Network Namespace and Ethernet Bridge

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What is a namespace?

- In computing, a namespace is a set of signs (or names) used to uniquely identify or refer objects of various kinds. (Source: Wikipedia)
- **Linux namespace**
  - Partition kernel resources
  - One set of processes observes one set of resources, while another set of processes observes a different set of resources

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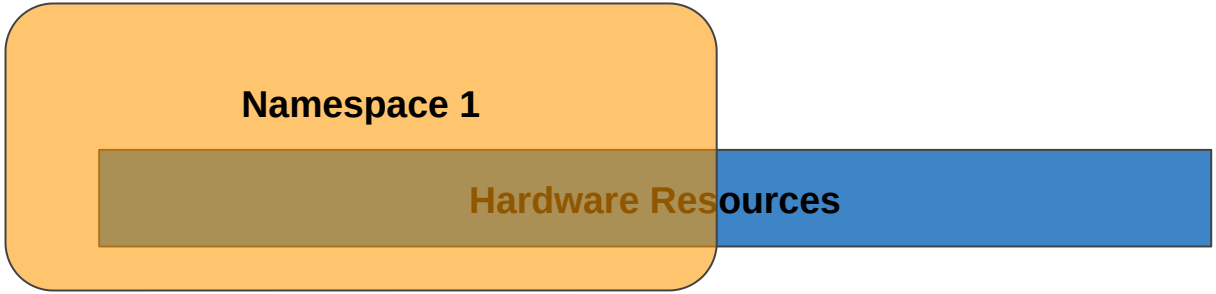

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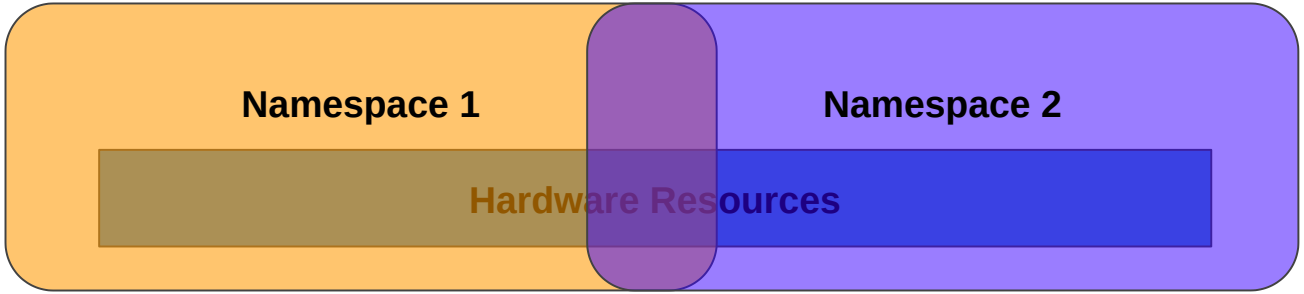

