Introduction to Kubernetes

wefox

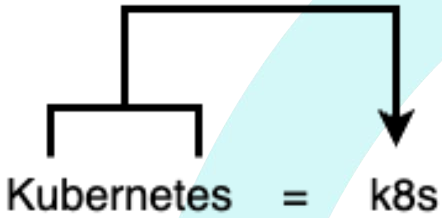
Agenda

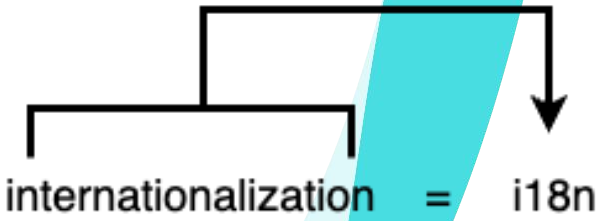
1. What is Kubernetes
2. Why kubernetes
    a. Historical context
3. Kubernetes architecture
4. Live-code

Disclaimer

What is Kubernetes?

Also known as K8s, is an open-source system for automating deployment, scaling, and management of containerized applications.





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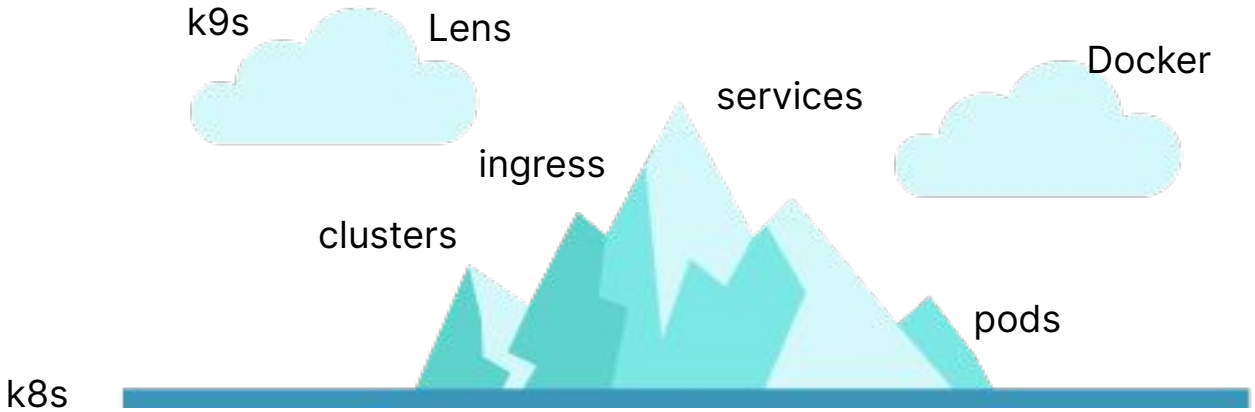
What is Kubernetes?



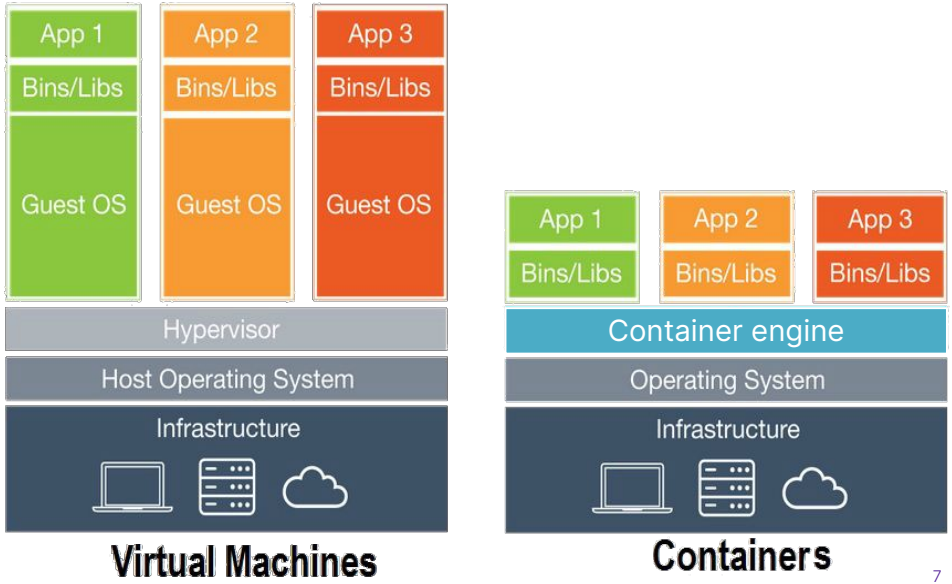
Why Kubernetes?

all paths lead to containers

Why Kubernetes?

all paths lead to containers

- 1990's - bare metal - servers with names
- 2000's - Virtual machines
- 2010's - Containers



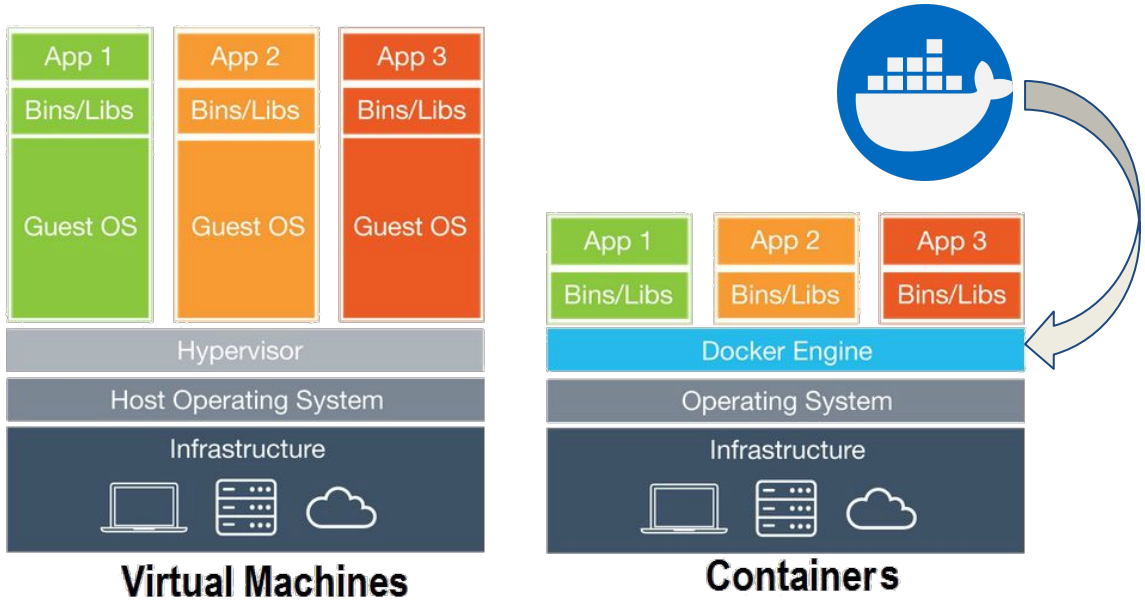
Containers = Docker?

Container

It is a type of virtualization at the operating system level that provides the execution of multiple isolated instances of a given operating system within a single host.

