

R6 Test Document of IEC Type 5: Composable Integrated Edge Cloud (IEC) Server Blueprint Family

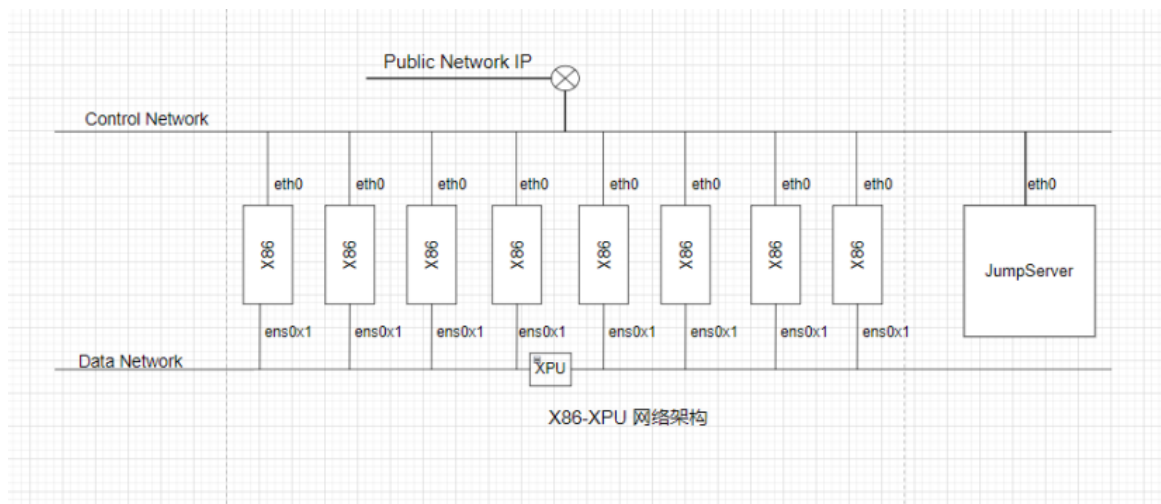
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Introduction

Since DPU is PCIe-compatible device, we can further combine DPU and PCIe Networking together. In R6, we introduce a hardware layer or physical link /fabric layer between the DPU and the CPUs as below. With this layer, we extend the DPU cluster size and also use the DPU management features as well.

Networking Topology

In CoB design, we have multiple networks. At least one PCIe networking for multiple CPUs. Also we can introduce more connections as well as traditional RJ45 as the management ports as well. Hence all CoB Hardware are cloud native compatible at the beginning.



Networking in CoB system for Cloud Native Applications

Docker installation log

```

[1902926.143882] veth6f13209: renamed from eth0
[1902926.241432] docker0: port 2(veth90d2d35) entered disabled state
[1902926.277682] device veth90d2d35 left promiscuous mode
[1902926.282875] docker0: port 2(veth90d2d35) entered disabled state
[1904264.591426] docker0: port 2(vethfd791da) entered blocking state
[1904264.597576] docker0: port 2(vethfd791da) entered disabled state
[1904264.603870] device vethfd791da entered promiscuous mode
[1904264.609659] IPv6: ADDRCONF(NETDEV_UP): vethfd791da: link is not ready
[1904265.178860] eth0: renamed from vetha285947
[1904265.213756] IPv6: ADDRCONF(NETDEV_CHANGE): vethfd791da: link becomes ready
[1904265.221006] docker0: port 2(vethfd791da) entered blocking state
[1904265.227116] docker0: port 2(vethfd791da) entered forwarding state
[1904265.701099] docker0: port 2(vethfd791da) entered disabled state
[1904265.707334] vetha285947: renamed from eth0
[1904265.809211] docker0: port 2(vethfd791da) entered disabled state
[1904265.845497] device vethfd791da left promiscuous mode
[1904265.850690] docker0: port 2(vethfd791da) entered disabled state
[1905093.586259] docker0: port 2(veth5bab49b) entered blocking state
[1905093.592389] docker0: port 2(veth5bab49b) entered disabled state
[1905093.598694] device veth5bab49b entered promiscuous mode
[1905093.604509] IPv6: ADDRCONF(NETDEV_UP): veth5bab49b: link is not ready
[1905094.178399] eth0: renamed from veth0e959c3
[1905094.209270] IPv6: ADDRCONF(NETDEV_CHANGE): veth5bab49b: link becomes ready
[1905094.216504] docker0: port 2(veth5bab49b) entered blocking state
[1905094.222614] docker0: port 2(veth5bab49b) entered forwarding state
[1905094.708029] docker0: port 2(veth5bab49b) entered disabled state
[1905094.714275] veth0e959c3: renamed from eth0
[1905094.823988] docker0: port 2(veth5bab49b) entered disabled state
[1905094.860252] device veth5bab49b left promiscuous mode
[1905094.865430] docker0: port 2(veth5bab49b) entered disabled state
[1907665.272865] docker0: port 2(vethbbaa260) entered blocking state
[1907665.279008] docker0: port 2(vethbbaa260) entered disabled state
[1907665.285333] device vethbbaa260 entered promiscuous mode
[1907665.291168] IPv6: ADDRCONF(NETDEV_UP): vethbbaa260: link is not ready

