Reading buildpack directory: /layers/paketo-buildpacks_go-dist
Reading buildpack directory item: build.toml
Reading buildpack directory item: go
Reading buildpack directory item: go.sbom.cdx.json
Reading buildpack directory item: go.sbom.spdx.json
Reading buildpack directory item: go.sbom.syft.json
Reading buildpack directory item: go.toml
Processing buildpack directory: /layers/paketo-buildpacks_go-dist
Reading buildpack directory: /layers/dev.knative-extensions.go
Reading buildpack directory item: app
Reading buildpack directory item: app.toml
Reading buildpack directory item: launch.toml
Processing buildpack directory: /layers/dev.knative-extensions.go
Processing launch layer: /layers/dev.knative-extensions.go/app
Reusing tarball for layer "dev.knative-extensions.go:app" with SHA: sha256:84d1964bcf92a0192f8c357025a68d766a3d893b9511a267f577785ab5216a54
Adding layer 'dev.knative-extensions.go:app'
Layer 'dev.knative-extensions.go:app' SHA: sha256:84d1964bcf92a0192f8c357025a68d766a3d893b9511a267f577785ab5216a54
Found SBOM of type launch for at /layers/sbom/launch
Reusing tarball for layer "buildpacksio/lifecycle:launch.sbom" with SHA: sha256:2fb0d7ec3f1ae30ede84cb4a1a1edd6b79998175086a0697531876455fde5287
Adding layer 'buildpacksio/lifecycle:launch.sbom'
Layer 'buildpacksio/lifecycle:launch.sbom' SHA: sha256:2fb0d7ec3f1ae30ede84cb4a1a1edd6b79998175086a0697531876455fde5287
Adding app layers
Layer 'slice-1' SHA: sha256:d317f59ce4fba12b18051a5f742d227a435dabbf1d2af69fdc6e84767d2af481
Added 1/1 app layer(s)
Reusing tarball for layer "buildpacksio/lifecycle:launcher" with SHA: sha256:06f319fcac2858bbc8aa85ba3e1fe95753de66c3b30698b0fa63fdd7f72447a3
Adding layer 'buildpacksio/lifecycle:launcher'
Layer 'buildpacksio/lifecycle:launcher' SHA: sha256:06f319fcac2858bbc8aa85ba3e1fe95753de66c3b30698b0fa63fdd7f72447a3
Reusing tarball for layer "buildpacksio/lifecycle:config" with SHA: sha256:49625c36e746edf89dd8238270e8b0e573dbfed292e161165bb9933fe0757d72
Adding layer 'buildpacksio/lifecycle:config'
Layer 'buildpacksio/lifecycle:config' SHA: sha256:49625c36e746edf89dd8238270e8b0e573dbfed292e161165bb9933fe0757d72
Reusing tarball for layer "buildpacksio/lifecycle:process-types" with SHA: sha256:83d85471d9f8a3834b4e27cf701e3f0aef220cc816d9c173c7d32cd73909a590
Adding layer 'buildpacksio/lifecycle:process-types'
Layer 'buildpacksio/lifecycle:process-types' SHA: sha256:83d85471d9f8a3834b4e27cf701e3f0aef220cc816d9c173c7d32cd73909a590
Adding label 'io.buildpacks.lifecycle.metadata'
Adding label 'io.buildpacks.build.metadata'
Adding label 'io.buildpacks.project.metadata'
Setting CNB_LAYERS_DIR=/layers
Setting CNB_APP_DIR=/workspace
Setting CNB_PLATFORM_API=0.13
Setting CNB_DEPRECATION_MODE=quiet
Prepending /cnb/process and /cnb/lifecycle to PATH
Setting WORKDIR: '/workspace'
Setting default process type 'web'
Setting ENTRYPOINT: '/cnb/process/web'
Timer: Saving index.docker.io/labuser/my-func:latest... started at 2025-04-24T11:32:25Z
Saving index.docker.io/labuser/my-func:latest...
*** Images (fe589f1ffcb1):
      index.docker.io/labuser/my-func:latest