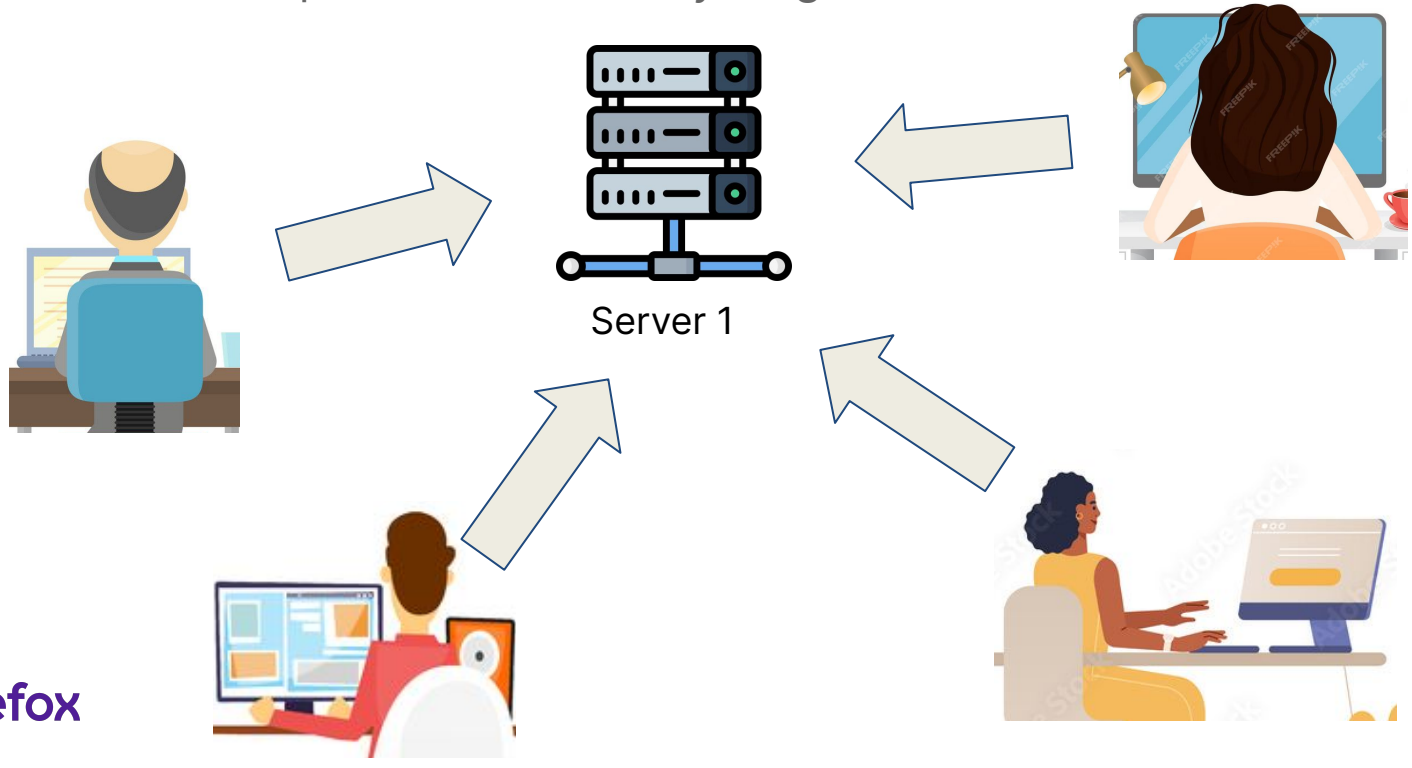
Old concept based on LCX (Containers linux)

Docker just makes easy to use containers ❤



How run containers?

- Docker run -p 8080:8080 -d myimage



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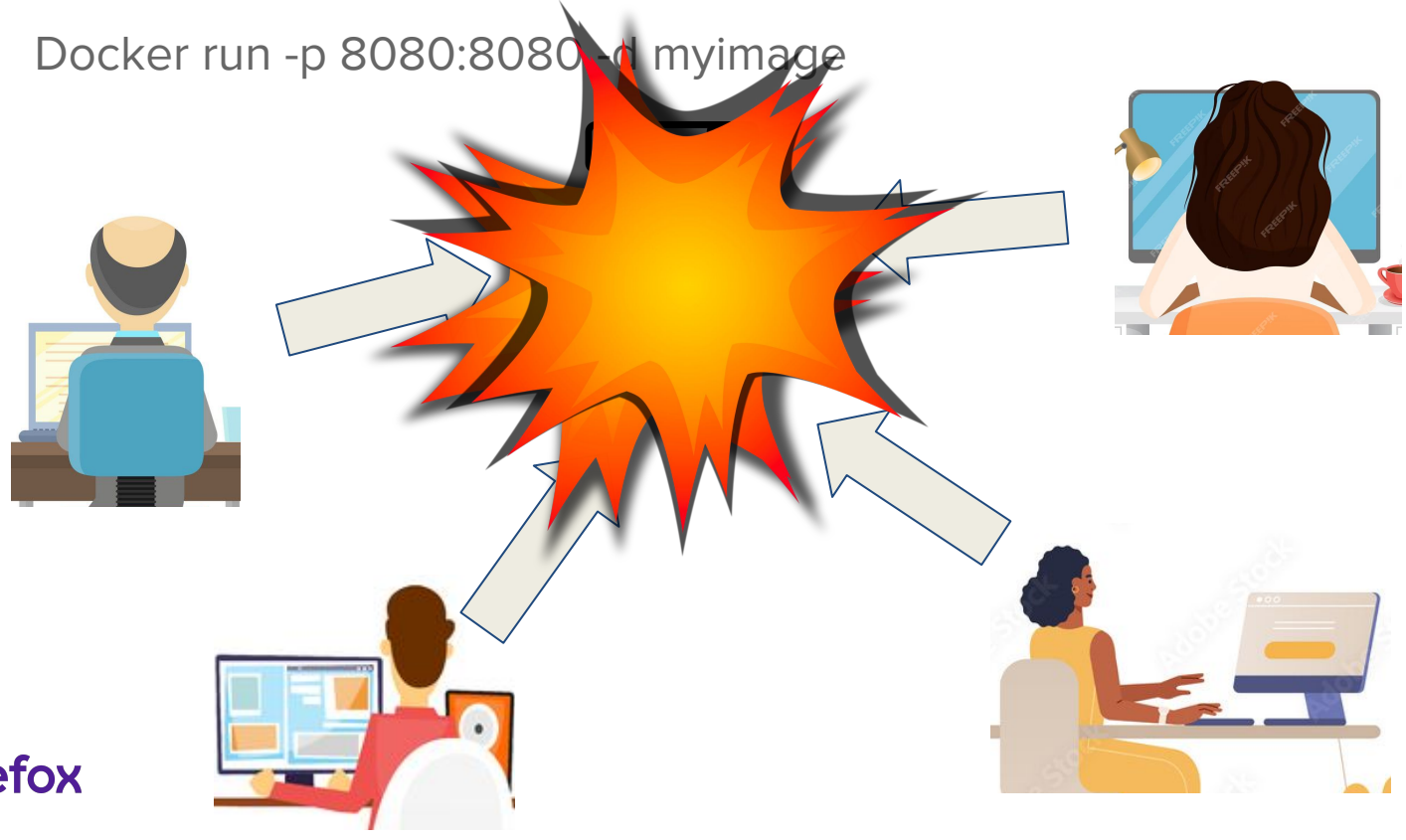
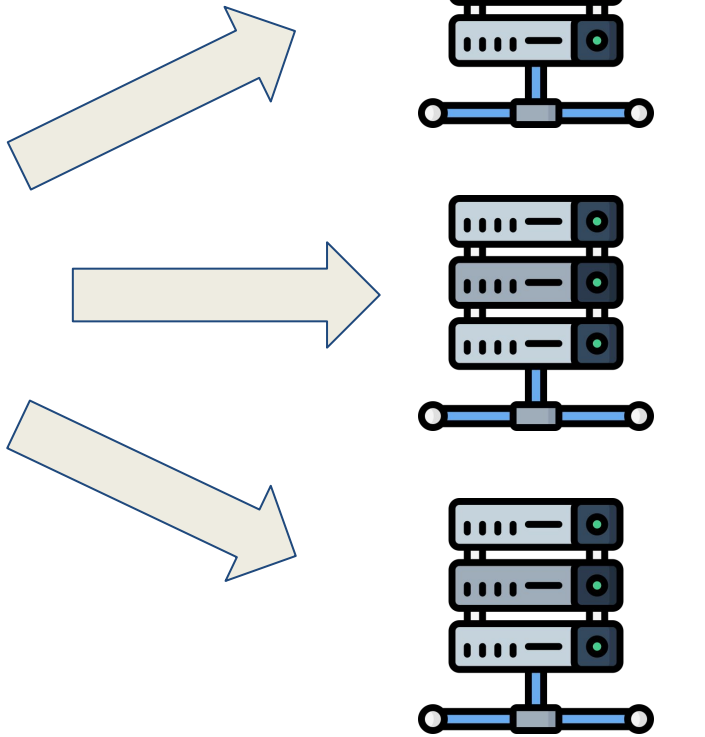
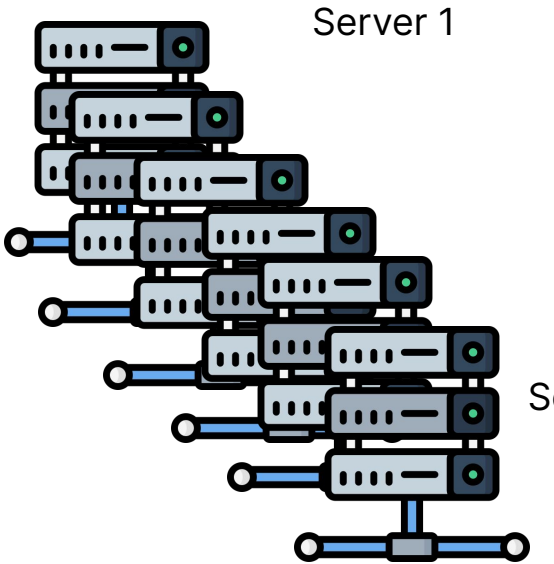


