## Docker Networking and Service Discovery

by Michael Hausenblas



## **Table of Contents**

	Preface	V
1.	Motivation	. 9
	Go Cattle!	10
	Docker Networking & Service Discovery Stack	10
	Do I Need To Go All-In?	12
2.	Docker Networking 101	15
	Bridge Mode Networking	17
	Host Mode Networking	18
	Container Mode Networking	20
	No Networking	20
	Wrapping It Up	21
3.	Docker Multi-Host Networking	23
	Overlay	24
	Flannel	24
	TIT	
	Weave	24
	Project Calico	24 25
	Project Calico	25
	Project Calico Open vSwitch	25 25
	Project Calico Open vSwitch Pipework	25 25 25
	Project Calico Open vSwitch Pipework OpenVPN	25 25 25 25

	Technologies	31
	Load Balancing	37
	Wrapping It Up	38
5.	Containers and Orchestration	41
	What Does A Scheduler Actually Do?	43
	Vanilla Docker and Docker Swarm	44
	Kubernetes	47
	Apache Mesos	50
	Hashicorp Nomad	52
	Which One Should I Use?	54
6.	And now?	59
	References	59
	Acknowledgements	60
	About the Author	61
	Index	63

## Index

C	Bamboo, 37
Cassandra, 50	HAProxy, 37
Chronos, 50	Kubernetes, 37
DNS caching, 37 DNS-based service discovery, 35 Docker	Marathon, 38 Marathon servicerouter, 38 moxy, 38 traefik, 38 vamp-router, 37 vulcand, 37
Multi-host networking, 23	
Security, 22	M
Single-host networking, 17	Marathon, 50
Docker Swarm, 46	
	N
G	Network security, 22
Google	
Borg, 47	Р
Omega, 52	Port allocation, 22
I	S
IP address allocation, 21	Service discovery, 29
IPAM, 27	Lookup, 30
IPVLAN, 26	Overview, 38
	Registration, 30
L	Scalability, 30
Load balancing, 37	Spark, 50