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- **Linux namespace**
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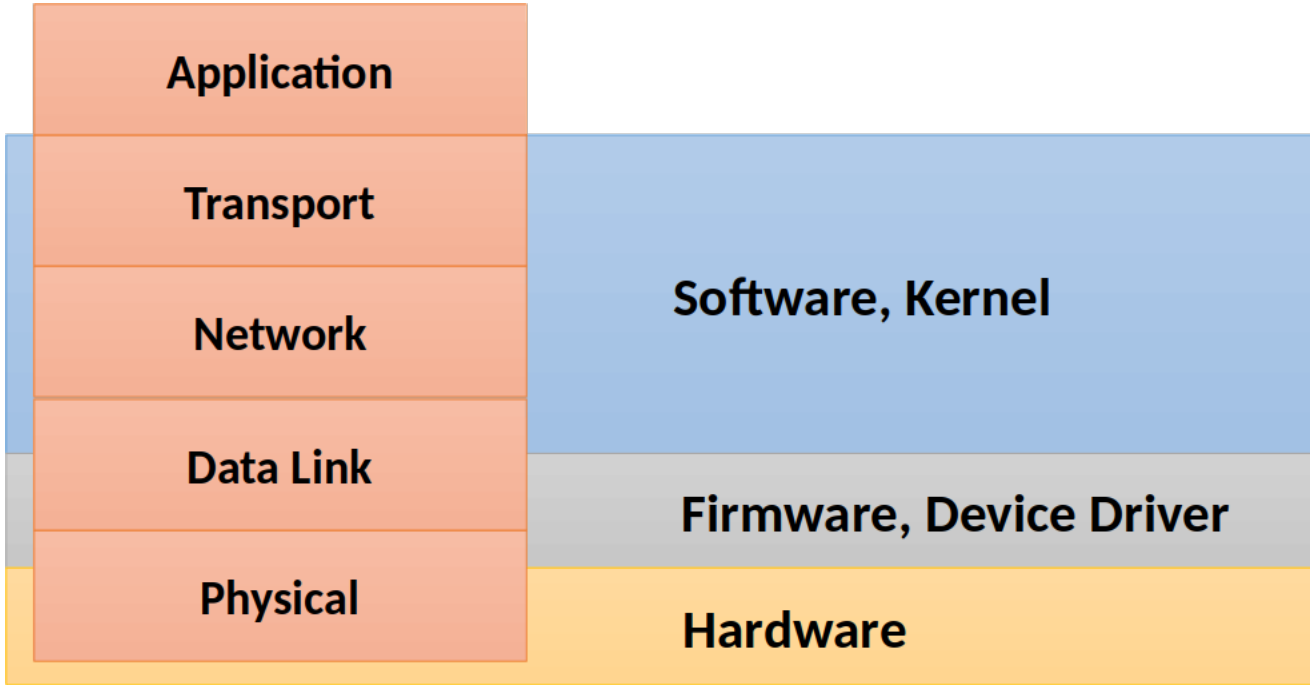
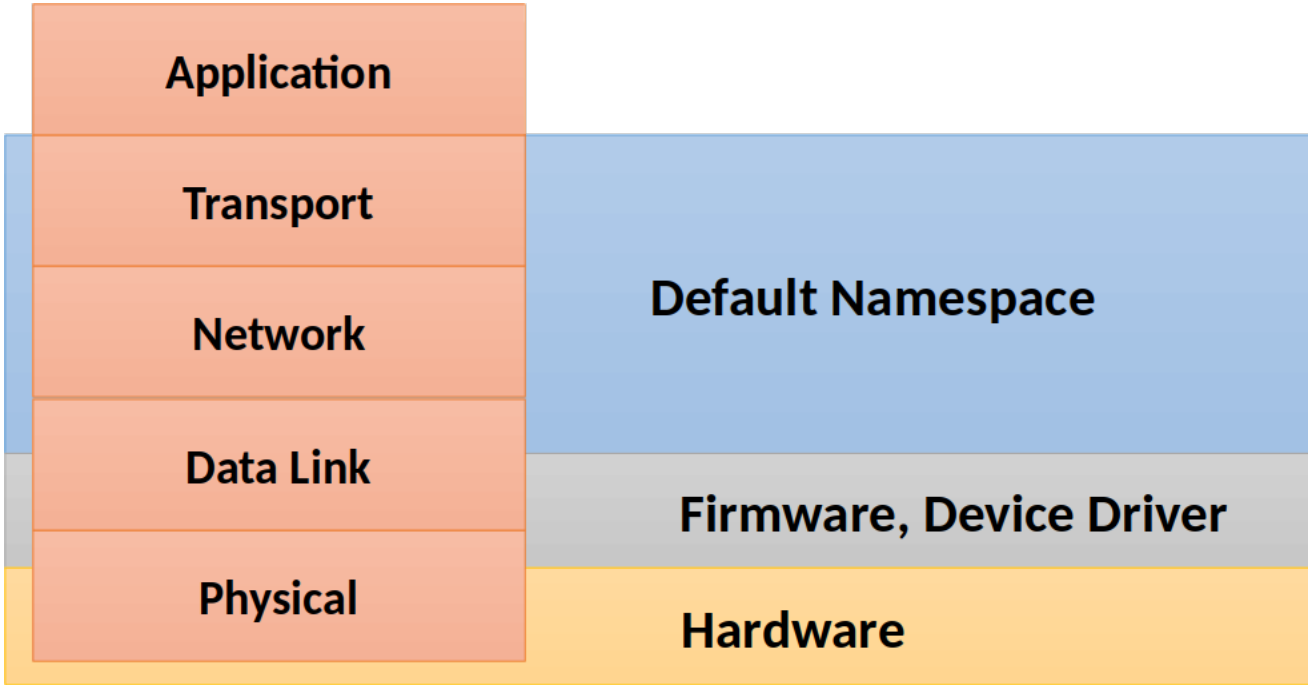
- Are used to provide isolation or sandboxing
  - Virtualization of kernel resources (Linux containers)

