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CloudNativeCon

— North America 2018 —

Container Networking From Scratch

The Aim



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The Plan



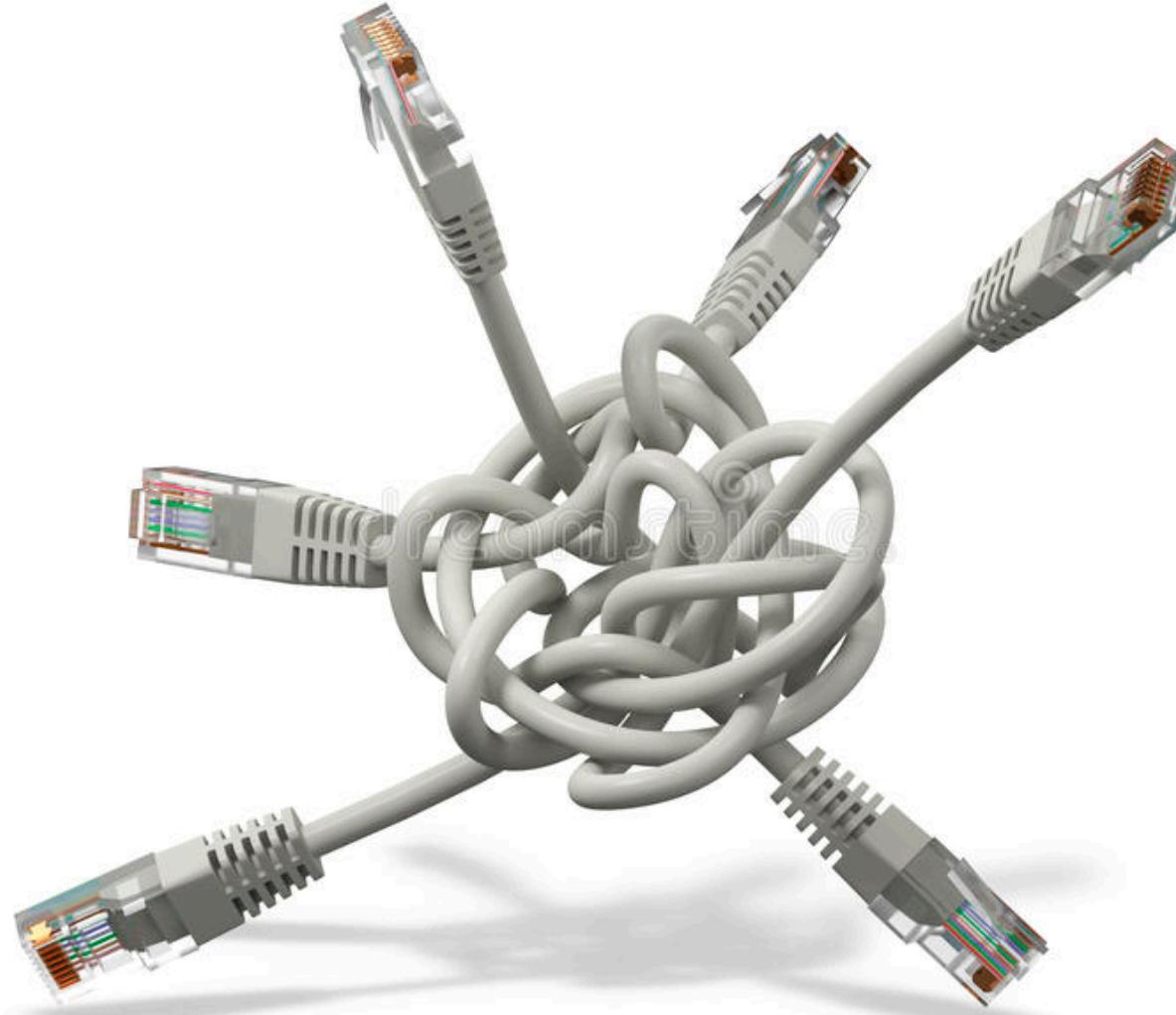
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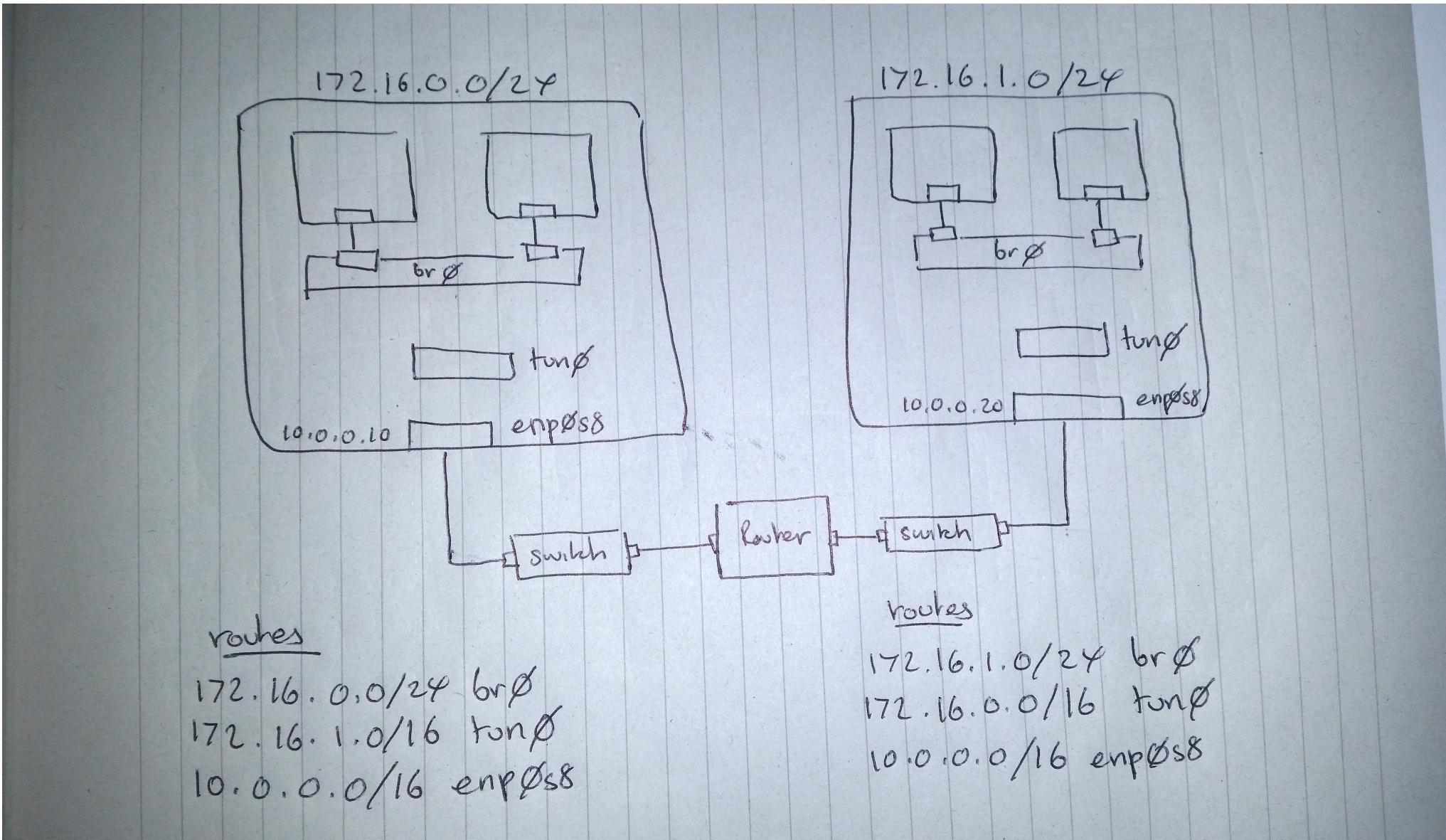


