



Hacking on NSM Dataplane for a true multi-cloud experience

Ola Kowalska, Netcompany
Jarek Lukow, Nine Fives Labs

KubeCon EU Virtual, August 2020



Agenda

- What is NSM?
- NSM architecture
- Connectivity: pod <-> external world
- What is TF?
- Implementation of TF forwarder for NSM
- Demo
- Q&A

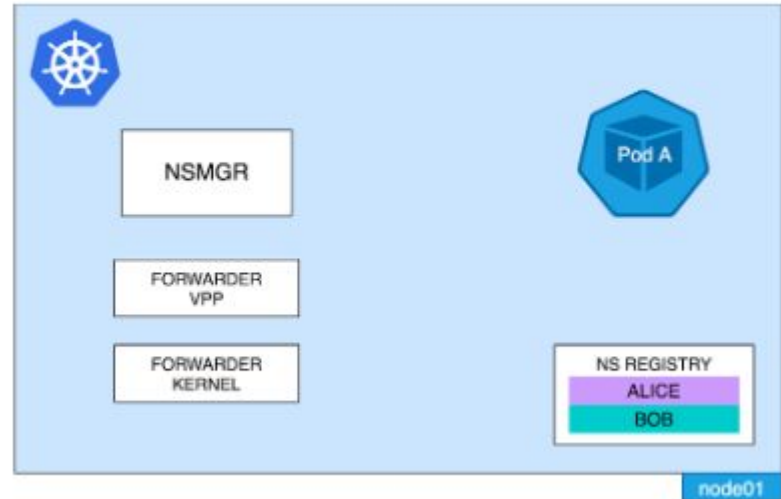


What is NSM?

- NSM = Network Service Mesh
- CNCF standalone project
- Cloud-native network solution
- Provides networking (L2/L3) for applications running on Kubernetes

NSM architecture

- Network Service Registry
- Network Service Manager (NSMgr) - control plane
- Network Service Forwarders - data plane

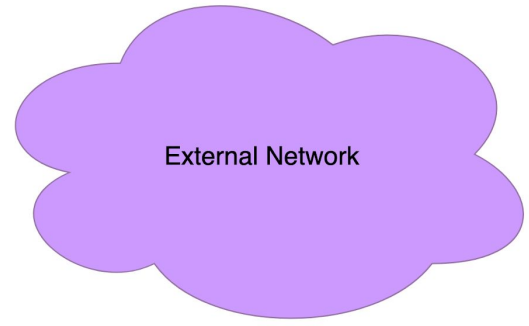


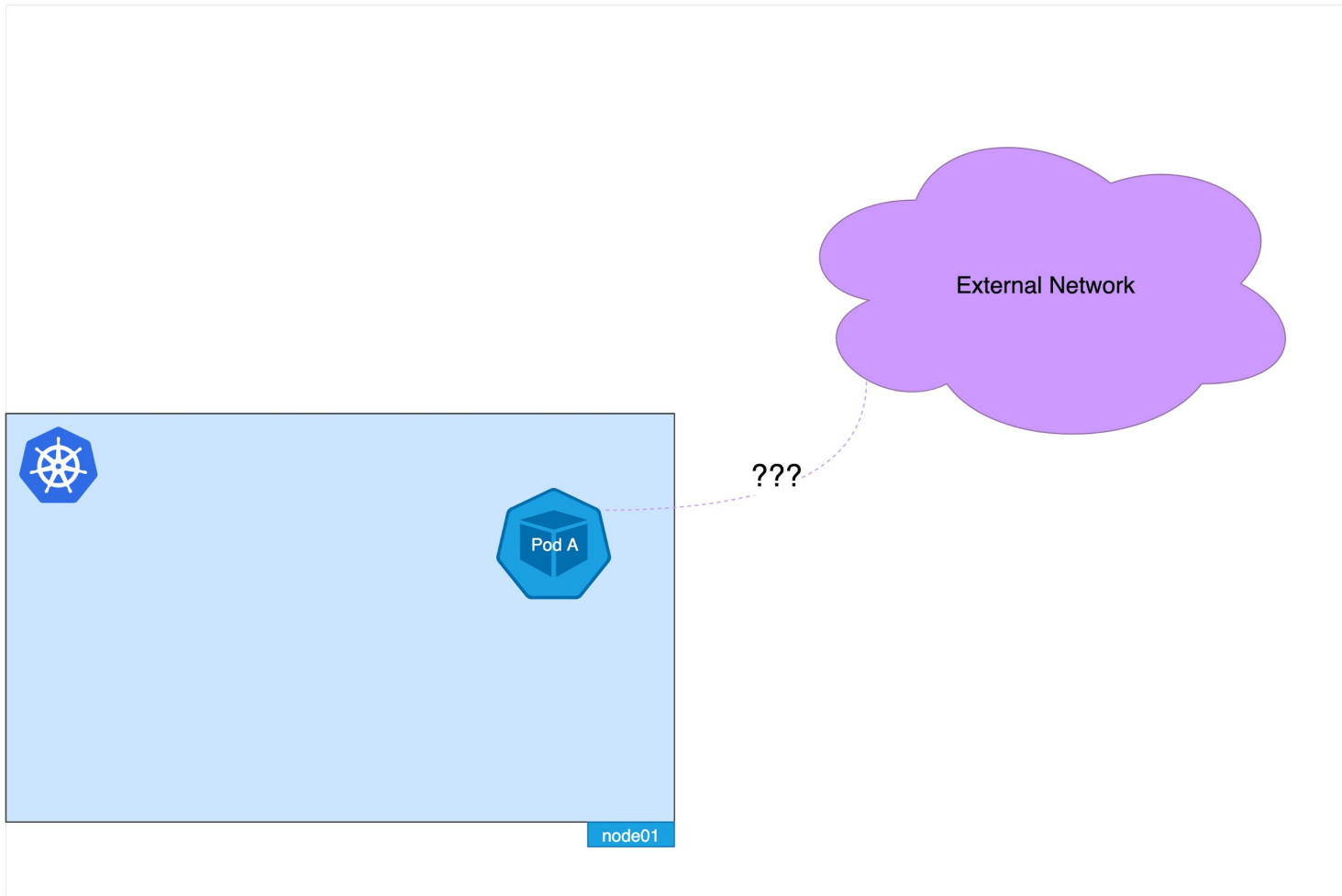


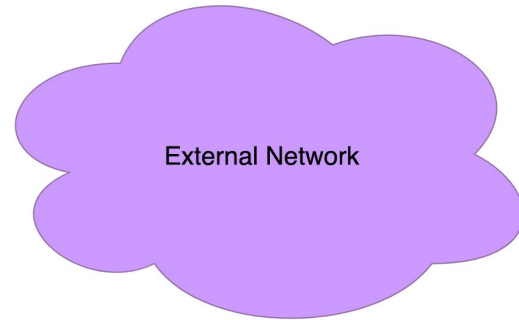
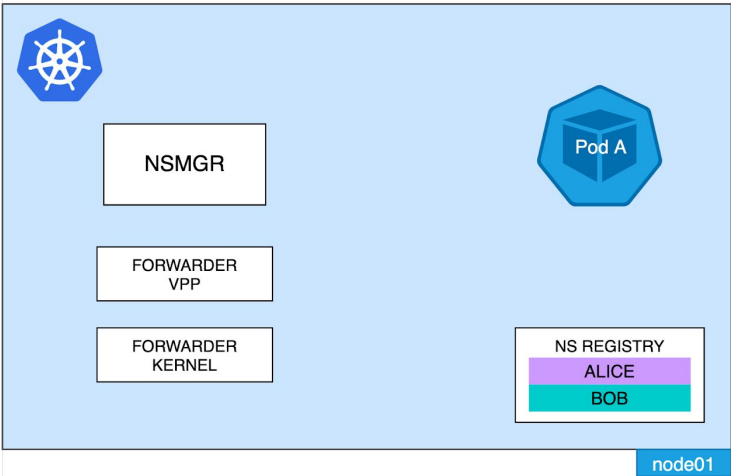
Connectivity: pod <-> external world