```

Docker config

ExecStart=/usr/bin/dockerd -H unix:///var/run/docker.sock -H tcp://0.0.0.0:2375

docker-compose

cat >/etc/docker/daemon.json << EOF

```

{
  "data-root":"/home/docker",
  "debug":true,
  "default-address-pools":[
    {
      "base":"192.1.0.0/16",
      "size":24
    }
  ]
}
EOF

```

docker-swarm init

docker swarm init --advertise-addr 10.3.1.16 # set Manager

```

[root@localhost ~]# docker swarm init --advertise-addr=192.168.65.129
Swarm initialized: current node (3tkery351rmsroa1xubn03nvs) is now a manager.

```

To add a worker to this swarm, run the following command:

```
docker swarm join --token SWMTKN-1-2fl56eq1fov04ftmzsaayrybz92mrc2c90ja5sc8ni4ur5ze54-8lta9gj7pot0s9fhxsbca
```

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.

docker swarm join-token manager

#join 10.3.1.16

```
git commit -m fec3683
[root@localhost ~]# docker swarm join --token SWMTKN-1-2f156eq1fov84ftmzsaayrybz92mrc2c98ja5sc8n14ur5ze54-8lta9gj7pot8s9fhxsba032 192.168.65.128
This node joined a swarm as a worker.
[root@localhost ~]# docker info
Client:
  Debug Mode: false

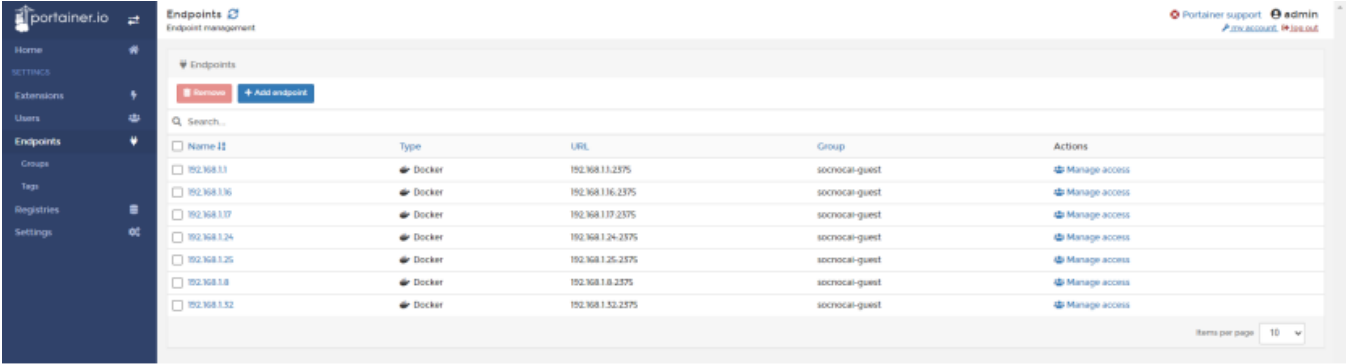
Server:
  Containers: 0
  Running: 0
  Paused: 0
  Stopped: 0
  Images: 0
  Server Version: 19.03.14
  Storage Driver: overlay2
  Backing Filesystem: xfs
  Supports d_type: true
  Native Overlay Diff: true
  Logging Driver: json-file
  Cgroup Driver: cgroupfs
  Plugins:
    Volume: local
    Network: bridge host ipvlan macvlan null overlay
    Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
  Swarm: active
  NodeID: oq4t64lmr3ur6w39xv35j6gr8
  Is Manager: false
  Node Address: 192.168.65.131
  Manager Addresses:
    192.168.65.128:2377
  Runtimes: runc
  Default Runtime: runc
  Init Binary: docker-init
  containerd version: ea765aba005254b12b0b9e595e995c09186427f
  runc version: dc92683303feef5b3839f4323d9beb36df0a9dd
  init version: fec3683
  Security Options:
    seccomp
  Profile: default
  Kernel Version: 3.10.0-693.el7.x86_64
  Operating System: CentOS Linux 7 (Core)
  OSType: Linux
```

