Kubernetes in 30 minutes

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Netscape Navigator











Kubernetes





κυβερνήτης









"Something to do with containers...?



Assumptions

- •You know about containers
- You know about orchestration
- •You know about the painful art of deploying stuff





Docker





"Random containers doing their own sh*t"





Compose





"Foreman on Acid"











"Clustering and Discovery"

(hey, we're getting somewhere!)







"Batteries Included"



K8s on GCP



GKE GCE Networking

...and others



Basic Concepts



Noce



Hosts running k8s daemons













Basic unit of deployment in k8s



Group of Containers





Container configurations





Shared storage





Pod

container



Pod

container

container



Pod



container

container







Scheduled together

("co-scheduled")



Guaranteed to be on the <u>same</u> node ("co-located")









Depends on each node's resource availability and each pod's resource requirements






Node Node This will NEVER happen





Miscellaneous

- Each pod has its own IP address
- Pods are expected to be stateless





Keeps track of Pod replicas































Deployment



Manages Replica Set state transitions



Deployment





























Keeps track of state change history



Deployment





















































Services



Logical set of Pods

(and ways to access them)
































Access Via Service Pod 10.0.96.2 role=web Service match role=web Pod 10.0.96.4 role=web Pod 10.0.96.5 **≪H** DF role=db Liberation of Technology





Secrets



Store pieces of data in k8s



e.g. Identity Information



(securely)



(...in the future)



Secret

key1 \rightarrow base64 value

key2 → base64 value

key3 → base64 value



Pod

container	
volumes	

container:

volumeMounts:

- name: certificates

mountPath: /etc/ssl/certs

volumes:

- name: certificates

secret:

secretName: ca-certificates



Pod



env:

- name: foo-secret
valueFrom:
secretKeyRef:
name: foo
value: secret-value



ConfigMaps



Same as Secrets (Unprotected)







Services are for within the cluster only



Inbound connections to internal cluster services (New since 1.2)





Please checkout my presentation <u>https://docs.google.com/presentation/d/</u> <u>11ZN6qgiuZZfVyhBK2hjp1vhp_5N0D0GnAmhPreS3L5A/pub?</u> <u>start=false&loop=false&delayms=3000</u>



DaemonSets



Ensure nodes run a copy of a Pod



PetSets



DelGels StatefulSets



Use only when *really* needed



Keeps unique IDs in replicas (x-0, x-1, x-2,…)



Questions?

