

The Sock Shop

Microservices from dev to prod
with Docker, Scope and Kubernetes

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Problem

- Lots of talk about microservices
- No actual microservices in our demos!

Solution

- So we built a sample microservices app
- Introducing...

The Sock Shop!

OFFER OF THE DAY Buy 10 socks, get a pet human for free!

Login



HOME

CATALOGUE ▾

0 items in cart



WE LOVE SOCKS!

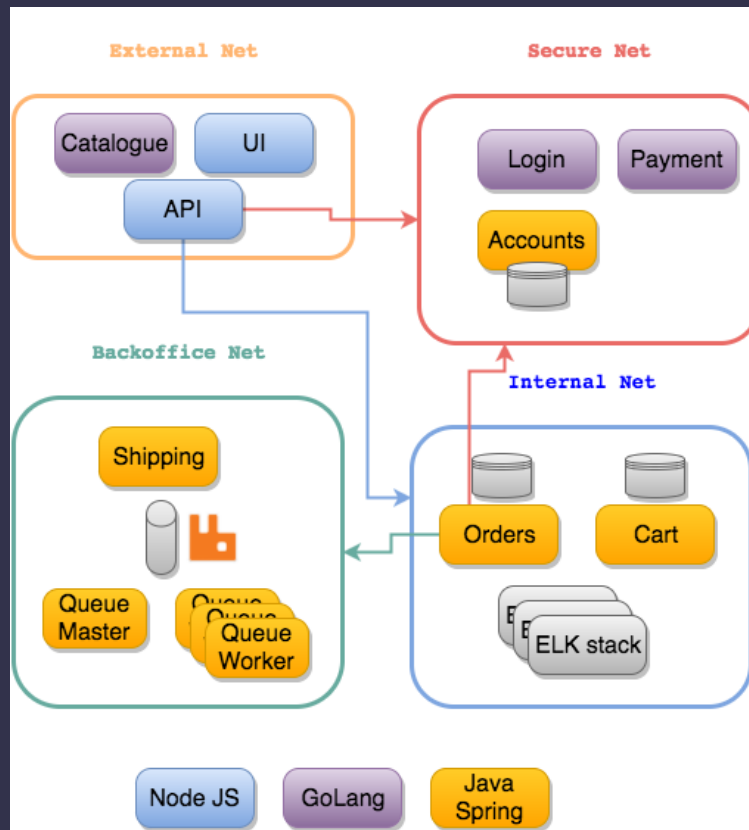
BEST PRICES

100% SATISFACTION

Goals – microservices

- Best practice
- Cross-orchestrator
- CI/CD
- Devops and microservices
- Real-life tests for platforms

