

# Docker Networking

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## THE BASICS



**Nigel Poulton**

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# Docker Networking

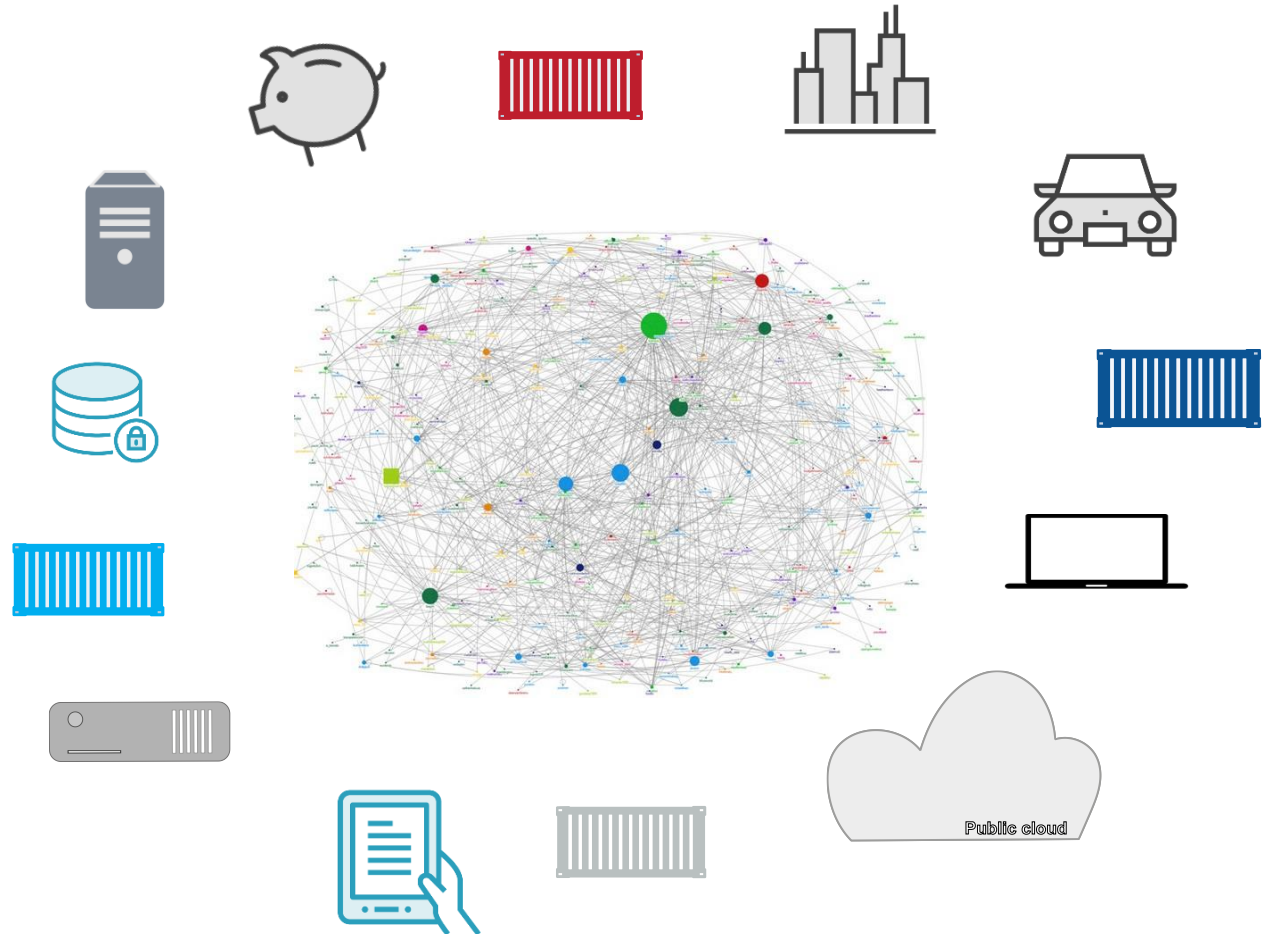
---

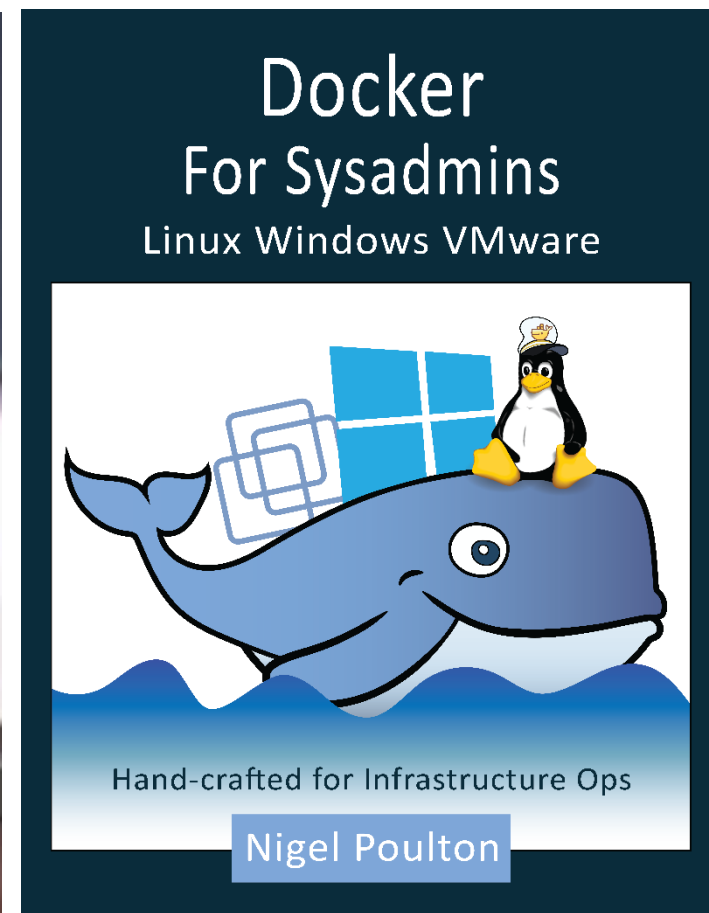
## COURSE INTRODUCTION

Networks are complex

Networks are huge

Networks are central





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# Related courses

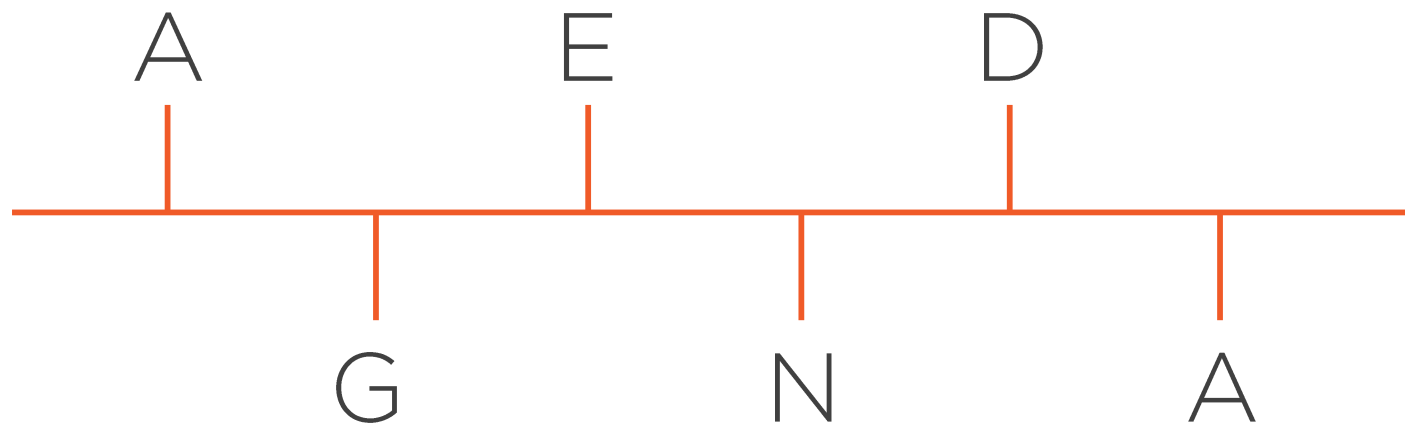
To get you up and running...

## Docker and Containers: The Big Picture


- **Course Intro**
