



Raspberry Pi Super Cluster

By Andrew K. Dennis

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As a Raspberry Pi enthusiast have you ever considered increasing their performance with parallel computing? Discover just how easy it can be with the right help - this guide takes you through the process from start to finish.

Overview

- Learn about parallel computing by building your own system using Raspberry Pi
- Build a two-node parallel computing cluster
- Integrate Raspberry Pi with Hadoop to build your own super cluster

In Detail

A cluster is a type of parallel/distributed processing system which consists of a collection of interconnected stand-alone computers cooperatively working together. Using Raspberry Pi computers, you can build a two-node parallel computing cluster which enhances performance and availability.

This practical, example-oriented guide will teach you how to set up the hardware and operating systems of multiple Raspberry Pi computers to create your own cluster. It will then navigate you through how to install the necessary software to write your own programs such as Hadoop and MPICH before moving on to cover topics such as MapReduce. Throughout this book, you will explore the technology with the help of practical examples and tutorials to help you learn quickly and efficiently.

Starting from a pile of hardware, with this book, you will be guided through exciting tutorials that will help you turn your hardware into your own super-computing cluster. You'll start out by learning how to set up your Raspberry Pi cluster's hardware. Following this, you will be taken through how to install the operating system, and you will also be given a taste of what parallel computing is about. With your Raspberry Pi cluster successfully set up, you will then install software such as MPI and Hadoop. Having reviewed some examples and written some programs that explore these two technologies, you will then wrap up with some fun ancillary projects. Finally, you will be provided with useful links to help take your projects to the next step.

What you will learn from this book

- Discover how to set up the hardware to build your parallel computing cluster
- Set up your Raspberry Pi computers and install an operating system
- Network your two Raspberry Pi's together
- Gain an understanding of MPI through practical examples
- Learn how to work with MPICH to write parallel applications
- Install Hadoop and experiment with processing text files
- Get acquainted with MapReduce, the paradigm at the heart of Hadoop

Approach

This book follows a step-by-step, tutorial-based approach which will teach you how to develop your own super cluster using Raspberry Pi computers quickly and efficiently.

Who this book is written for

Raspberry Pi Super Cluster is an introductory guide for those interested in experimenting with parallel computing at home. Aimed at Raspberry Pi enthusiasts, this book is a primer for getting your first cluster up and running.

Basic knowledge of C or Java would be helpful but no prior knowledge of parallel computing is necessary.

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Editorial Review

About the Author

Andrew K. Dennis

Andrew K. Dennis is the Manager of Application Development at Prometheus Research. Prometheus Research is a leading provider of integrated data management for research and the home of HTSQL, an open source navigational query language for RDMS.

Andrew has a Diploma in Computing and a BS in Software Engineering; he is currently studying a second BS in Creative Computing in his spare time.

He has over 10 years of experience working in the software industry in the UK, Canada, and USA. This experience includes e-Learning, CMS and LMS development, SCORM consultancy, web development in a variety of languages, open source application development, and running a blog dedicated to maker culture and home automation.

His interests include web development, e-Learning, 3D printing, Linux, the Raspberry Pi and Arduino, open source projects, parallel computing, home automation, amateur electronics, home networking, and software engineering.

Many of these topics were covered in his previous book from Packt Publishing, Raspberry Pi Home Automation with Arduino.

Users Review

From reader reviews:

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