Sysadmin to rescue



Microservices mess



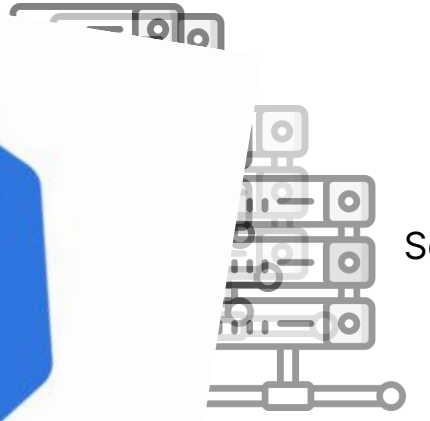
puppet

CHEF

ANSIBLE

Server 1

Microservices n



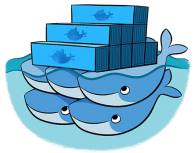
Server n

kubernetes

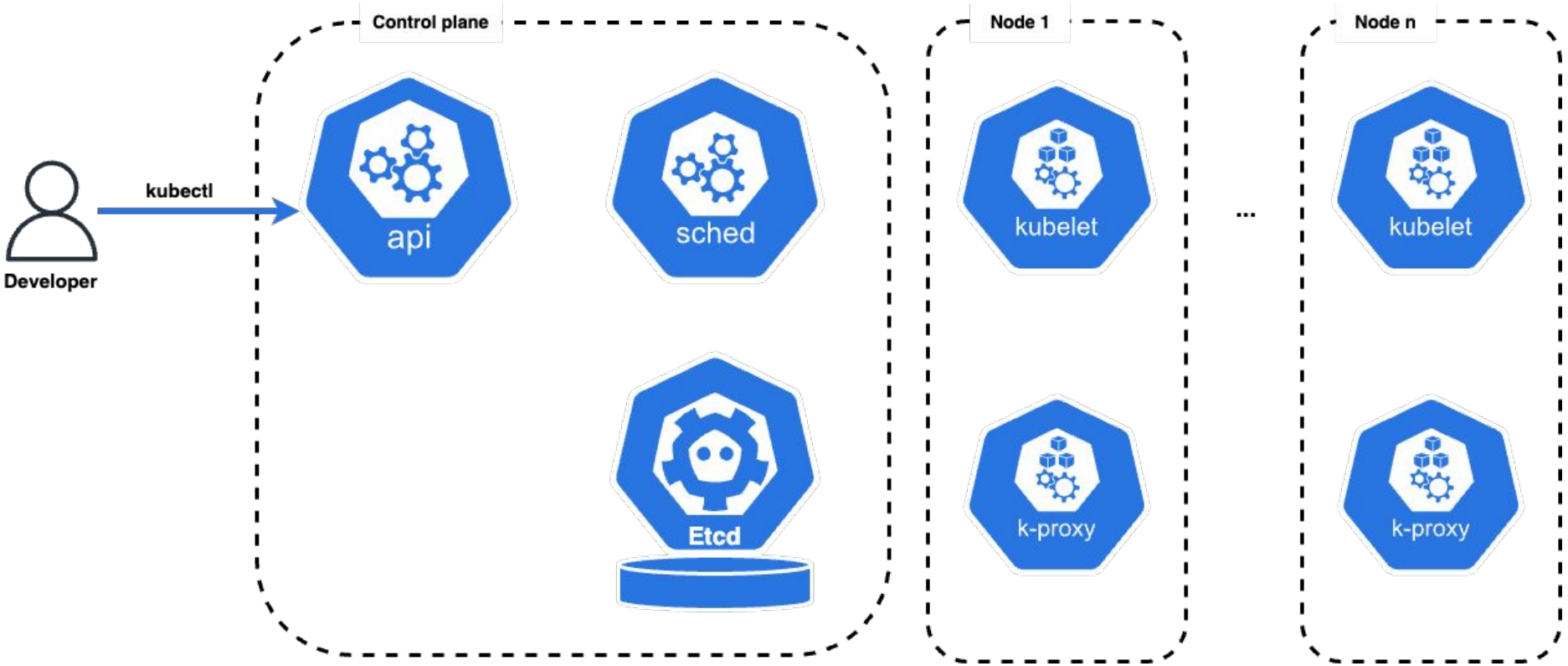
ANSIBLE

Kubernetes: The origin

- Develop by google internally
- Open to the community under the name of Kubernetes
- Won the battle to other competitors
    - Docker swarm
    - Apache mesos
    - etc...



Kubernetes architecture



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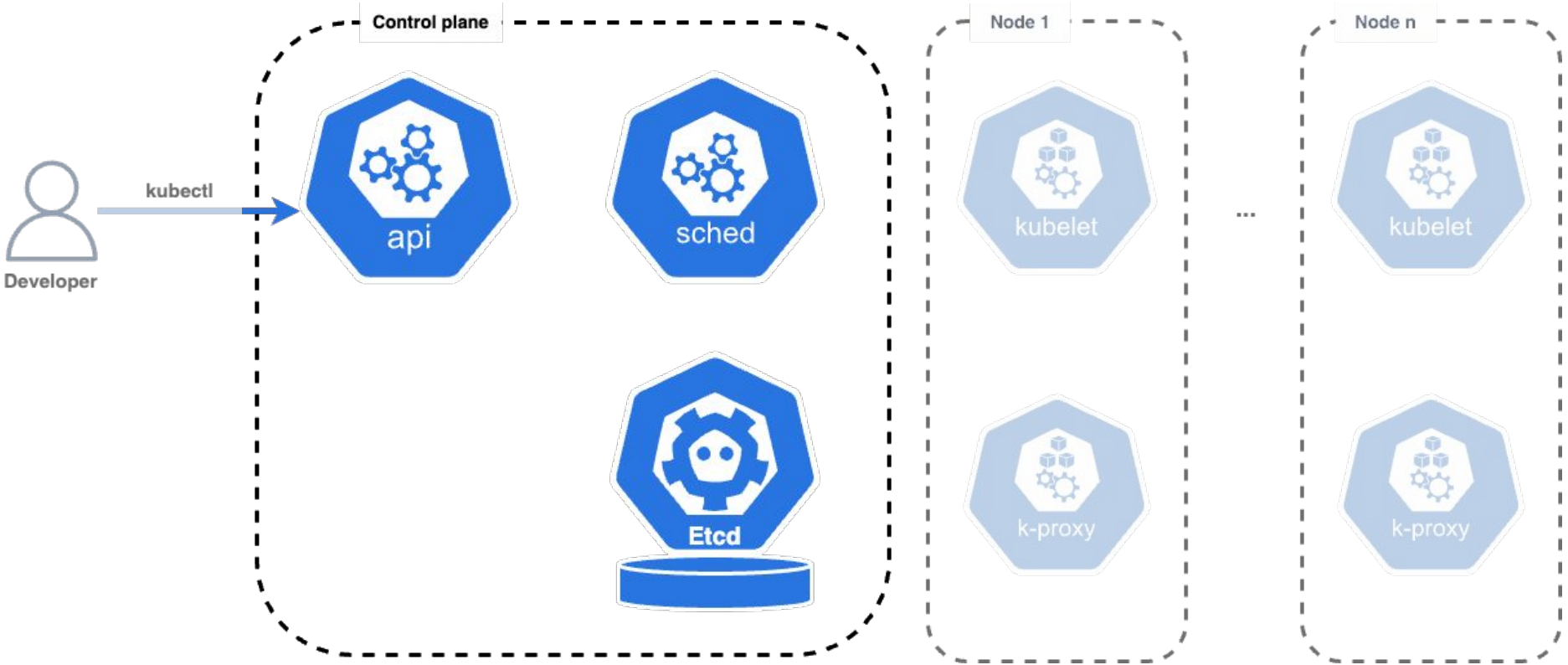