- **What are Containers**
- **What is Docker**
- **Preparing to Thrive in a Container World**
- **What Kind of Work Will Containers Do?**
- **Are Docker and Containers Ready for Production...**
- **...**

## Getting Started with Docker

- **Course Intro**
- **Installing Docker**
- **Working with Containers**
- **Swarm Mode and Microservices**



# AGENDA

- 
- Docker Networking Basics
  - Use Cases and Drivers
  - Network Services



= complex!

# Background



= simple!





# Big Picture Roadmaps

VMware:

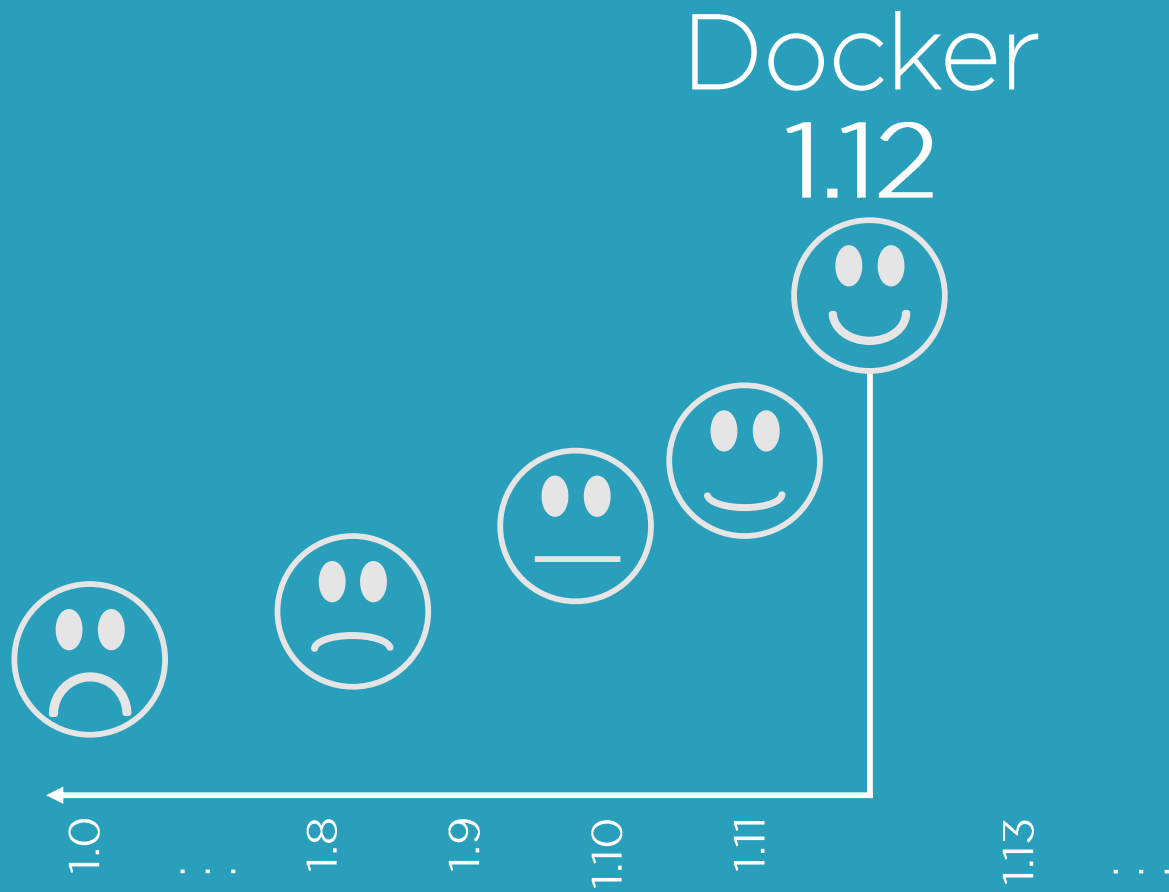
Docker:

Engine  
(app runtime)

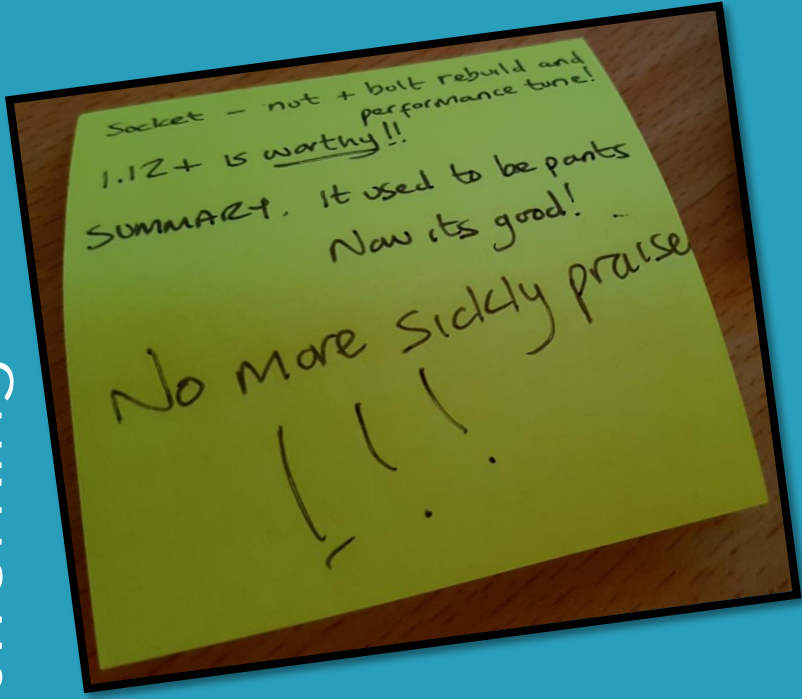
Libnetwork

TBC  
(Infini...?)

