Demystifying Docker Networking

Practical guide to black magic

Lorenzo Fontana
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About Me

Lorenzo Fontana
DevOps Expert @Kiratech
Docker Maintainer

http://fntlnz.wtf
https://github.com/fntlnz
https://twitter.com/fntlnz
Container Network Model
CNM: Container Network Model

- Sandbox
- Endpoint
- Network
CNM: Container Network Model (cont’d)
Libnetwork is the Native implementation of CNM

github.com/docker/libnetwork
Network Drivers 101
# docker run -it --network=none alpine sh
# docker run -it alpine sh
# docker network create -d bridge \
-o com.docker.network.bridge.name=mybridge \\nmybridge

# docker run -it --net mybridge alpine sh
# Custom Bridge Network IPAM underlay (myunderbr)

```
# docker network create -d bridge --subnet=192.168.10.0/24 --gateway=192.168.10.254 --aux-address DefaultGatewayIPv4=192.168.10.1 -o com.docker.network.bridge.name=myunderbr
myunderbr
# brctl addif myunderbr enp5s0
# docker run -it --net myunderbr alpine sh
# docker run -it --net myunderbr --ip 192.168.10.90 nginx:1.9
# ip a del 192.168.10.254/24 dev myunderbr
```
Macvlan & IPvlan

- C1: eth0 172.16.1.10
- C2: eth0 172.16.1.11
- C3: eth0 172.16.1.12
- C4: eth0 172.16.1.13
- C5: eth0 172.16.1.14
- C6: eth0 172.16.1.15

eth0: 172.16.1.253 (IP optional)

Network switch (gateway 172.16.1.1)

eth0: 172.16.1.254 (IP optional)
Macvlan modes: Bridged

Bridged (default): switches packets inside the host
Macvlan modes: Private

Private blocks traffic between two MACVLAN interfaces on the same host.
VEPA requires a downstream switch that supports VEPA 802.1bg that will hairpin traffic back to the host if the destination is on the same host.
Macvlan modes: Passthru

Passthru is similar to private but relies on an external switch not to hairpin the traffic back to the originating host.
Overlay network (myoverlay)

# docker network create -d overlay myoverlay
# docker service create --network myoverlay nginx
IPVS
Questions?
We are hiring

drop me a line at lo@linux.com
Thanks for listening!
And thanks to all the organizers!