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The Azure Cloud Experts

Speaker: Koray Oksay

Company: Kubermatic

# Captain's Log: Day-2 Operations for Managed Kubernetes Clusters



## WHO AM I?

- Consultant / SRE / Trainer @Kubernatic
- Working remotely from Istanbul
- Interested in Linux, Kubernetes, and cloud technologies
- CKA | CKAD | CKS | RHCE



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koksay

# CAPTAIN'S LOG: STARDATE 2

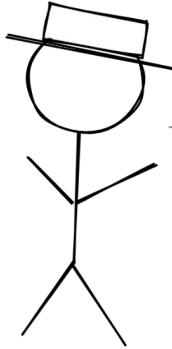
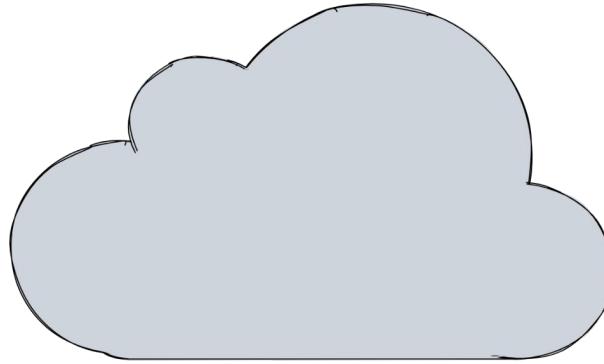
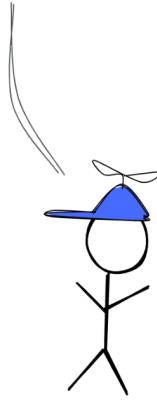


# RECAP: WHAT THOSE DAYS STAND FOR ON K8S?

- DAY 0: Design  
Which K8s platform, on which provider, security, GitOps, CI/CD, network setup, ...
- DAY 1: Deploy  
First day the product is running on Production
- DAY 2: Operate  
Maintain infra, onboard new users, monitor applications, ...  
Keep your systems healthy over time!

# CLOUD & LINUX

Daddy, what are  
clouds made of?



Linux Servers,  
mostly

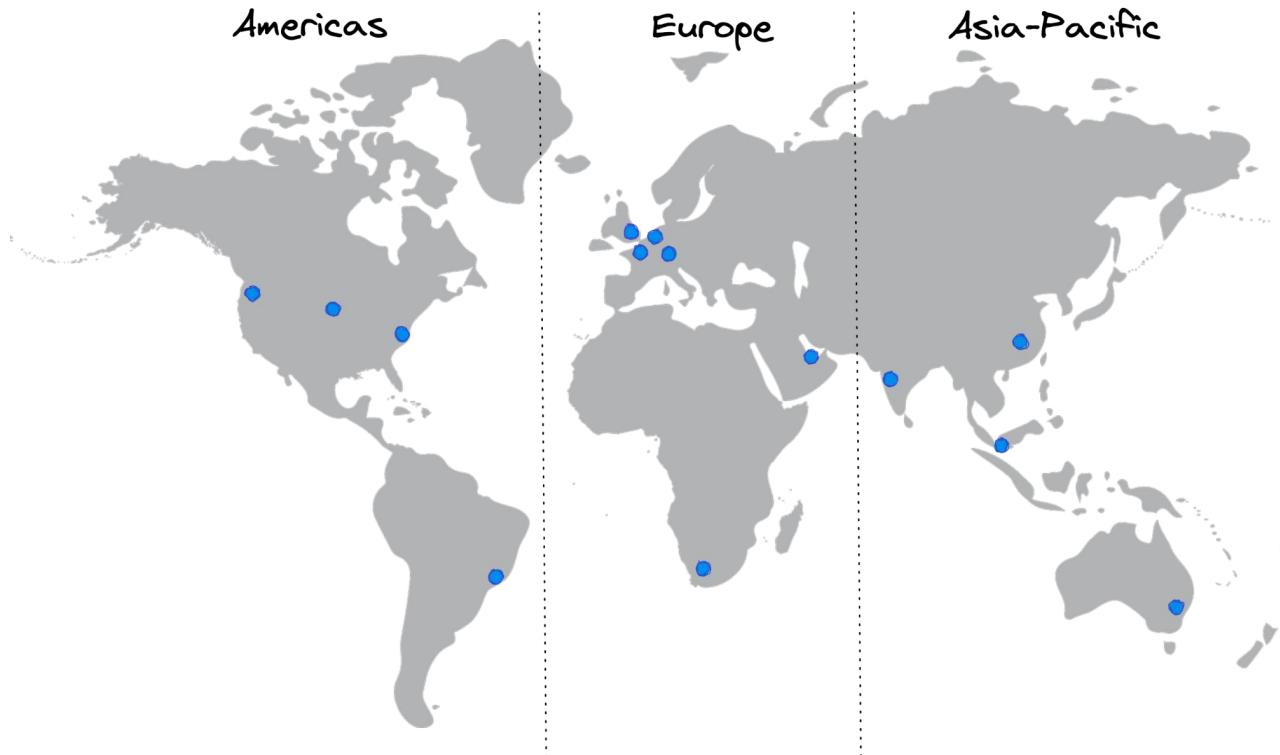
# DO I NEED LINUX SYSADMIN KNOWLEDGE FOR K8S?

