

Knative Hands-On Workshop

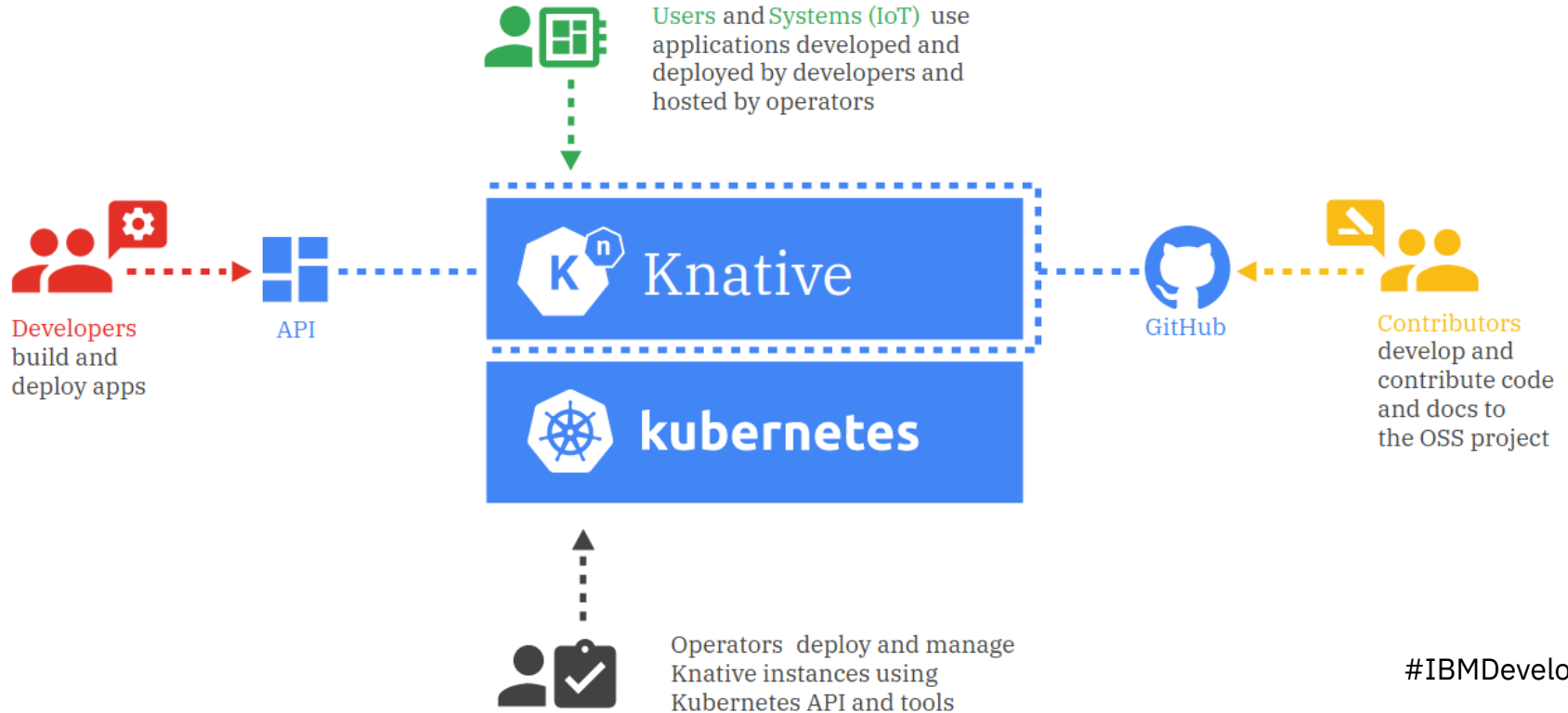
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“Knative solves the *boring but difficult* parts of deploying and managing cloud native services so you don't have to.”

