Communicating between Namespaces

In this lesson, we will establish communication between Namespaces.

WE'LL COVER THE FOLLOWINGCreating a PodEstablishing the Communication

Creating a Pod#

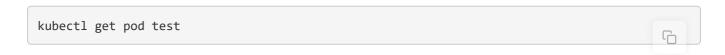
We'll create an alpine -based Pod that we'll use to demonstrate communication between Namespaces.

```
kubectl config use-context minikube

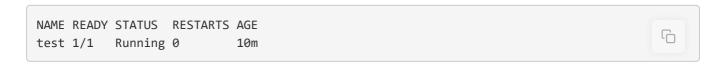
kubectl run test \
    --image=alpine \
    --generator "run-pod/v1" \
    sleep 10000
```

We switched to the minikube context (default Namespace) and created a Pod with a container based on the alpine image. We let it sleep for a long time. Otherwise, the container would be without a process and would stop almost immediately.

Before we proceed, we should confirm that the Pod is indeed running.



The **output** is as follows.



Please wait a few moments if, in your case, the Pod is not yet ready.

Establishing the Communication

Before we proceed, we'll install curl inside the container in the test Pod.

```
kubectl exec -it test \
-- apk add -U curl
```

We already explored communication between objects in the same Namespace. Since the test Pod is running in the default Namespace, we can, for example, reach the go-demo-2-api Service by using the Service name as a DNS name.

```
kubectl exec -it test -- curl \
   "http://go-demo-2-api:8080/demo/hello"
```

The **output** is as follows.

```
hello, release 1.0!
```

We got the response from the release 1.0 because that's the one running in the same Namespace. Does that mean that we cannot reach Services from other Namespaces?

When we create a Service, it creates a few DNS entries. One of them corresponds to the name of the Service.

So, the <code>go-demo-2-api</code> Service created a DNS based on that name. Actually, the full DNS entry is <code>go-demo-2-api.svc.cluster.local</code>. Both resolve to the same service <code>go-demo-2-api</code> which, in this case, runs in the <code>default</code> Namespace.

The third DNS entry we got is in the format <service-name>.<namespace-name>.svc.cluster.local. In our case, that is go-demo-2-api.default.svc.cluster.local. Or, if we prefer a shorter version, we could use go-demo-2-api.default.

In most cases, there is no good reason to use the <service-name>.<namespace-name> format when communicating with Services within the same

Namespace.

The primary objective behind the existence of the DNSes with the Namespace name is when we want to reach services running in a different Namespace.

If we'd like to reach go-demo-2-api running in the testing Namespace from the test Pod in the default Namespace, we should use the go-demo-2-api.testing.svc.cluster.local DNS or, even better, the shorter version go-demo-2-api.testing.

```
kubectl exec -it test -- curl \
   "http://go-demo-2-api.testing:8080/demo/hello"
```

This time, the **output** is different.

```
hello, release 2.0!
```

Kube DNS used the DNS suffix testing to deduce that we want to reach the Service located in that Namespace. As a result, we got the response from the release 2.0 of the go-demo-2 application.

In the next lesson, we will turn on the destructive mode and delete the Namespace alongwith everything associated to it.