Network Protocol Stack



Network Namespace



Network Namespace

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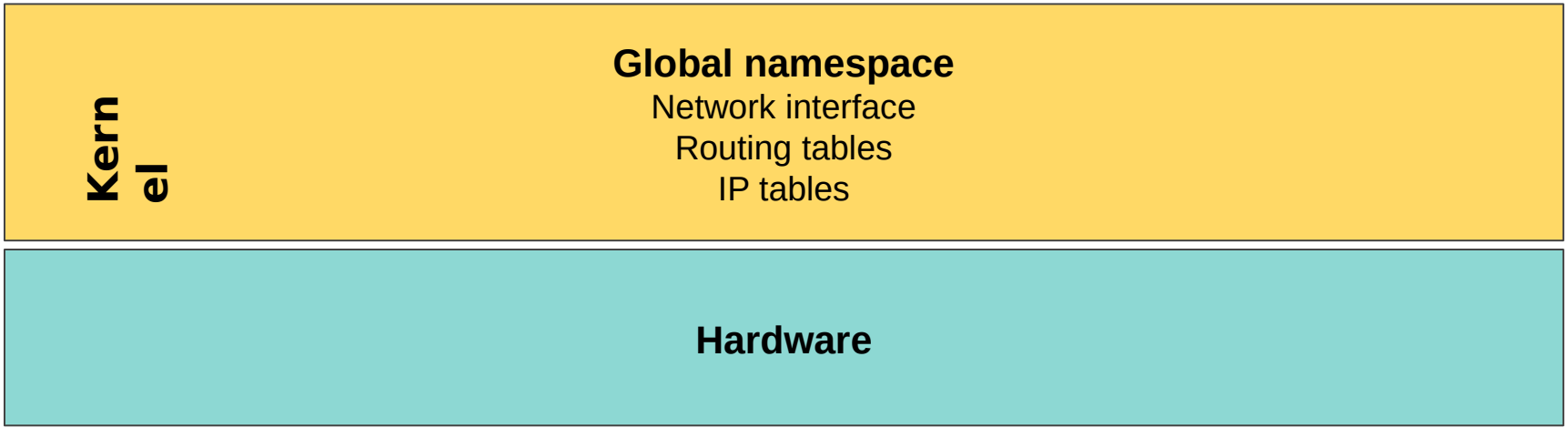
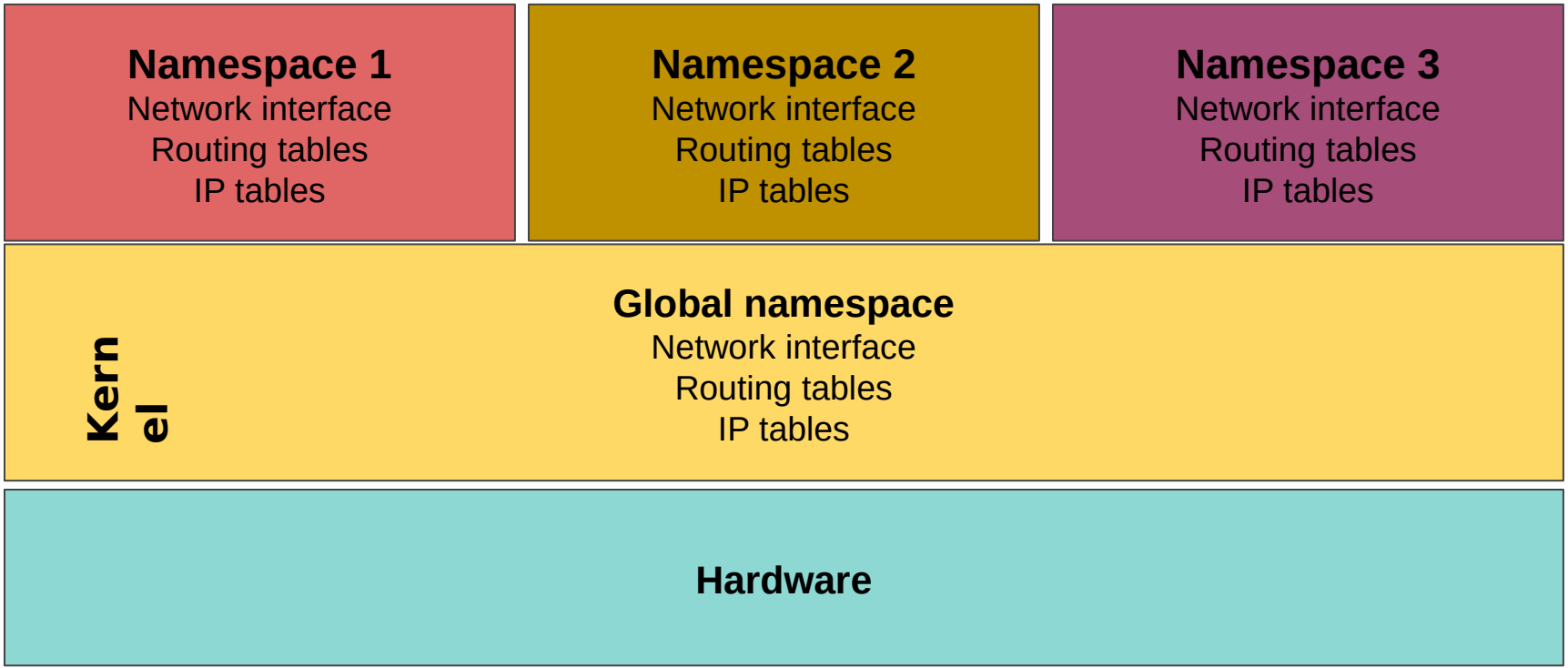