`Knative.dev`

Knative addresses different personas



Knative Runtime Contract

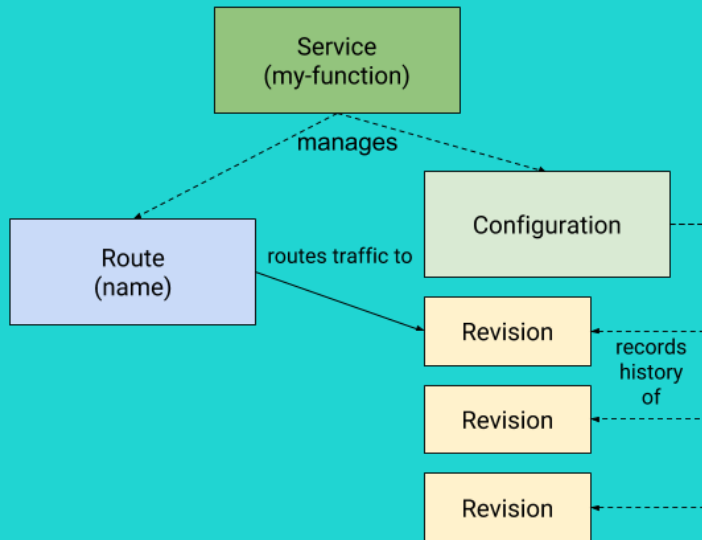
<https://github.com/knative/serving/blob/master/docs/runtime-contract.md>

*The Knative serverless compute infrastructure extends the Open Container Initiative Runtime Specification to describe the functionality and requirements for serverless execution workloads. In contrast to general-purpose containers, **stateless request-triggered** (i.e. on-demand) **autoscaled containers** have the following properties:*

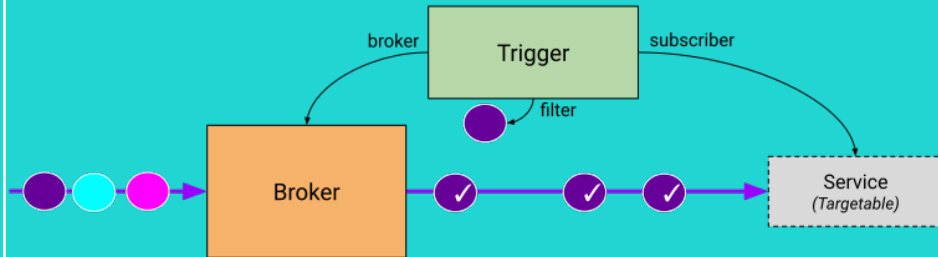
- **Little or no long-term runtime state** (especially in cases where code might be scaled to zero in the absence of request traffic).
- **Logging and monitoring aggregation (telemetry)** is important for understanding and debugging the system, as containers might be created or deleted at any time in response to autoscaling.
- **Multitenancy** is highly desirable to allow cost sharing for bursty applications on relatively stable underlying hardware resources.

Knative Components

Knative Serving



Knative Eventing (not part of this workshop)



Knative Serving resources

Service	Route	Configuration	Revision
<ul style="list-style-type: none">- Manage lifecycle- Control creation of<ul style="list-style-type: none">- Route- Configuration- Revision(s)	<ul style="list-style-type: none">- Map network endpoint to one or more revisions- Traffic Management	<ul style="list-style-type: none">- Desired state of deployment- Separation of code and configuration	<ul style="list-style-type: none">- Snapshot of code and configuration- Immutable- Scale up and down

Knative

(service.yaml)

VS.

Kubernetes

(deployment.yaml)

service.yaml:

```
apiVersion: serving.knative.dev/v1
kind: Service
metadata:
  name: authors
spec:
  template:
    metadata:
      name: authors-v1
    spec:
      containers:
        - image: docker.io/haraldu/authors:1
          env:
            - name: DATABASE
              value: 'local'
            - name: CLOUDANT_URL
              value: ''
```

deployment.yaml:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: authors
  labels:
    app: authors
    version: v1
spec:
  selector:
    matchLabels:
      app: authors
      version: v1
  strategy:
    type: Recreate
  template:
    metadata:
      labels:
        app: authors
        version: v1
    spec:
      containers:
        - image: authors:1
          name: authors
          env:
            - name: DATABASE
              value: 'local'
            - name: CLOUDANT_URL
              value: ''
          ports:
            - containerPort: 3000
              name: authors
---
apiVersion: v1
kind: Service
metadata:
  name: authors
  labels:
    app: authors
spec:
  type: NodePort
  ports:
    - port: 3000
      protocol: TCP
      name: http
  selector:
    app: authors
---
```

Knative Networking

Provides Ingress, Sidecar, etc

Select from:

- Istio
- Kourier (ex 3Scale, now Knative)
- Ambassador
- Contour
- Gloo
- Kong



Knative

Networking



kubernetes