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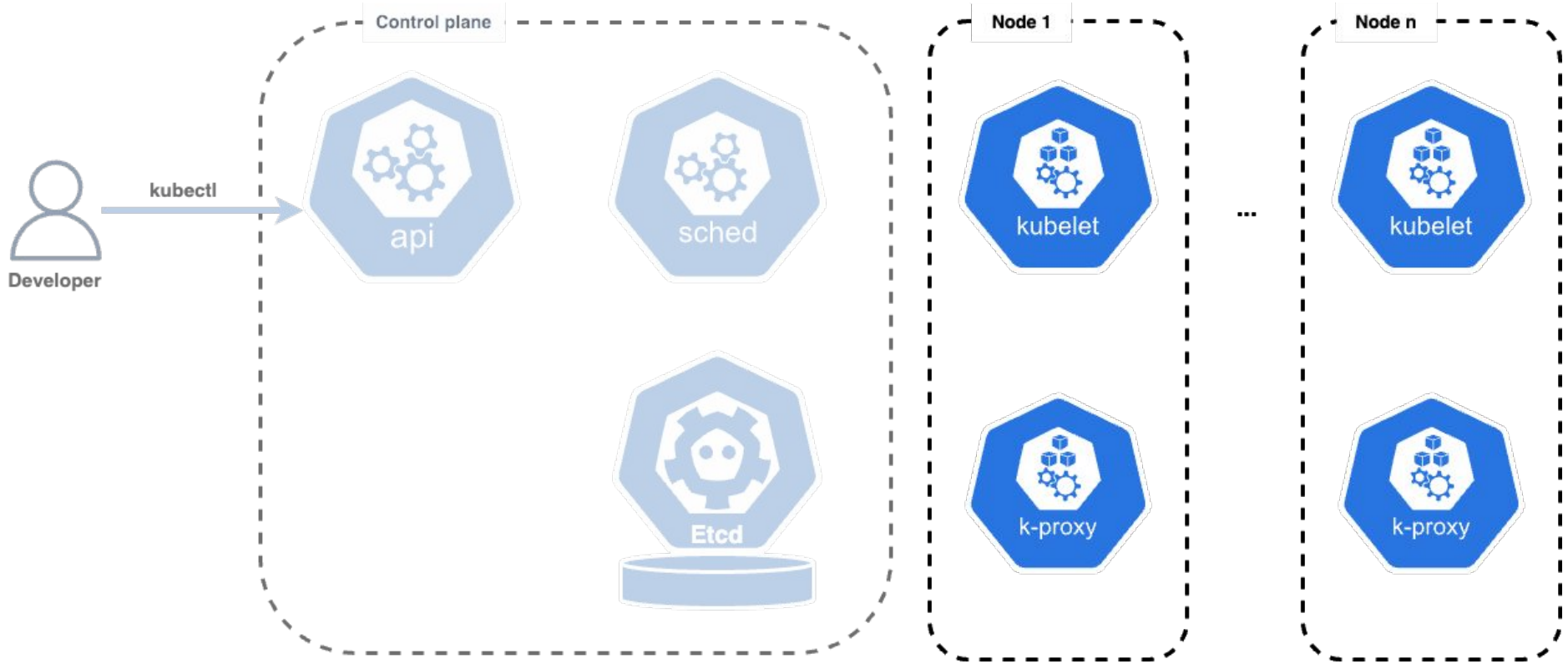

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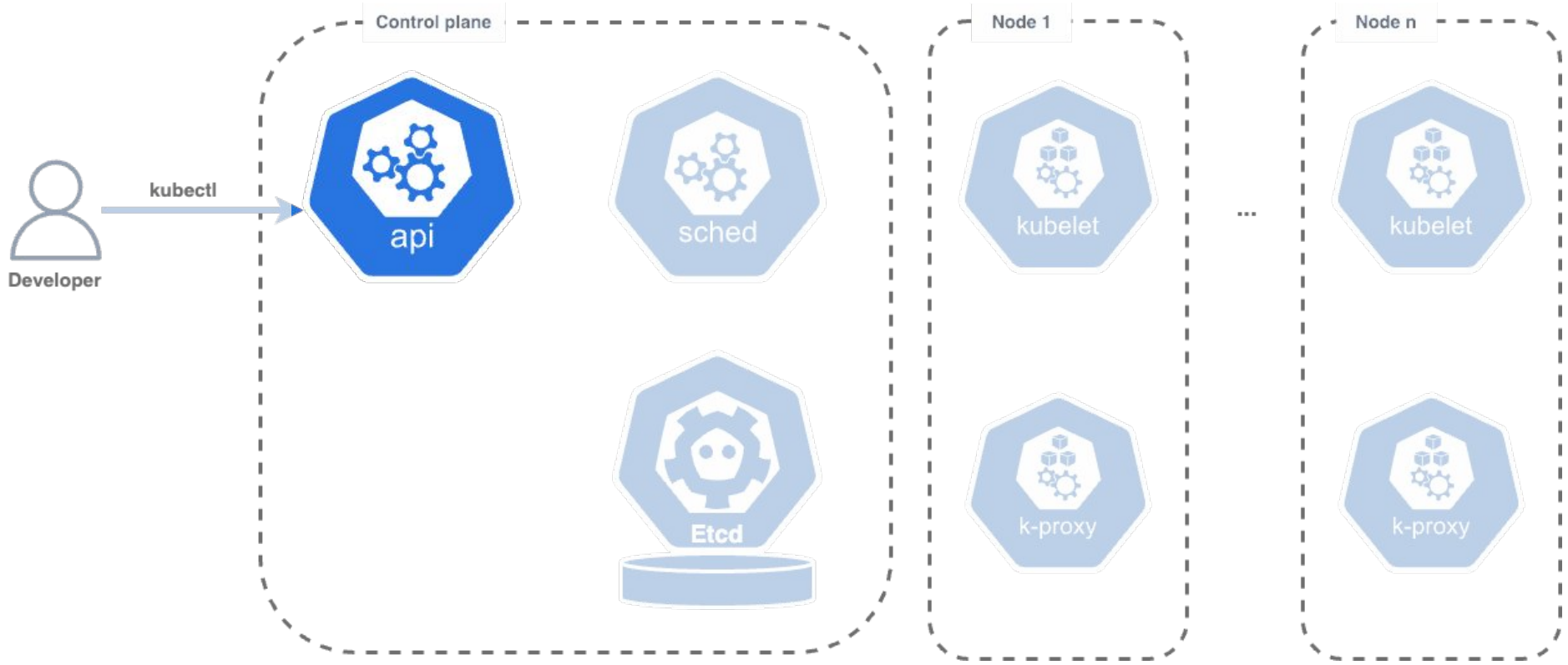

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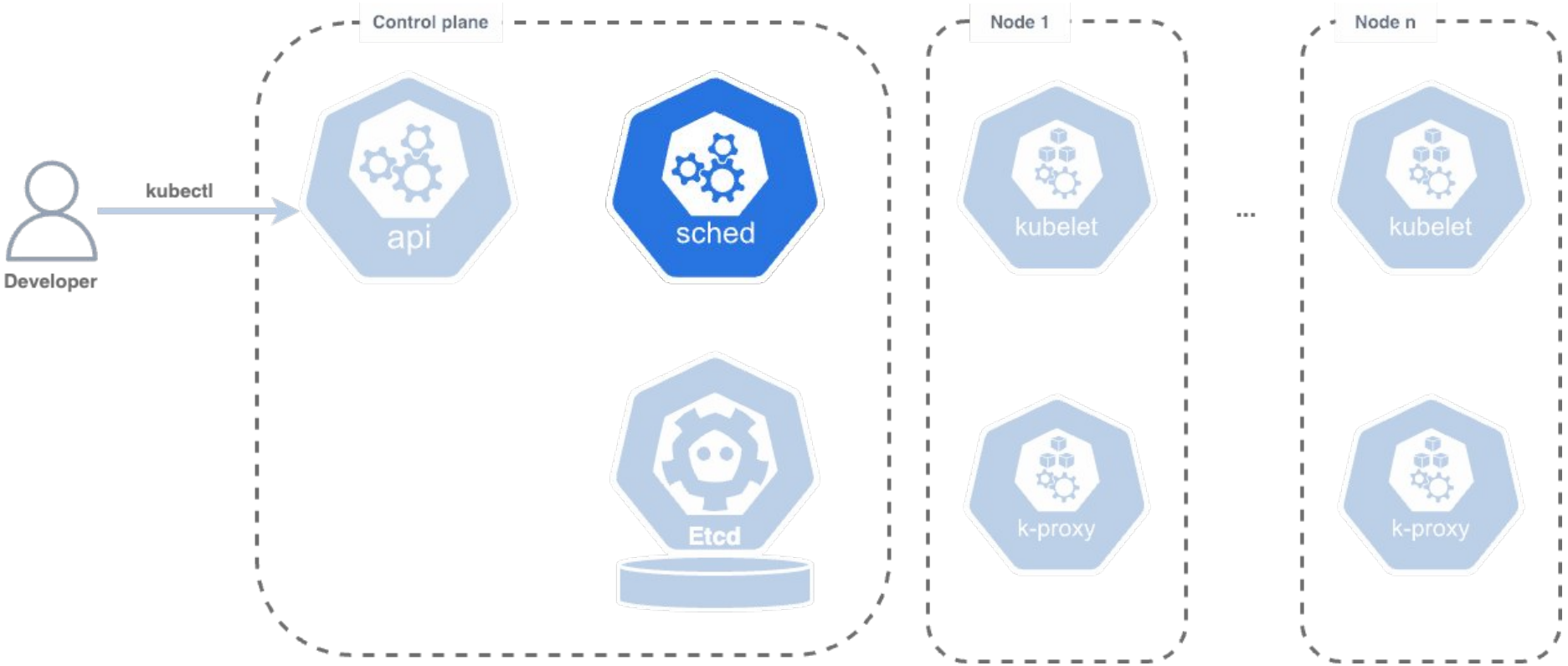