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1. Single Network Namespace





4 Overlay Network

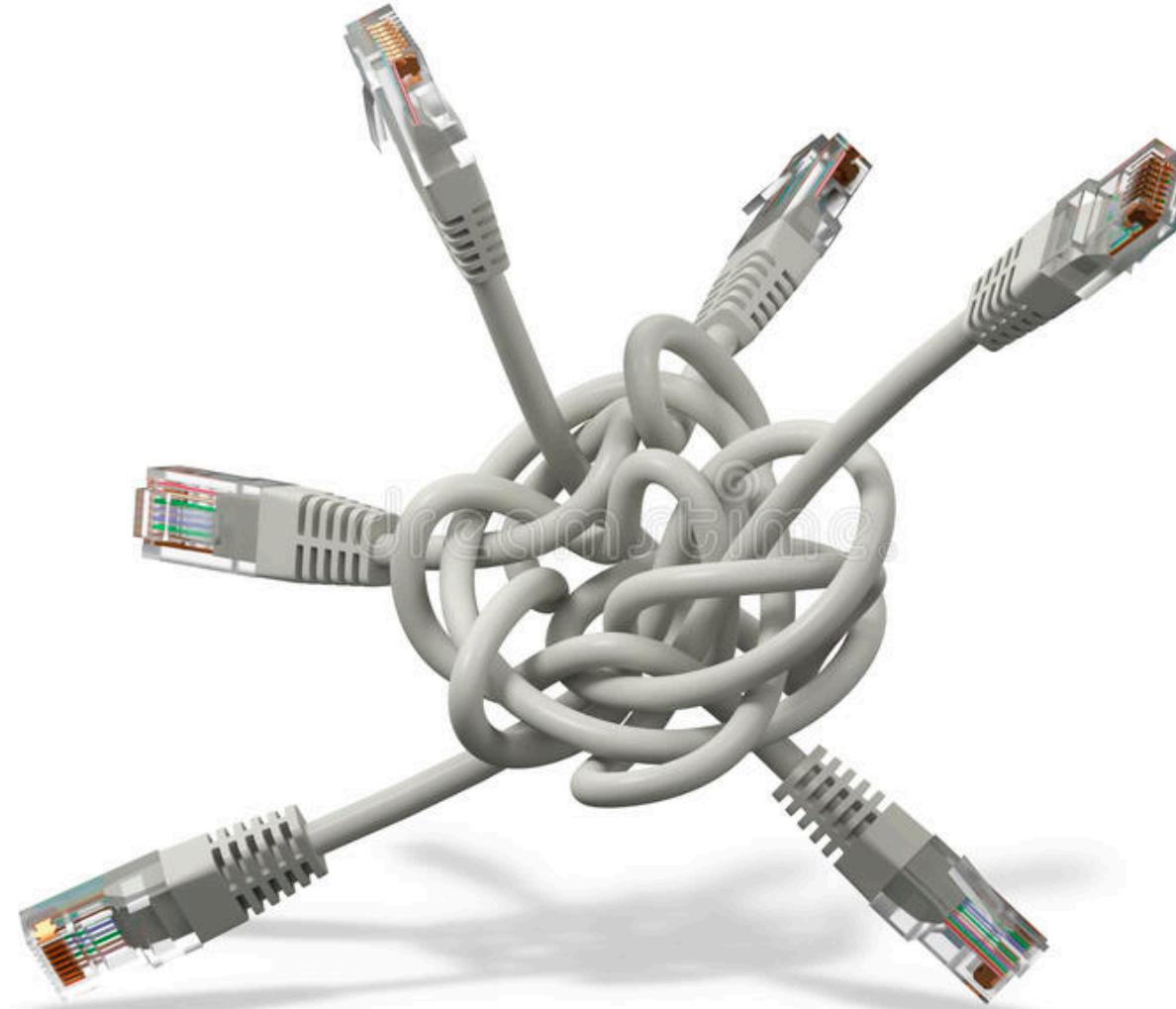
Routing Rules 101

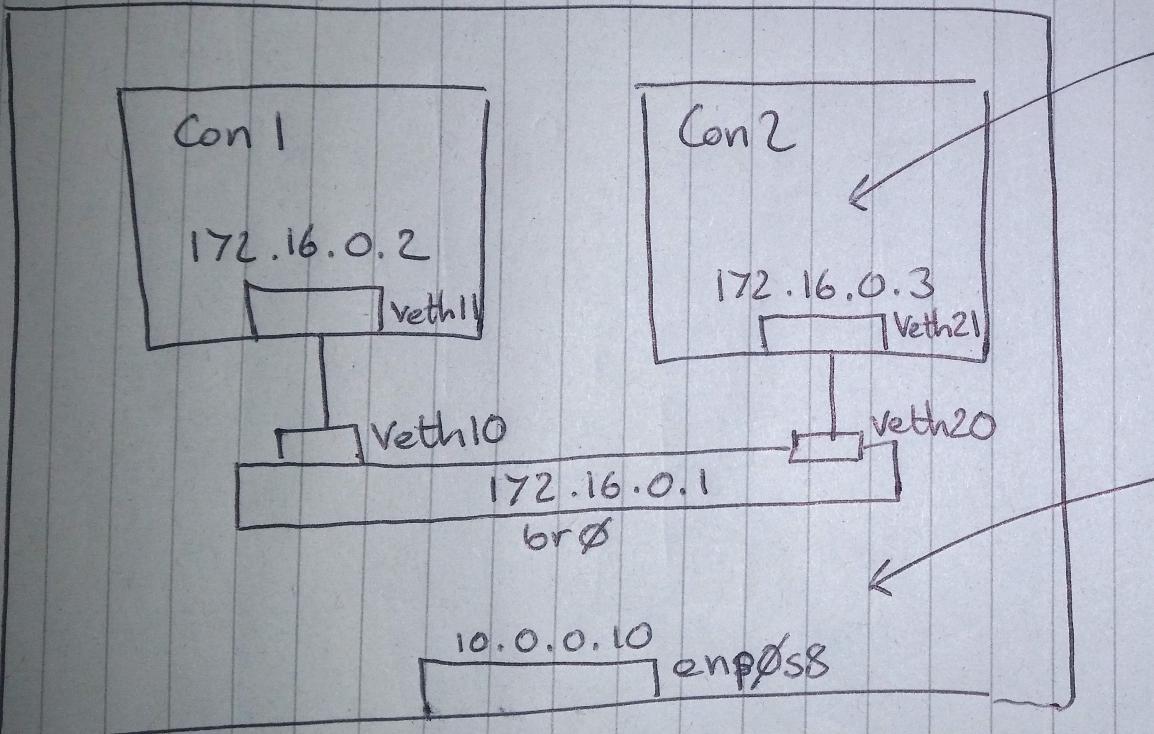
4 Types of routing rules (in order of precedence):

1. Directly connected network, e.g. `10.0.0.0/24 eth1`
2. Static (manually added) routing rule, e.g. `10.0.0.0/24 via 10.0.0.1 eth0`
3. Dynamic (automatically added) routing rule, e.g. `10.0.0.0/24 via 10.0.0.1 eth0`
4. Default rule, e.g. default via `10.0.0.1 eth0`

Within each of the above, the most specific CIDR range takes priority.