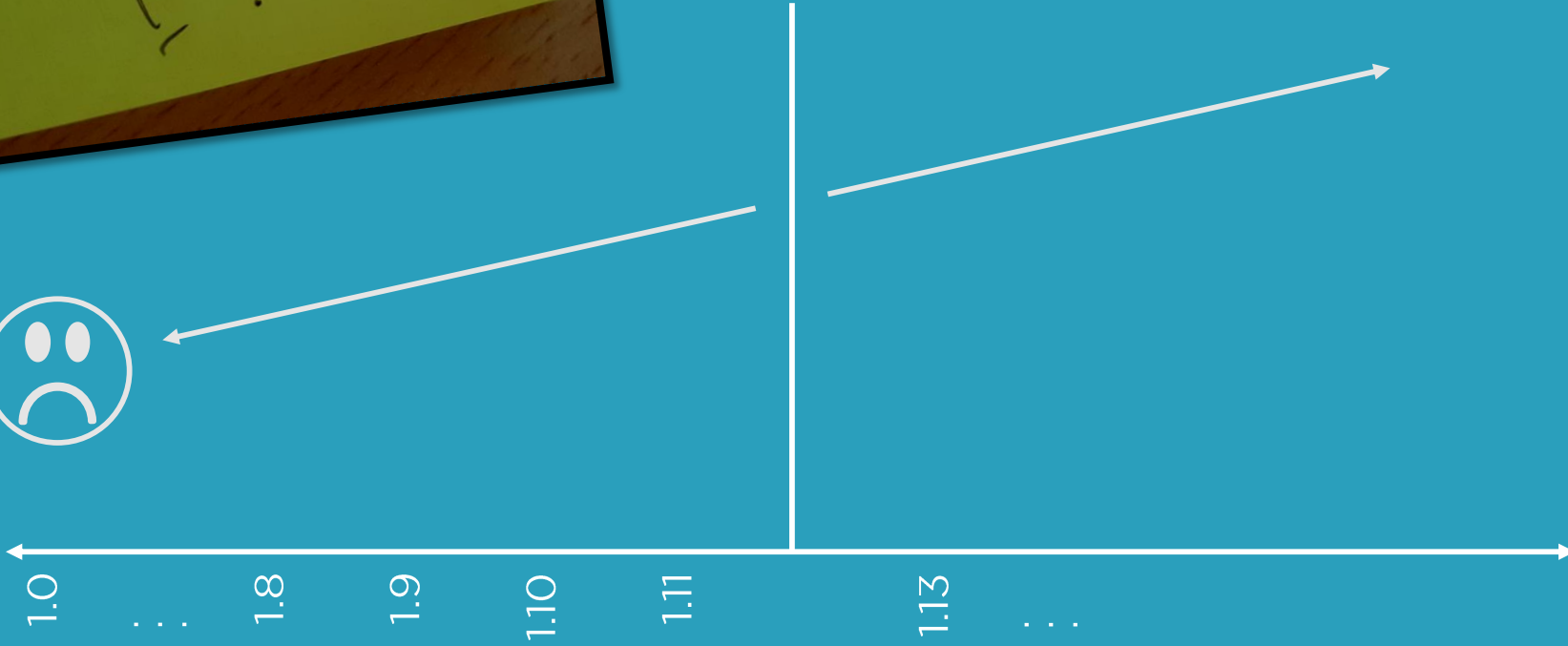
# Docker networking



# Docker networking



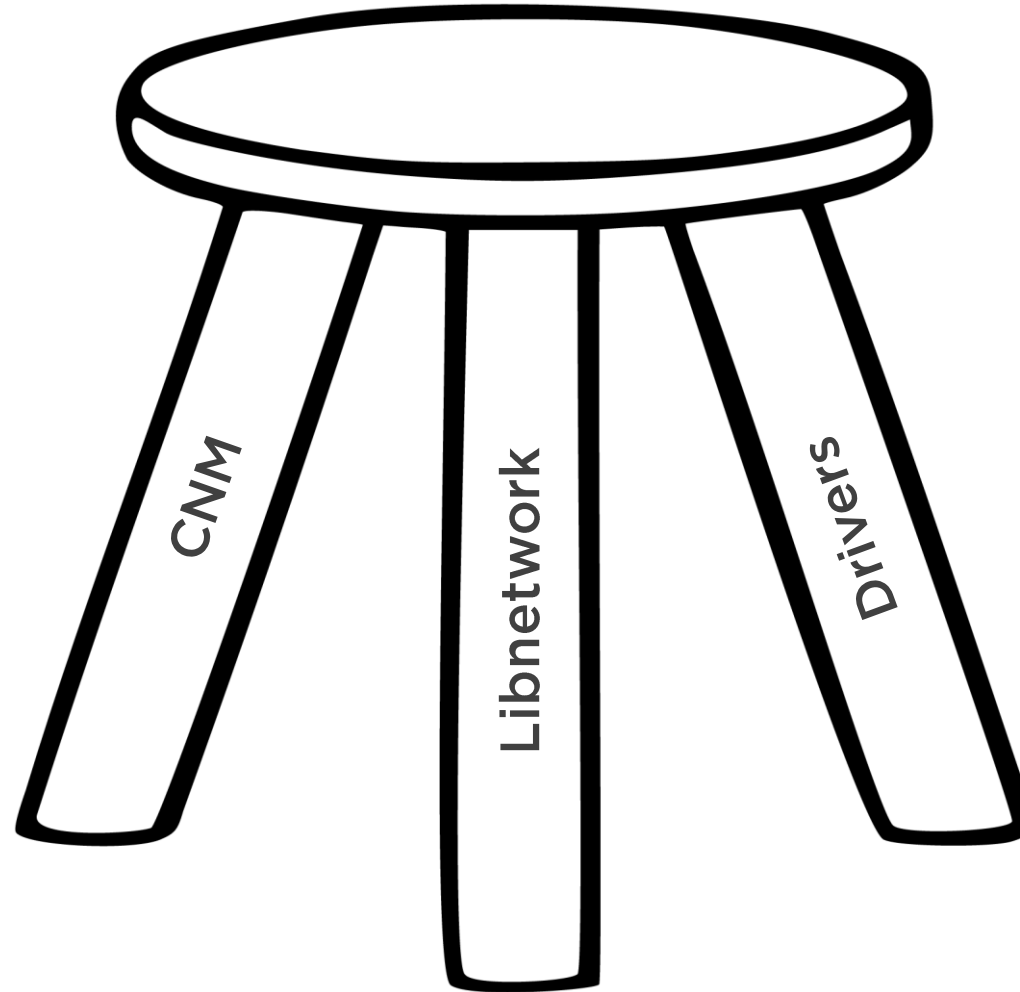
Docker  
1.12



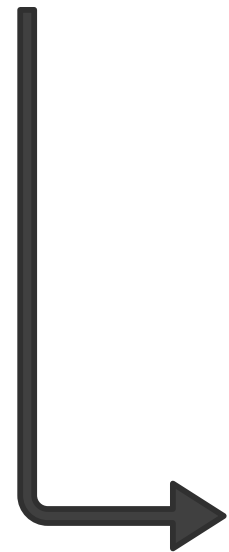
# Coming up...

The CNM and Libnetwork

# The Three Pillars of Docker Networking



CNM → Libnetwork → Drivers



Spec from Docker,  
Inc. Now open source

Grand design/DNA  
of Docker networking

<https://github.com/docker/libnetwork/blob/master/docs/design.md>

CNM

VS

CNI

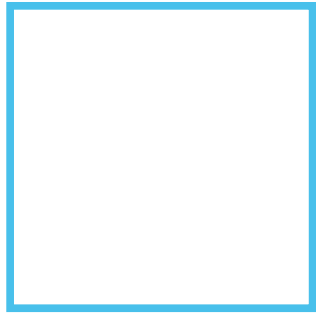
Container network model	AKA	Container network interface
Docker	Speciality	Kubernetes
Docker, Inc.	Origin	CoreOS, Inc.