Network Namespace



Create a private network using network namespace

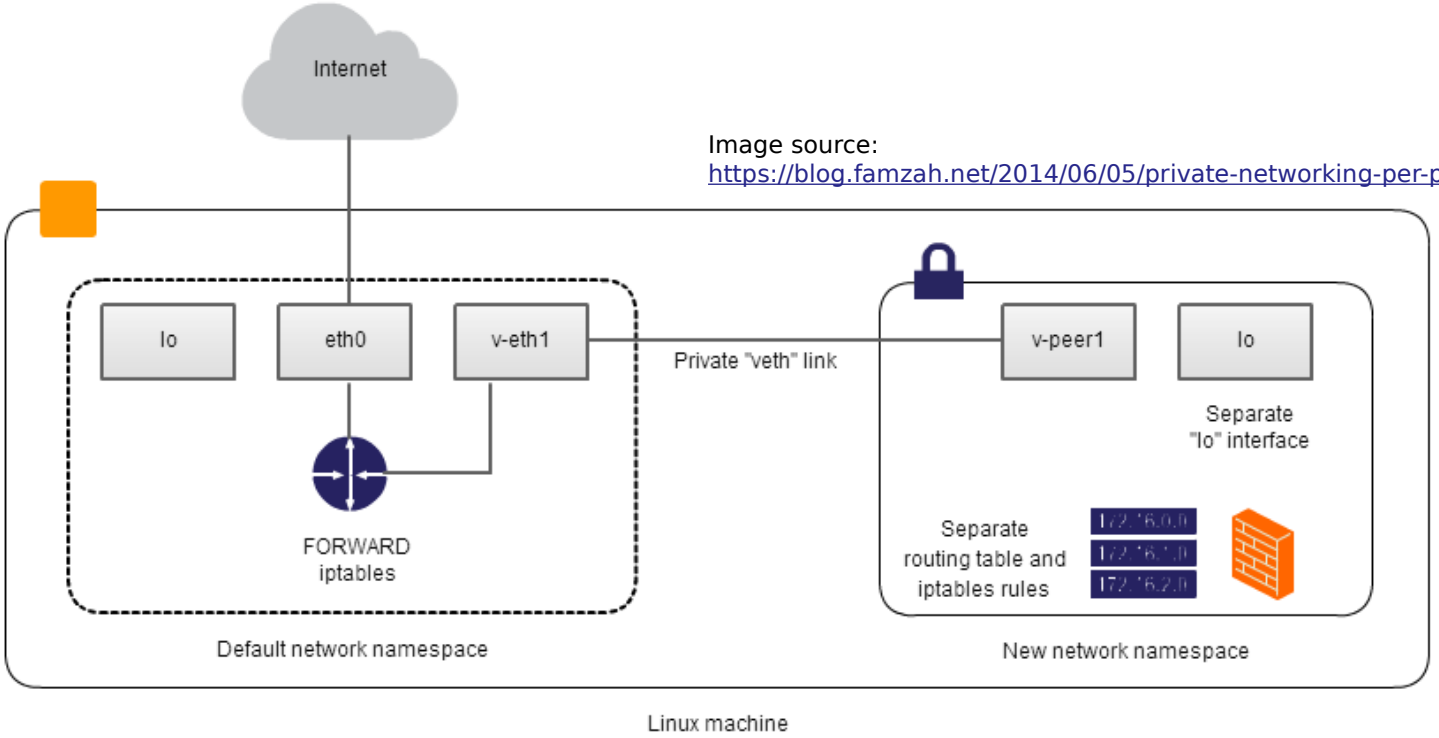
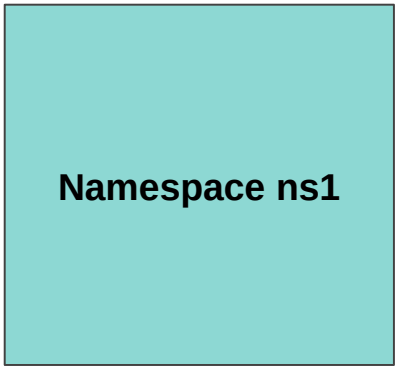


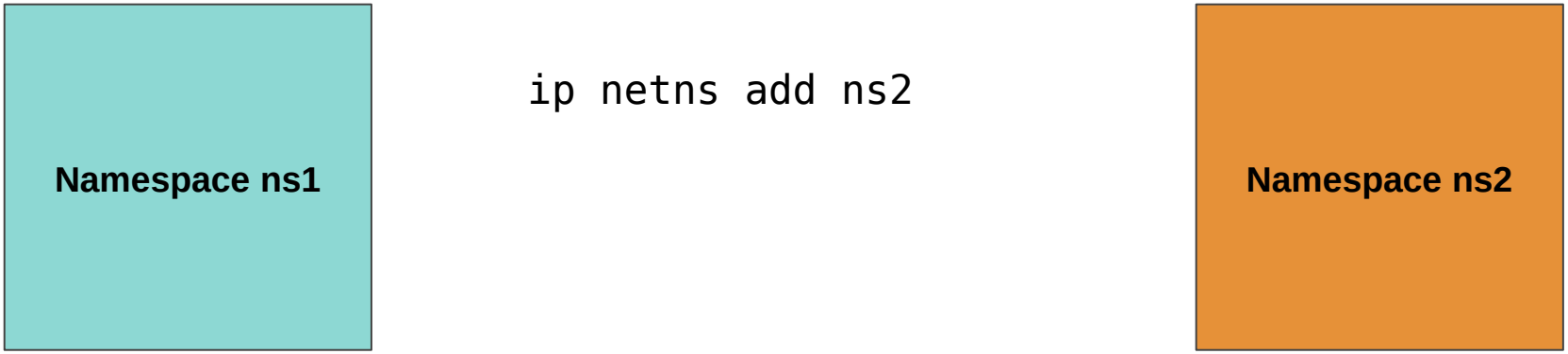
Image source:
https://blog.famzah.net/2014/06/05/private-networking-per-process-in-linux/

