KUBERNETES - SERVICES

Github repo..

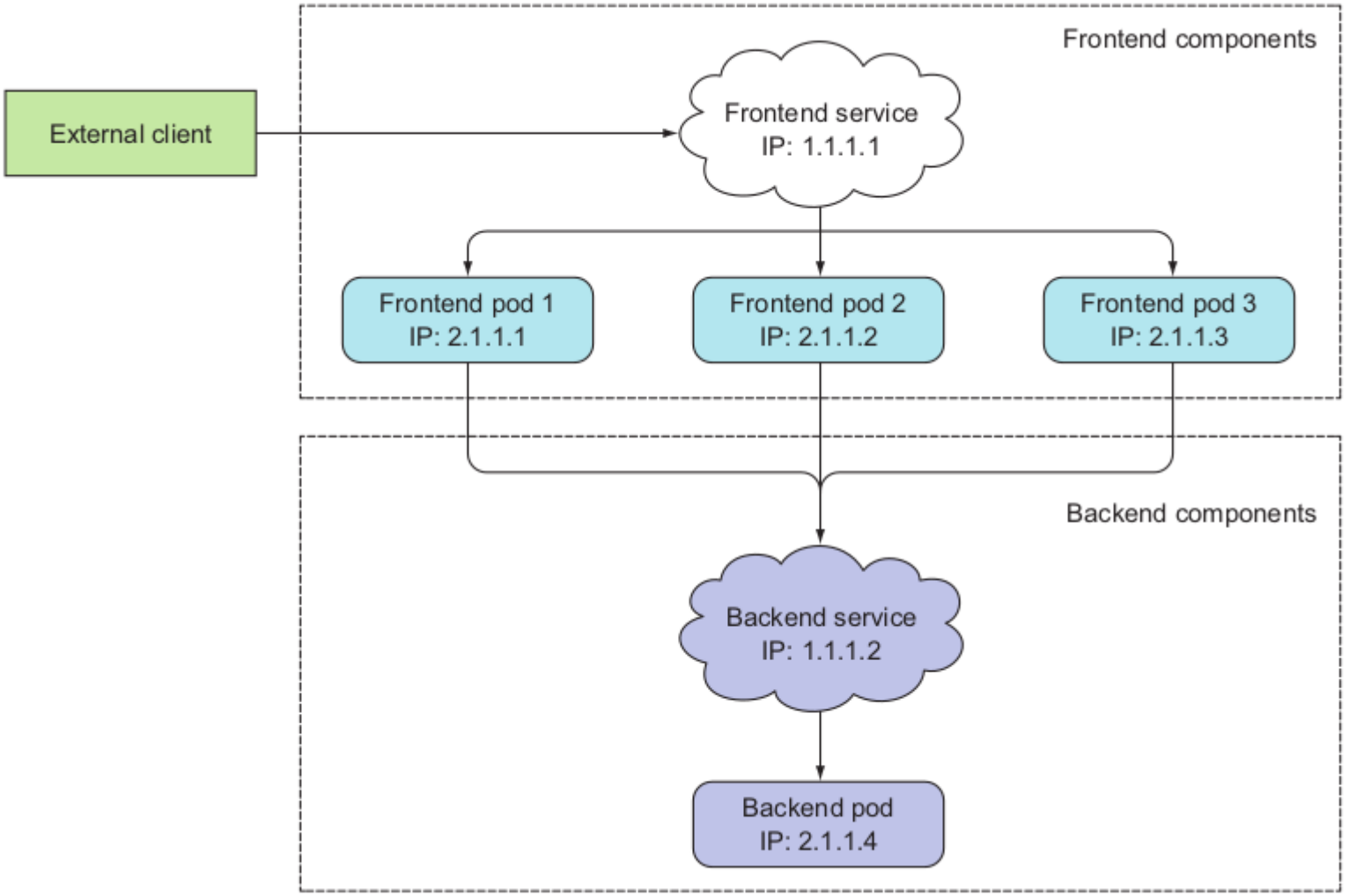
https://github.com/vsaini44/KubernetesRepo.git

What is Services ?

A Kubernetes Service is a resource you create to make a single, constant point of entry to a group of pods providing the same service.

Each service has an IP address and port that never change while the service exists.