2. Single Node, 2 Namespaces





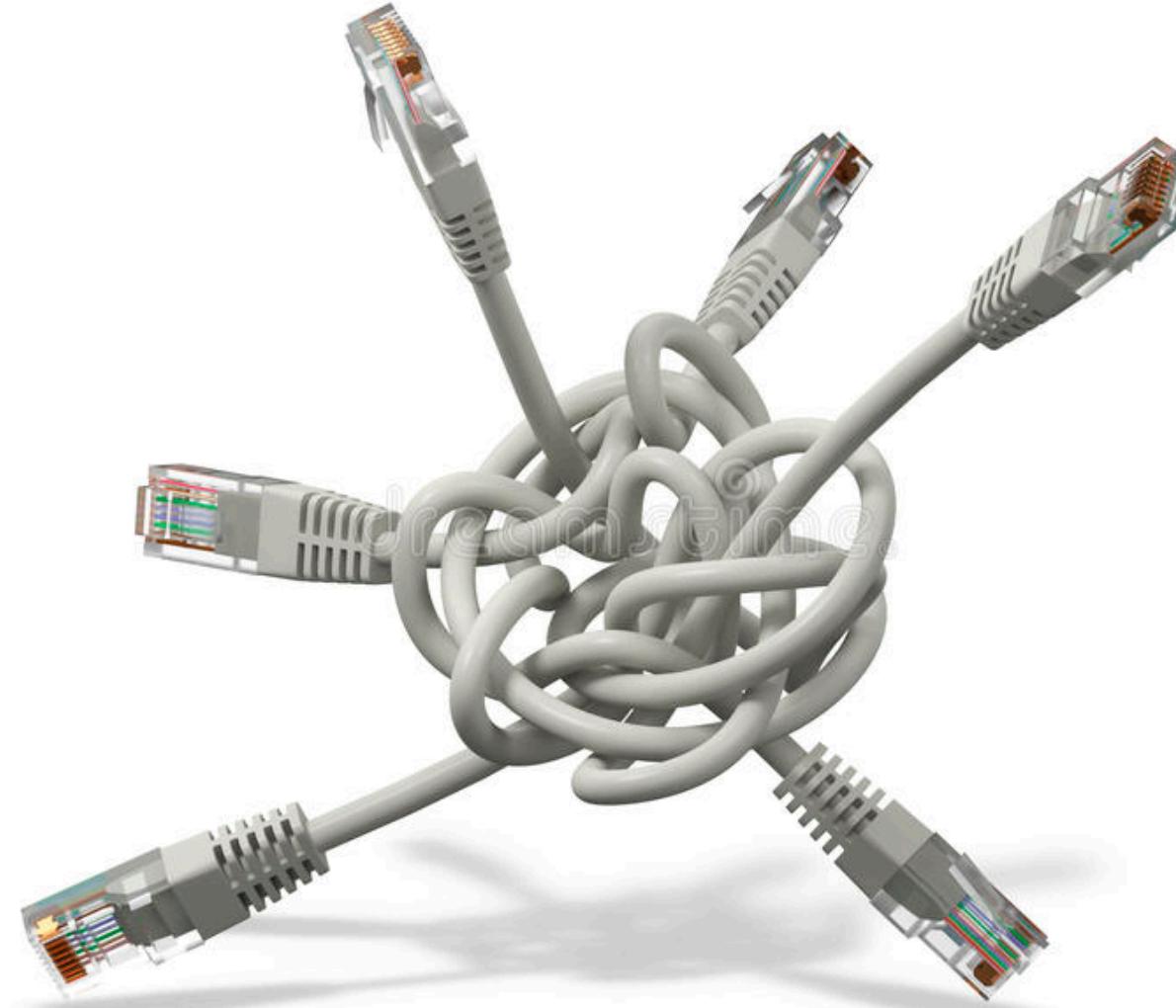
routes

default via 172.16.0.1 veth21
172.16.0.0/24 veth21

routes

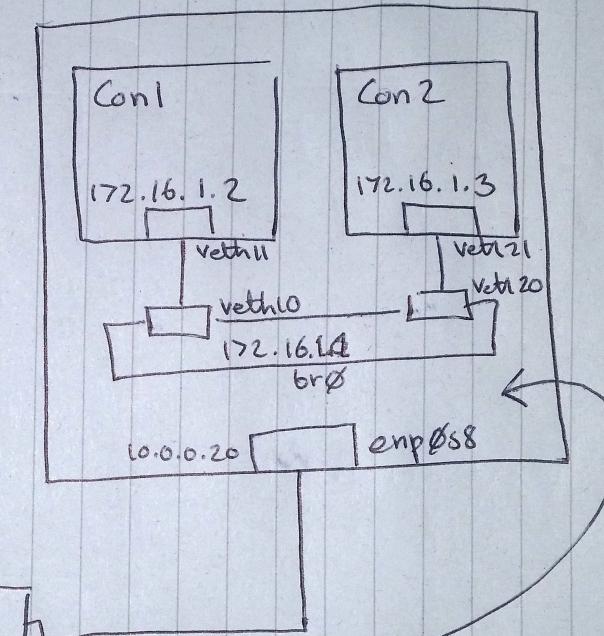
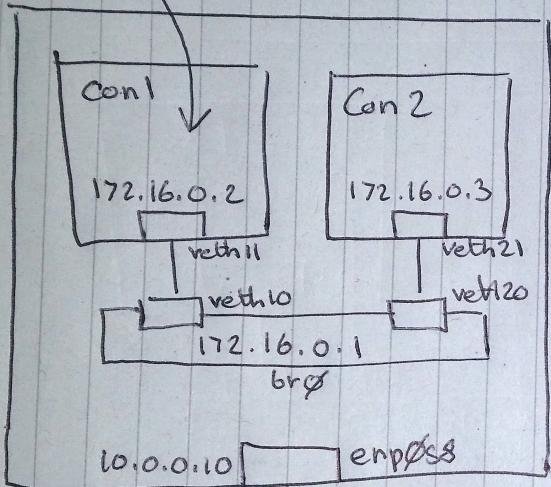
172.16.0.0/24 br0