Interconnecting network namespaces through veth interfaces




```
ip netns add ns1
```

Interconnecting network namespaces through veth interfaces



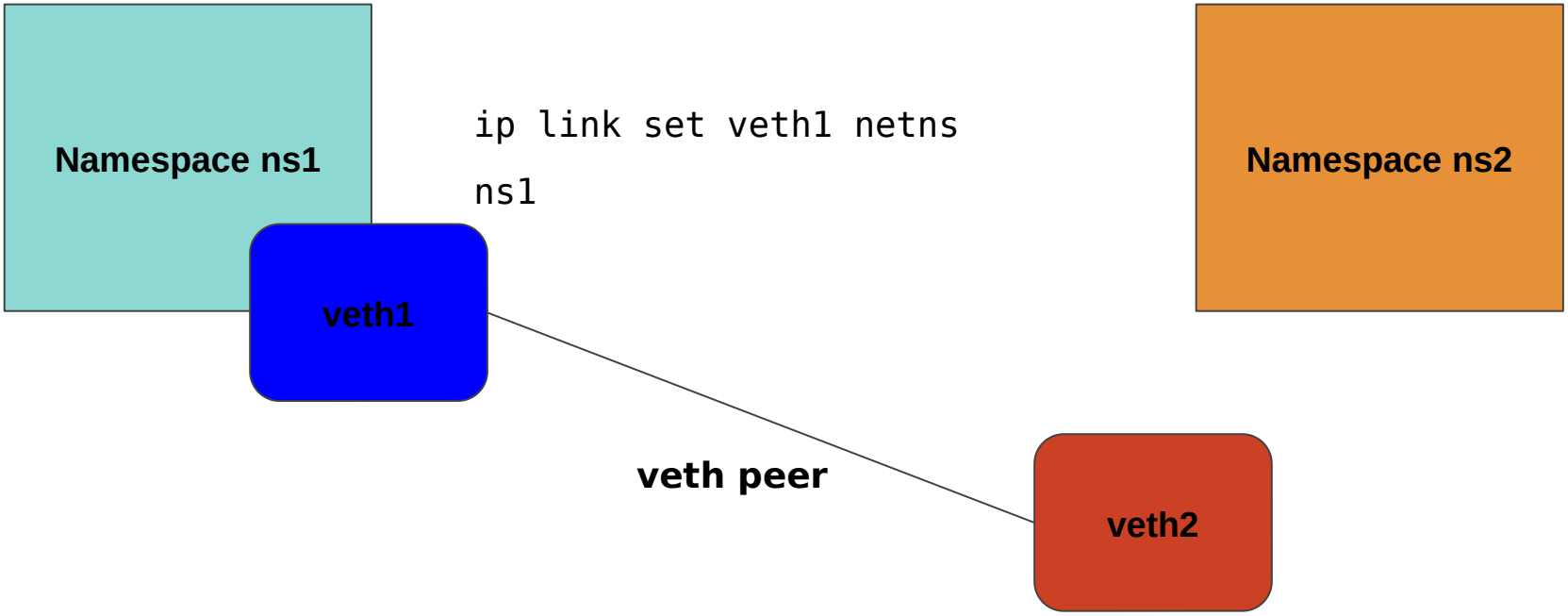
Interconnecting network namespaces through veth interfaces

Namespace ns1

```
ip link add veth1 type veth peer
name veth2
```

Namespace ns2

Interconnecting network namespaces through veth interfaces



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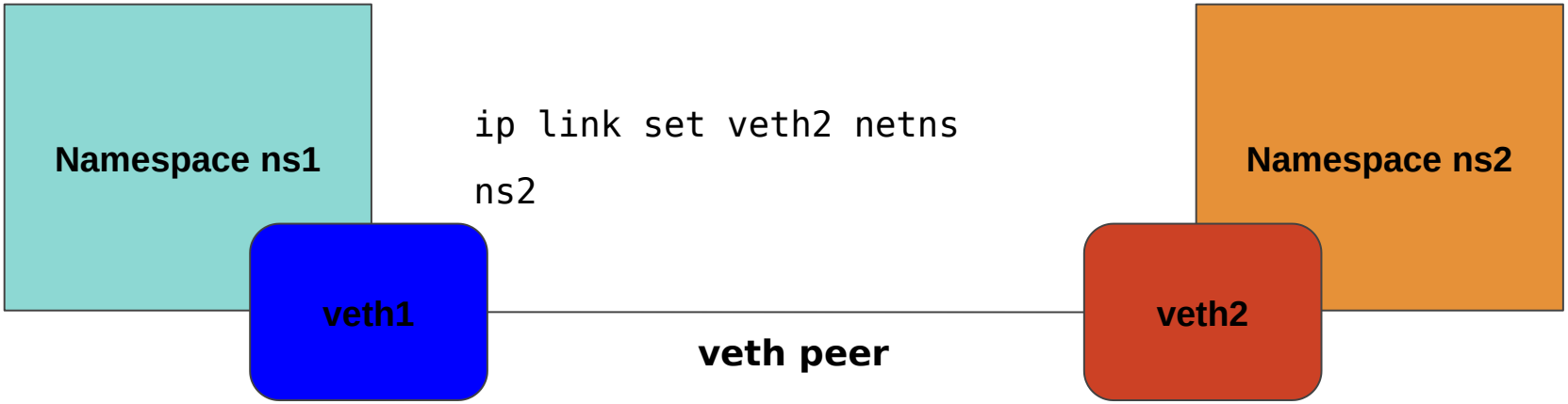