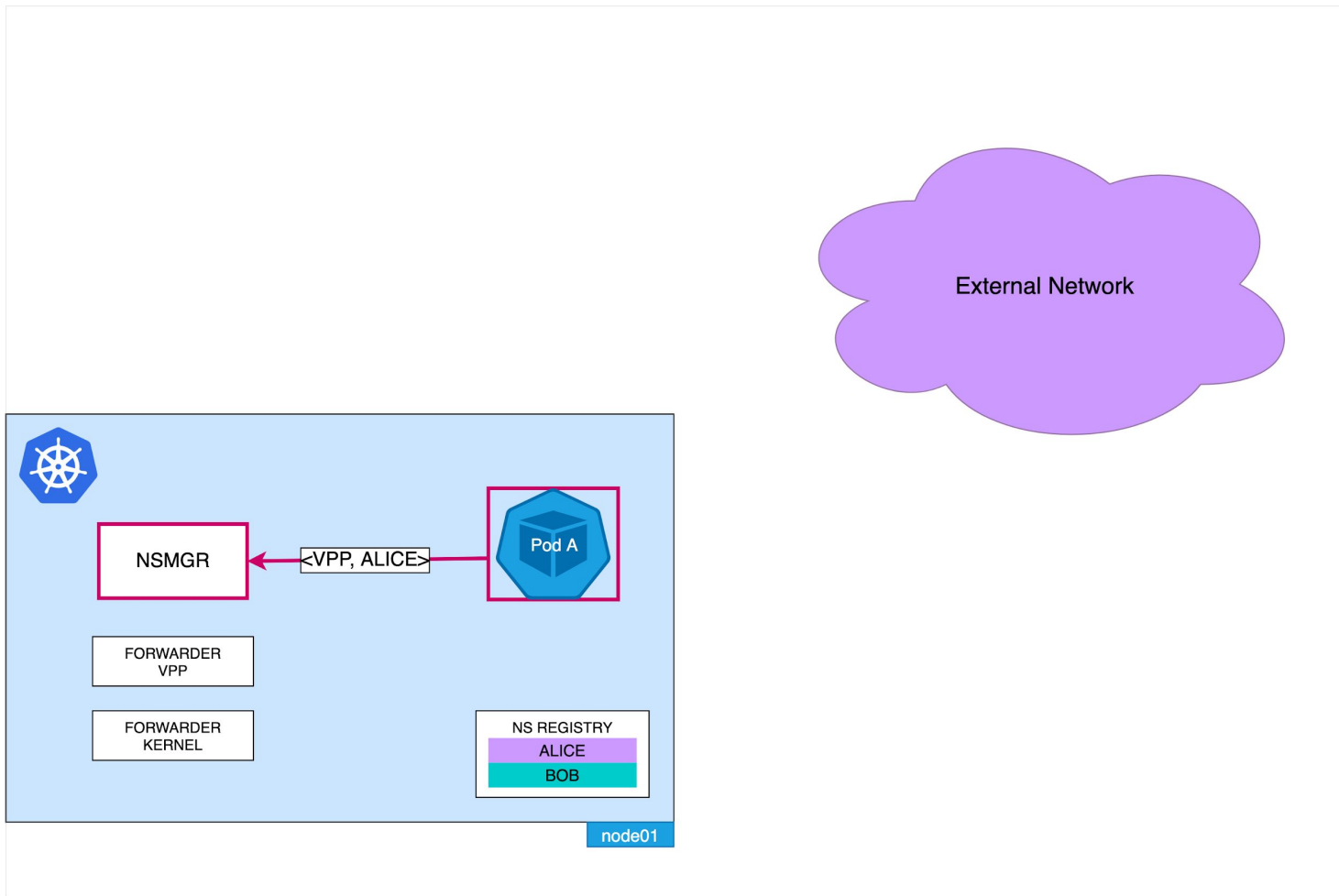
node01







External Network





NSMGR
<A, VPP, ALICE>

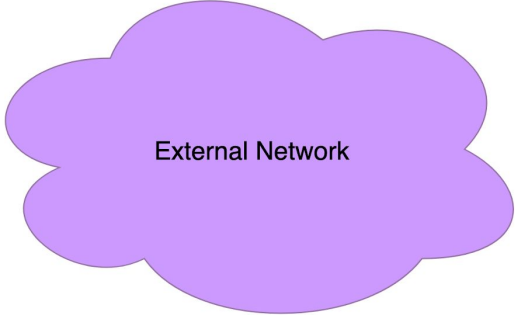
FORWARDER
VPP

FORWARDER
KERNEL

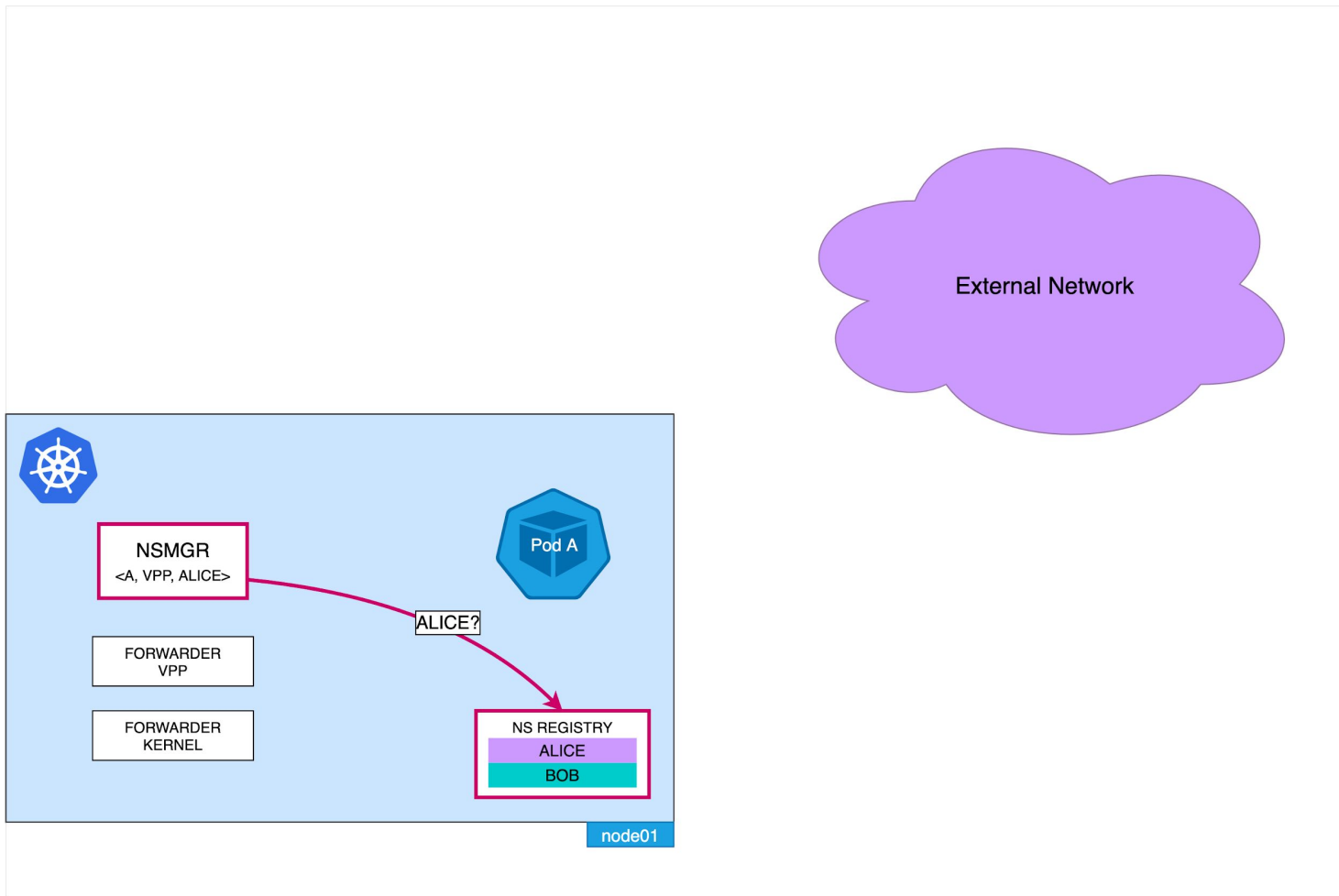


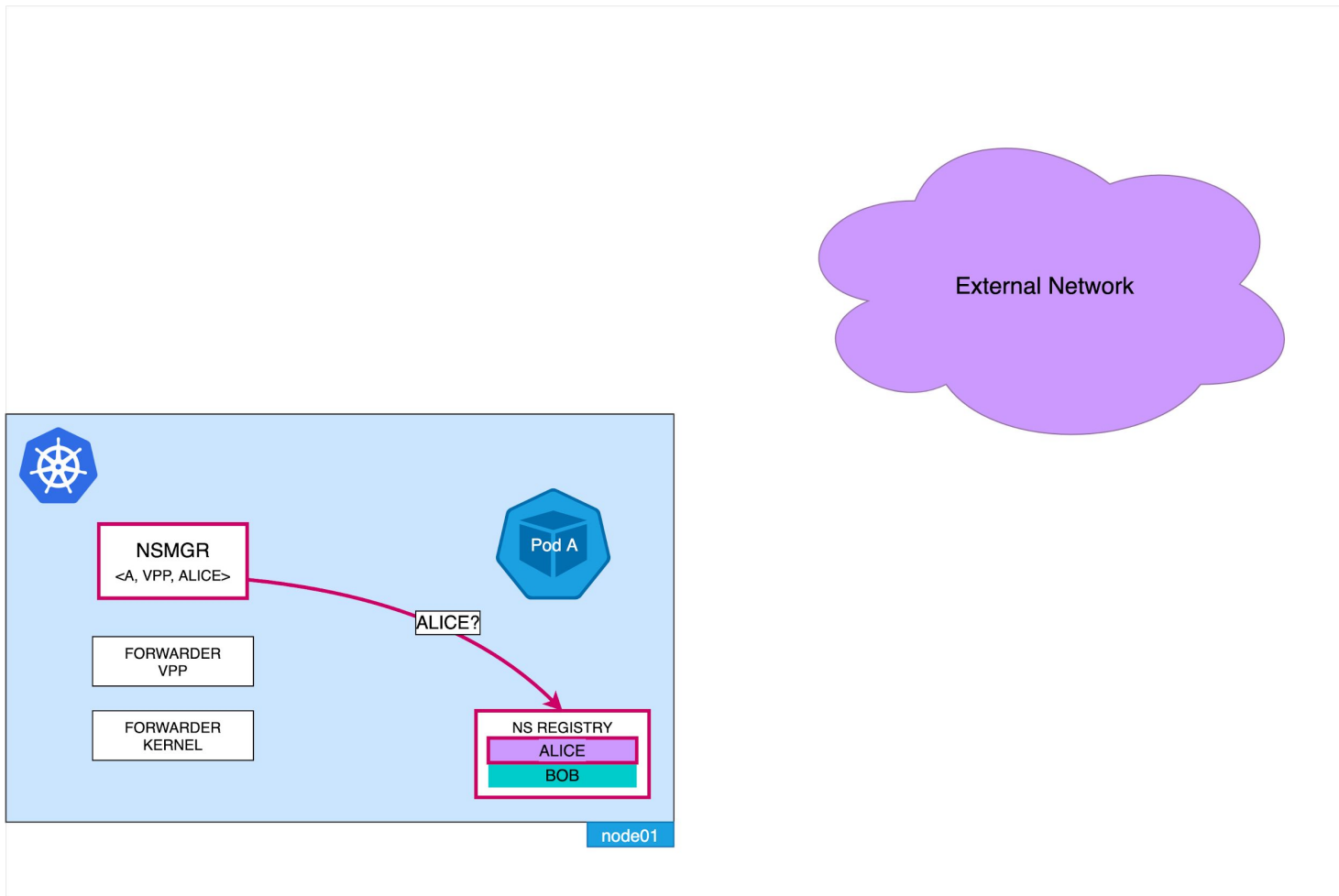
NS REGISTRY
ALICE
BOB

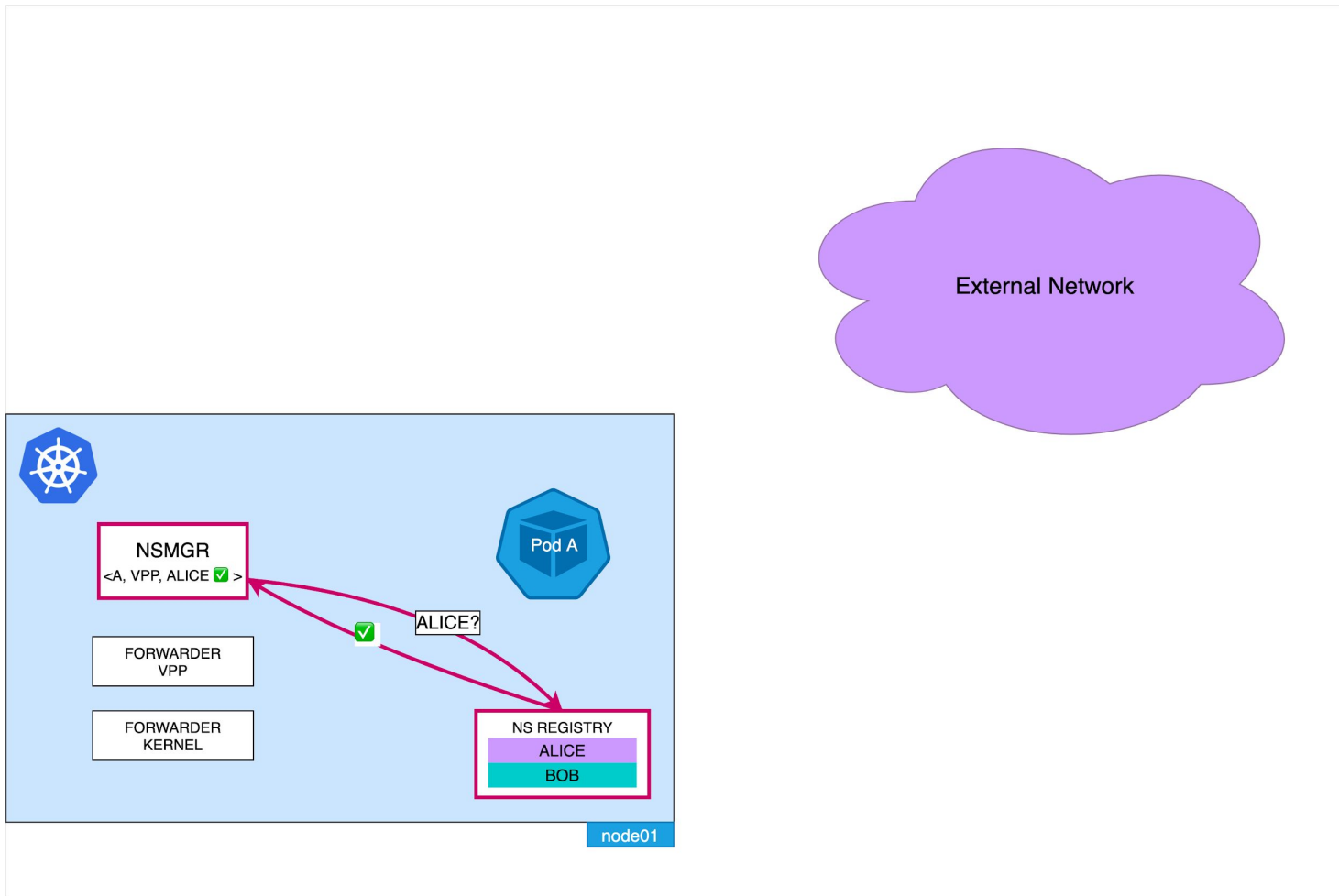
node01



External Network









NSMGR
<A, VPP, ALICE  >

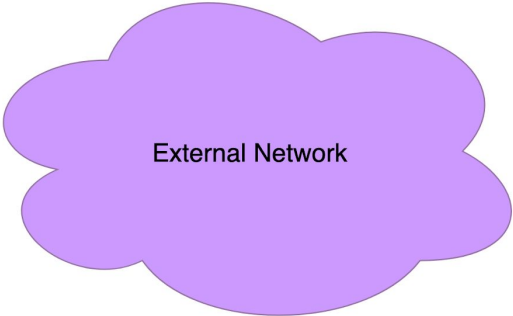
FORWARDER
VPP

FORWARDER
KERNEL

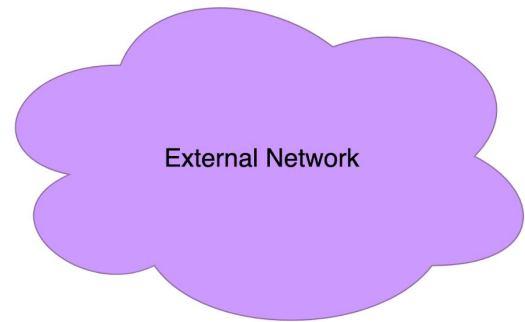
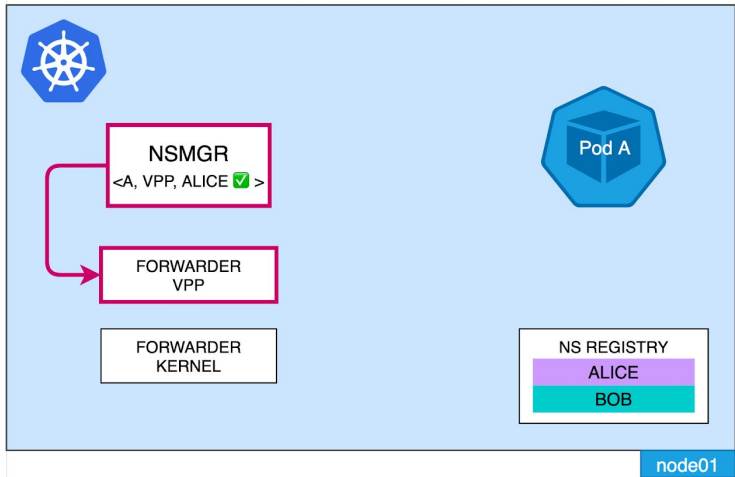