*** Image ID: fe589f1ffcb18bfb20867ae79870f6fc4c9cdc0163cf90cf4edcda5f13ec6817

*** Manifest Size: 1504
Timer: Saving index.docker.io/labuser/my-func:latest... ran for 4.175362663s and ended at 2025-04-24T11:32:29Z
Timer: Exporter ran for 4.42702349s and ended at 2025-04-24T11:32:29Z
Timer: Cache started at 2025-04-24T11:32:29Z
Reading buildpack directory: /layers/paketo-buildpacks_go-dist
Reading buildpack directory item: build.toml
Reading buildpack directory item: go
Reading buildpack directory item: go.sbom.cdx.json
Reading buildpack directory item: go.sbom.spdx.json
Reading buildpack directory item: go.sbom.syft.json
Reading buildpack directory item: go.toml
Adding cache layer 'paketo-buildpacks/go-dist:go'
Layer 'paketo-buildpacks/go-dist:go' SHA: sha256:881e7e677c8969376c5a35ef88e39670e847ab2ccc70d82f568d6e0b3ee5969c
Reading buildpack directory: /layers/dev.knative-extensions.go
Reading buildpack directory item: app
Reading buildpack directory item: app.toml
Reading buildpack directory item: launch.toml
Found SBOM of type cache for at /layers/sbom/cache
Reusing tarball for layer "buildpacksio/lifecycle:cache.sbom" with SHA: sha256:0757376050759db2fc8e7b5bf9e8e6488eb08b718c9d7483c75a5a22f2735d41
Adding cache layer 'buildpacksio/lifecycle:cache.sbom'
Layer 'buildpacksio/lifecycle:cache.sbom' SHA: sha256:0757376050759db2fc8e7b5bf9e8e6488eb08b718c9d7483c75a5a22f2735d41
Timer: Cache ran for 1.125439667s and ended at 2025-04-24T11:32:30Z
Writing built image: 'index.docker.io/labuser/my-func:latest' at path: 'C:\knative\my-func\.func\built-image'
Function built: index.docker.io/labuser/my-func:latest
PS C:\knative\my-func>
```

Running function

```
PS C:\knative\my-func> func run
function up-to-date. Force rebuild with --build
Initializing HTTP function
listening on http port 8080
Running on host port 8080
```

(I understand it instructs to skip deploy function part but I did it anyway out of curiosity)

```
PS C:\WINDOWS\system32> curl http://localhost:8080


StatusCode       : 200
StatusDescription : OK
Content          : "GET / HTTP/1.1\r\nHost: localhost:8080\r\nConnection: Keep-Alive\r\nUser-Agent: Mozilla/5.0
                   (Windows NT; Windows NT 10.0; en-IE) WindowsPowerShell/5.1.19041.5737\r\n\r\n"
RawContent       : HTTP/1.1 200 OK
                   Content-Length: 171
                   Content-Type: text/plain; charset=utf-8
                   Date: Thu, 24 Apr 2025 11:36:49 GMT

                   "GET / HTTP/1.1\r\nHost: localhost:8080\r\nConnection: Keep-Alive\r\nUser-Agent: M...
Forms            : {}
Headers          : {[Content-Length, 171], [Content-Type, text/plain; charset=utf-8], [Date, Thu, 24 Apr 2025
                   11:36:49 GMT]}
Images           : {}
InputFields      : {}
Links            : {}
ParsedHtml       : mshtml.HTMLDocumentClass
RawContentLength : 171


PS C:\WINDOWS\system32>
```

Install Networking Layer (Kourier)