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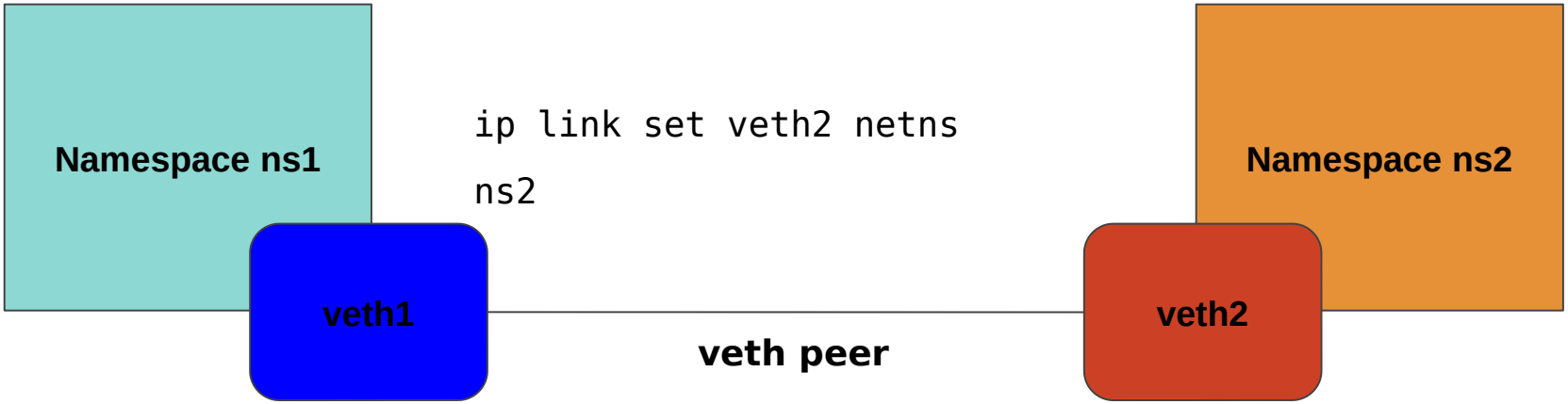
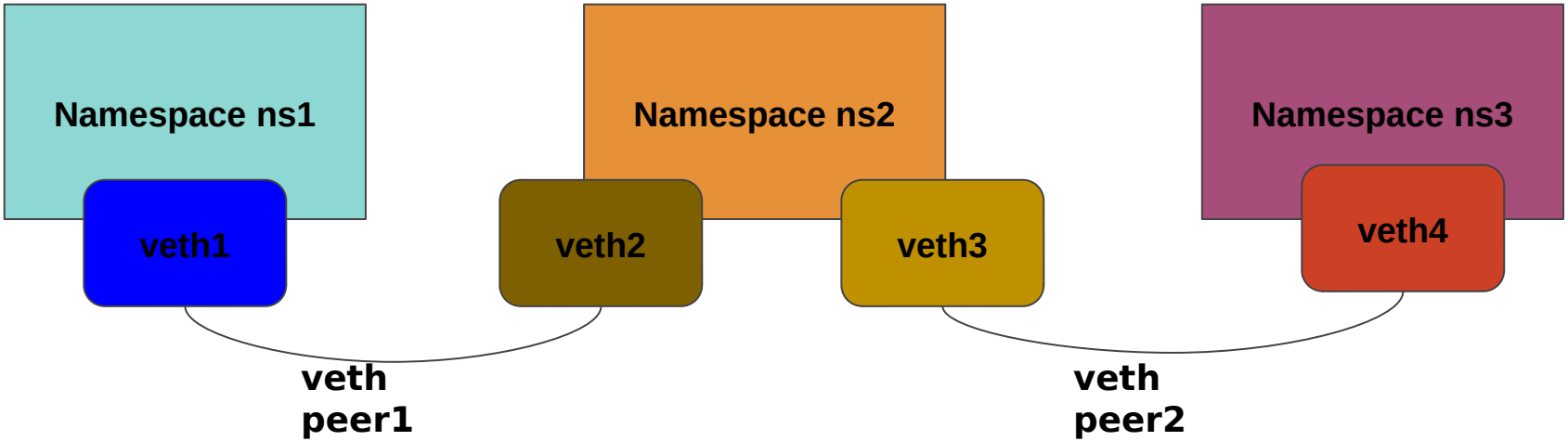