- csi-driver mount issue

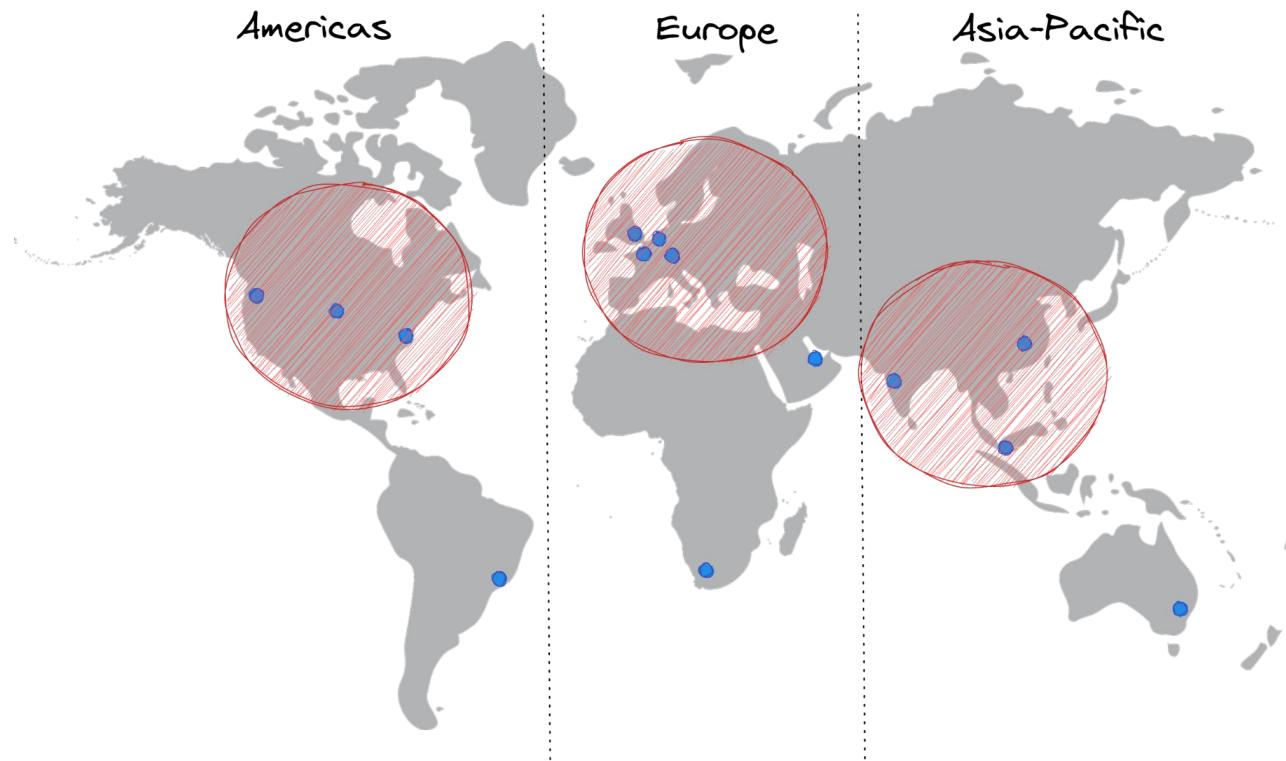
```
● ● ●  
$> kubectl -n kube-system exec -it $(kubectl get po -o name -n kube-system -lapp=csi) -c csi-driver -- sh  
sh-4.2# umount /var/lib/kubelet/plugins/kubernetes.io/csi/pv/pv-9d81d2ca-70b6-4021-a8b2-fd3ec75b439e/globalmount  
sh-4.2# exit
```