```
PS C:\WINDOWS\system32> kubectl apply -f https://github.com/knative/net-kourier/releases/download/knative-v1.14.0/kourier.yaml
namespace/kourier-system created
configmap/kourier-bootstrap created
configmap/config-kourier created
serviceaccount/net-kourier created
clusterrole.rbac.authorization.k8s.io/net-kourier created
clusterrolebinding.rbac.authorization.k8s.io/net-kourier created
deployment.apps/net-kourier-controller created
service/net-kourier-controller created
deployment.apps/3scale-kourier-gateway created
service/kourier created
service/kourier-internal created
horizontalpodautoscaler.autoscaling/3scale-kourier-gateway created
poddisruptionbudget.policy/3scale-kourier-gateway-pdb created
PS C:\WINDOWS\system32> kubectl get pods -n kourier-system
NAME                                    READY   STATUS            RESTARTS   AGE
3scale-kourier-gateway-5956c745bc-gt6zk  0/1     ContainerCreating  0          5s
PS C:\WINDOWS\system32> kubectl get pods -n kourier-system
NAME                                    READY   STATUS    RESTARTS   AGE
3scale-kourier-gateway-5956c745bc-gt6zk  1/1     Running   0          35s
PS C:\WINDOWS\system32>
```

Installed KN and created service hello


```
PS C:\WINDOWS\system32> cd ..
PS C:\WINDOWS> cd..
PS C:\> cd .\knative\
PS C:\knative> kn service create hello `
>>    --image ghcr.io/knative/helloworld-go:latest `
>>    --port 8080 `
>>    --env TARGET=World
kn : The term 'kn' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spe
the path is correct and try again.
At line:1 char:1
+ kn service create hello `
+ ~~
    + CategoryInfo          : ObjectNotFound: (kn:String) [], CommandNotFoundException
    + FullyQualifiedErrorId : CommandNotFoundException

PS C:\knative> kn version
Version:      v1.17.0
Build Date:   2025-01-22 16:25:15
Git Revision: f7347245
Supported APIs:
* Serving
  - serving.knative.dev/v1 (knative-serving v1.17.0)
* Eventing
  - sources.knative.dev/v1 (knative-eventing v1.17.0)
  - eventing.knative.dev/v1 (knative-eventing v1.17.0)
PS C:\knative> kn service create hello `
>>    --image ghcr.io/knative/helloworld-go:latest `
>>    --port 8080 `
>>    --env TARGET=World
Warning: Kubernetes default value is insecure, Knative may default this to secure in a future release: spec.template.sp
c.template.spec.containers[0].securityContext.capabilities, spec.template.spec.containers[0].securityContext.runAsNonR
rofile
Creating service 'hello' in namespace 'default':

  0.026s The Route is still working to reflect the latest desired specification.
  0.045s ...
  0.070s Configuration "hello" is waiting for a Revision to become ready.
```

Success