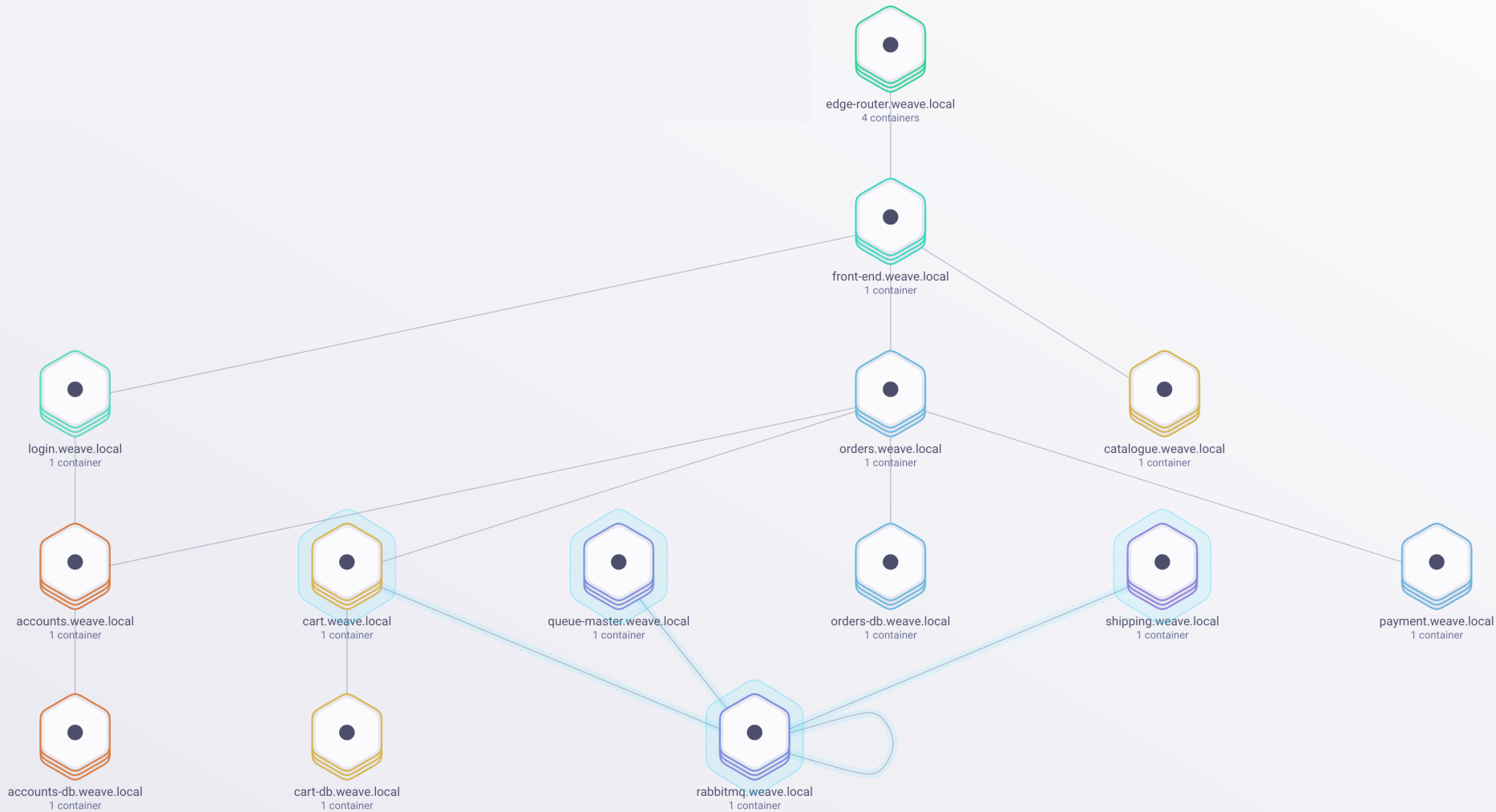
The app...