# CNM VS CNI

Container network model	AKA	Container network interface
Docker	Speciality	Kubernetes
Docker, Inc.	Origin	CoreOS, Inc.



CNM



## Sandbox

A.k.a. namespace

Isolated area of OS

Contains full network  
stack



## Endpoint

Network interface

E.g. `eth0`



## Network

Connected **endpoints**

# CNM

## Sandbox

A.k.a. namespace

Isolated area of OS

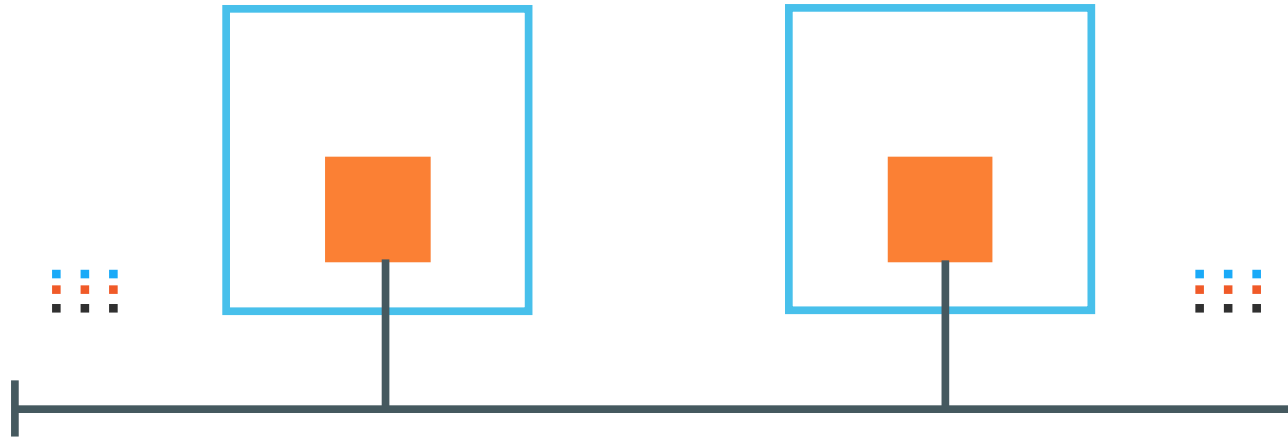
Contains full network stack

## Endpoint

Network interface. E.g. eth0

## Network

Connected endpoints



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# CNM

## Sandbox

A.k.a. namespace

Isolated area of OS

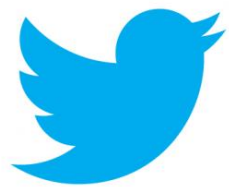
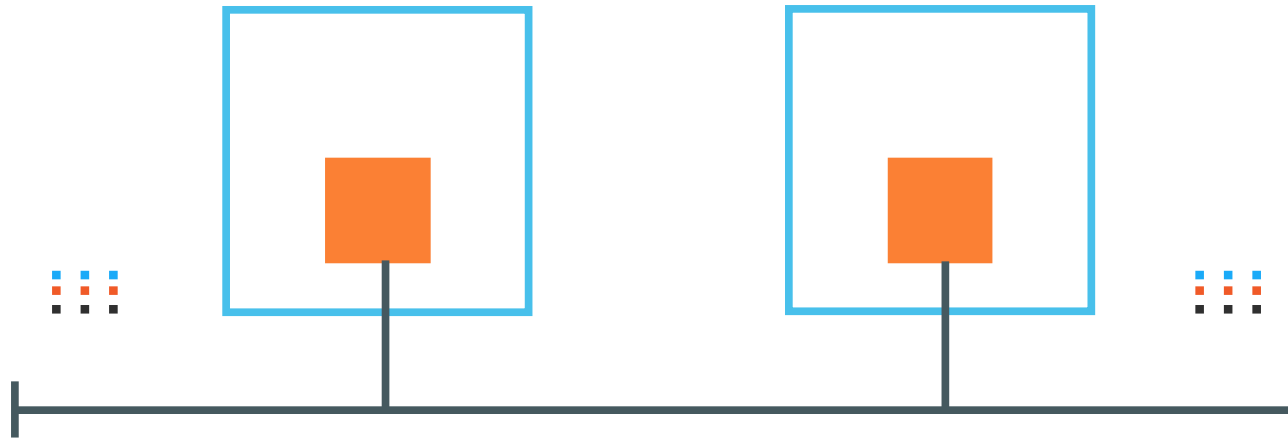
Contains full network stack

## Endpoint

Network interface. E.g. eth0

## Network

Connected endpoints



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CNM → Libnetwork → Drivers

DNA:

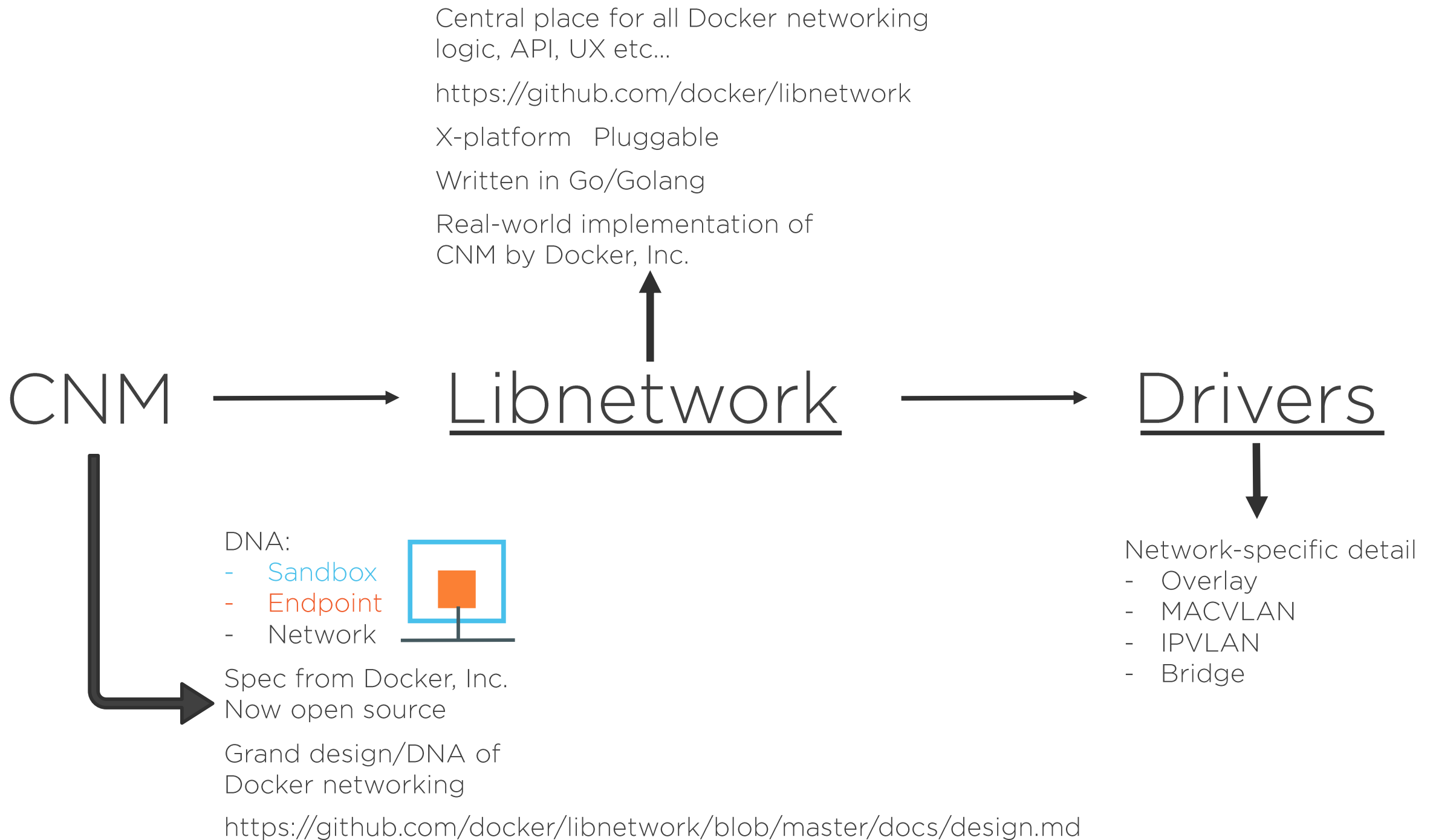
- Sandbox
- Endpoint
- Network



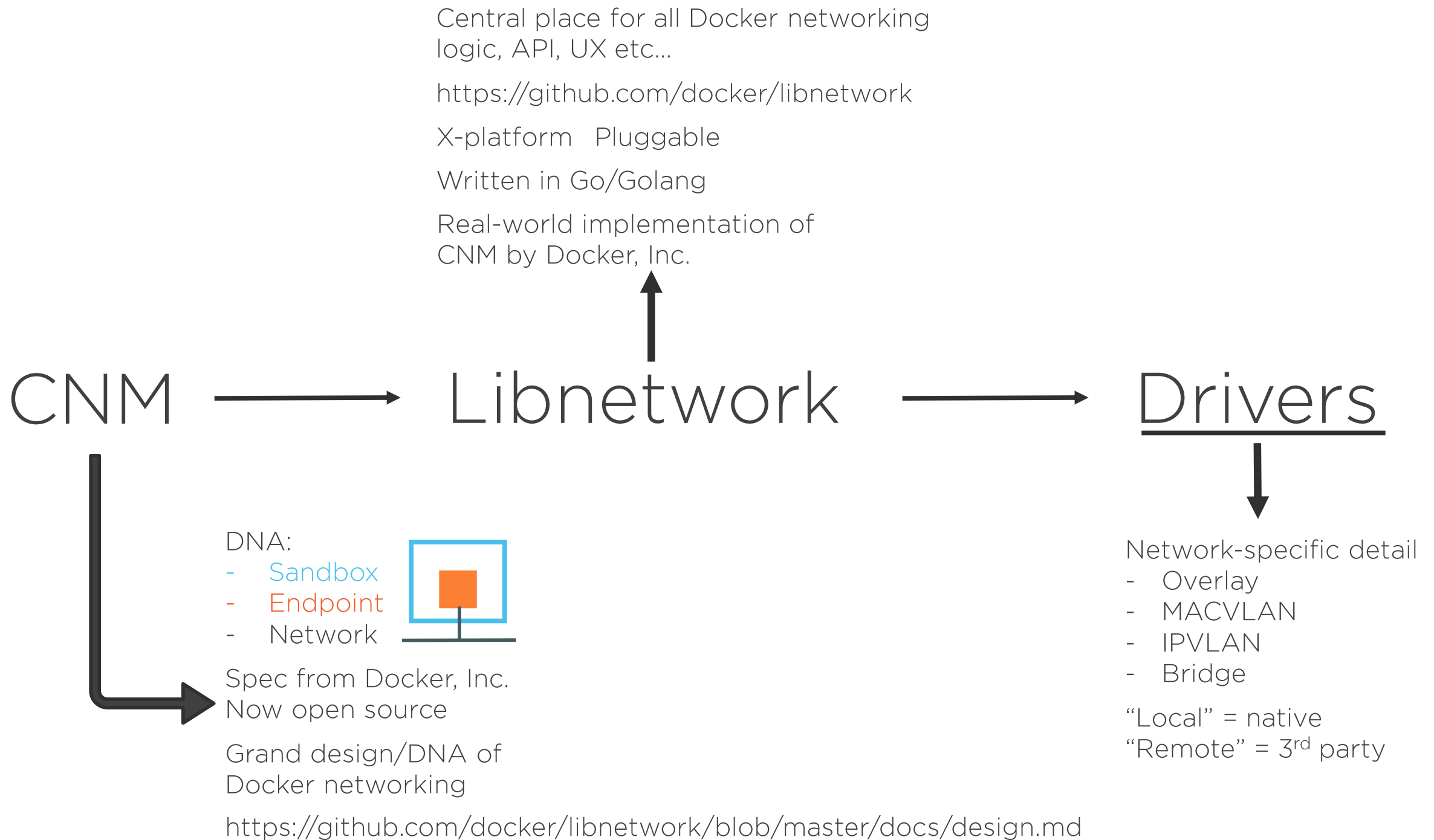
Spec from Docker, Inc.  
Now open source