```
hello  http://hello.default.127.0.0.1.sslip.io    hello-00001    5m0s    1 OK / 3    Unknown    IngressNotConfigured : Ingress has not yet been reconciled.
PS C:\knative> kubectl get ingress.networking.internal.knative.dev -n default hello -o yaml
apiVersion: networking.internal.knative.dev/v1alpha1
kind: Ingress
metadata:
  annotations:
    networking.internal.knative.dev/rollout: '{"configurations":[{"configurationName":"hello","percent":100,"revisions":[{"revisionName":"hello-00001","percent":100}],"stepParams":
{}}]}'
    networking.knative.dev/ingress.class: istio.ingress.networking.knative.dev
    serving.knative.dev/creator: minikube-user
    serving.knative.dev/lastModifier: minikube-user
  creationTimestamp: "2025-04-24T12:07:24Z"
  generation: 1
  labels:
    serving.knative.dev/route: hello
    serving.knative.dev/routeNamespace: default
    serving.knative.dev/service: hello
  name: hello
  namespace: default
  ownerReferences:
  - apiVersion: serving.knative.dev/v1
    blockOwnerDeletion: true
    controller: true
    kind: Route
    name: hello
    uid: 773e65da-ceb6-4f9c-a55d-2eaaf5ba6537
  resourceVersion: "29270"
  uid: 6ec19f19-2c3d-4d0c-ae12-edc75232aaef
spec:
  httpOption: Enabled
  rules:
  - hosts:
    - hello.default
    - hello.default.svc
    - hello.default.svc.cluster.local
    http:
      paths:
      - splits:
        - appendHeaders:
            Knative-Serving-Namespace: default
            Knative-Serving-Revision: hello-00001
          percent: 100
          serviceName: hello-00001
          serviceNamespace: default
          servicePort: 80
    visibility: ClusterLocal
  - hosts:
    - hello.default.127.0.0.1.sslip.io
    http:
      paths:
      - splits:
        - appendHeaders:
            Knative-Serving-Namespace: default
            Knative-Serving-Revision: hello-00001
          percent: 100
          serviceName: hello-00001
          serviceNamespace: default
          servicePort: 80
    visibility: ExternalIP
PS C:\knative> kubectl edit configmap config-network -n knative-serving
configmap/config-network edited
PS C:\knative> kn service delete hello
Service 'hello' successfully deleted in namespace 'default'.
PS C:\knative> kubectl rollout restart deployment controller -n knative-serving
deployment.apps/controller restarted
PS C:\knative> kn service create hello ...
Error: 'service create' requires the service name given as single argument
Run 'kn.exe --help' for usage
PS C:\knative> kn service create hello ...kn service create hello `
>>   --image ghcr.io/knative/helloworld-go:latest `
>>   --port 8080 `
>>   --env TARGET=World
Error: 'service create' requires the service name given as single argument
Run 'kn.exe --help' for usage
PS C:\knative> kn service create hello `
>> --image ghcr.io/knative/helloworld-go:latest `
>> --port 8080 `
>> --env TARGET=World
Warning: Kubernetes default value is insecure, Knative may default this to secure in a future release: spec.template.spec.containers[0].securityContext.allowPrivilegeEscalation, sp
ec.template.spec.containers[0].securityContext.capabilities, spec.template.spec.containers[0].securityContext.runAsNonRoot, spec.template.spec.containers[0].securityContext.seccomp
Profile
Creating service 'hello' in namespace 'default':

  0.025s The Route is still working to reflect the latest desired specification.
  0.055s Configuration "hello" is waiting for a Revision to become ready.
  1.732s ...
  1.768s Ingress has not yet been reconciled.
  1.805s Waiting for load balancer to be ready
  1.983s Ready to serve.

Service 'hello' created to latest revision 'hello-00001' is available at URL:
http://hello.default.127.0.0.1.sslip.io
PS C:\knative>
```

Split traffic & verify

```
PS C:\knative> kn revision list
NAME          SERVICE   TRAFFIC   TAGS   GENERATION   AGE     CONDITIONS   READY   REASON
hello-00002   hello     100%             2            11s     4 OK / 4     True
hello-00001   hello                      1            7m38s   3 OK / 4     True
PS C:\knative> kn service update hello --traffic hello-00001=50 --traffic @latest=50
Warning: Kubernetes default value is insecure, Knative may default this to secure in a future release: spec.templat
ec.template.spec.containers[0].securityContext.capabilities, spec.template.spec.containers[0].securityContext.runAs
Profile
Updating Service 'hello' in namespace 'default':

  0.016s The Route is still working to reflect the latest desired specification.
  0.047s Ingress has not yet been reconciled.
  0.075s Waiting for load balancer to be ready
  0.257s Ready to serve.