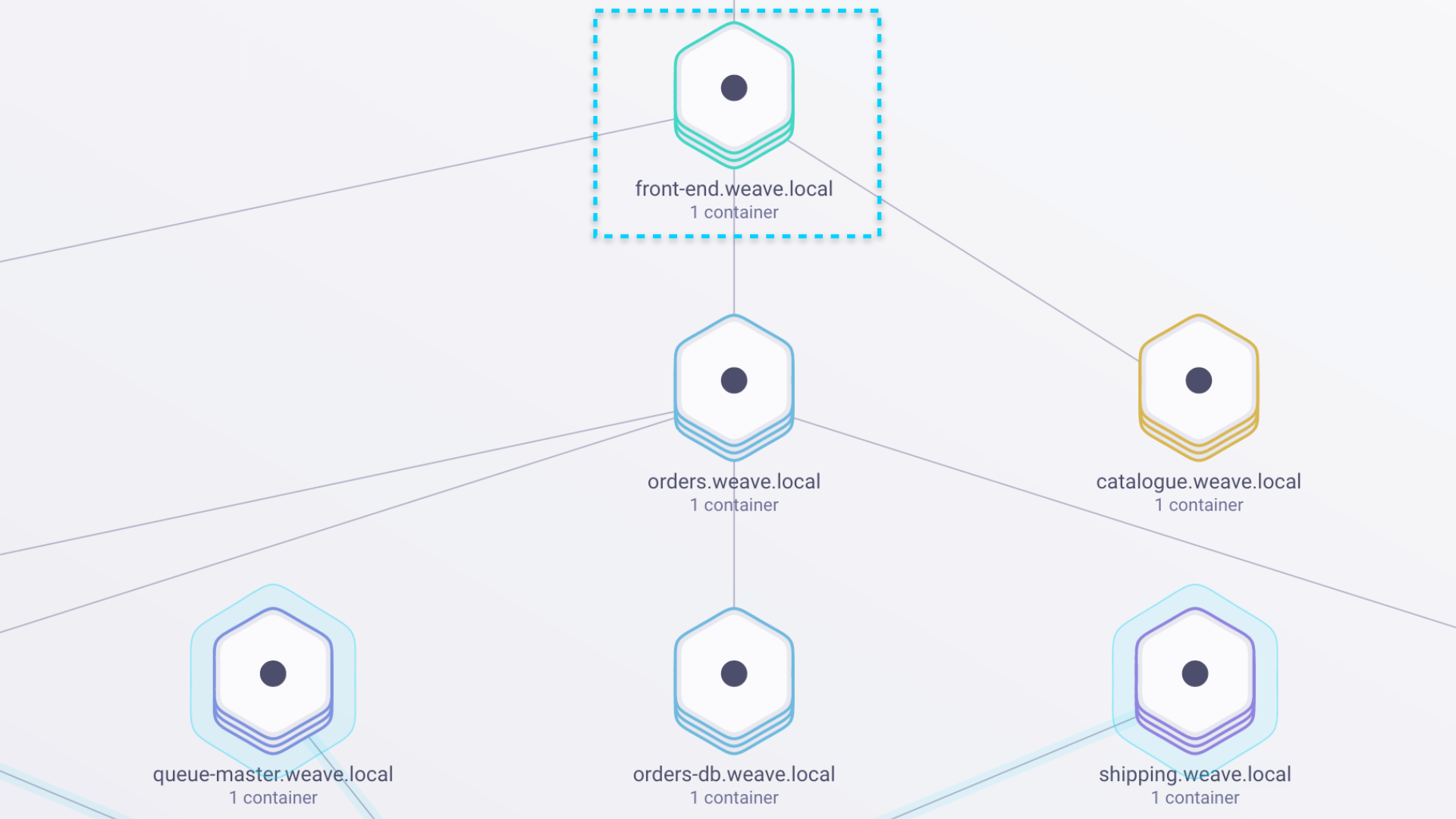


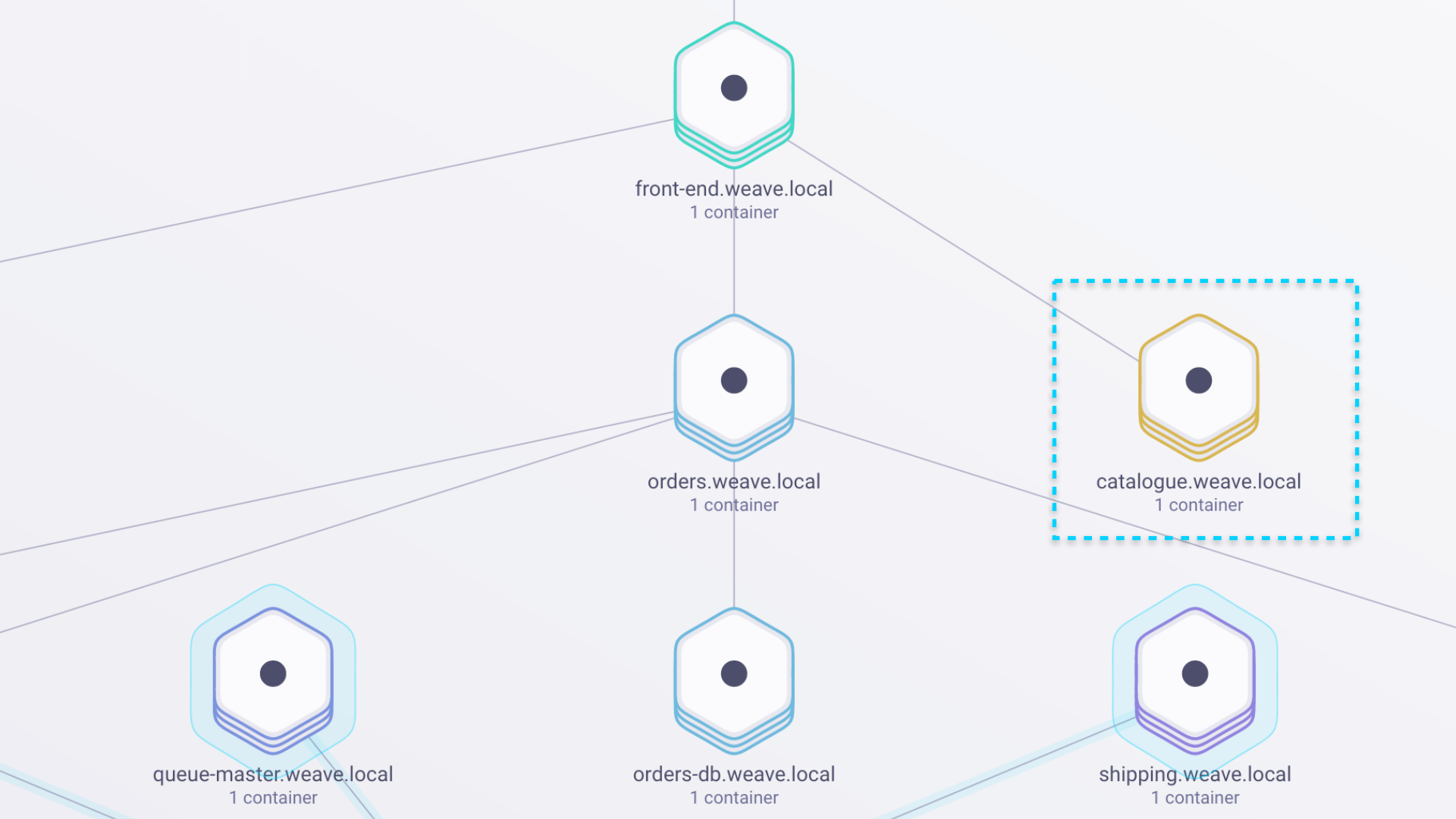
Demo 1:

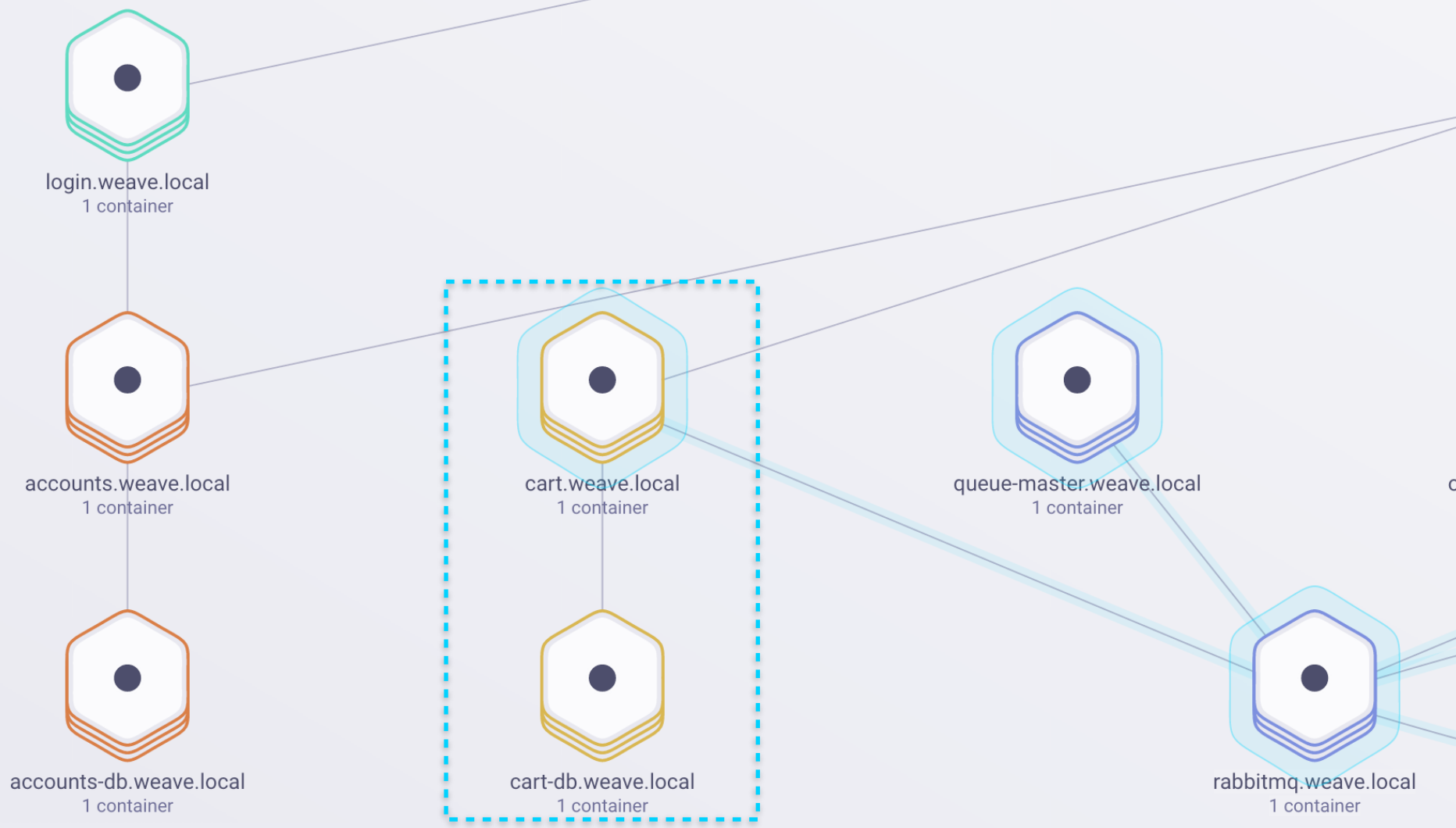
Sock Shop on Docker for Mac (dev environment)