Grand design/DNA of  
Docker networking

<https://github.com/docker/libnetwork/blob/master/docs/design.md>

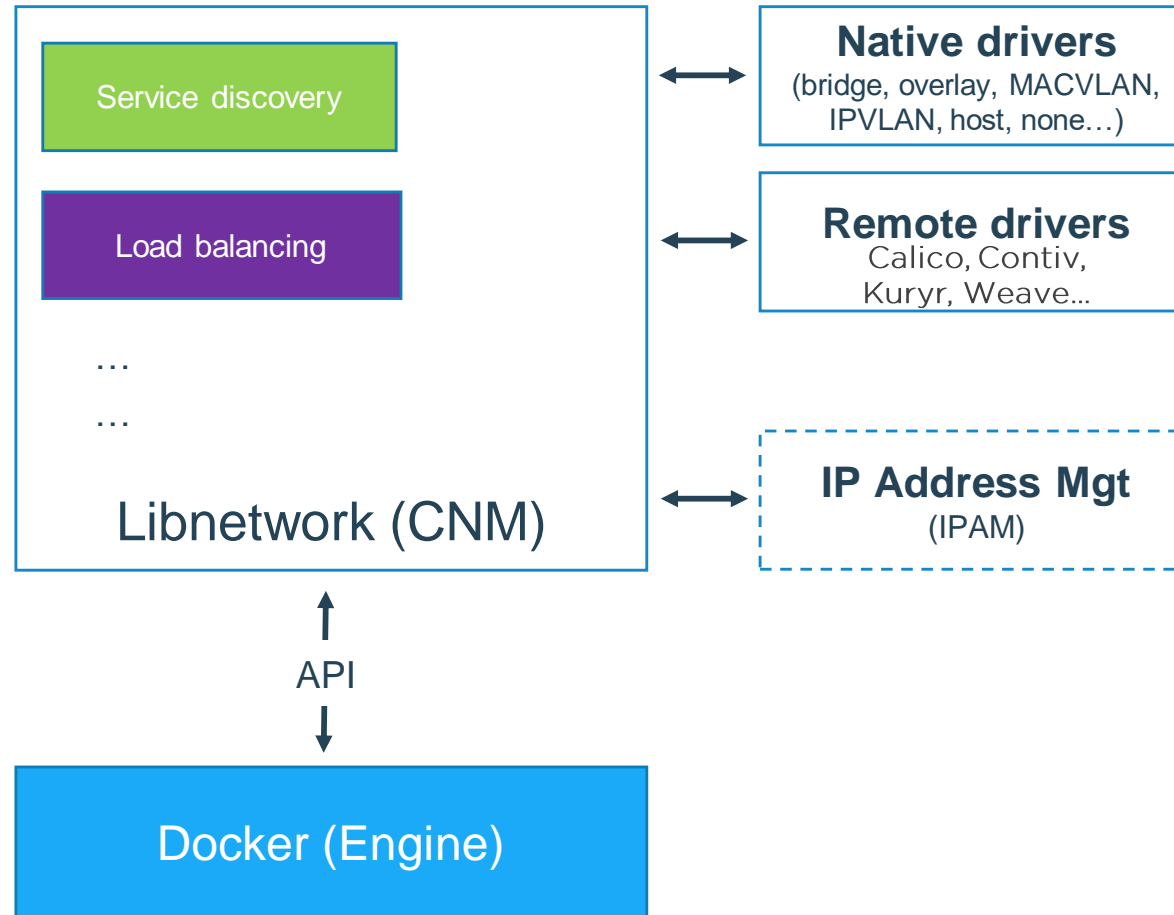






## Foundation/building blocks

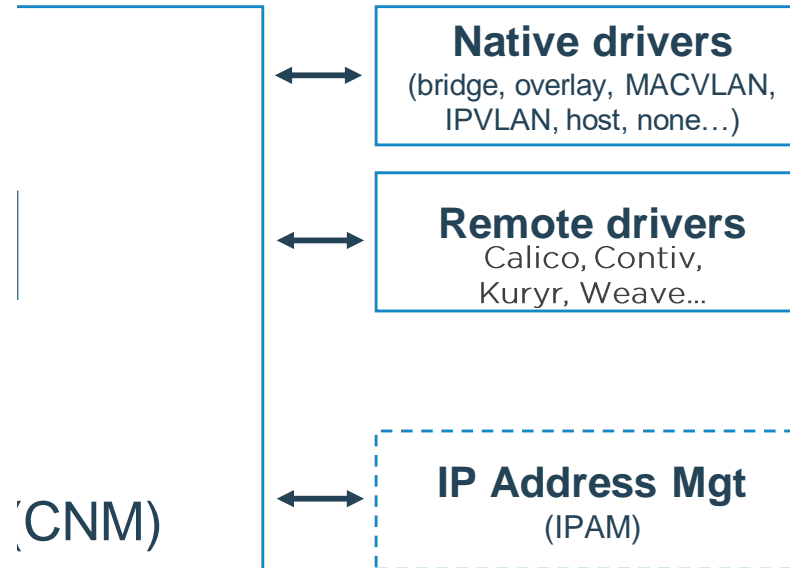