- Dockerfile demo

# CLOUD COMPUTING AND REGIONS



# SRE TEAM (OR OPERATIONS?)



# PROS & CONS OF MULTI-REGION SRE TEAM

- "Follow the sun"
- A diverse team with different perspectives
- Sync up - New projects, changes, technical knowledge
- Socializing

# MAINTENANCE WINDOWS

- Having proper notification channel(s) for upcoming maintenance activities is crucial
- Users should select their maintenance windows and also manually schedule new updates/upgrades when they need
- Selecting the maintenance window on behalf of the customer is risky (except for the emergency activities)
- Weekend night time would suit best for most customers, but this may not suit everyone (e.g. for a betting company)

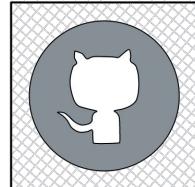
# RESPONSIBILITIES FOR A MANAGED K8S SERVICE

## Who is supposed to solve these problems?

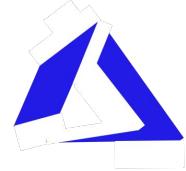
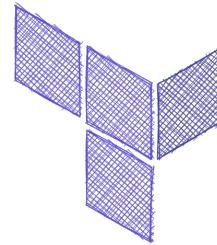
- "I deleted a namespace but it's in terminating state for 2 days"
- Did you check the finalizers?
- "Hey, after you upgraded Kubernetes version at the weekend, we lost all data in our PostgreSQL instance"
- You did not use HostPath, did you?

# ISSUES WITH 3RD PARTIES

- Hardcoded timeout value in terraform AWS provider caused provisioning failures.
- Quotas on the cloud provider side  
--> (Day 0 issue).  
Quota: 5 VPC per region,  
effectively 4 clusters per region  
due to default VPC.