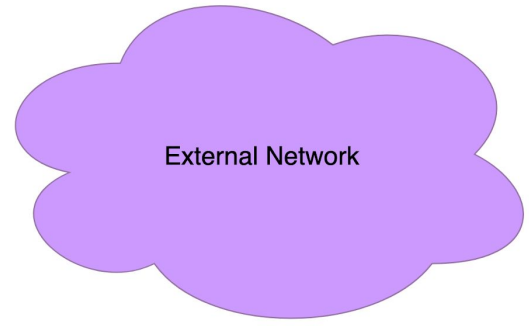
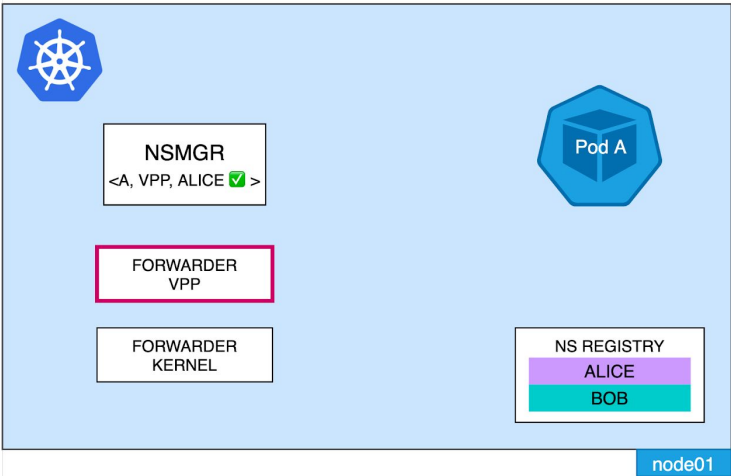
NS REGISTRY
ALICE
BOB

node01

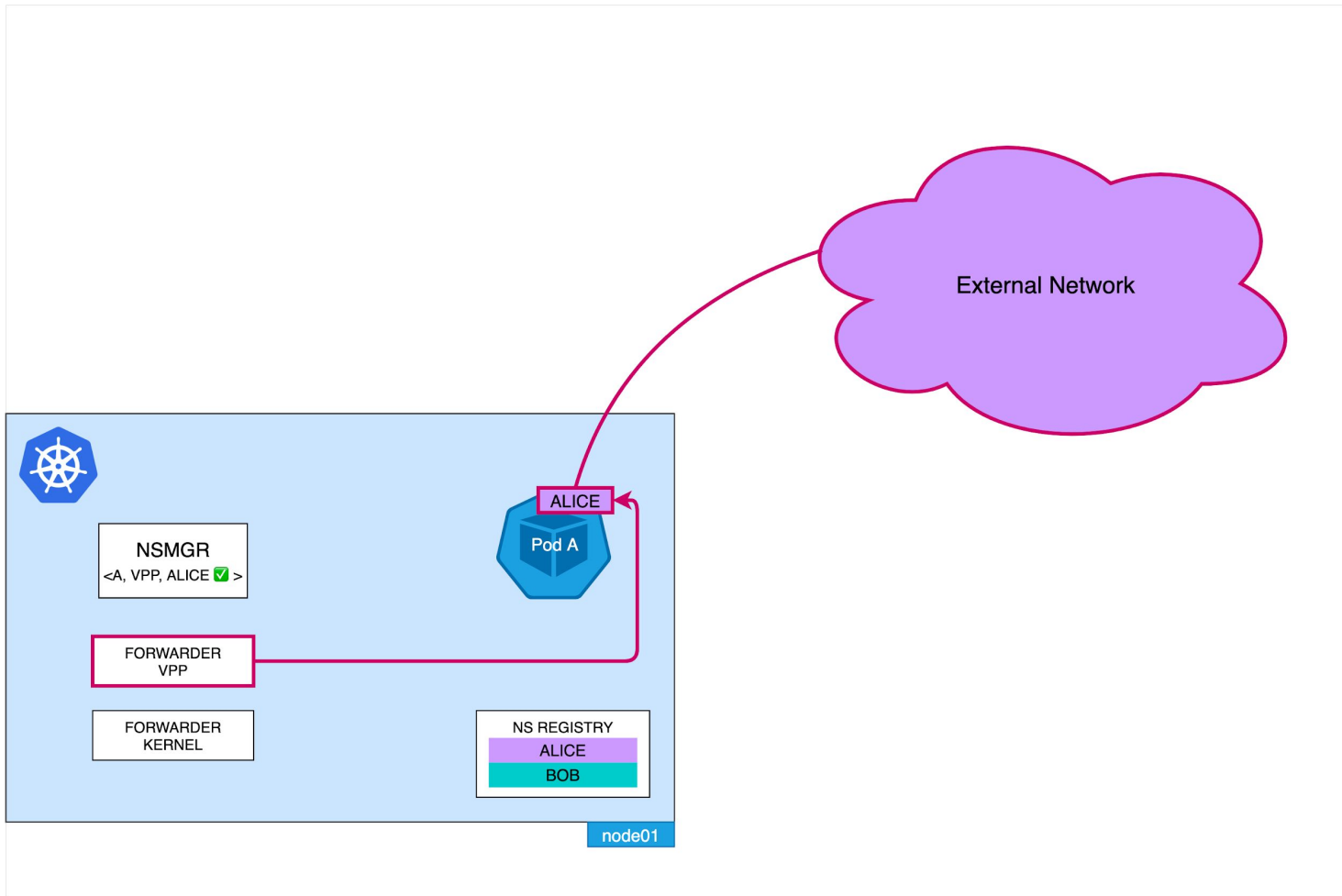


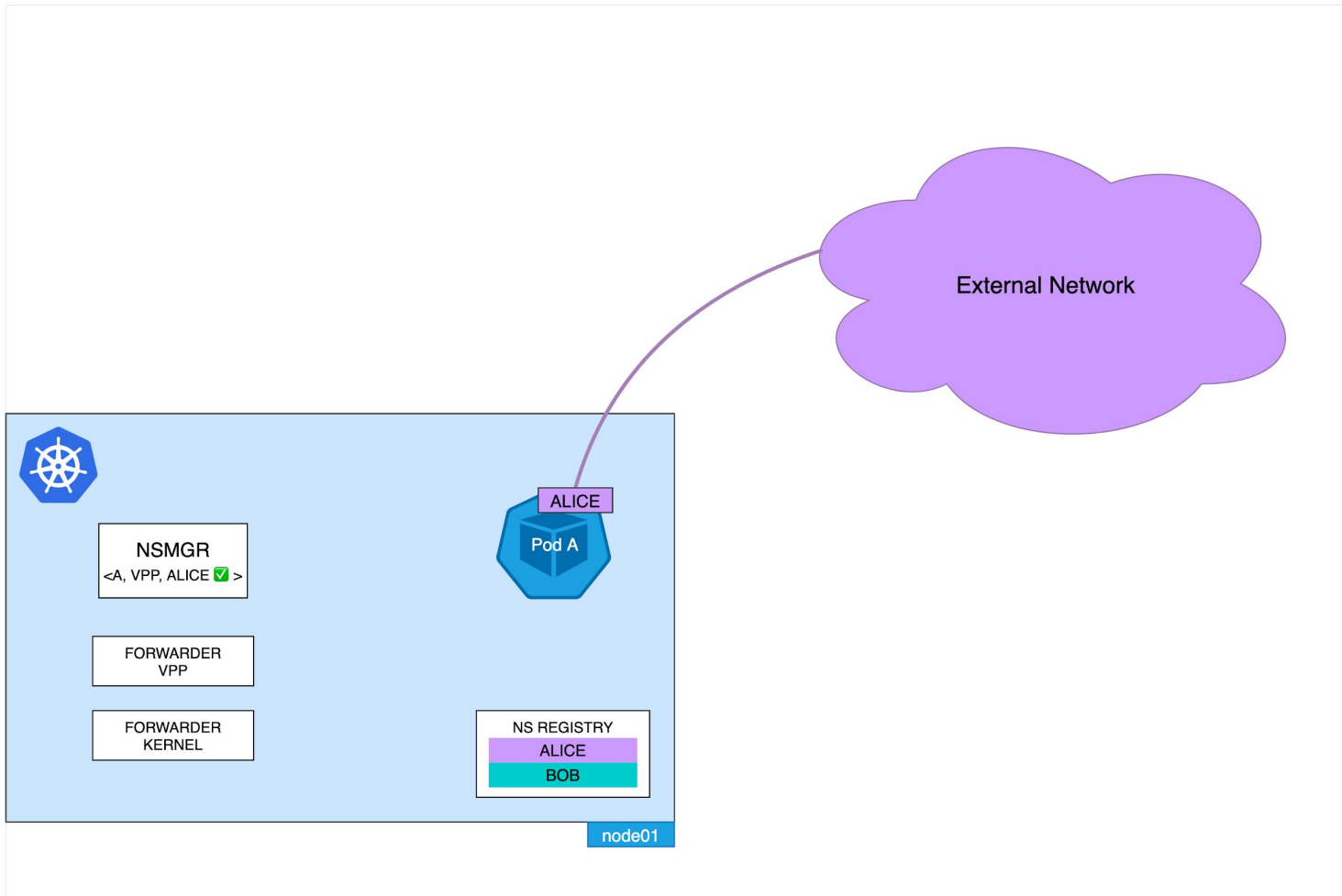
External Network





External Network



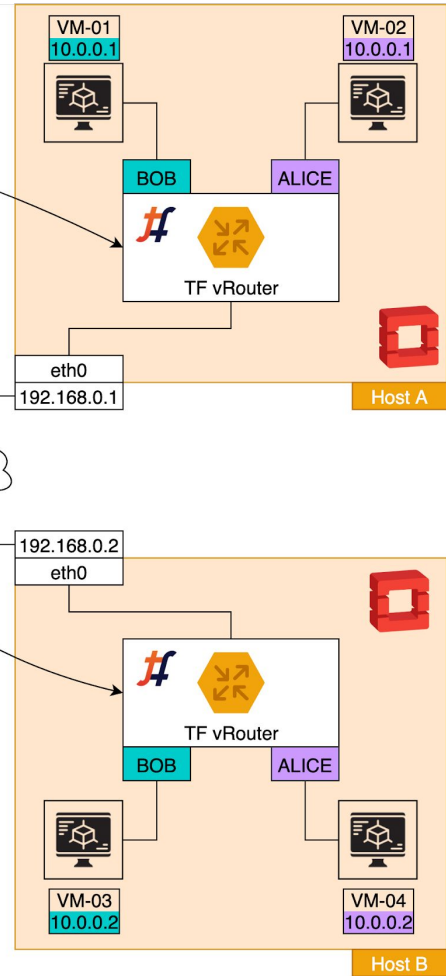
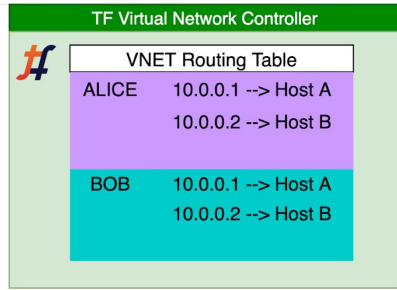




What is TF?

