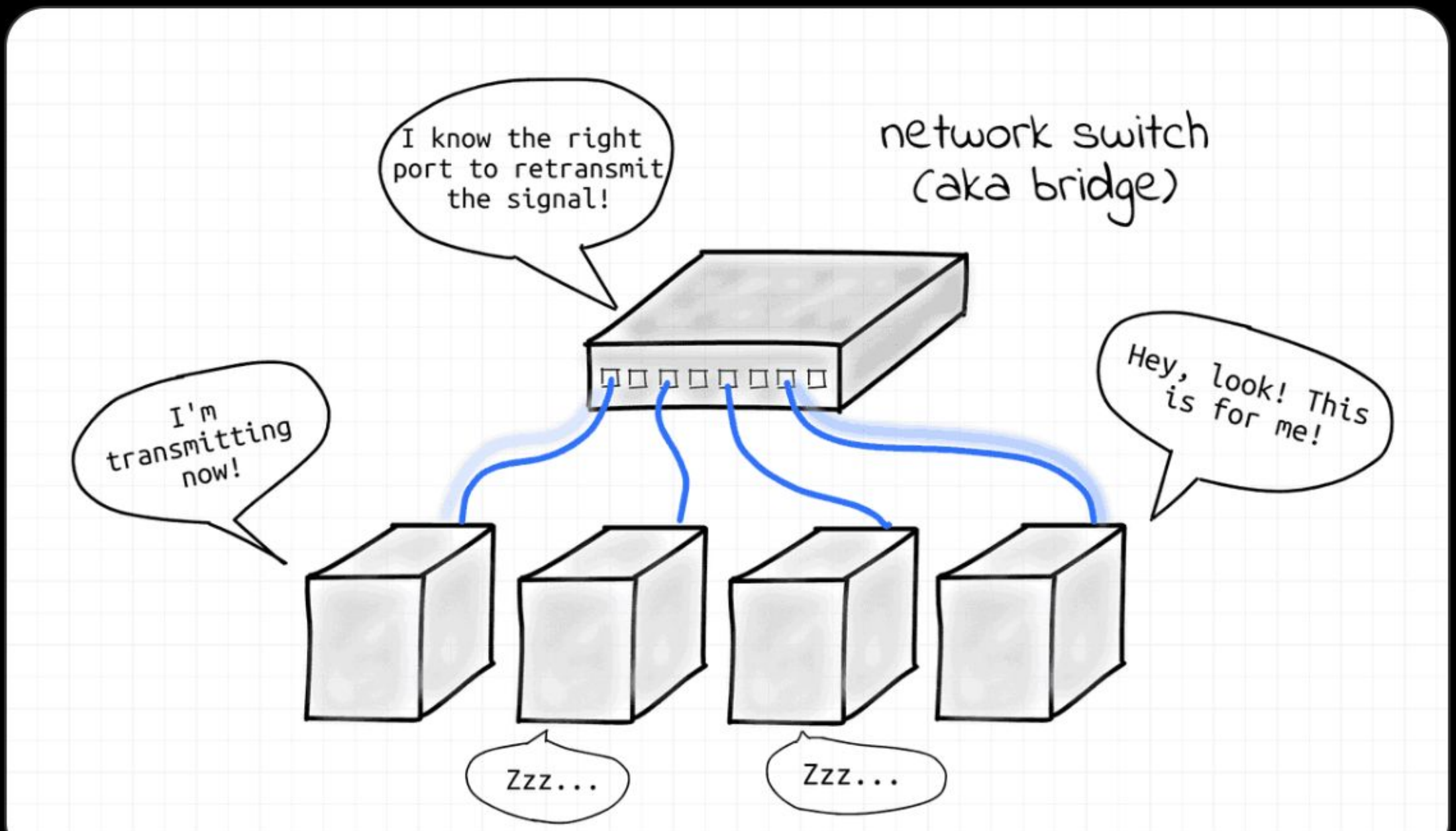
Example ✏️

By default, Docker/podman/containerd/etc. use a `bridge` network to interconnect containers on a single host. But what is a Bridge?