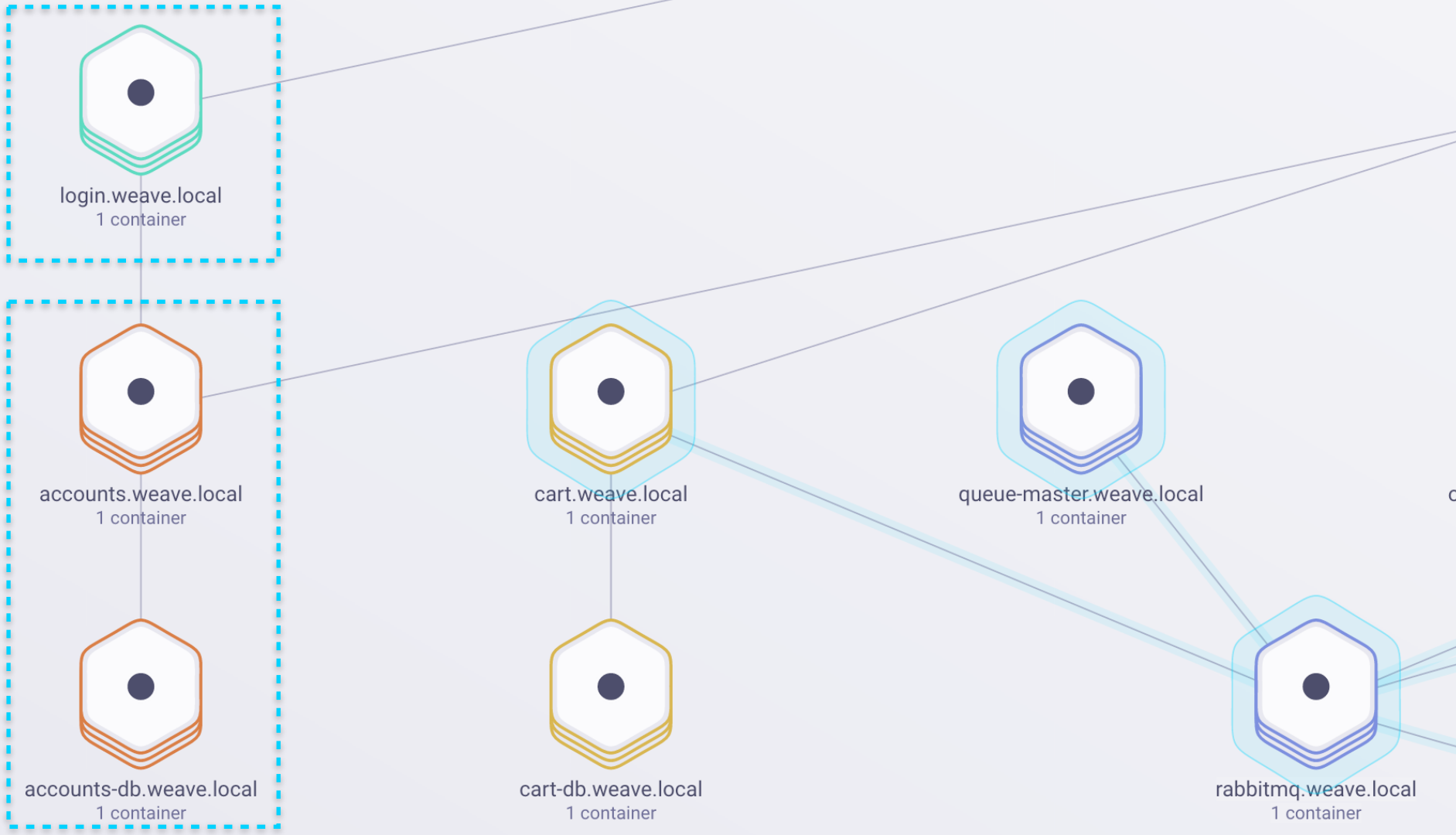
What just happened?