Next, you have to configure the IP addresses to the interfaces

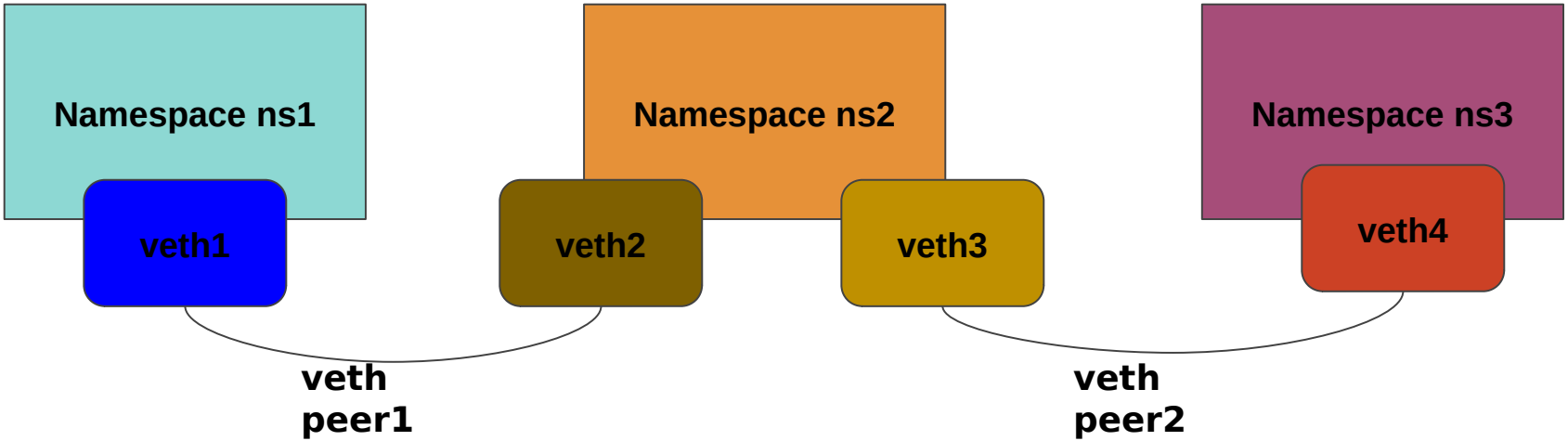
Linux Ethernet Bridge

How can you connect these three namespaces?