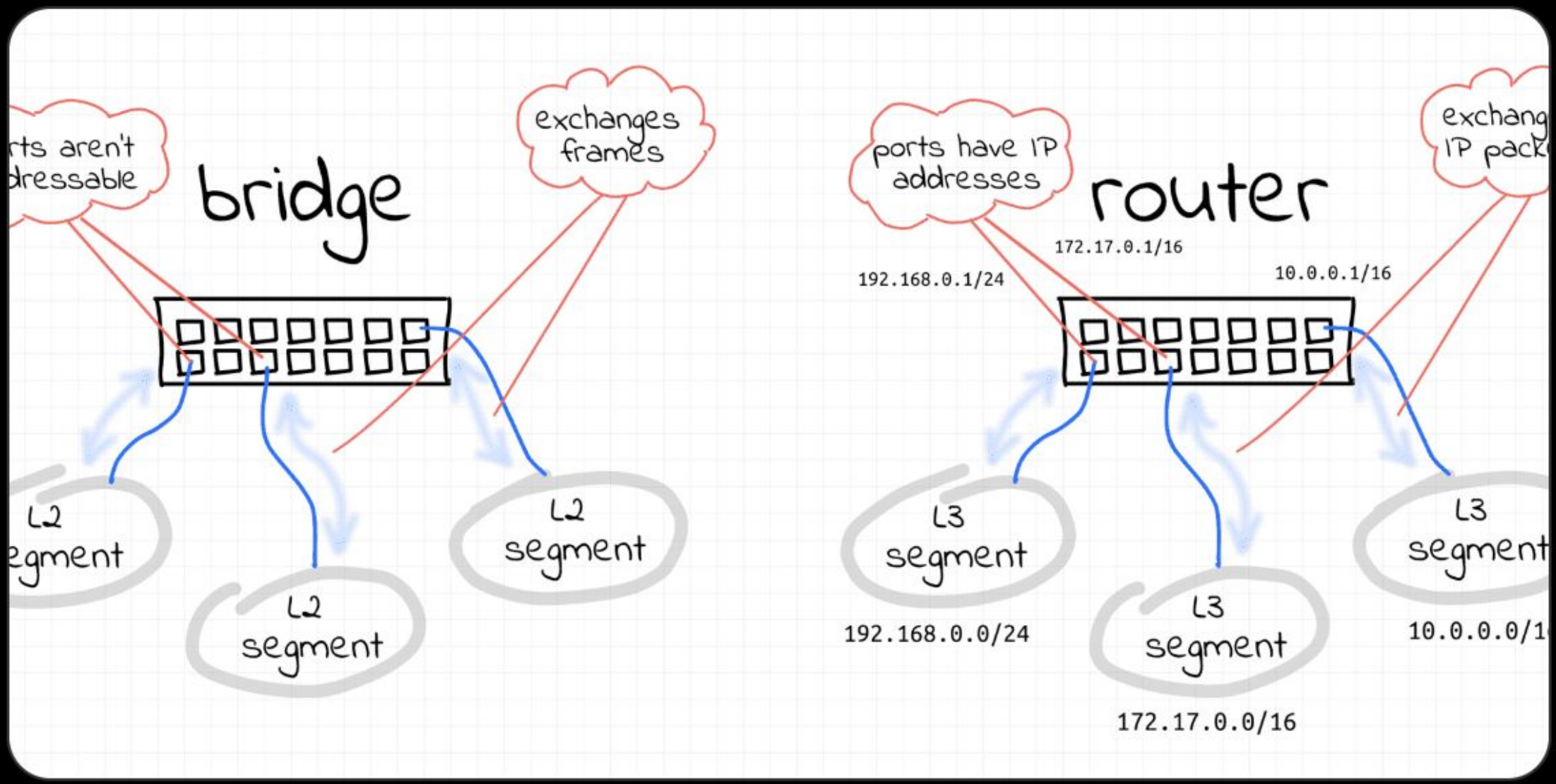
In the case of containers, a Bridge is a virtual device. However, it simulates a real-world L2/L3 networking device called a Switch.



A Switch is a multiport device that combines two logical functions: L2 bridging and L3 routing.