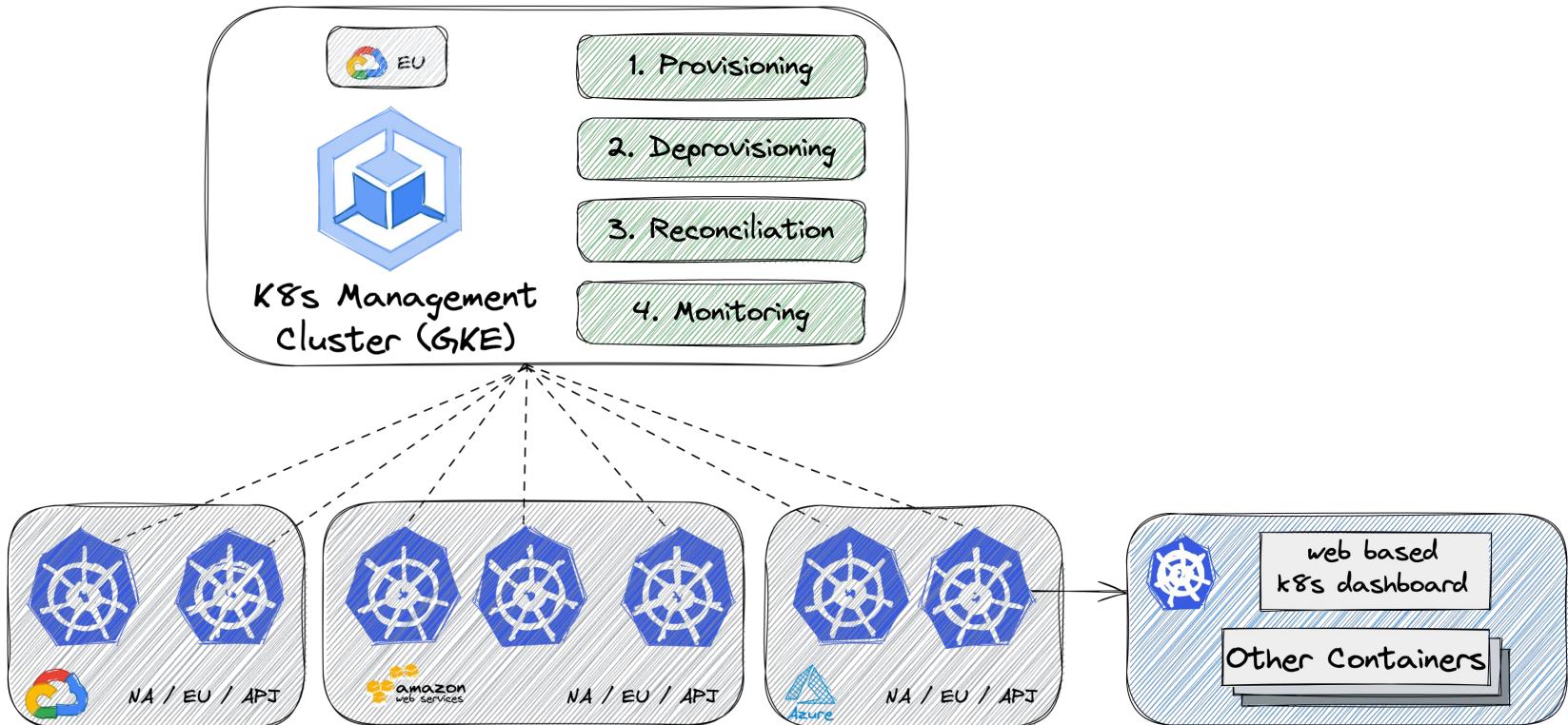
GitHub