Service 'hello' with latest revision 'hello-00002' (unchanged) is available at URL:
http://hello.default.127.0.0.1.sslip.io
PS C:\knative> kn revision list
NAME          SERVICE   TRAFFIC   TAGS   GENERATION   AGE     CONDITIONS   READY   REASON
hello-00002   hello     50%              2            20s     4 OK / 4     True
hello-00001   hello     50%              1            7m47s   3 OK / 4     True
PS C:\knative>
```

Verify knative events

```
PS C:\knative> kubectl get pods -n knative-eventing
NAME                                     READY   STATUS    RESTARTS        AGE
eventing-controller-6c44fd765b-cplzq     1/1     Running   2 (56m ago)     88m
eventing-webhook-d5d5bf8c6-dk7xp         1/1     Running   2 (56m ago)     88m
job-sink-575d56585c-dpmf4                1/1     Running   3 (56m ago)     88m
PS C:\knative>
```

Veriufy default broker layer

```
PS C:\knative> kubectl get pods -n knative-eventing
NAME                                     READY   STATUS    RESTARTS        AGE
eventing-controller-6c44fd765b-cplzq     1/1     Running   2 (57m ago)     89m
eventing-webhook-d5d5bf8c6-dk7xp         1/1     Running   2 (57m ago)     89m
imc-controller-999f59484-zmpww           1/1     Running   0               20s
imc-dispatcher-c5f6f5655-d2rlw           1/1     Running   0               20s
job-sink-575d56585c-dpmf4                1/1     Running   3 (56m ago)     89m
mt-broker-controller-7c9f5d749b-clpw8    0/1     Running   0               11s
mt-broker-filter-6d6c4cc655-2gt9c        1/1     Running   0               11s
mt-broker-ingress-74b9c8d4cb-8nqtj       1/1     Running   0               11s
PS C:\knative>
```

Needed to make a yaml file to work , here is output

```
PS C:\knative> kubectl apply -f broker.yaml
broker.eventing.knative.dev/default created
PS C:\knative> kubectl get broker -n knative-eventing-lab -w
NAME      URL                                                                                    AGE   READY   REASON
default   http://broker-ingress.knative-eventing.svc.cluster.local/knative-eventing-lab/default  2s    True
```

Event-display.yaml verified

```
service.serving.knative.dev/event-display configured
PS C:\knative> kubectl get ksvc event-display -n knative-eventing-lab
NAME            URL                                                            LATESTCREATED       LATESTREADY         READY   REASON
event-display   http://event-display.knative-eventing-lab.127.0.0.1.sslip.io  event-display-00001  event-display-00001  True
PS C:\knative>
```

Create and verify trigger.yaml

```
service.serving.knative.dev/event-display configured
PS C:\knative> kubectl get ksvc event-display -n knative-eventing-lab
NAME            URL                                                            LATESTCREATED       LATESTREADY         READY   REASON
event-display   http://event-display.knative-eventing-lab.127.0.0.1.sslip.io  event-display-00001  event-display-00001  True
PS C:\knative> kubectl apply -f trigger.yaml
trigger.eventing.knative.dev/event-display-trigger created
PS C:\knative> kubectl get trigger -n knative-eventing-lab
NAME                   BROKER    SUBSCRIBER_URI                                                      AGE   READY   REASON
event-display-trigger  default   http://event-display.knative-eventing-lab.svc.cluster.local        3s    True
PS C:\knative>
```

create and verify pingsource.yaml