show

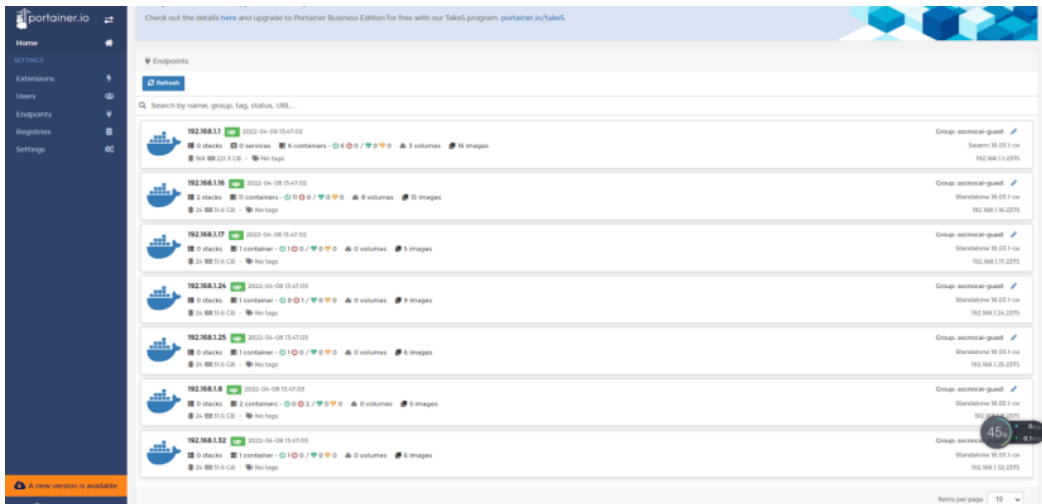
```
[root@master docker]# docker node ls
ID                HOSTNAME        STATUS      AVAILABILITY    MANAGER STATUS  ENGINE VERSION
4olgybws3v99o0dgux9wmy7q0 *  master        Ready       Active           Leader           19.03.5
sq72fmr3fs7c9sq2q460lcti0  slave         Ready       Active           19.03.5
```

ID	HOSTNAME	STATUS	AVAILABILITY	MANAGER STATUS	ENGINE VERSION
4olgybws3v99o0dgux9wmy7q0 *	master	Ready	Active	Leader	19.03.5
sq72fmr3fs7c9sq2q460lcti0	slave	Ready	Active		19.03.5

Docker cluster status log



Web portal screenshot



The test is to evaluate the performance of SmartNIC offloading.

Test API description

Thus we currently don't have any Test APIs provided.

Test Dashboards

n/a

Additional Testing

n/a

Bottlenecks/Errata

n/a