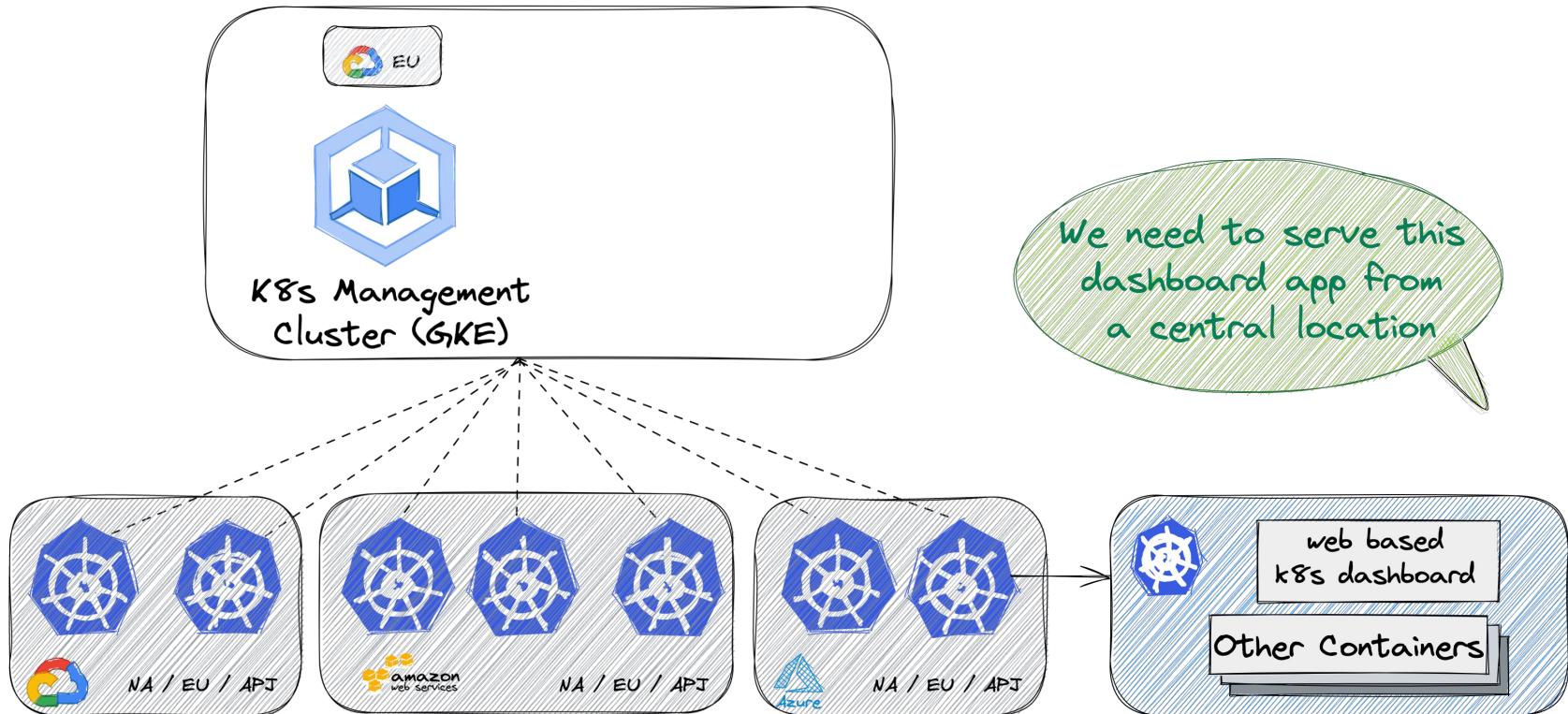
# FREE TIER, TRIAL CLUSTERS, ...