- network virtualization platform
- networking backend for
 - OpenStack
 - Kubernetes
 - OpenShift
 - VMWare
 - ...
- we want to use its versatility to connect pods to different environments with NSM

tungstenfabric





NSM Forwarder for TF



NSMGR

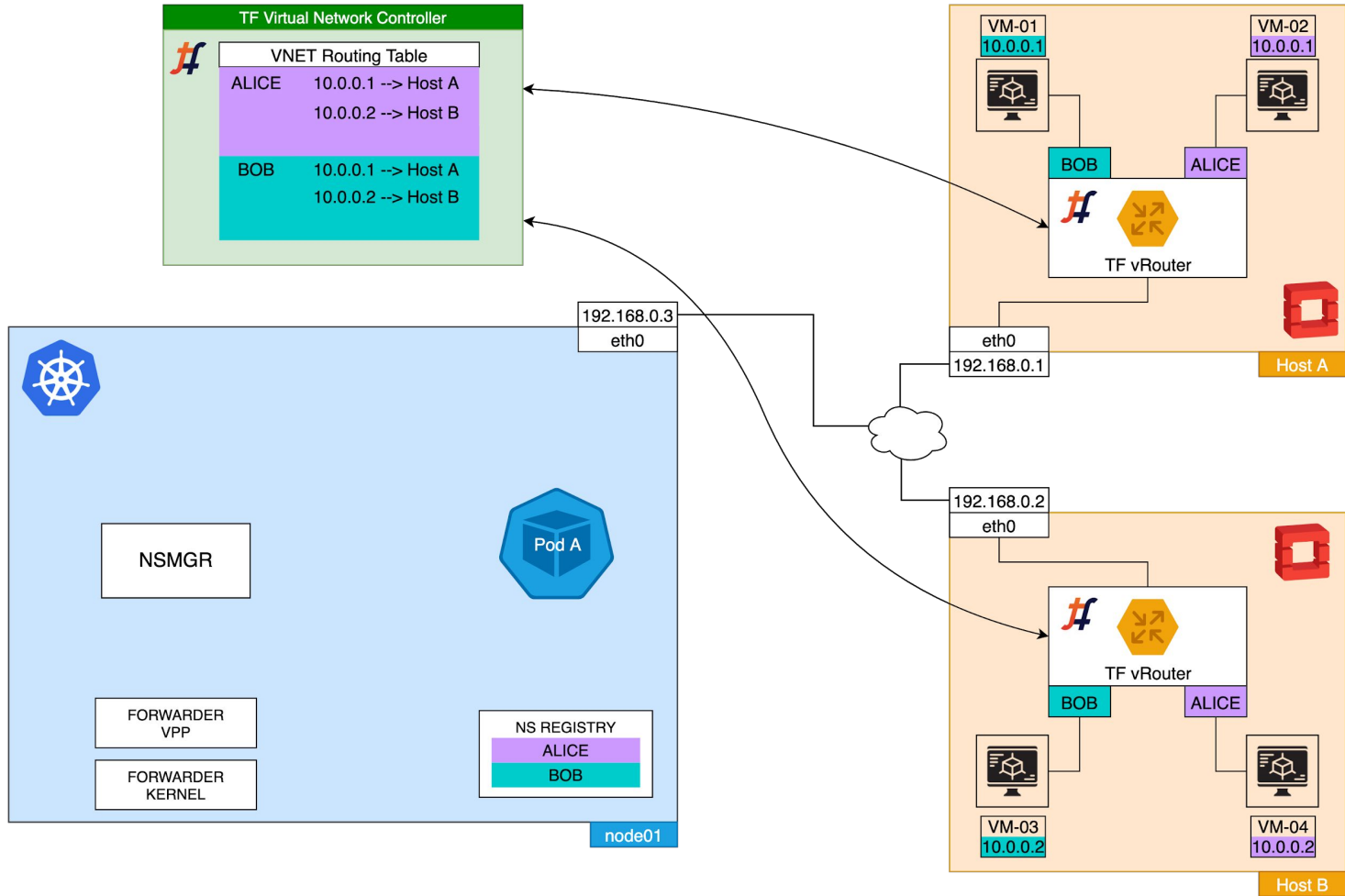


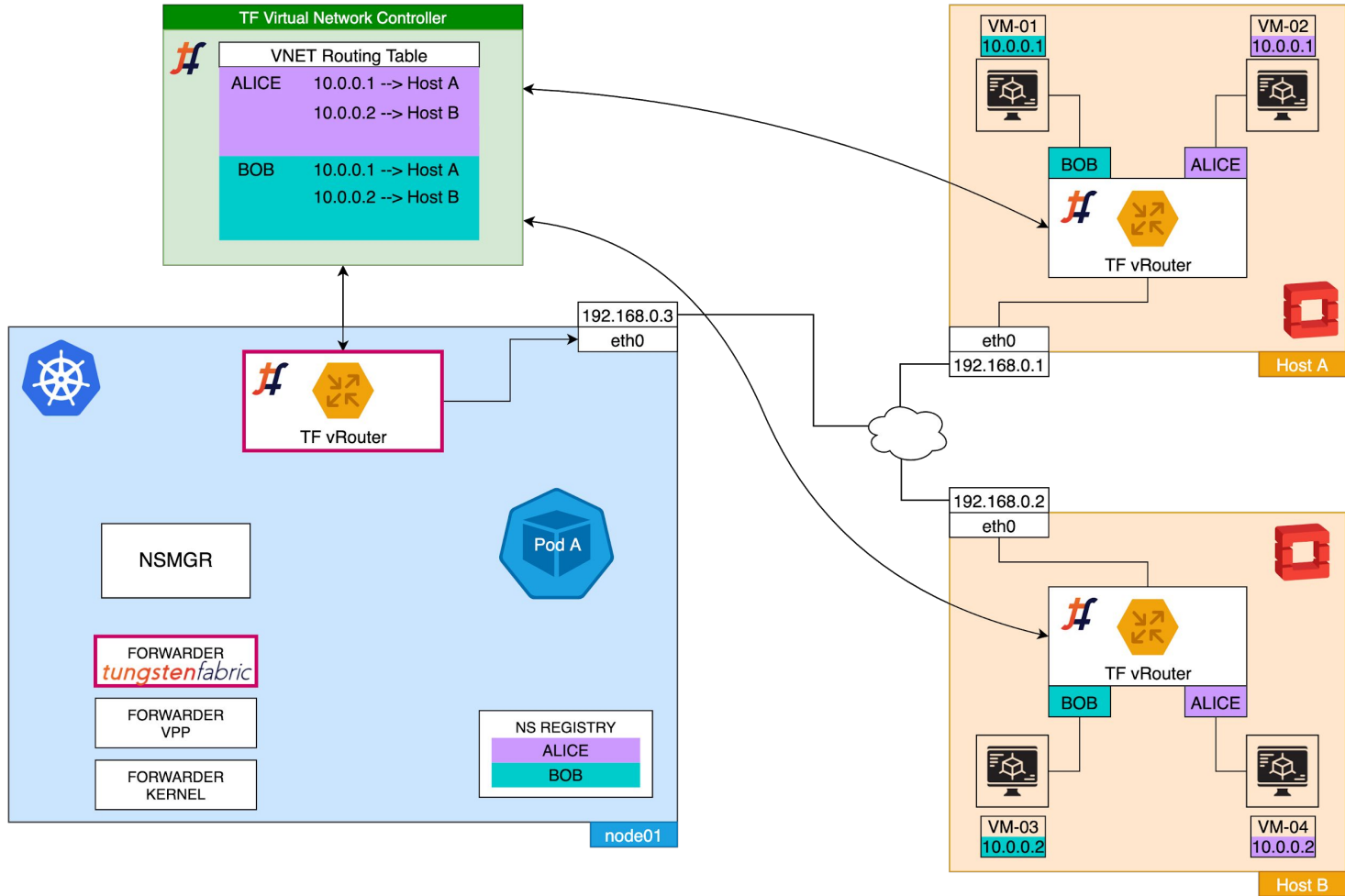
FORWARDER
VPP

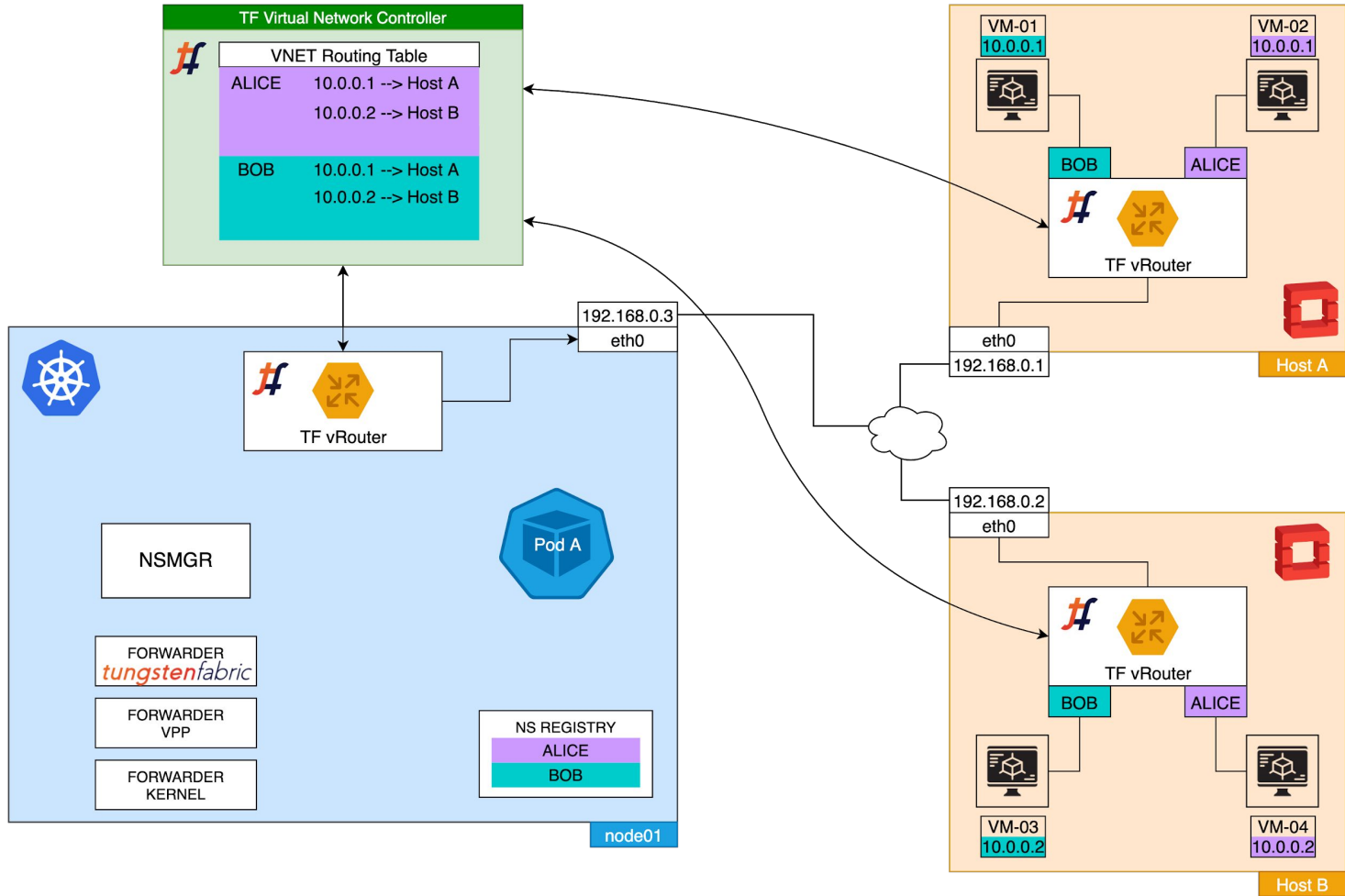
FORWARDER
KERNEL

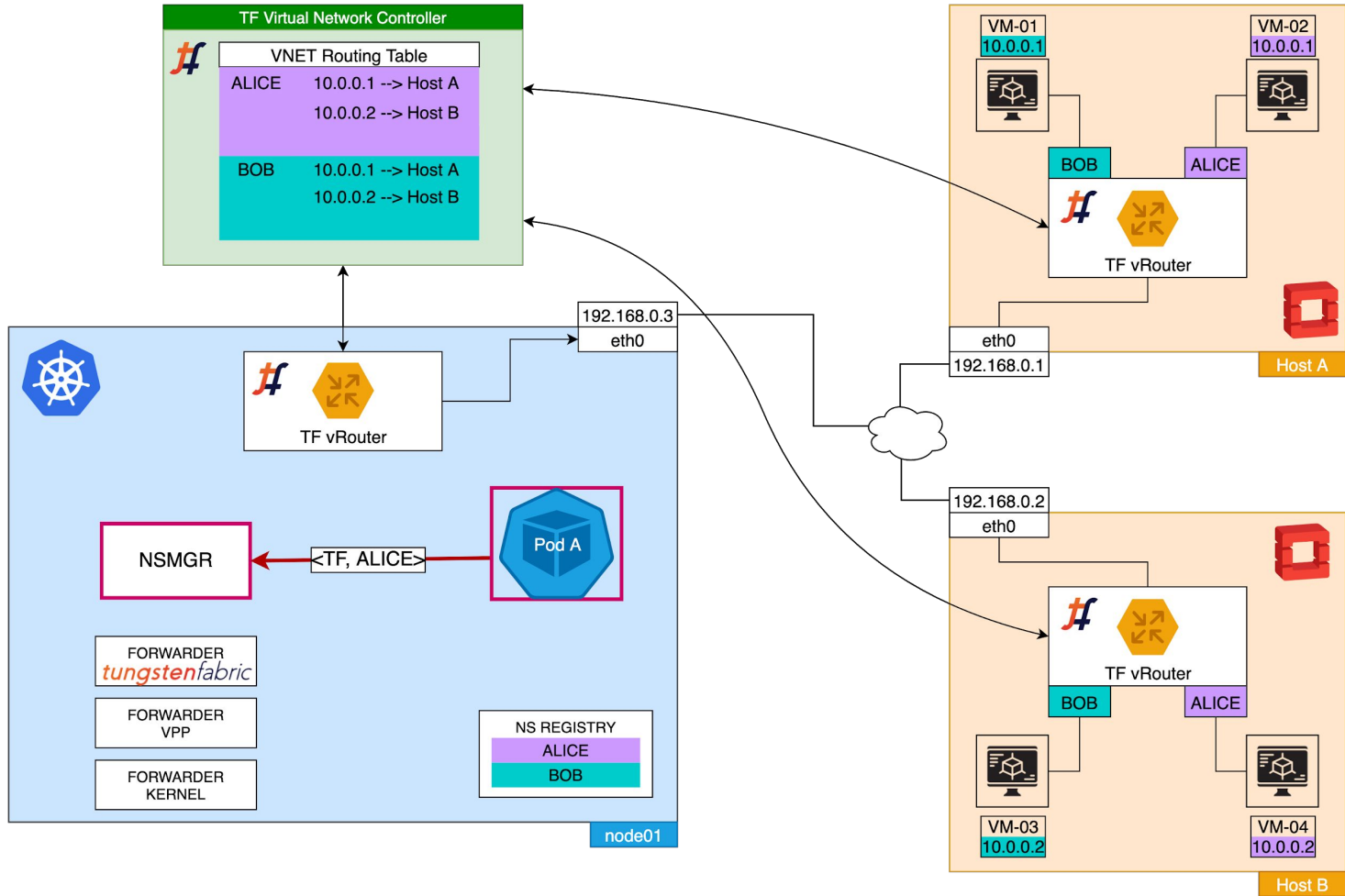
NS REGISTRY
ALICE
BOB