## Detail





Foundation/building blocks

Detail



Docker (Engine)

# CNM

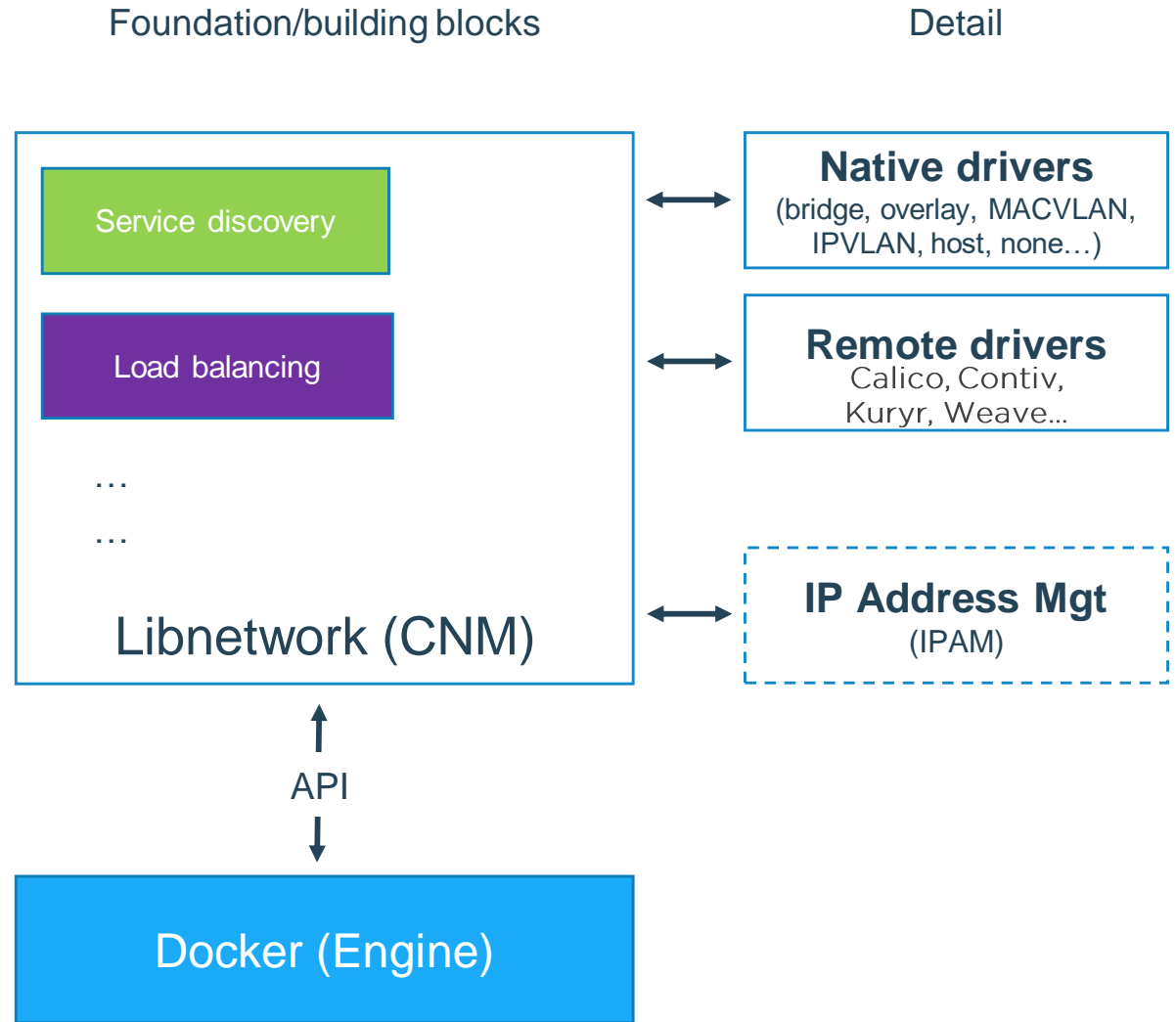
Master plan/grand design

# Libnetwork

De facto implementation of the CNM

# Drivers

Network-specific detail



# Coming up...

The hands-on stuff!!!!