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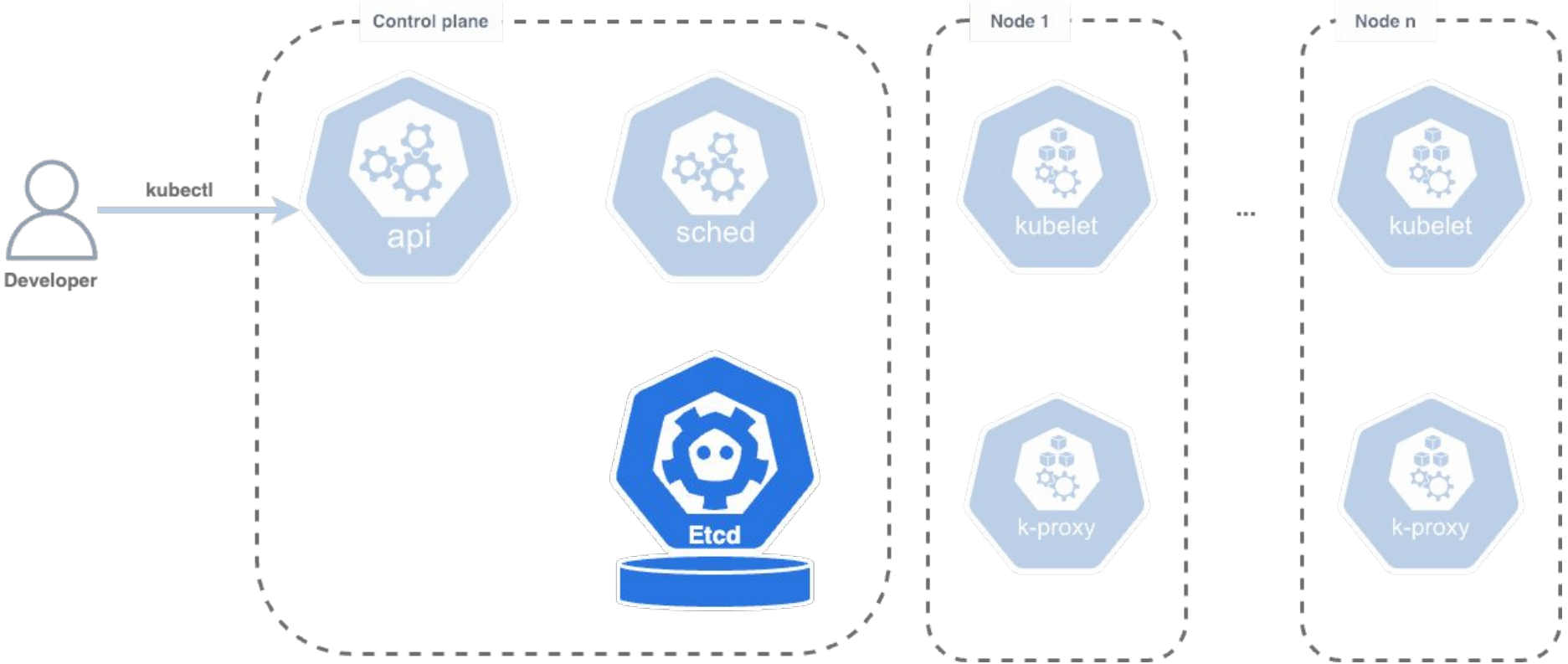

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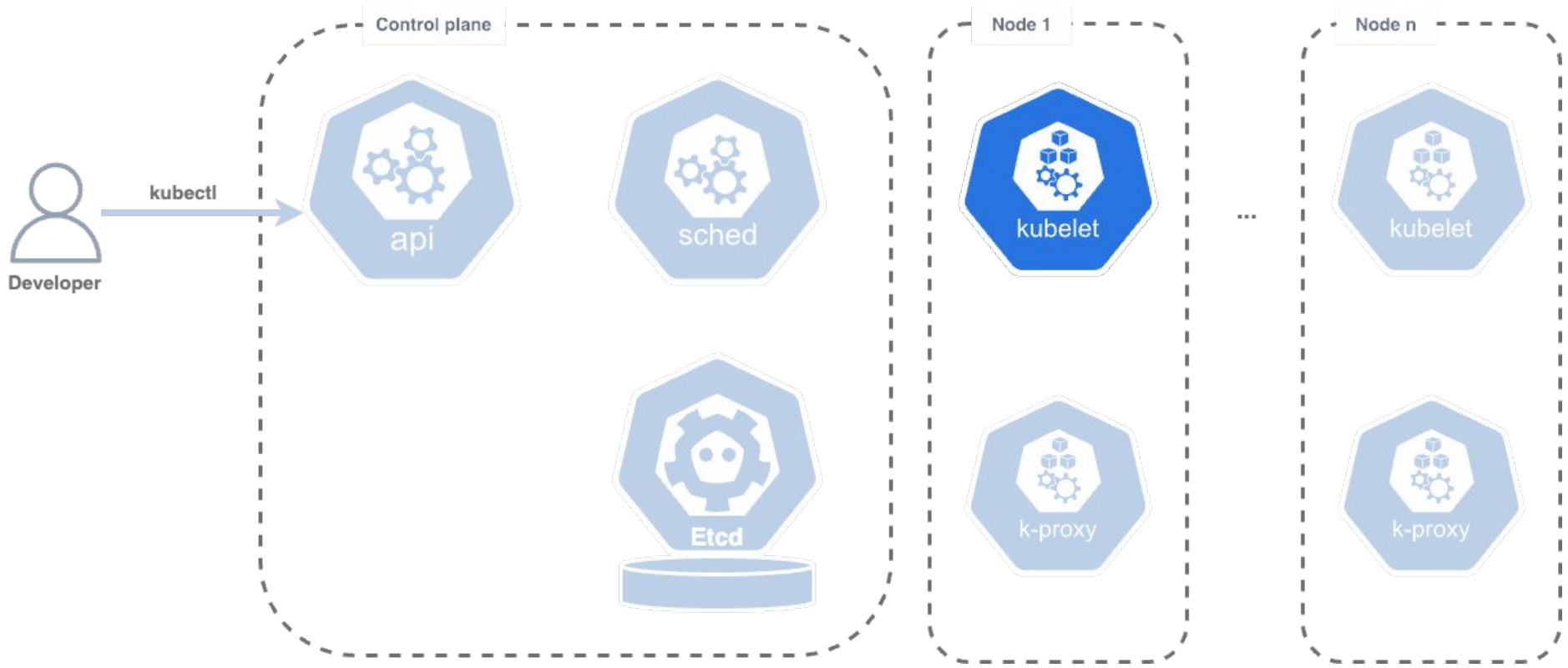