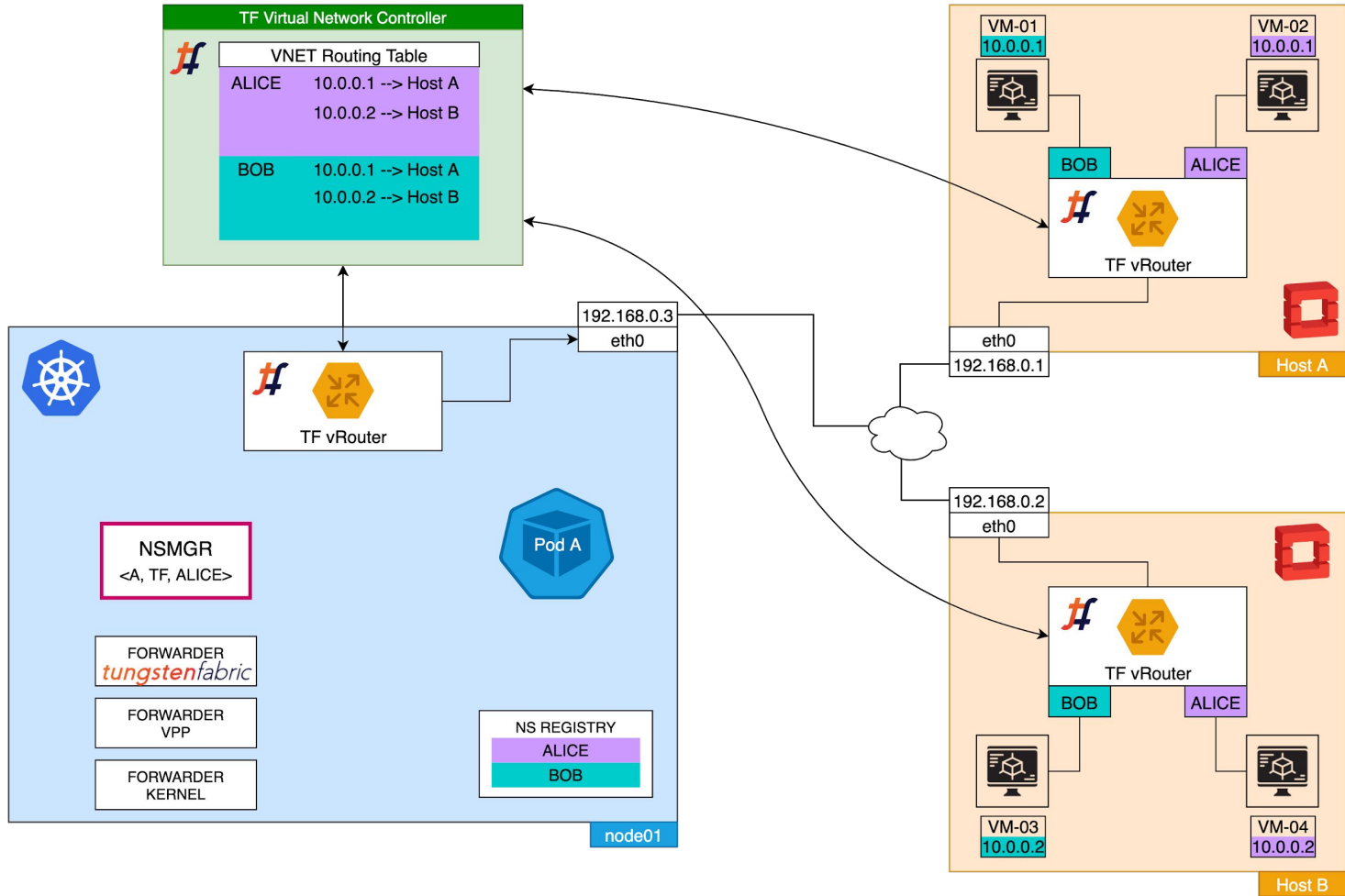
node01

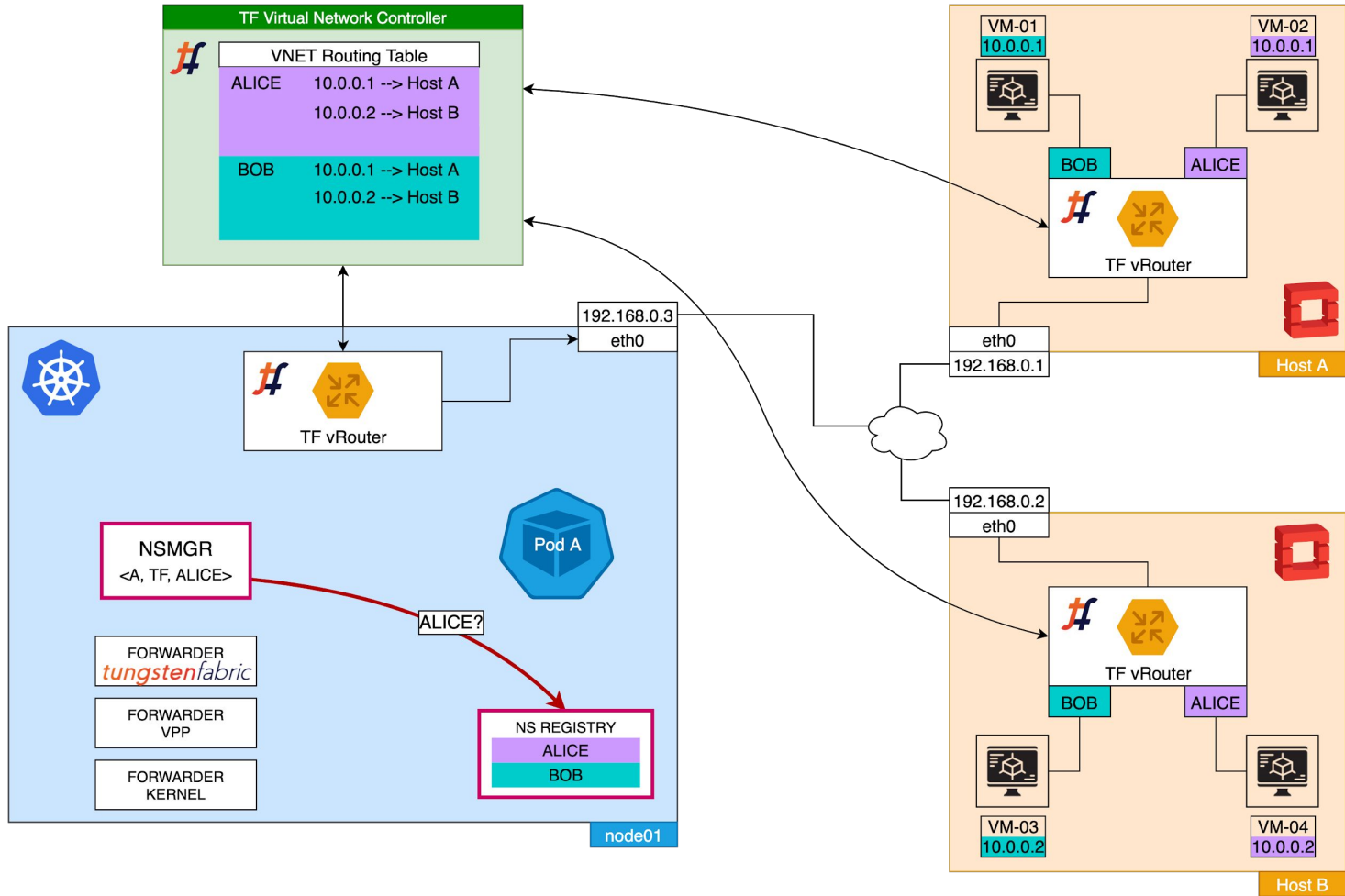


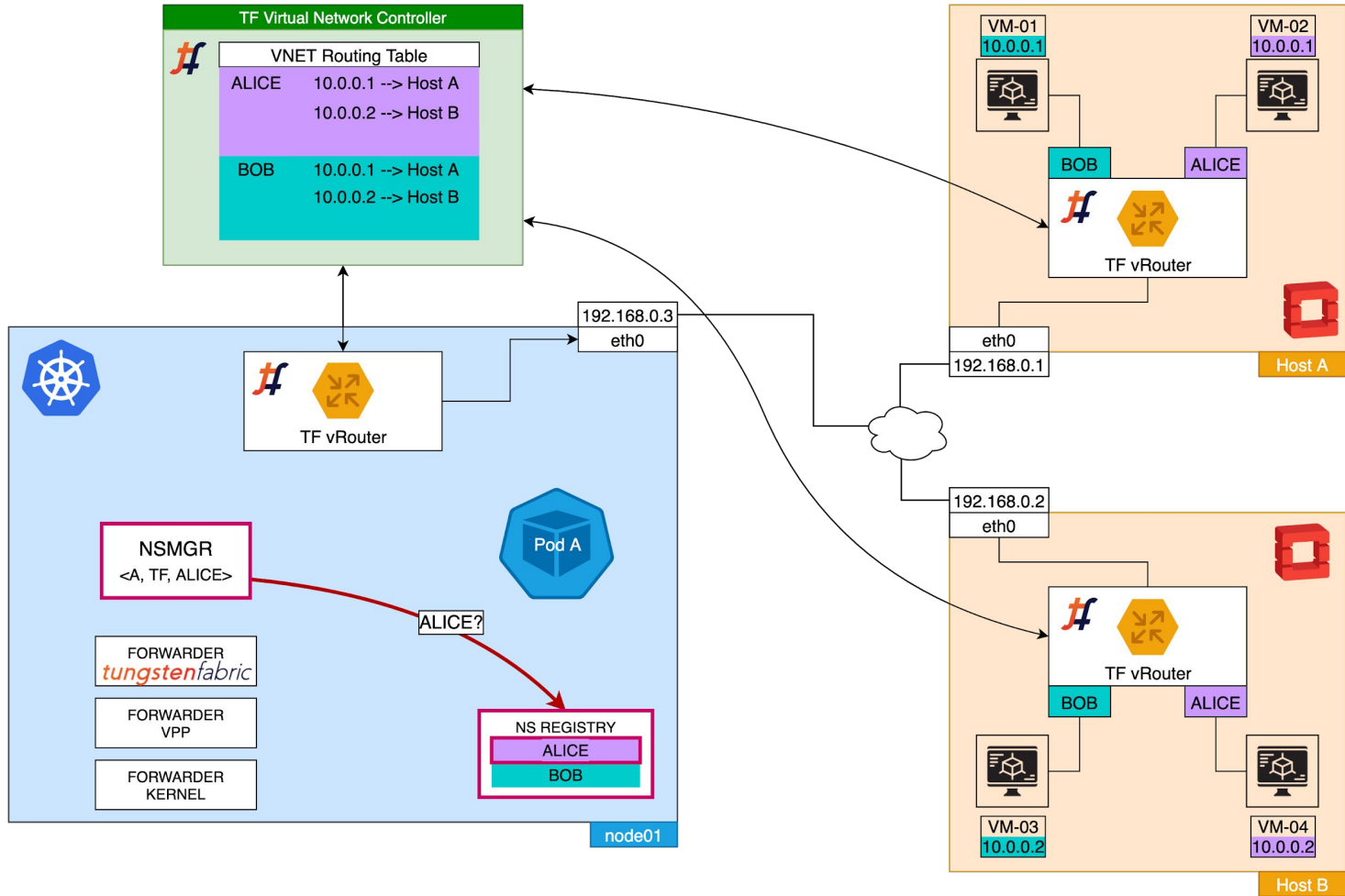


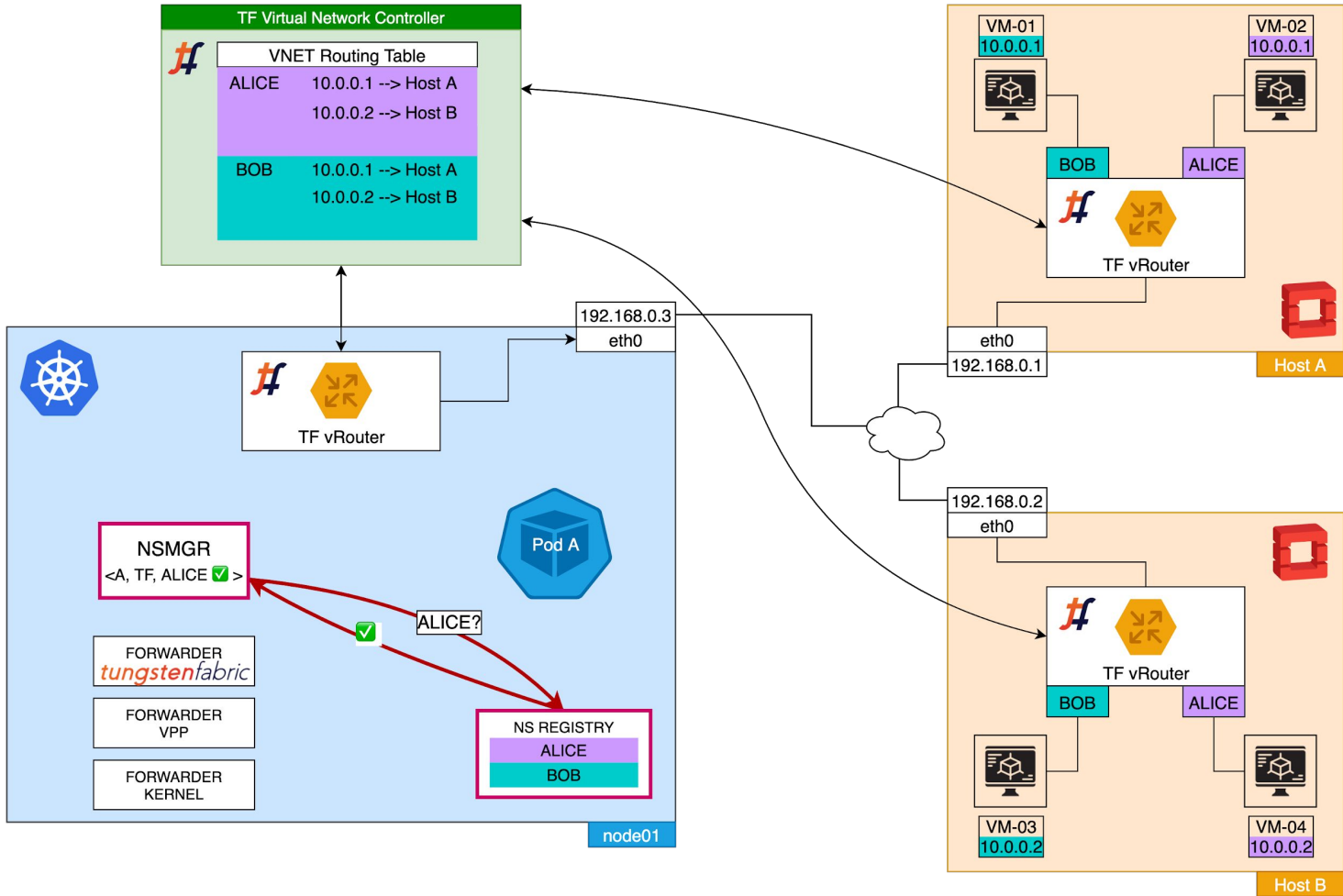


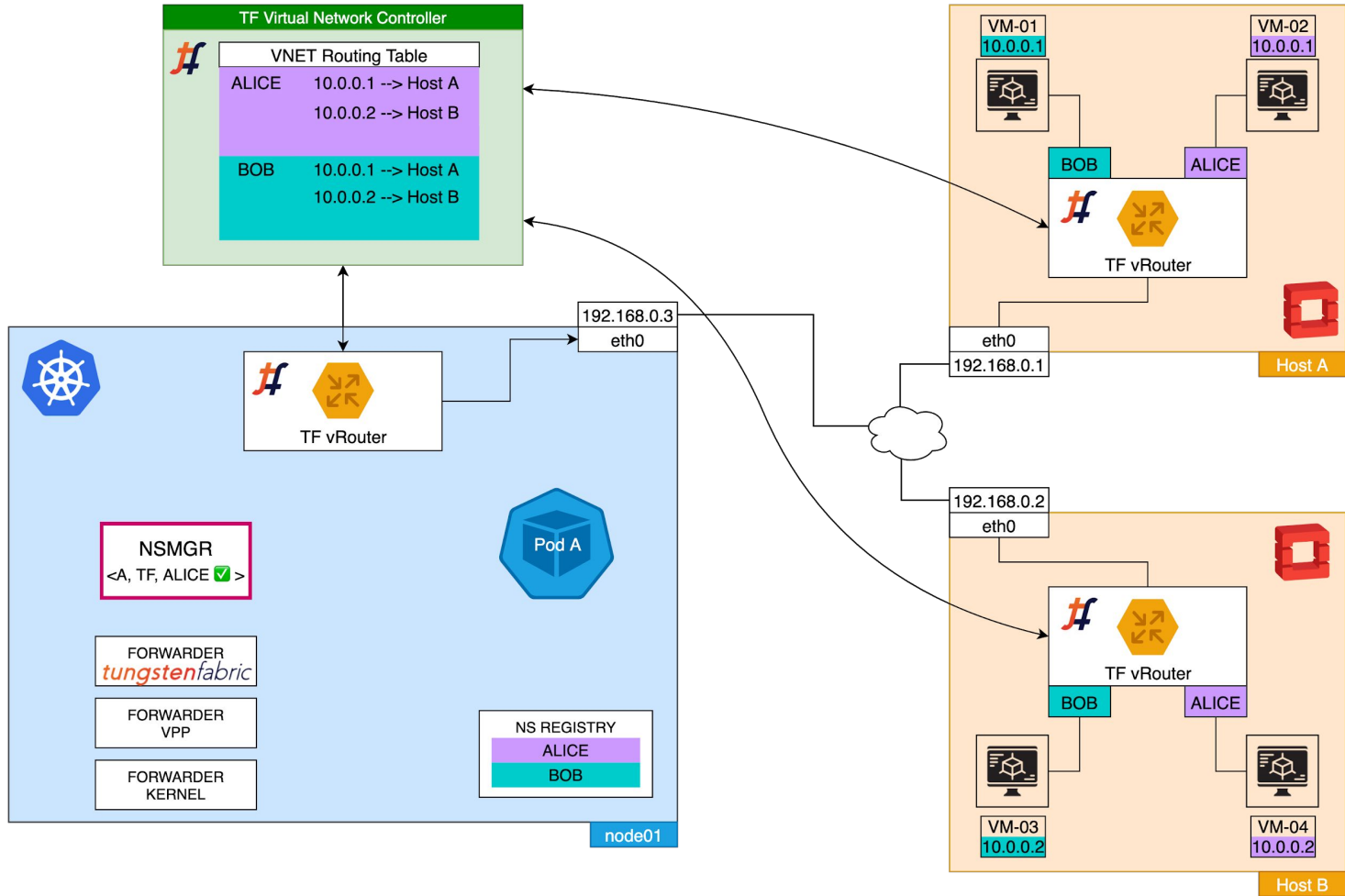