Service ?


Frontend components
External client
Frontend service
IP: 1.1.1.1
Frontend pod 1
IP: 2.1.1.1
Frontend pod 2
IP: 2.1.1.2
Frontend pod 3
IP: 2.1.1.3
Backend components
Backend service
IP: 1.1.1.2
Backend pod
IP: 2.1.1.4

Types of Services ?

> Cluster IP

> Node Port

> Load Balancer

Apart from service types, we also have Ingress controller for allowing pods access outside the cluster.

Cluster IP Service

Exposes the Service on a cluster-internal IP. Choosing this value makes the Service only reachable from within the cluster.

This is the default ServiceType.

Pods are exposed in the cluster within different namespaces.

Sample ClusterIP Service

```
apiVersion: v1
kind: Service
metadata:
  name: my-service
spec:
  selector:
    app: MyApp
  ports:
    - protocol: TCP
      port: 80
      targetPort: 9376
```

Understanding Endpoint

An Endpoints resource (yes, plural) is a list of IP addresses and ports exposing a service.

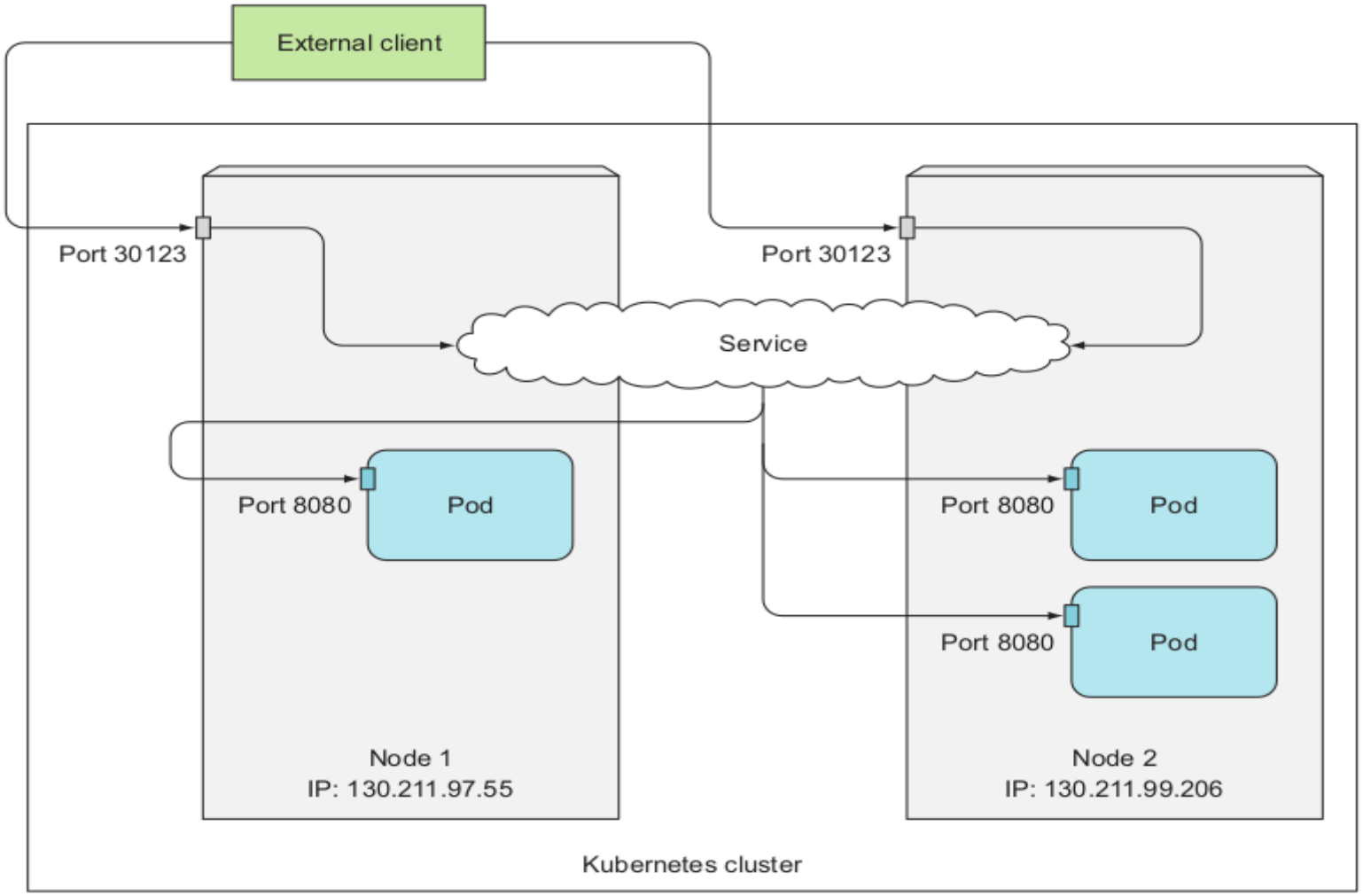
The Endpoints resource is like any other Kubernetes resource, so you can display its basic info with kubectl get