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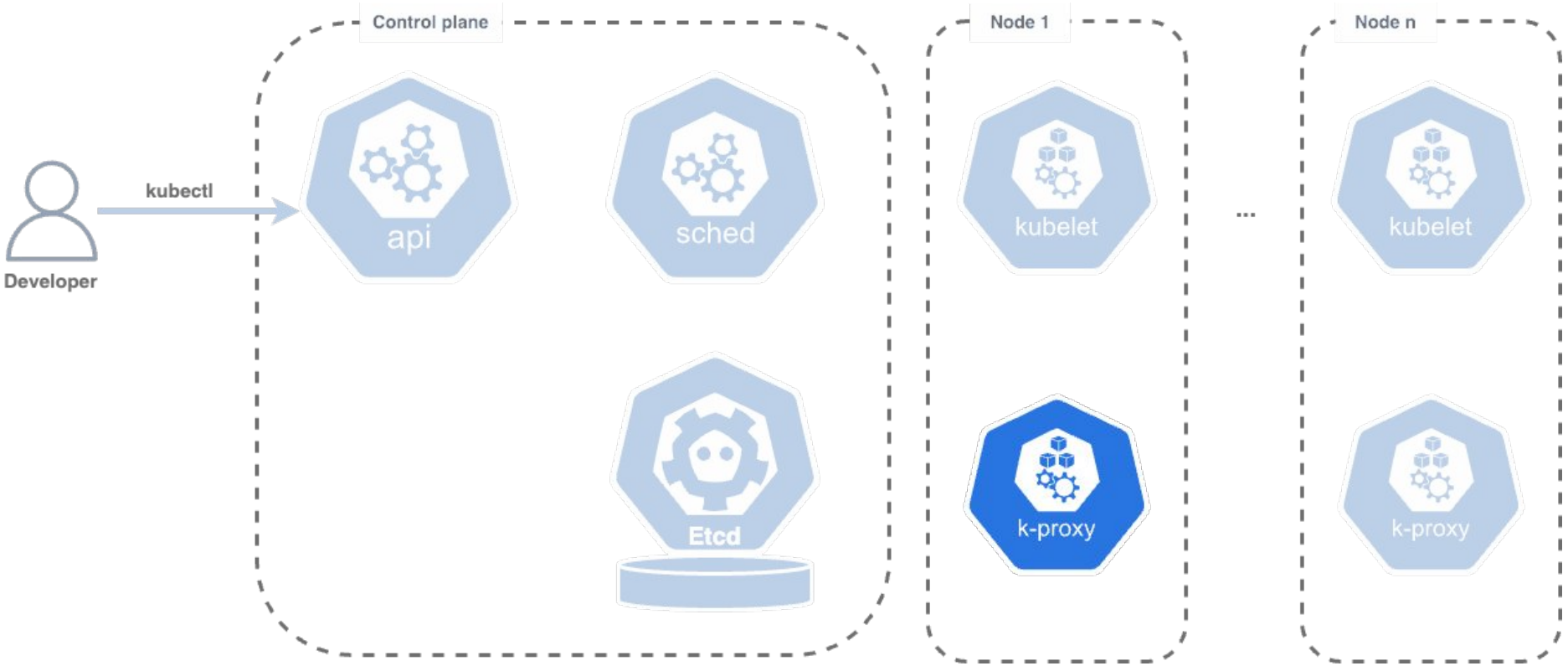

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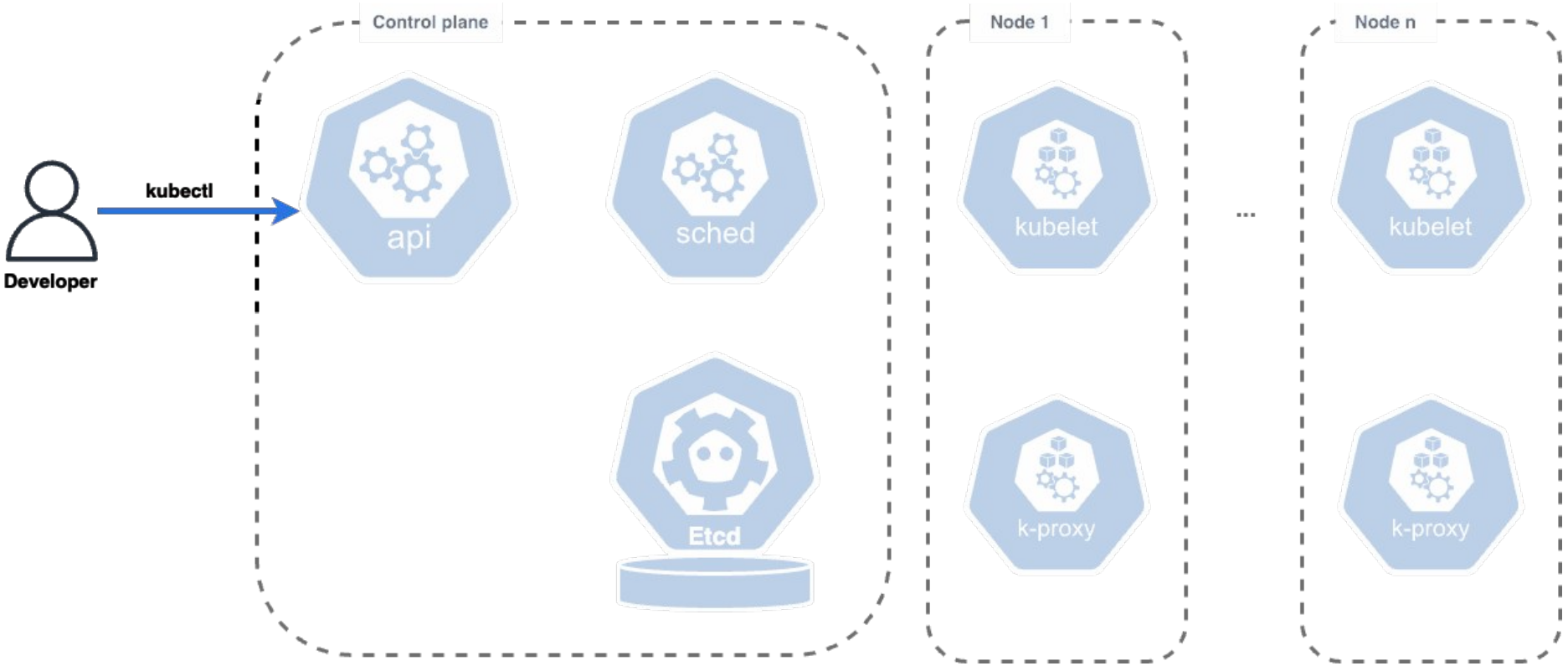
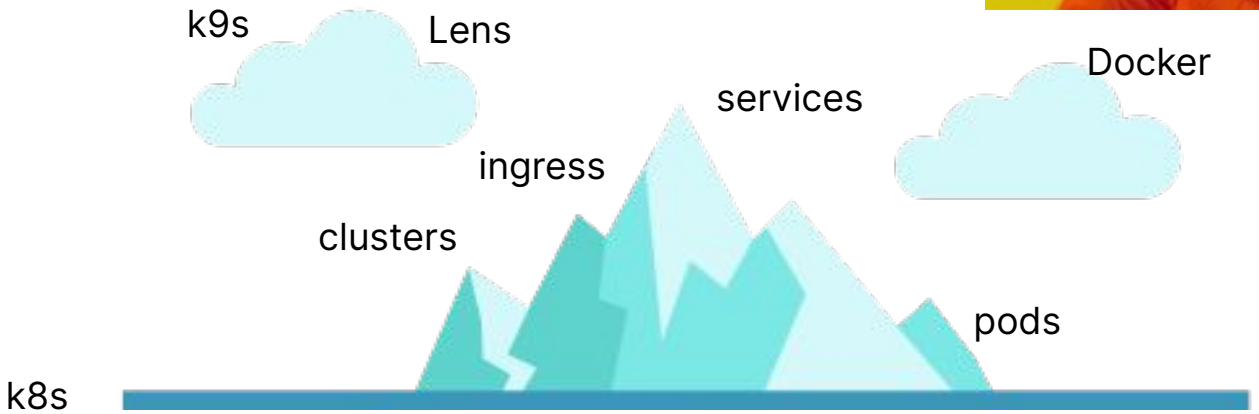


Kubernetes: ways to run

- Vanilla Kubernetes
- Rancher
- On premise
    - AWS: EKS
    - gCloud: GKE
    - Azure: AKS

- Test locally
    - Kind
    - minikube

What is Kubernetes?