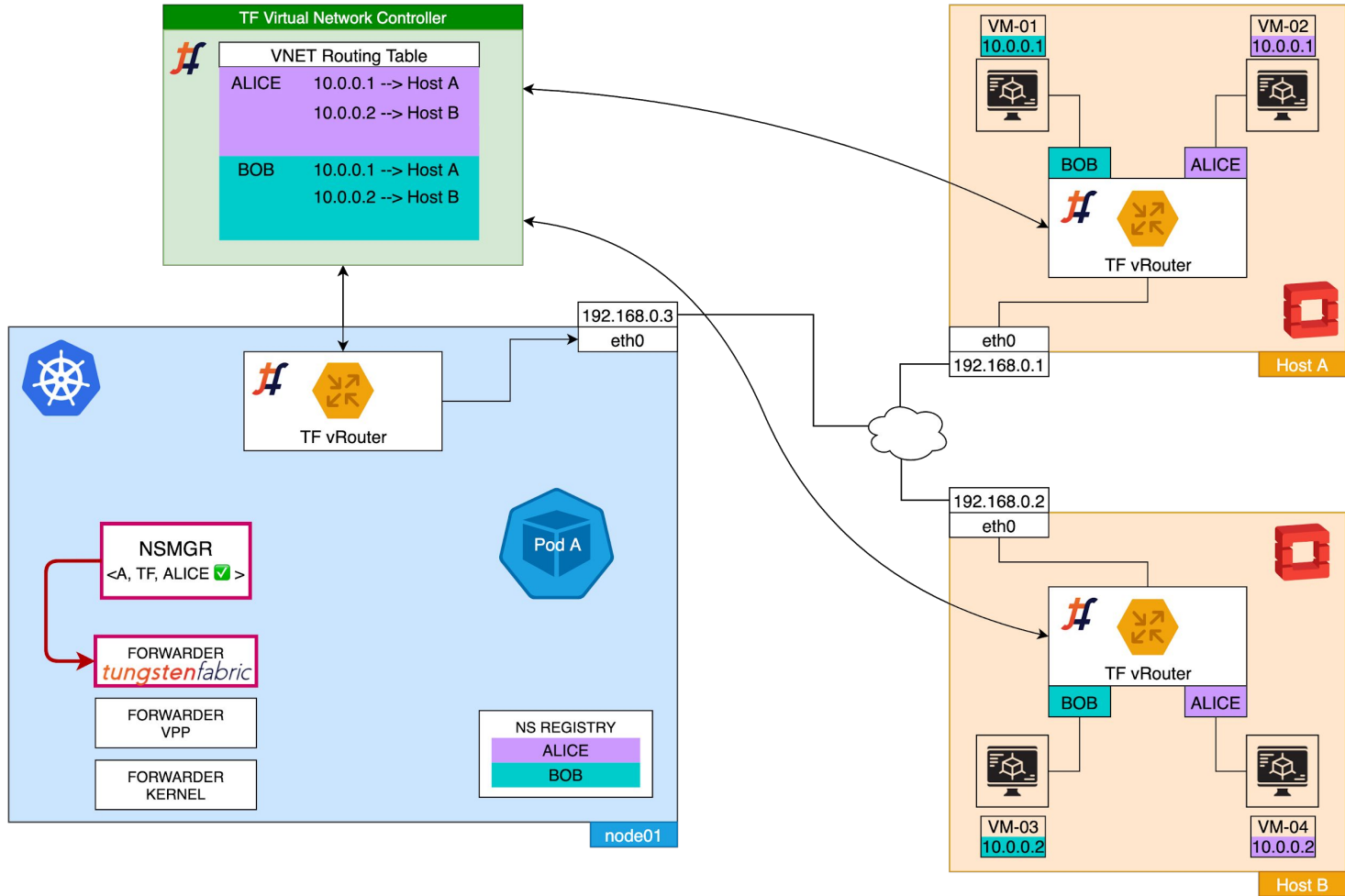


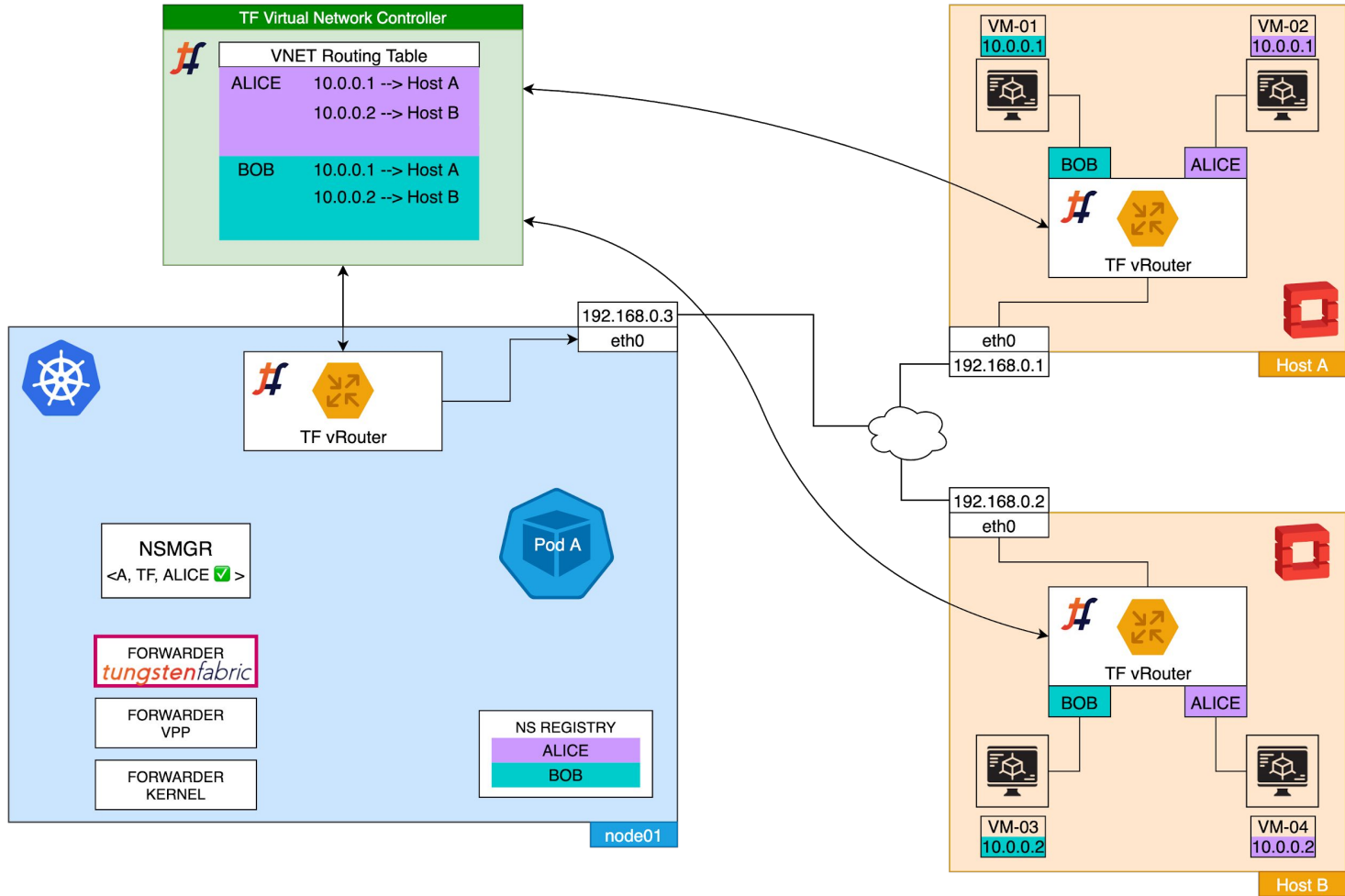


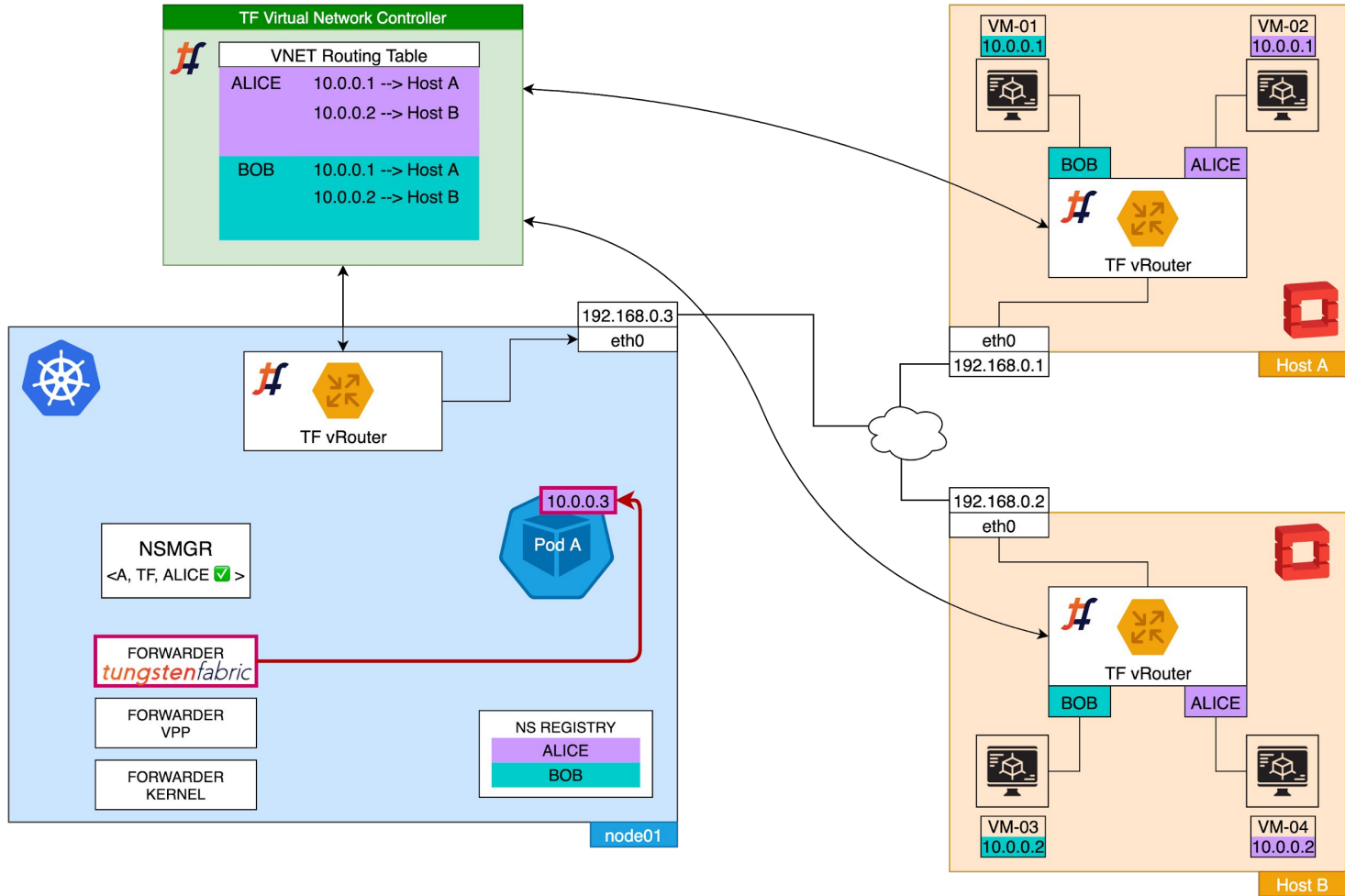


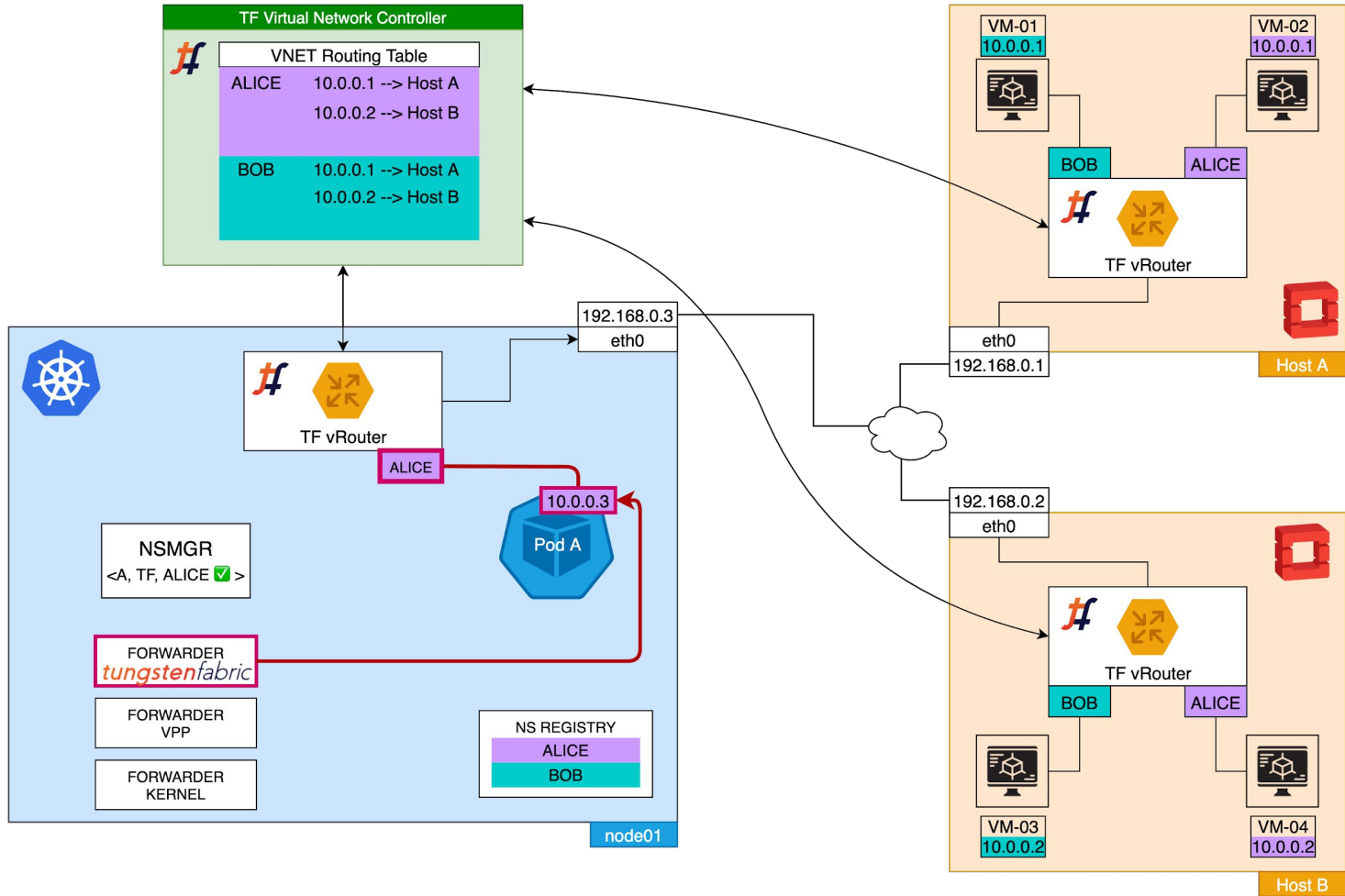


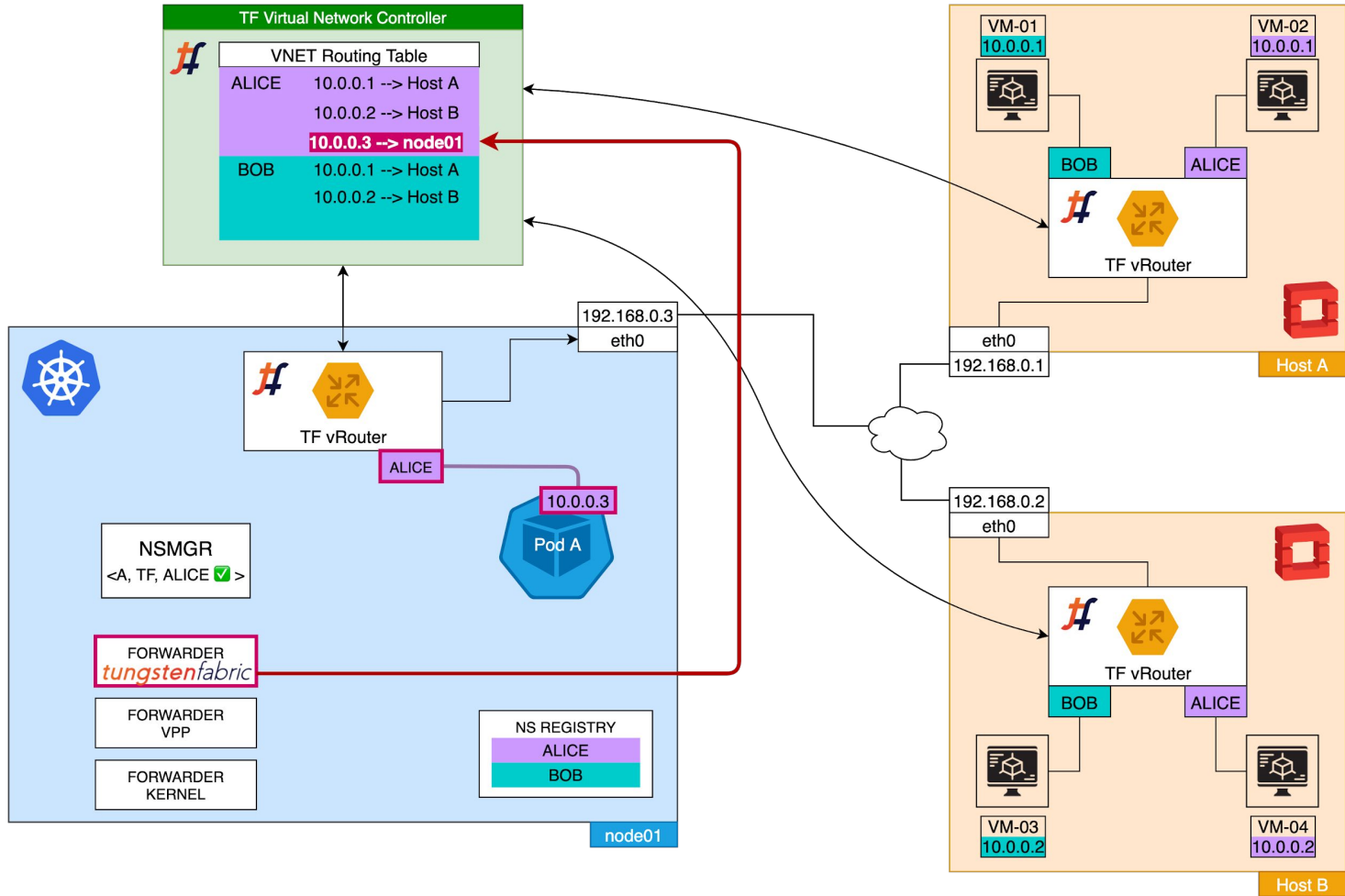


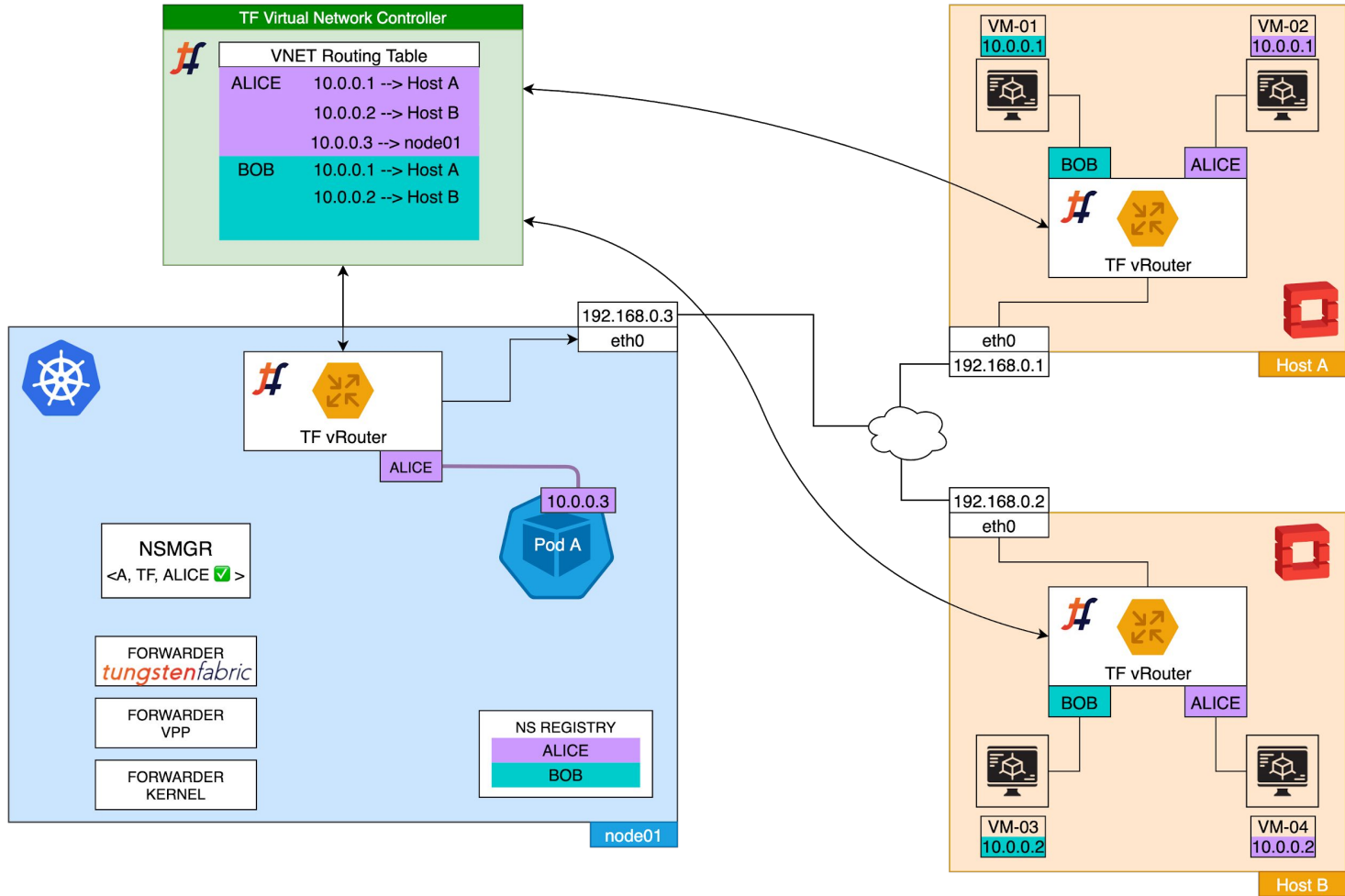