Node Port service

For a NodePort service, each cluster node opens a port on the node itself (hence the name) and redirects traffic received on that port to the underlying service.

The service isn’t accessible only at the internal cluster IP and port, but also through a dedicated port on all nodes.

Node Port service



Node Port Service

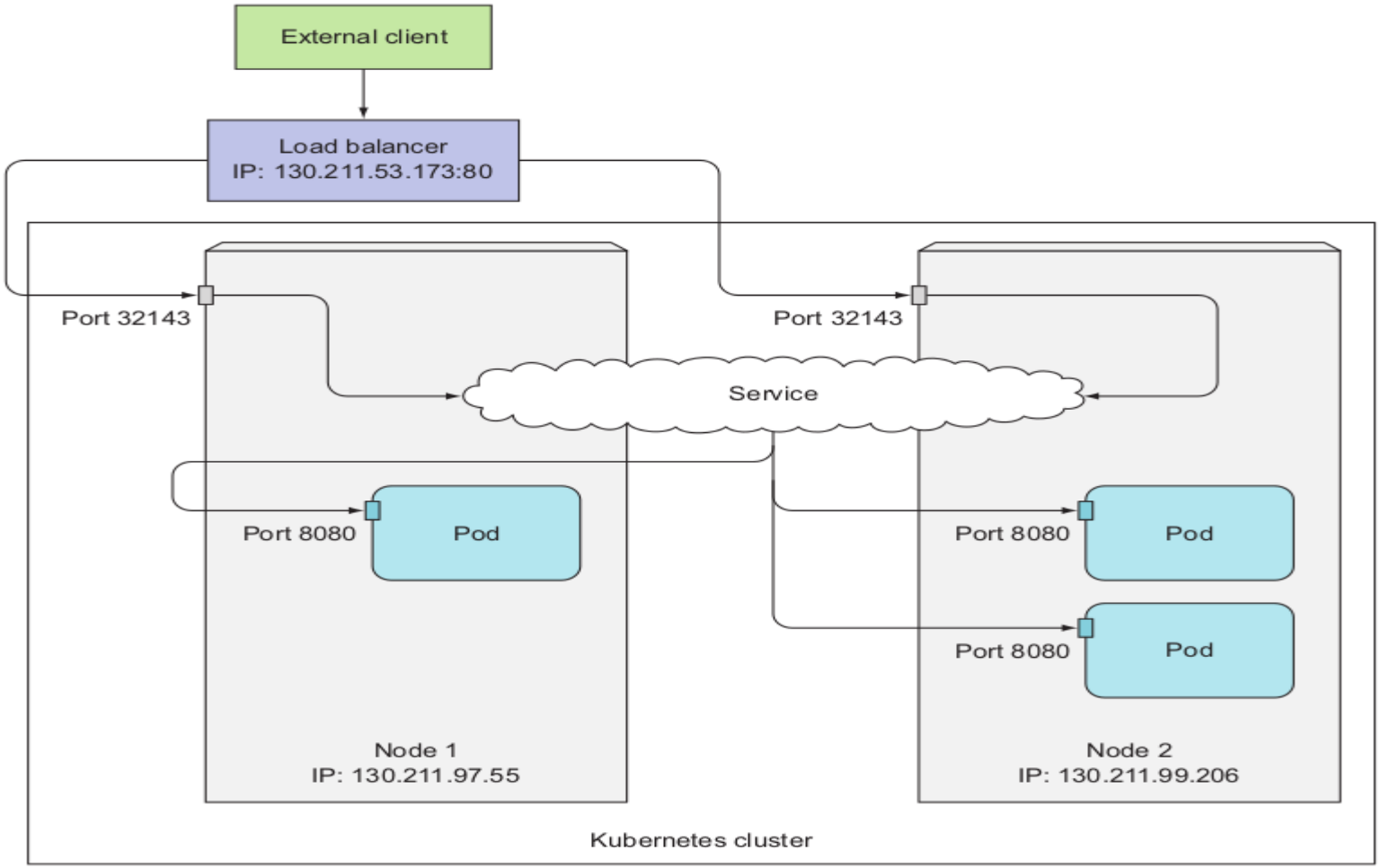
```
apiVersion: v1
kind: Service
metadata:
  name: kubia-nodeport
spec:
  type: NodePort
  ports:
    - port: 80
      targetPort: 8080
      nodePort: 30123
  selector:
    app: kubia
```