Linux Ethernet Bridge

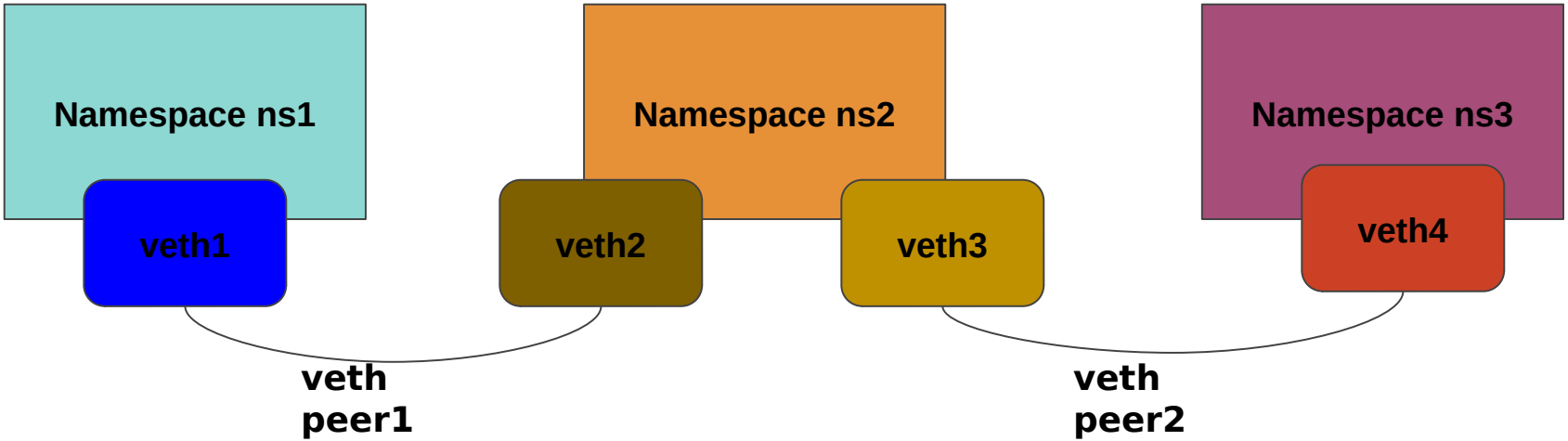


Linux Ethernet Bridge



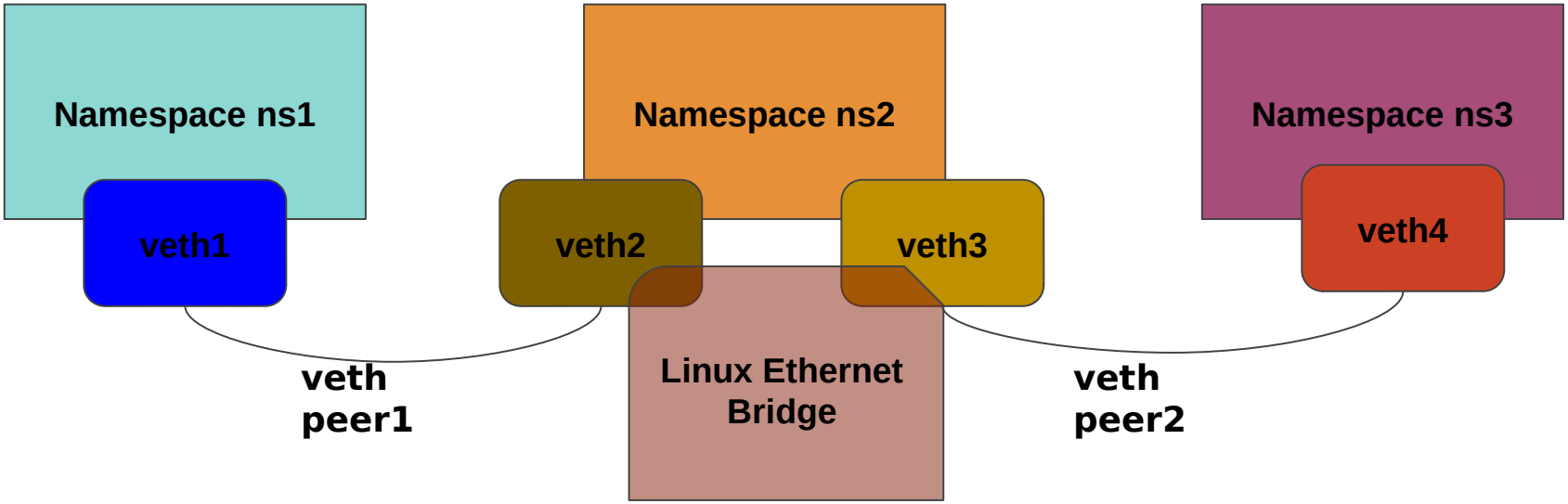
Is this complete?

Linux Ethernet Bridge

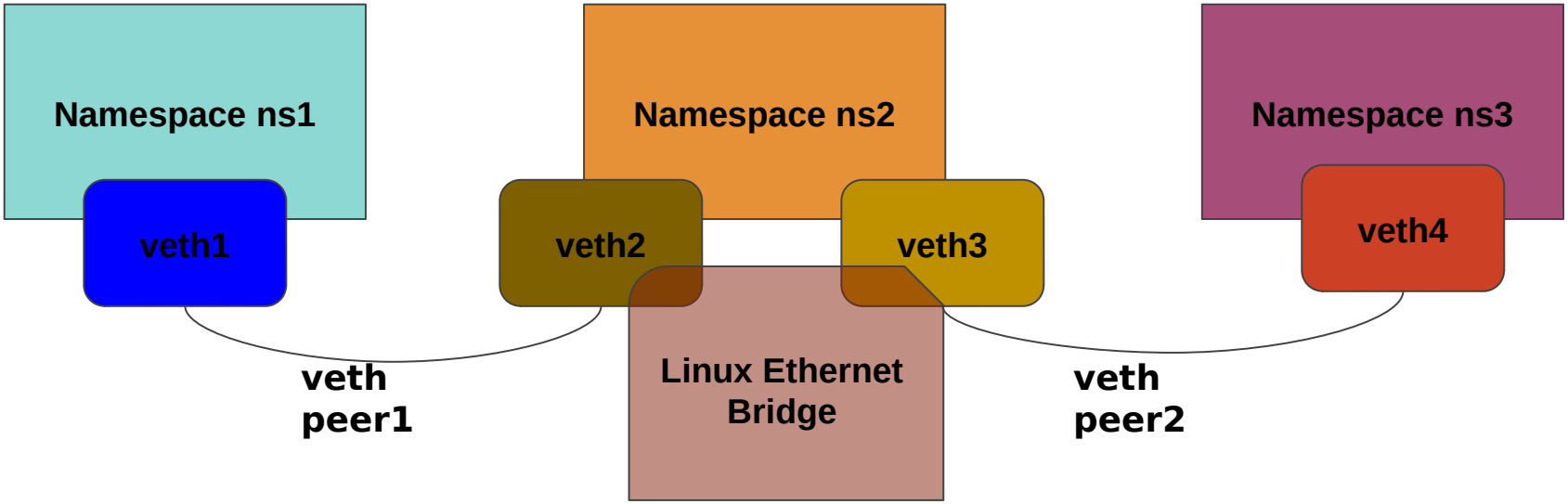


How will you forward the packets from veth2 to veth3?

Linux Ethernet Bridge



Linux Ethernet Bridge



Check `brctl`

Thank you