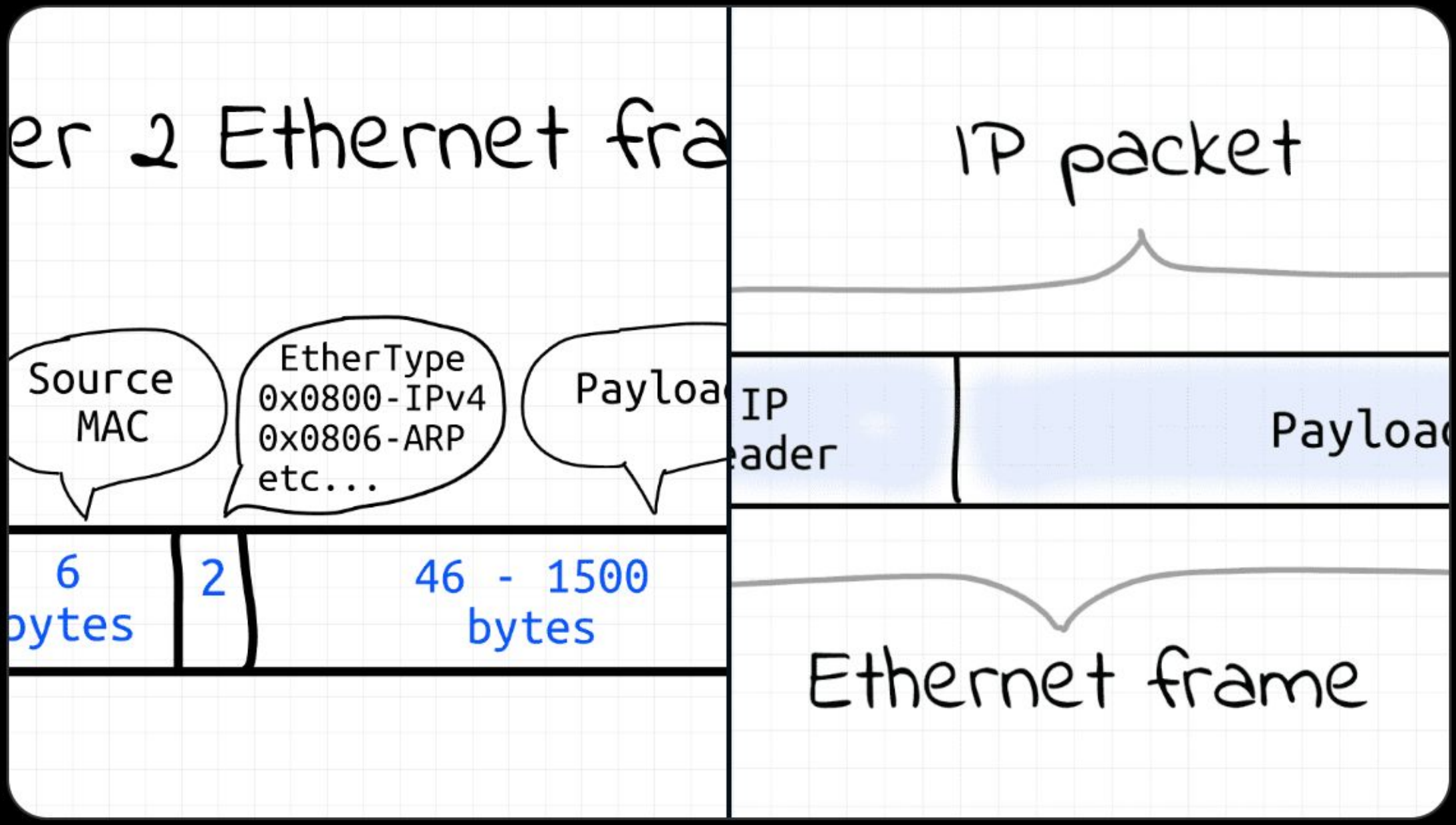
Bridging creates an L2 broadcast domain out of connected nodes. A single broadcast domain _usually_ forms an L3 network.

Routing creates an (inter)network out of L3 (sub)networks.



Containers connected to the same bridge talk to each other w/o any routing - only hardware MAC addresses are used.

But when a packet is destined to the outside world, it goes to the default gateway (router) first. So that's why the bridge needs an IP address - to be a router!



Kubernetes/Docker Swarm interconnect tens of servers running hundreds of containers into clusters.

If every server has a virtual switch with an IP address assigned, the problem boils down to configuring routing between these switches. And this resembles a typical DC networking!