- Monitoring, monitoring, monitoring, ...  
You need a central monitoring system for all tiers!
- You need to balance the effort spent on the free tier with others. User experience is important but not more than production!
- Be careful with crypto miners! (monitor CPU usage)

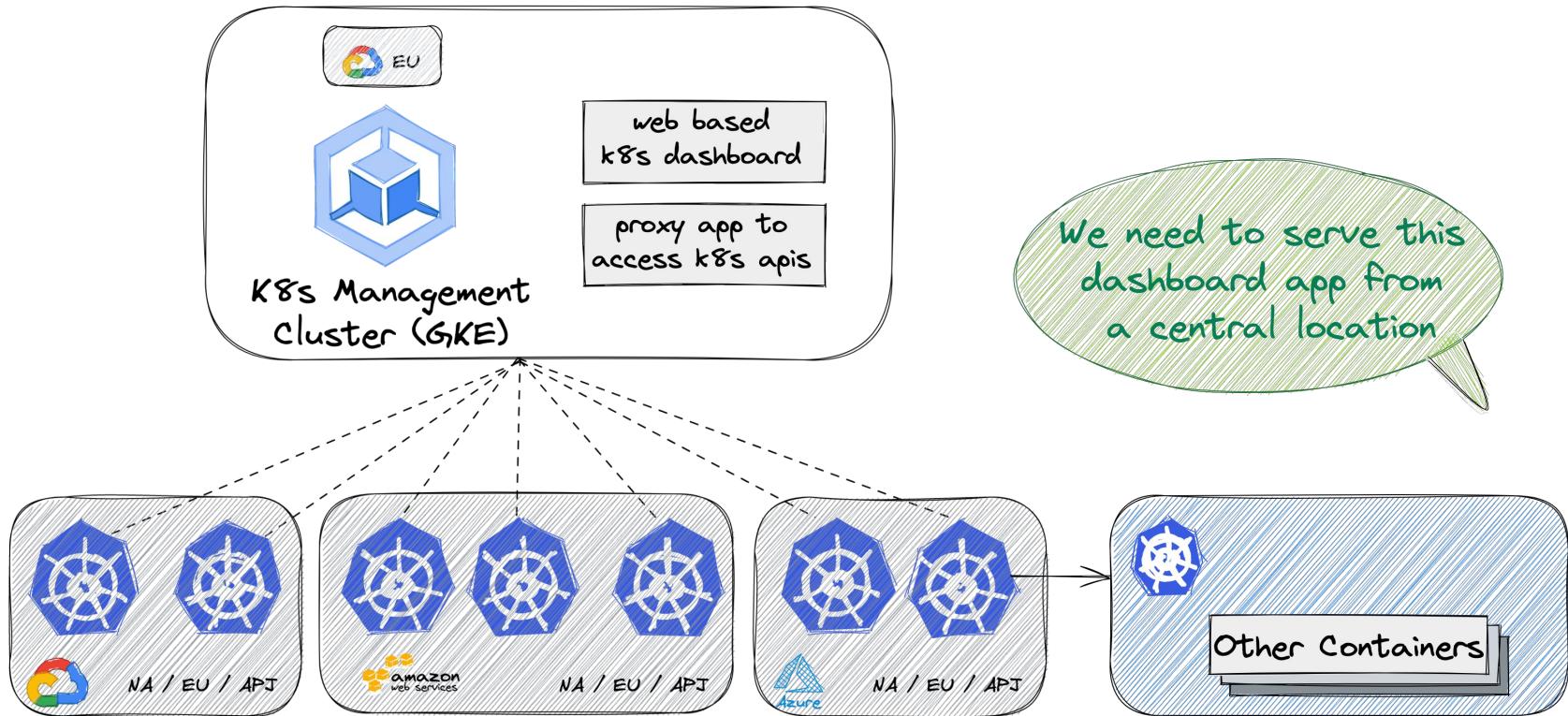