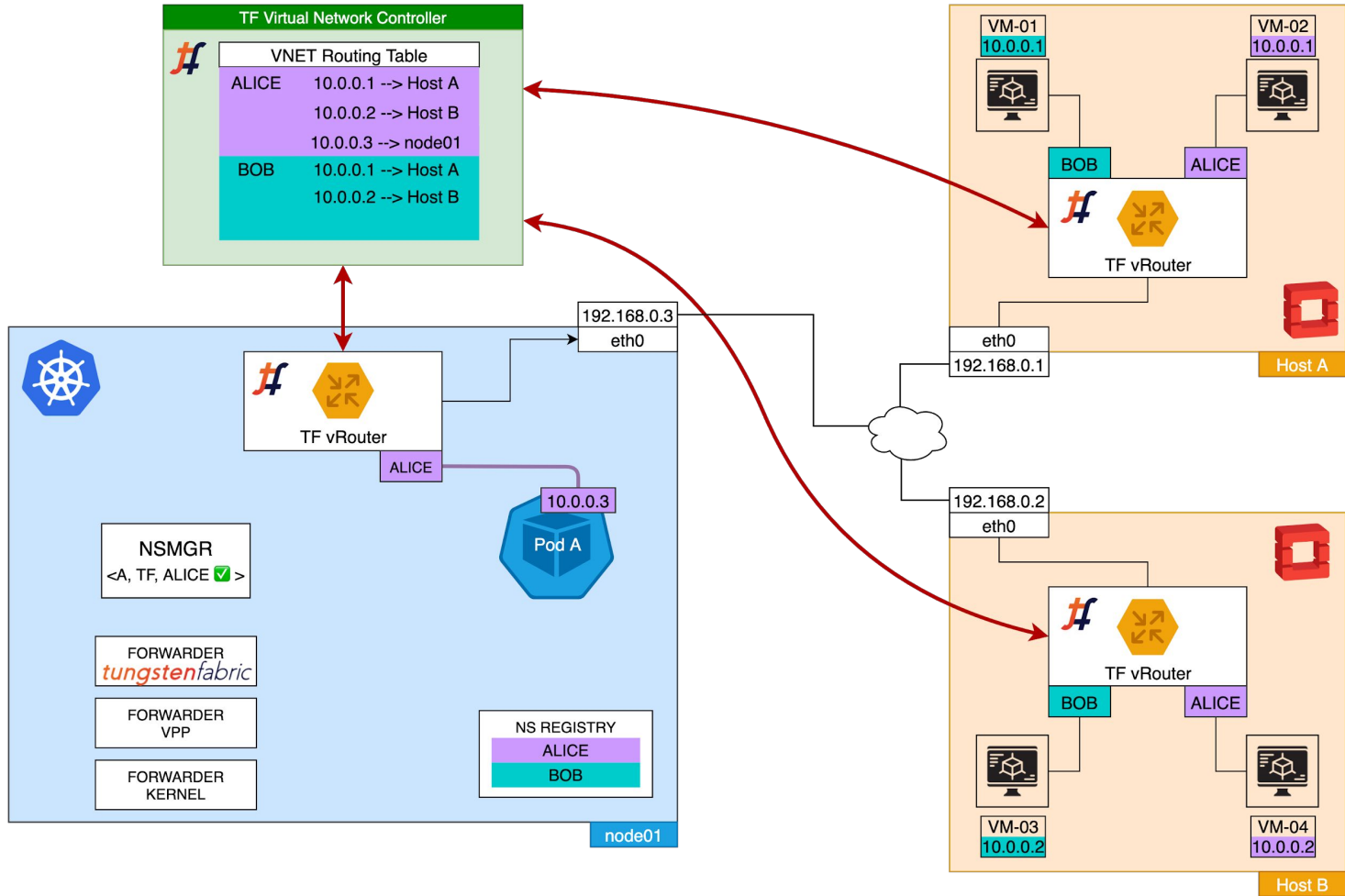














DEMO



Resources

Source code: <https://github.com/ninefiveslabs/networkservicemesh/tree/tf-forwarder>

Inspiration: Radoslav's talk at ONS EU 19 <https://sched.co/SYum>



Q&A