```
PS C:\knative> kubectl apply -f pingsource.yaml
pingsource.sources.knative.dev/hello-pingsource created
PS C:\knative> kubectl get pingsource hello-pingsource -n knative-eventing-lab -o yaml
apiVersion: sources.knative.dev/v1
kind: PingSource
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion":"sources.knative.dev/v1","kind":"PingSource","metadata":{"annotations":{},"name":"hello-pingsource","namespace":"knative-eventing-lab"},"spec":
pplication/json","data":"{\"message\":\"Hello from PingSource!\"}","schedule":"*/1 * * * *","sink":{"ref":{"apiVersion":"eventing.knative.dev/v1","kind":"Broker","
}}
    sources.knative.dev/creator: minikube-user
    sources.knative.dev/lastModifier: minikube-user
  creationTimestamp: "2025-04-24T12:33:55Z"
  finalizers:
  - pingsources.sources.knative.dev
  generation: 1
  name: hello-pingsource
  namespace: knative-eventing-lab
  resourceVersion: "37687"
  uid: c7211b6b-ffb7-4731-9390-e8222d963713
spec:
  contentType: application/json
  data: '{"message":"Hello from PingSource!"}'
  schedule: '*/1 * * * *'
  sink:
    ref:
      apiVersion: eventing.knative.dev/v1
      kind: Broker
      name: default
status:
  ceAttributes:
  - source: /apis/v1/namespaces/knative-eventing-lab/pingsources/hello-pingsource
    type: dev.knative.sources.ping
  conditions:
  - lastTransitionTime: "2025-04-24T12:33:55Z"
    message: Deployment does not have minimum availability.
    reason: MinimumReplicasUnavailable
    status: "False"
    type: Deployed
  - lastTransitionTime: "2025-04-24T12:33:55Z"
    reason: authentication-oidc feature disabled
    status: "True"
    type: OIDCIdentityCreated
  - lastTransitionTime: "2025-04-24T12:33:55Z"
    message: Deployment does not have minimum availability.
    reason: MinimumReplicasUnavailable
    status: "False"
    type: Ready
  - lastTransitionTime: "2025-04-24T12:33:55Z"
    status: "True"
    type: SinkProvided
  observedGeneration: 1
  sinkUri: http://broker-ingress.knative-eventing.svc.cluster.local/knative-eventing-lab/default
PS C:\knative>
```

Payload

```
PS C:\knative> kubectl get pods -n knative-eventing-lab -l serving.knative.dev/service=event-display
NAME                                              READY   STATUS    RESTARTS   AGE
event-display-00001-deployment-64695cb99f-6fq66   2/2     Running   0          3m35s
PS C:\knative> kubectl logs -n knative-eventing-lab event-display-00001-deployment-64695cb99f-6fq66 -c user-container --tail=50
  time: 2025-04-24T12:35:00.489893173Z
  datacontenttype: application/json
Extensions,
  knativearrivaltime: 2025-04-24T12:35:00.49191702Z
Data,
  {
    "message": "Hello from PingSource!"
  }
☐☐ cloudevents.Event
Context Attributes,
  specversion: 1.0
  type: dev.knative.sources.ping
  source: /apis/v1/namespaces/knative-eventing-lab/pingsources/hello-pingsource
  id: 9ef4c19e-6323-44b3-bc4c-2fe17ed87263
  time: 2025-04-24T12:36:00.046283504Z
  datacontenttype: application/json
Extensions,
  knativearrivaltime: 2025-04-24T12:36:00.048058814Z
Data,
  {
    "message": "Hello from PingSource!"
  }
☐☐ cloudevents.Event
Context Attributes,
  specversion: 1.0
  type: dev.knative.sources.ping
  source: /apis/v1/namespaces/knative-eventing-lab/pingsources/hello-pingsource
  id: 4c6bcb03-be6f-4a08-ad64-40d820d41c8a
  time: 2025-04-24T12:37:00.247803018Z
  datacontenttype: application/json
Extensions,
  knativearrivaltime: 2025-04-24T12:37:00.250126172Z
Data,
  {
    "message": "Hello from PingSource!"
  }
☐☐ cloudevents.Event
Context Attributes,
  specversion: 1.0
  type: dev.knative.sources.ping
  source: /apis/v1/namespaces/knative-eventing-lab/pingsources/hello-pingsource
  id: acabcc4c-b8ff-488c-b72a-667ddf35b8b9
  time: 2025-04-24T12:38:00.293982353Z
  datacontenttype: application/json
Extensions,
  knativearrivaltime: 2025-04-24T12:38:00.296014101Z
Data,
  {
    "message": "Hello from PingSource!"
  }
PS C:\knative>
```