# CONSIDERING OTHER CLOUD SERVICES



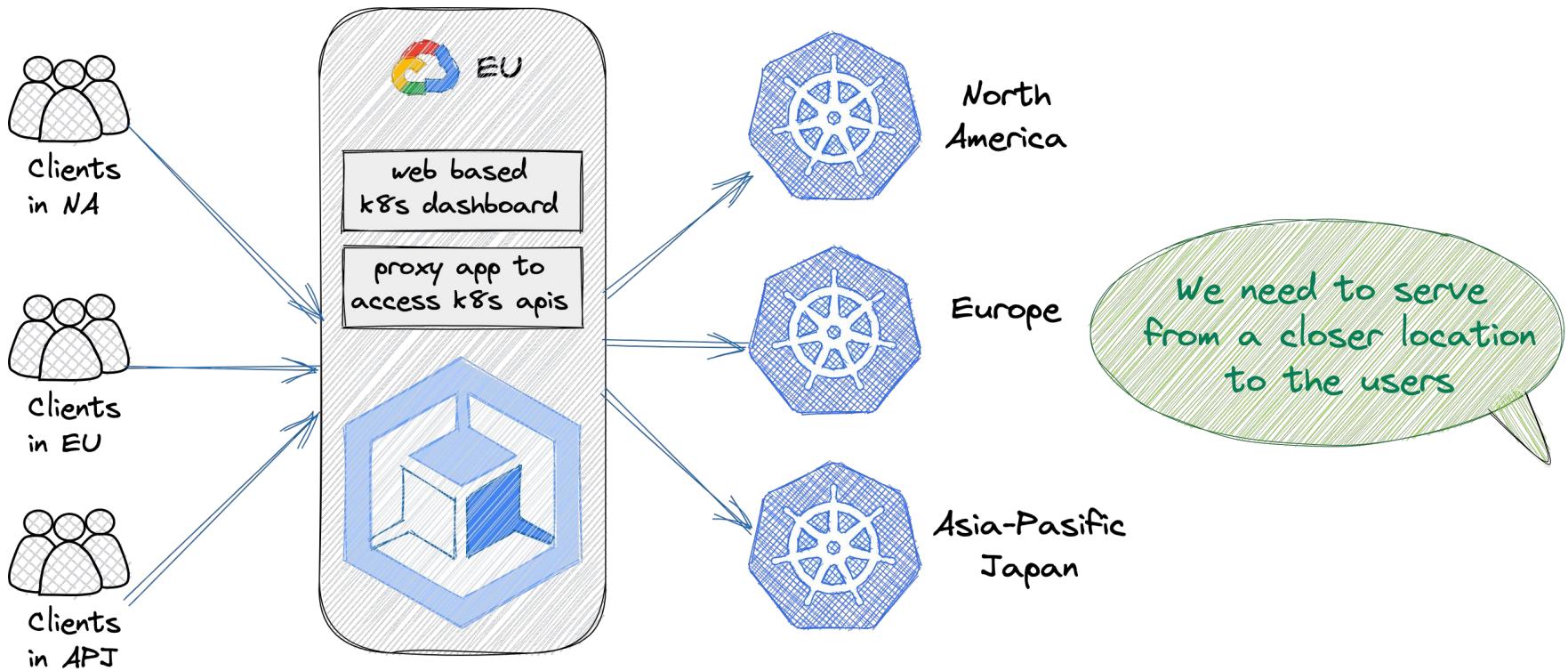
# A NEW REQUIREMENT



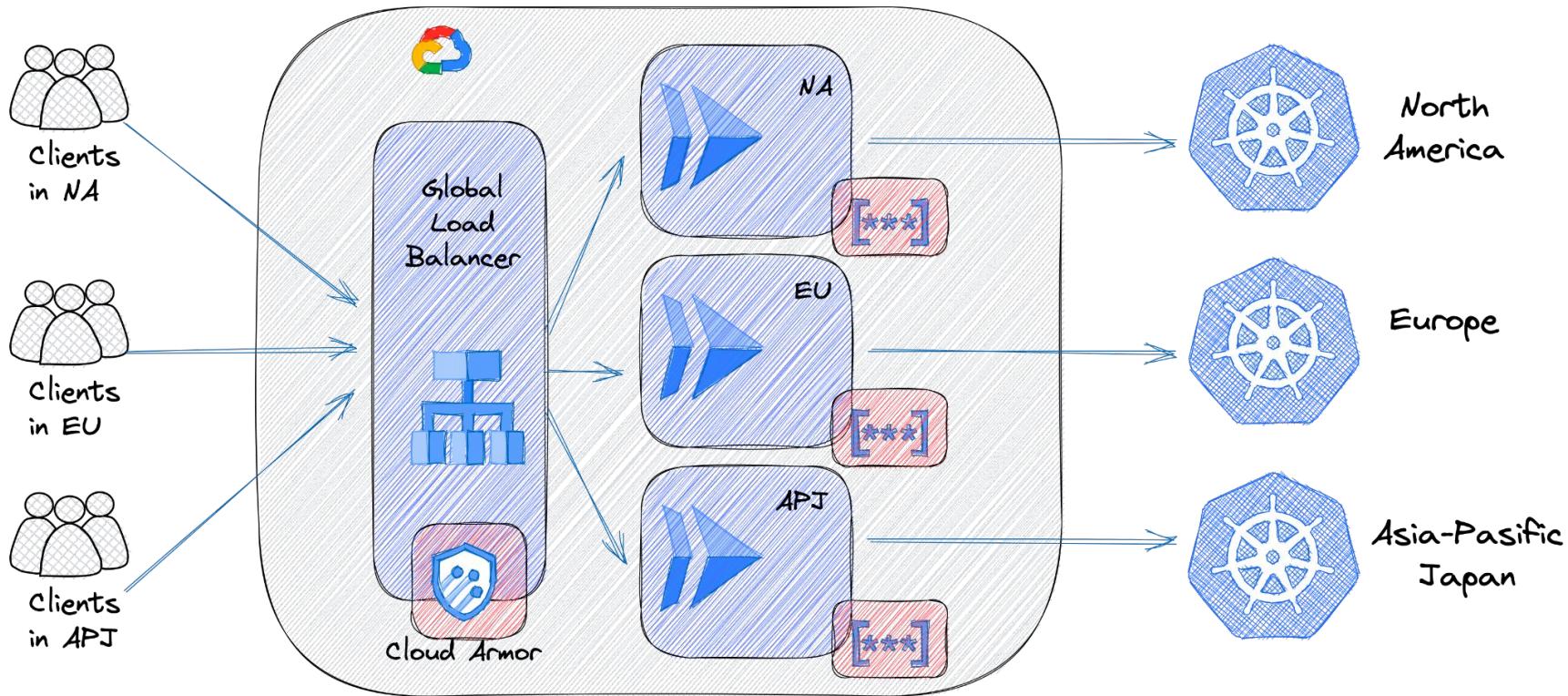
# A NEW REQUIREMENT



# YET ANOTHER REQUIREMENT



# MOVE FROM K8S TO SERVERLESS



QUESTIONS?

# THANK YOU!



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