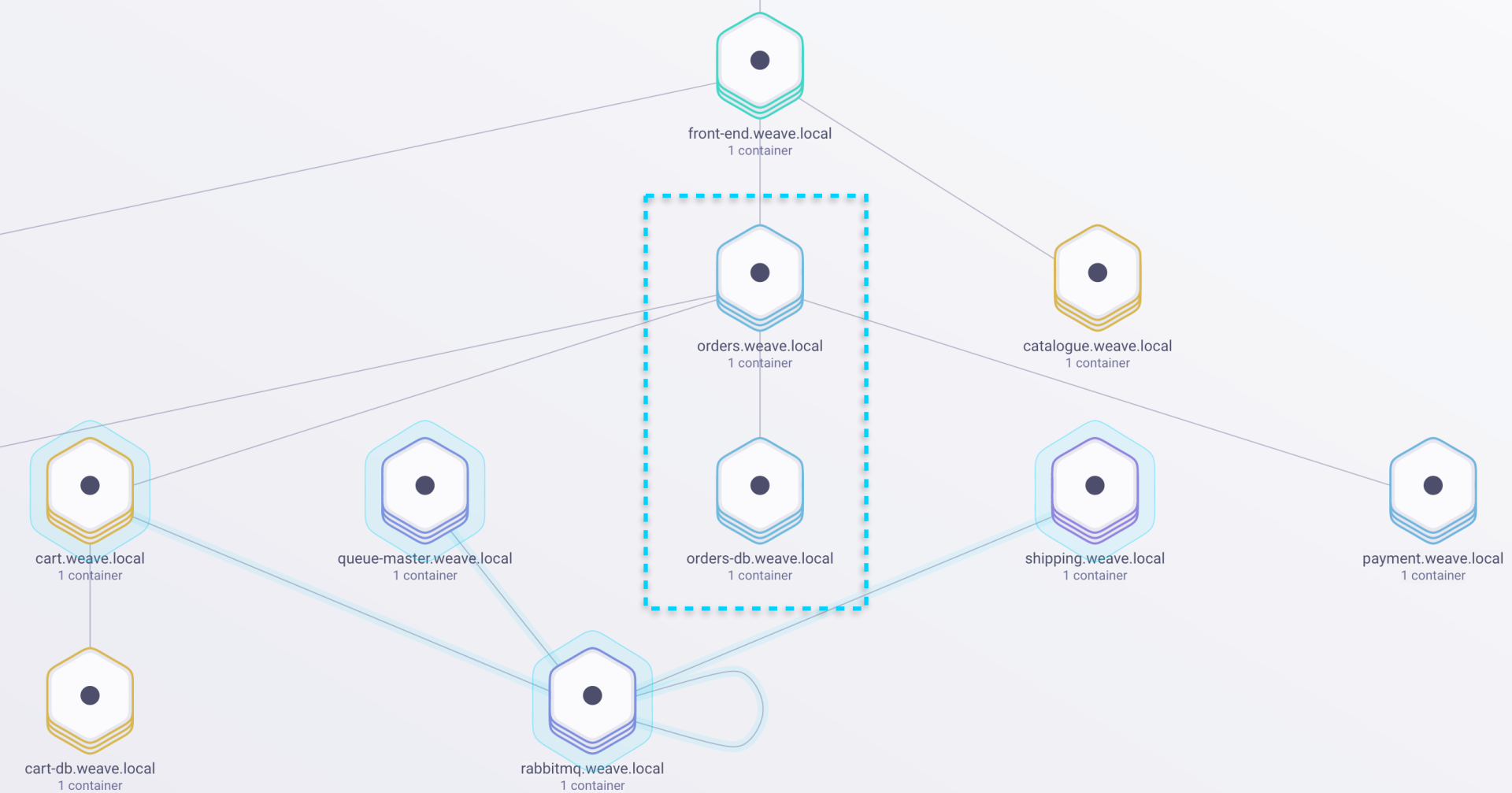












Microservices!

