Goal

- How can we leverage OVS, OVN and Kind for scale testing a Kubernetes cluster.

- You can scale test your
  - Application
  - K8S control plane
  - K8S networking plugin
  - ...

What do we need:

- Few physical servers
- Two nics - one for management traffic and other for external traffic.
- OVS and OVN deployed in these servers.
- A custom “kind” utility compiled from here [1]

kind is a tool for running local Kubernetes clusters using Docker container “nodes” on a single machine. Each docker container represents a k8s node. Mainly used for local testing. “kind create cluster” brings up a simple cluster. It uses linux bridges for networking (docker/podman default networking)
Kind for multi-nodes

- A dirty hack of kind -
  [https://github.com/numansiddique/kind/tree/join_support](https://github.com/numansiddique/kind/tree/join_support)
- Added OVS support in kind to provider networking for k8s nodes-containers.
- “Modified” kind creates an ovs port and adds it into the k8s node-container using “ovs-docker” tool.
- Added support in Kind to join additional k8s nodes.
Extending a kind cluster

Step 1: Deploy a kind cluster.

```
#kind create cluster ovn
```

Step 2: Add additional nodes to the kind cluster ‘ovn’

```
#kind create cluster --name ovn --image kindest/node:v1.20.0 --join
--nodeip=10.82.0.6 --nodemac=52:54:00:01:00:fe --nodename=ovnworker3
#kind create cluster --name ovn --image kindest/node:v1.20.0 --join
--nodeip=10.82.0.7 --nodemac=52:54:00:01:01:1e --nodename=ovnworker4
```
**OVN kind heater**

- **Tool** to deploy a kind cluster and extend it to add additional worker nodes.
- Creates an OVN cluster on the physical machines.
- OVN provides networking for each k8s node-container
- **It**
  - Creates a 3 node kind cluster using ovn-kubernetes on a central physical node.
  - Uses the modified “kind” utility to add additional k8s worker nodes on other physical machines.
- A multi-node kind k8s cluster is ready for testing.

[https://github.com/numansiddique/ovn-kind-heater/](https://github.com/numansiddique/ovn-kind-heater/)
Demo
• https://github.com/numansiddique/kind/tree/join_support

• https://github.com/numansiddique/ovn-kind-heater/

• https://github.com/kubernetes-sigs/kind
Questions.