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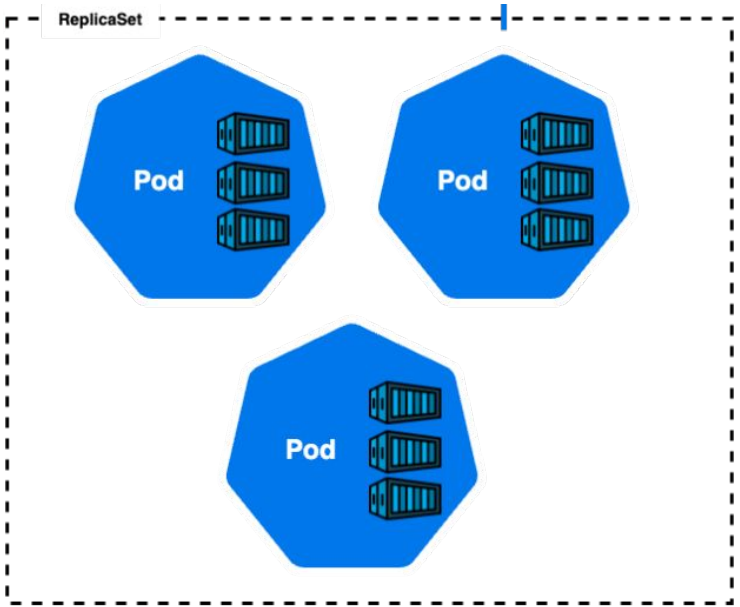
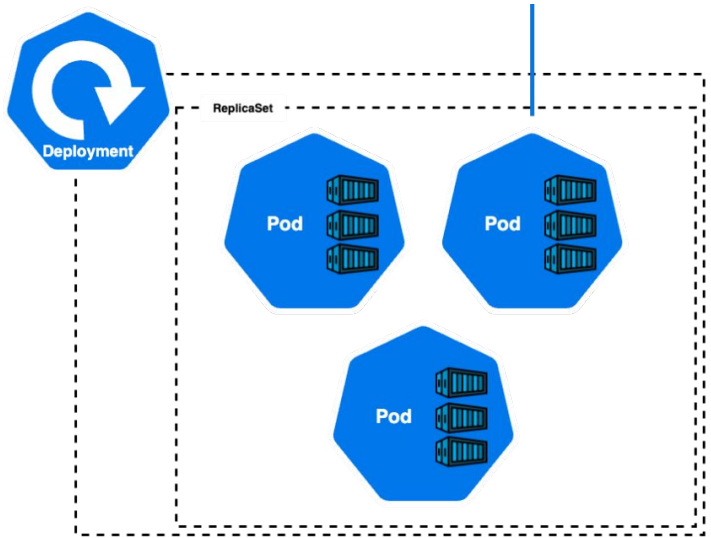
Kubernetes: ReplicaSet

- Is responsible to keep the pods running
- Also, control the number of instances of every pod



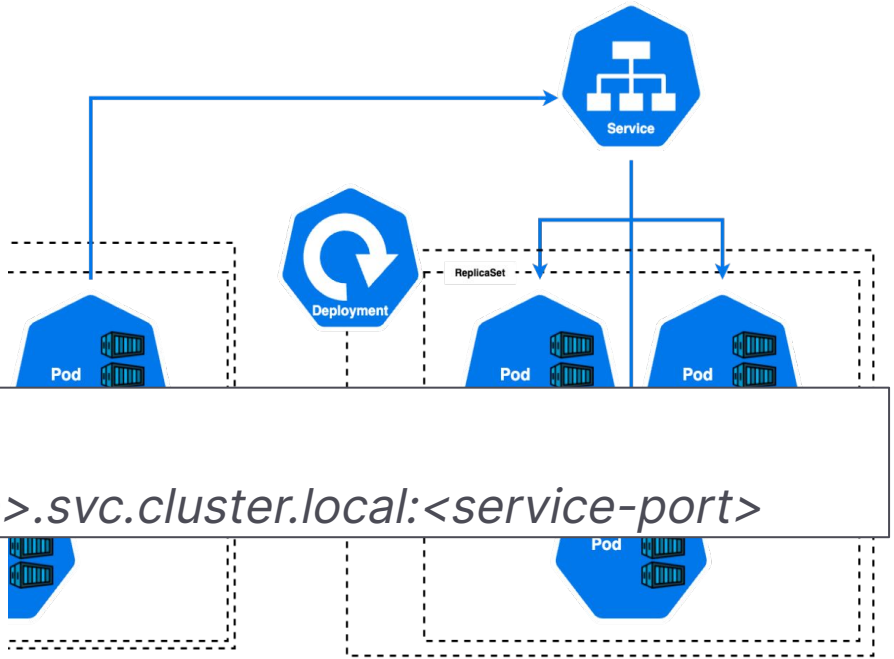
Kubernetes: Deployment

- Is responsible to keep the pods running
- Also, control the number of instances of every pod
- Deployment is a kind of replicaSet to control the life cycle



Kubernetes: Service

- A Service is a method for exposing a network application that is running as one or more Pods in your cluster

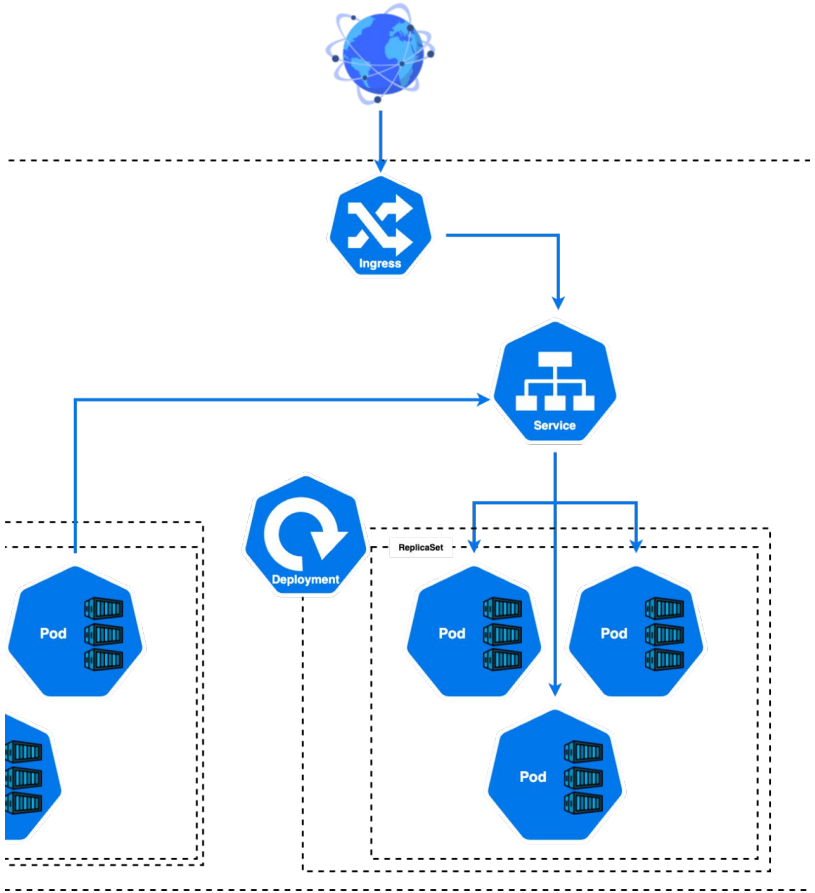


- *Exposed URL:*

http://<service-name>.<namespace>.svc.cluster.local:<service-port>

Kubernetes: ingress

- Manages external access to the services in a cluster, typically HTTP.



