



C o m m u n i t y E x p e r i e n c e D i s t i l l e d

CoreOS Essentials

Develop effective computing networks to deploy your applications and servers using CoreOS

Rimantas Mocevicius

[PACKT] open source*
PUBLISHING community experience distilled

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BIRMINGHAM - MUMBAI

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I would like to thank my wife and son for encouraging me to write this book and supporting me all throughout the way until its end.

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And of course, a big thank you goes to the CoreOS team for releasing such an amazing Linux-based operating system.

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Thank you to Holly. I'll always strive to make you proud.

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Preface

CoreOS is a new breed of the Linux operating system and is optimized to run Linux containers, such as Docker and rkt. It has a fully automated update system, no package manager, and a fully clustered architecture.

Whether you are a Linux expert or just a beginner with some knowledge of Linux, this book will provide you with step-by-step instructions on installing and configuring CoreOS servers as well as building development and production environments. You will be introduced to the new CoreOS rkt Application Containers runtime engine and Google's Kubernetes system, which allows you to manage a cluster of Linux containers as a single system.

What this book covers

Chapter 1, CoreOS – Overview and Installation, contains a brief CoreOS overview what CoreOS is about.

Chapter 2, Getting Started with etcd, explains what etcd is and what it can be used for.

Chapter 3, Getting Started with systemd and fleet, covers an overview of systemd. This chapter tells you what fleet is and how to use it to deploy Docker containers.

Chapter 4, Managing Clusters, is a guide to setting up and managing a cluster.

Chapter 5, Building a Development Environment, shows you how to set up the CoreOS development environment to test your Application Containers.

Chapter 6, Building a Deployment Setup, helps you set up code deployment, the Docker image builder, and the private Docker registry.

Chapter 7, Building a Production Cluster, explains the setup of the CoreOS production cluster on the cloud.

Chapter 8, Introducing CoreUpdate and Container/Enterprise Registry, has an overview of free and paid CoreOS services.

Chapter 9, Introduction to CoreOS rkt, tells you what rkt is and how to use it.

Chapter 10, Introduction to Kubernetes, teaches you how to set up and use Kubernetes.

What you need for this book

For this book, you will need a Linux-powered system or an Apple Mac, and a Google Cloud account to run the examples covered. You will also require the latest versions of VirtualBox and Vagrant to run the scripts.

Who this book is for

This book will benefit any Linux/Unix system administrator. Any person with even a basic knowledge of Linux/Unix will have an advantage when using this book.

This book is also for system engineers and system administrators who are already experienced with network virtualization and want to understand how CoreOS can be used to develop computing networks for the deployment of applications and servers. They must have a proper knowledge of the Linux operating system and Application Containers, and it is better if they have used a Linux distribution for the purpose of development or administration before.

Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.

Code words in text are shown as follows: "We can include other contexts through the use of the `include` directive."


A block of code is set as follows:


```
etcd2:
  name: core-01
  initial-advertise-peer-urls: http://$private_ipv4:2380
  listen-peer-urls:
    http://$private_ipv4:2380,http://$private_ipv4:7001
  initial-cluster-token: core-01_etcd
  initial-cluster: core-01=http://$private_ipv4:2380
  initial-cluster-state: new
  advertise-client-urls:
    http://$public_ipv4:2379,http://$public_ipv4:4001
  listen-client-urls: http://0.0.0.0:2379,http://0.0.0.0:4001
fleet:
```

Any command-line input or output is written as follows:

```
$ git clone https://github.com/coreos/coreos-vagrant/
```

New terms and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "We should see this output in the **Terminal** window."

 Warnings or important notes appear in a box like this.

 Tips and tricks appear like this.

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