

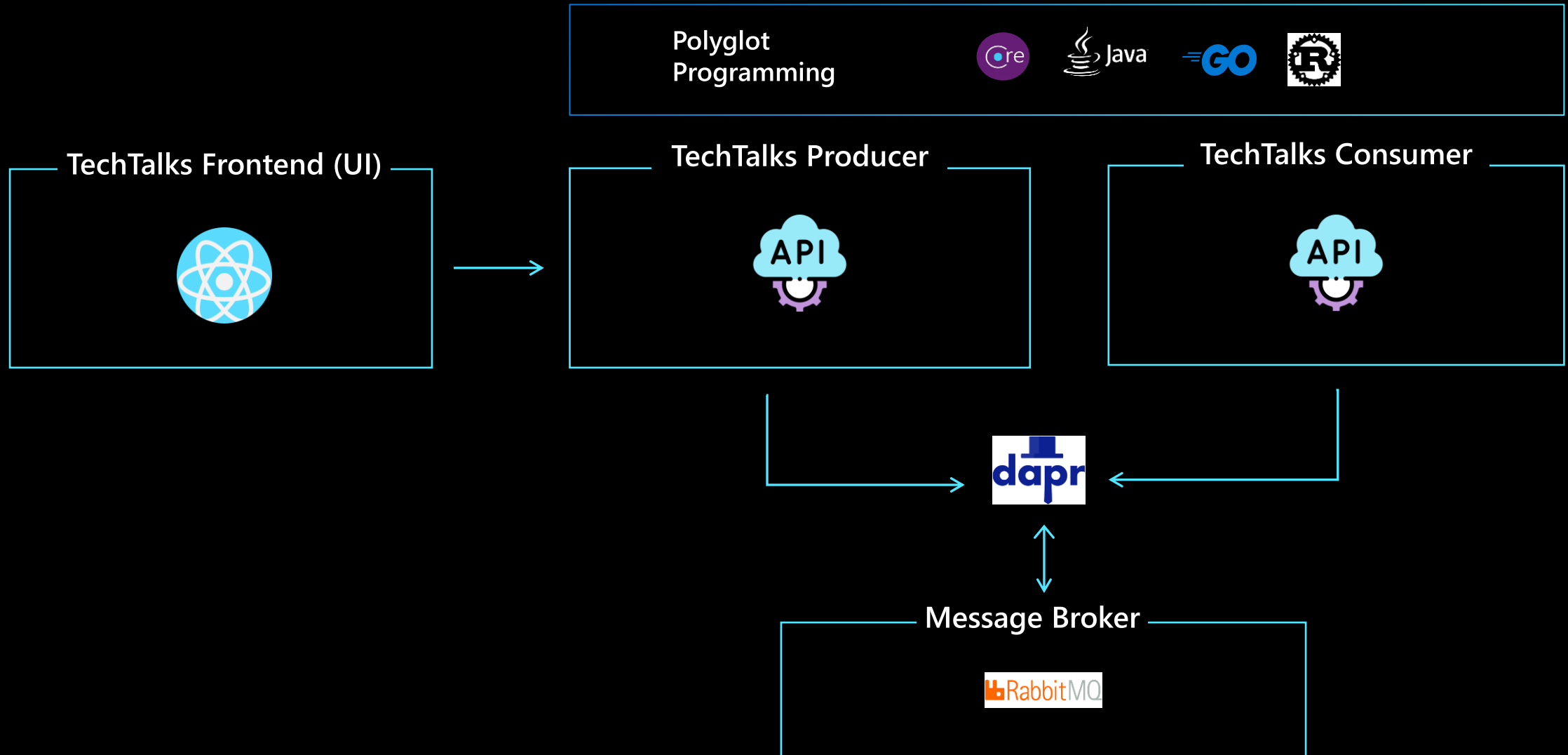
Cloud Native Ninja

Kubernetes Deployment

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TechTalks Application Architecture



What is Kubernetes Deployment?



Deployments

A *Deployment* provides declarative updates for Pods and ReplicaSets.

You describe a *desired state* in a Deployment, and the Deployment Controller changes the actual state to the desired state at a controlled rate. You can define Deployments to create new ReplicaSets, or to remove existing Deployments and adopt all their resources with new Deployments.

<https://kubernetes.io/docs/concepts/workloads/controllers/deployment/>

Pod, Deployment & ReplicaSet

Deployment : Higher level constructs for managing workloads



Pod

Smallest application building block in Kubernetes

Includes **one or more containers** that share storage and networking resources



Deployment

Management tool for controlling the behavior of pods

Works with **ReplicaSets** to run required instances of pods



ReplicaSet

Maintains a **stable set of replicas pods** running at any given time

Guarantees the availability of a specified number of identical pods

Deployment Manifest

```
1  apiVersion: apps/v1
2  kind: Deployment
3
4  metadata:
5    name: rabbitmq-producer-deployment
6    labels:
7      run: rabbitmq-producer
8      app: techtalks
9
10 spec:
11   replicas: 2
12   selector:
13     matchLabels:
14       run: rabbitmq-producer
15
16   template:
17     metadata:
18       labels:
19         run: rabbitmq-producer
20         app: techtalks
21     annotations:
22       daprio.io/enabled: "true"
23       daprio.io/app-id: "rabbitmq-producer"
24       daprio.io/app-port: "8080"
25       daprio.io/config: "zipkin"
26   spec:
27     containers:
28       - name: techtalksproducer
29         image: nileshgule/techtalksproducer:go
30
31         # env:
32         #   - name: ASPNETCORE_ENVIRONMENT
33         #     value: Development
34         ports:
35           - containerPort: 8080
36             protocol: TCP
37         resources:
38           requests:
39             cpu: "10m" #1% of a core
40             memory: "200Mi"
41           limits:
42             cpu: "50m" #5% of a core
43             memory: "500Mi"
44         imagePullPolicy: Always
45     restartPolicy: Always
46     terminationGracePeriodSeconds: 30
47     dnsPolicy: ClusterFirst
```

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Summary

- ✓ **Kubernetes Deployment:** higher level construct for managing pods
- ✓ **krew:** Kubectl plugins manager
- ✓ **Kubectl imperative commands:** a quick and easy way to create objects with default values
- ✓ **Manifest files:** Declarative way to create Kubernetes objects (recommended). Used to customize settings

Containerize Apps Resources



Cloud Native Ninja GitHub repo: <https://github.com/NileshGule/cloud-native-ninja>

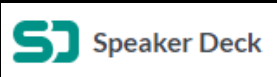
Commands : <https://github.com/NileshGule/cloud-native-ninja/blob/main/docs/10-kubernetes-deployments.md>



Slides



Slideshare: <https://www.slideshare.net/nileshgule/>



Speaker Deck: <https://speakerdeck.com/nileshgule/>