3. Multiple Nodes, Same L2 Network



routes

default via 172.16.0.1 veth11
172.16.0.0/24 veth11



routes

172.16.0.0/24 br0

172.16.1.0/24 via 10.0.0.20 enp0s8

10.0.0.0/16 enp0s8

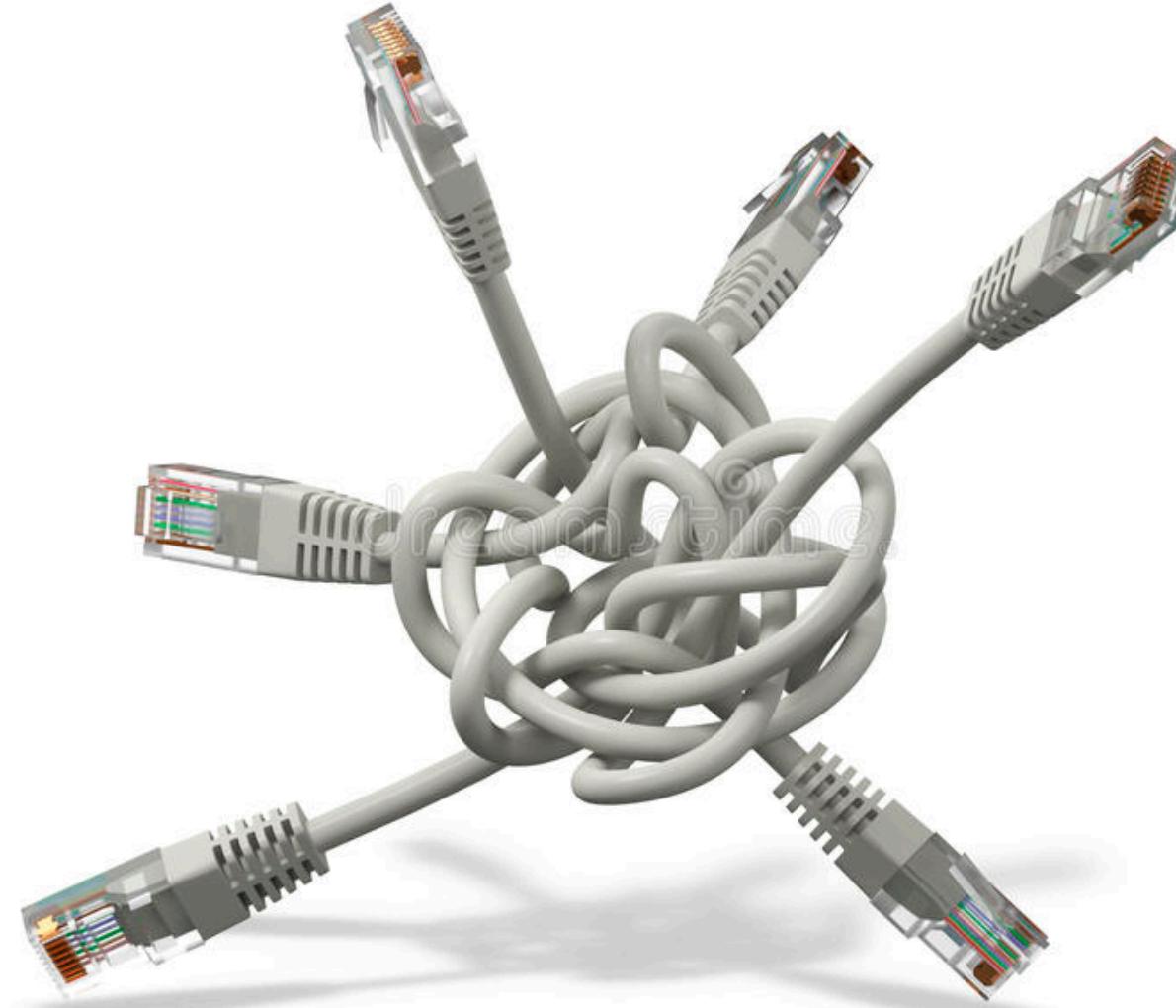
routes

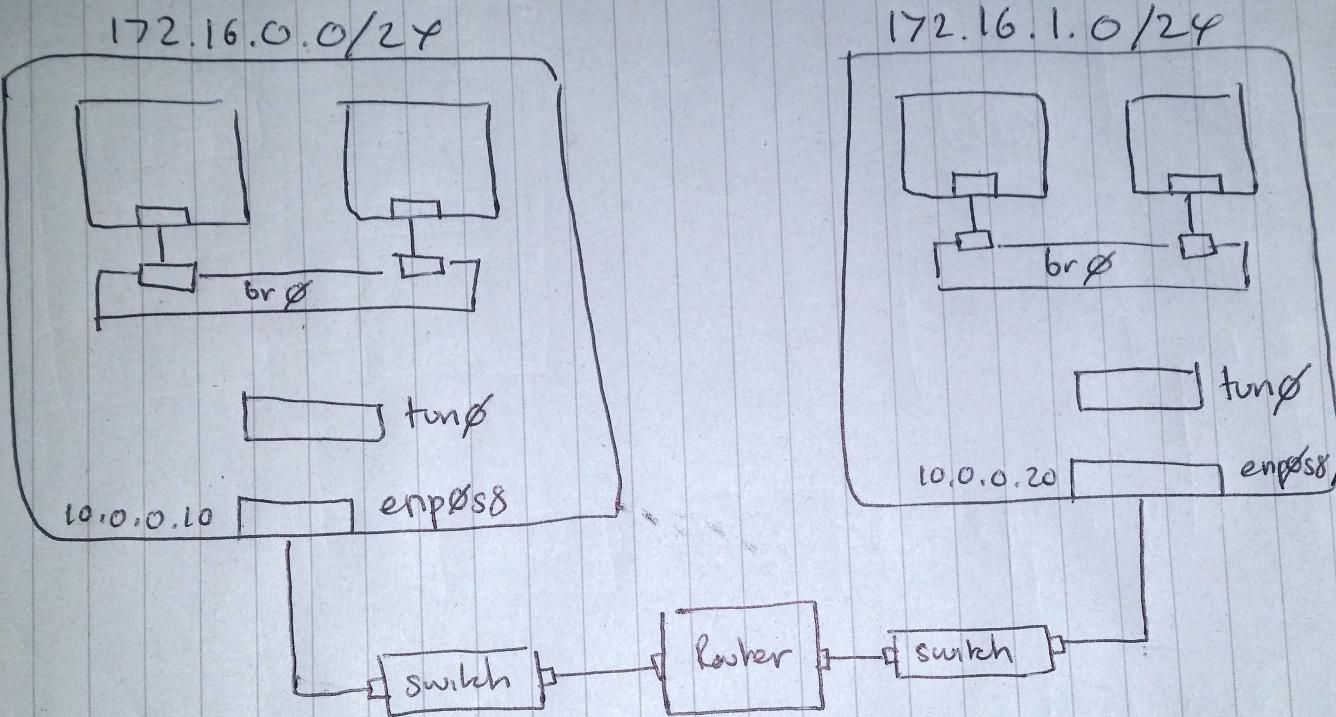
172.16.1.0/24 br0

172.16.0.0/24 via 10.0.0.10 enp0s8

10.0.0.0/16 enp0s8

4. Multiple Nodes, Overlay Network



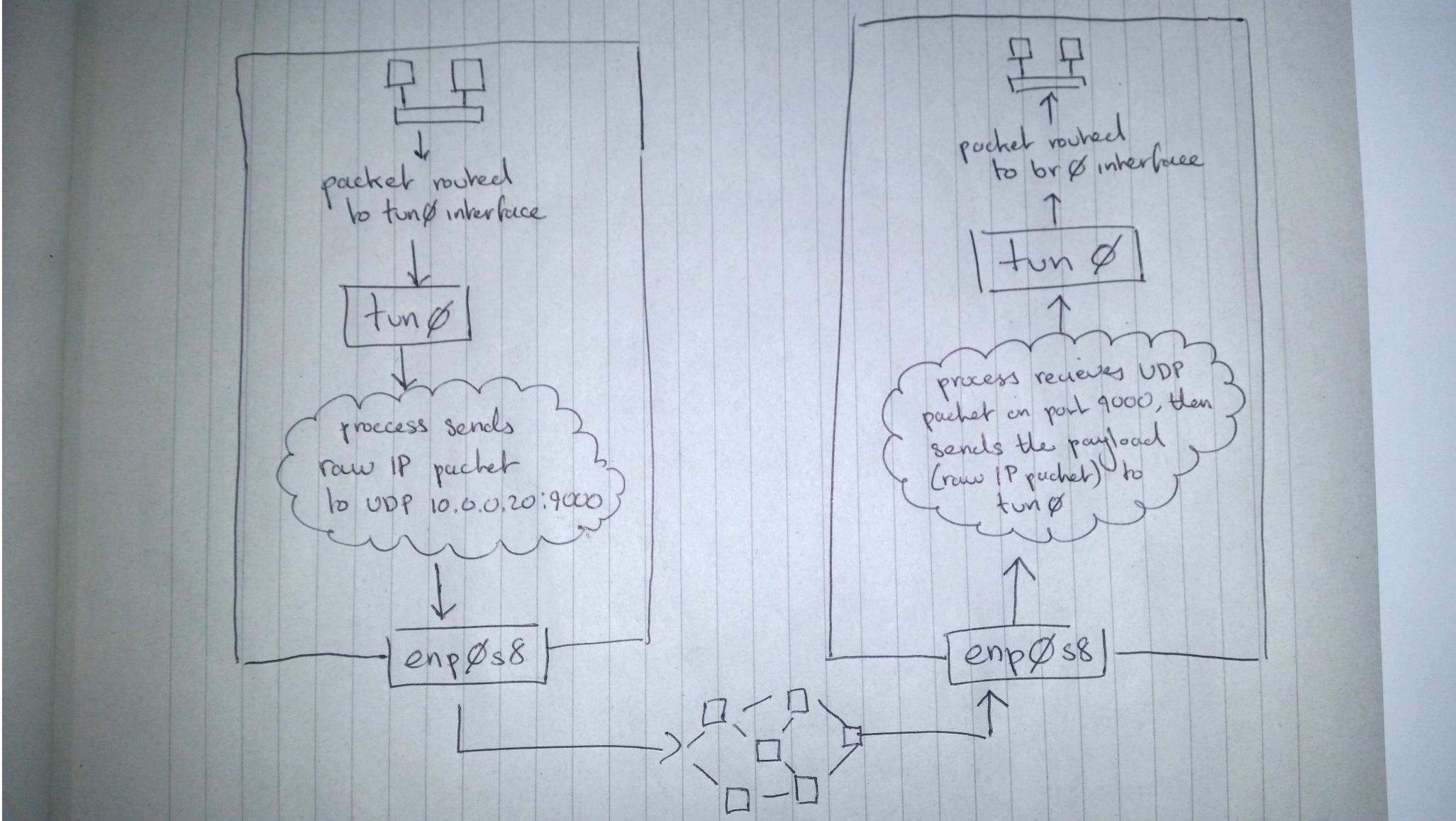


routes

$172.16.0.0/24$ $br\phi$
 $172.16.1.0/16$ $tun\phi$
 $10.0.0.0/16$ $enp0s8$

routes

$172.16.1.0/24$ $br\phi$
 $172.16.0.0/16$ $tun\phi$
 $10.0.0.0/16$ $enp0s8$





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kristenjacobs / container-networking

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Settings

Container networking from scratch, from a single namespace to an overlay network.

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kristenjacobs	Added routing rules 101 slide	Latest commit 4329581 16 minutes ago
1-network-namespace	Consistency updates	22 hours ago
2-single-node	Consistency updates	22 hours ago
3-multi-node	Consistency updates	22 hours ago
4-overlay-network	Consistency updates	22 hours ago
slides	Added routing rules 101 slide	16 minutes ago
.gitignore	Added git ignore	17 days ago
README.md	Removed the single multinode L2 network example.	2 months ago

Questions?



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