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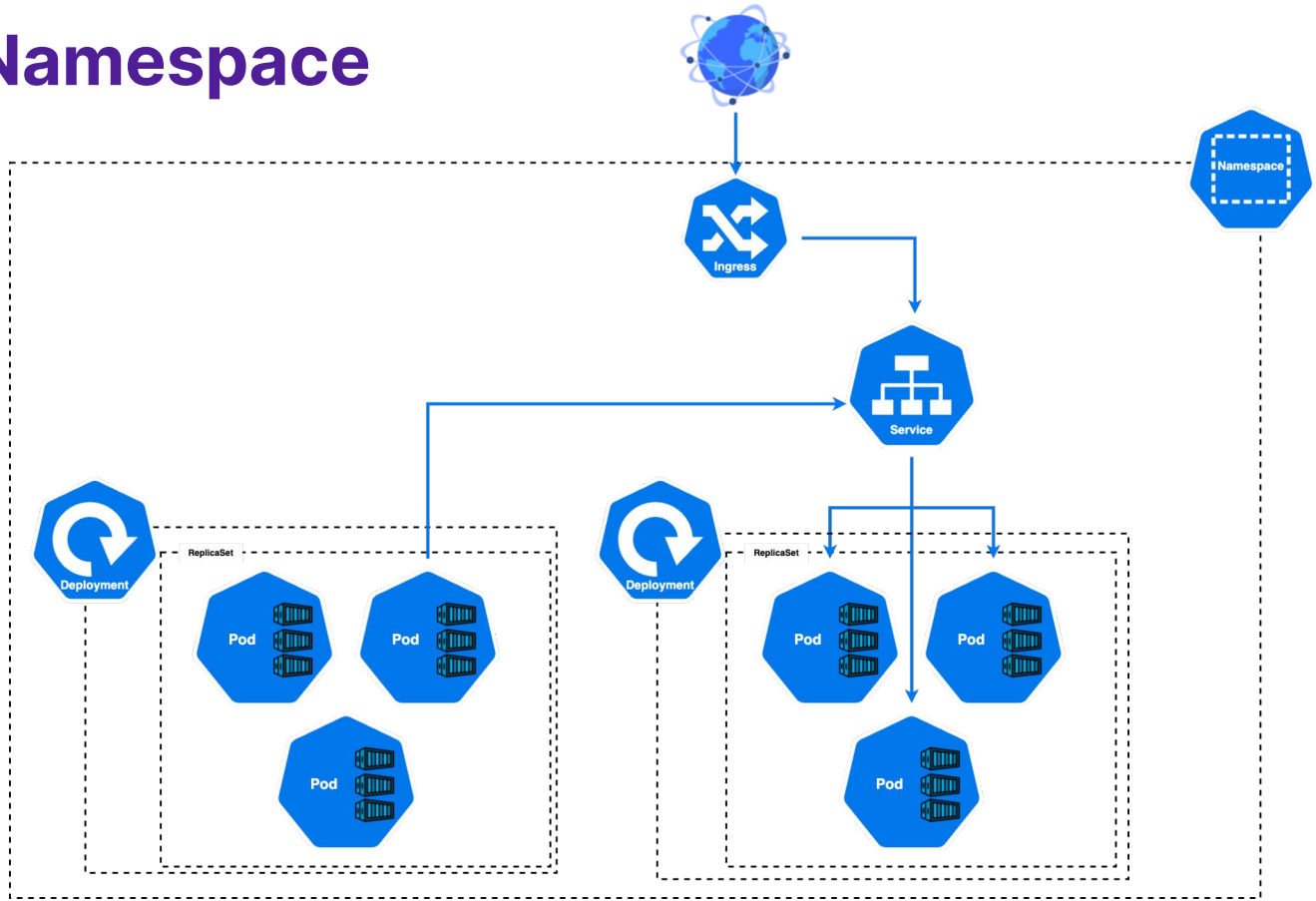
Kubernetes: Namespace

- A mechanism for isolating groups of resources within a single cluster



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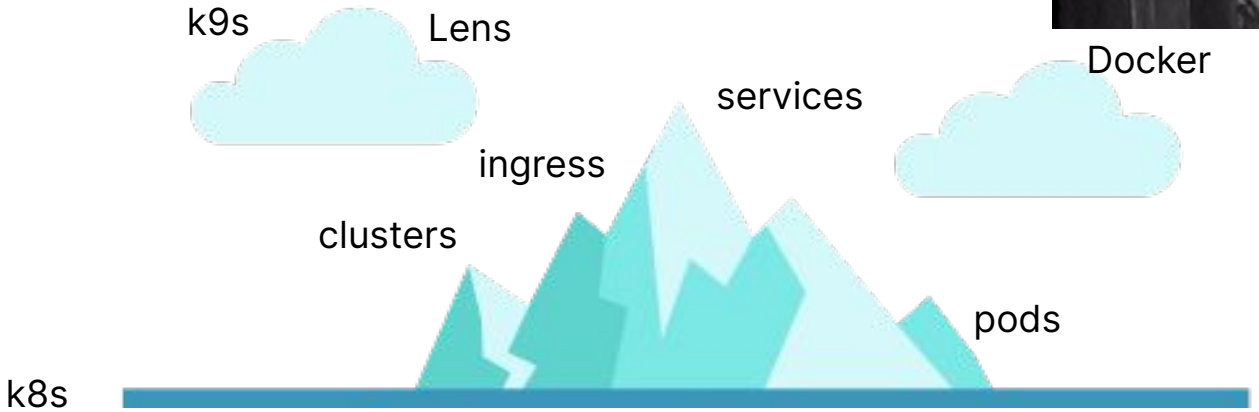

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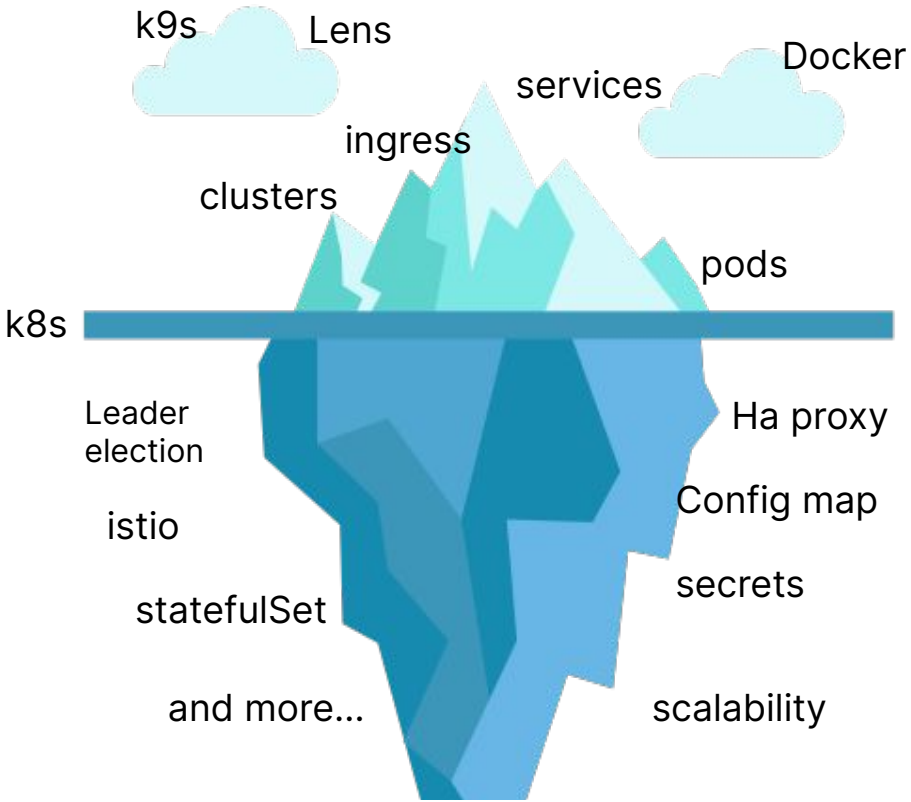

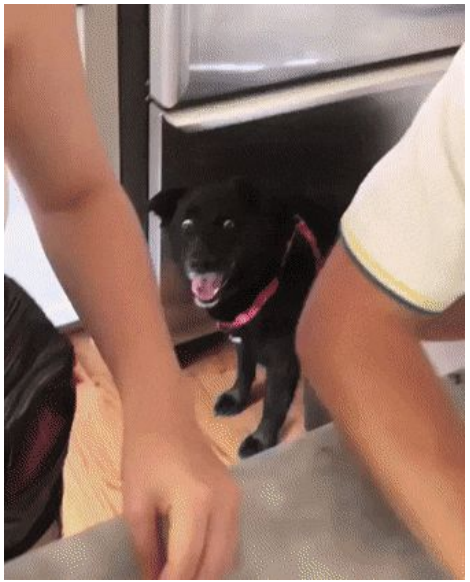

Philosophical thought

Software developer

vs

Software engineer

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Questions?

https://github.com/oriol-canalias-wefox/kubernetes-workshop

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