- Small, simple, self-contained
- Maintained/upgraded/deployed separately
- Separate databases
- Whatever language you like

Let's deploy it to production!

Demo 2:

Sock Shop on Kubernetes with kubeadm and Weave Net

Tools we used - recap

- Docker for Mac
 - Compose file
 - Weave Scope plugged into Weave Cloud
- Kubernetes
 - Socks shop in Kube manifest
 - Weave Net
 - Weave Scope plugged into Weave Cloud

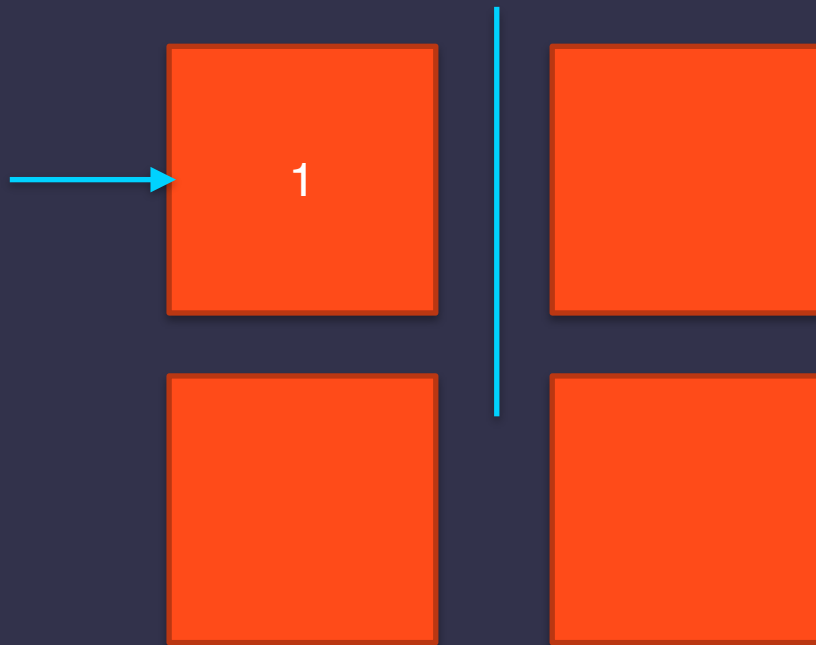
Weave Net

- Pod network
- Container overlay network
- IP per container

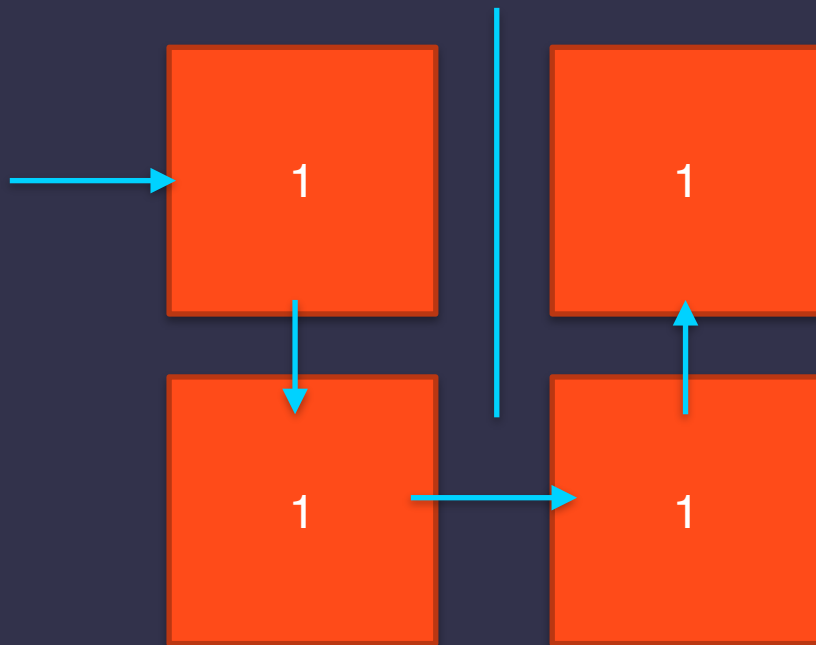
Weave Mesh = Gossip + CRDTs

- Golang library used by Weave Net & WeaveDNS

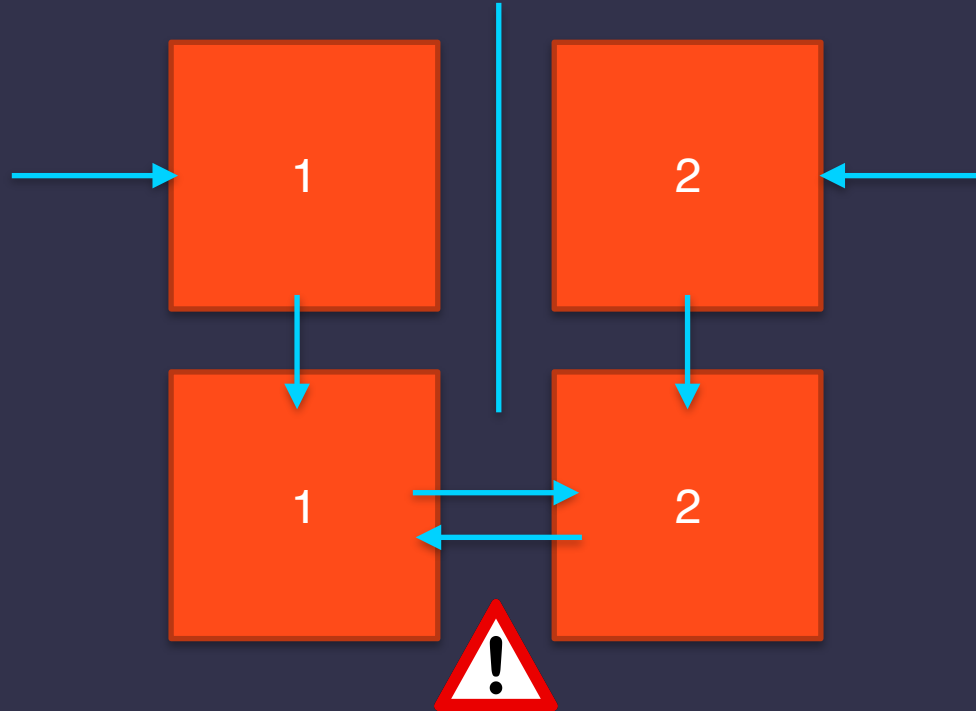
Gossip



Gossip



Conflict!



CRDTs

- Merge operation \oplus for data structure such that:
- Associative — $A \oplus (B \oplus C) = (A \oplus B) \oplus C$
- Commutative — $A \oplus B = B \oplus A$
- Idempotent — $A \oplus A = A$

Examples of CRDTs

- Add-only set
- Latest-value-wins singleton (using timestamp)
- Set with deletion: give every element an id, maintain a set of “deleted elements” using add-only set
- Many more... <http://arxiv.org/abs/1608.03960>

Using Weave Mesh

- General form of update: $A \oplus B \Rightarrow C$

A = local state, B = incoming update,
C = resulting state

- Golang interface:
 - `mergeReceived = B`
 - `mergeDelta` = difference from A to C
 - `mergeComplete = C`

Benefits

- Weave Net
- No centralised store needed for network
- Carries on working during network partitions
- Weave heals seamlessly when the network heals
- Particularly interesting in federated clusters...

What next?

- Automate CI/CD
- Help teams deploy
- Want to learn what you are doing
 - Please email me now!
luke@weave.works
 - Also come and talk to us :)

<https://weave.works>

<https://www.weave.works/guides/visualizing-microservices-with-weave-cloud-docker-for-mac/>

<https://github.com/microservices-demo/microservices-demo>

<https://www.infoq.com/presentations/weave-mesh>

Thank you!
Questions?

Try it yourself: weave.works

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