Load Balancer Service

Kubernetes clusters running on cloud providers usually support the automatic provision of a load balancer from the cloud infrastructure.

The load balancer will have its own unique, publicly accessible IP address and will redirect all connections to your service.

Load Balancer



Ingress Controller

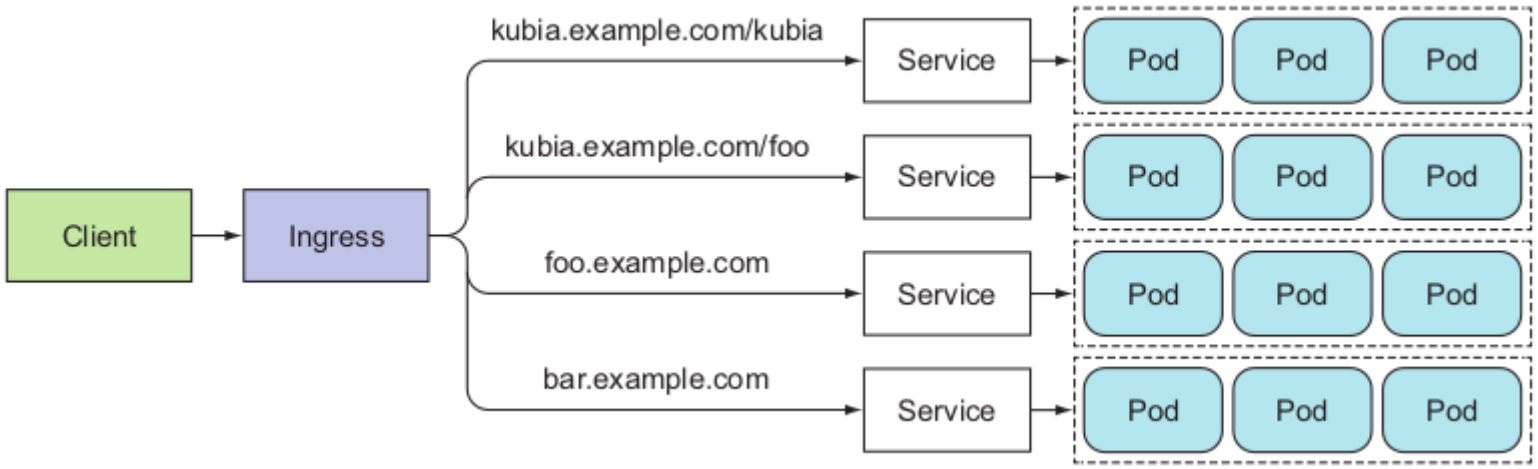
Ingress (noun)—The act of going in or entering; the right to enter; a means or place of entering; entryway.

Why Ingress ?

One important reason is that each LoadBalancer service requires its own load balancer with its own public IP address, whereas an Ingress only requires one, even when providing access to dozens of services.

Ingresses operate at the application layer of the network stack (HTTP) and can provide features such as cookie-based session affinity and the like, which services can’t.

Ingress


Client
Ingress
kubia.example.com/kubia
kubia.example.com/foo
foo.example.com
bar.example.com
Service
Service
Service
Service
Pod
Pod
Pod
Pod
Pod
Pod
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