



# Professional Linux Kernel Architecture

By Wolfgang Mauerer

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Find an introduction to the architecture, concepts and algorithms of the Linux kernel in *Professional Linux Kernel Architecture*, a guide to the kernel sources and large number of connections among subsystems. Find an introduction to the relevant structures and functions exported by the kernel to userland, understand the theoretical and conceptual aspects of the Linux kernel and Unix derivatives, and gain a deeper understanding of the kernel. Learn how to reduce the vast amount of information contained in the kernel sources and obtain the skills necessary to understand the kernel sources.

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## **Editorial Review**

From the Back Cover

### **Professional Linux® Kernel Architecture**

As the Linux kernel constantly evolves, so must your understanding of the central functions of the kernel. Linux expert Wolfgang Mauerer focuses on version 2.6.24 (as well as summarizing changes to versions 2.6.25 and 2.6.26) of the kernel as he walks you through the concepts, underlying structures, and implementation of the Linux kernel. Keeping a close connection with the source code—as well as the components and subsystems of the kernel—this book reviews the VFS layer and discusses virtual filesystems and the Extended filesystem family and examines how the page and buffer cache speed up kernel operations.

You'll take a look at the peculiarities of various architectures supported by the kernel, explore the assorted tools and means of working efficiently with the kernel sources, and investigate the numerous social aspects of kernel development and the Linux kernel community. Ultimately, this insightful book will serve as an indispensable step towards understanding structure and implementation of the Linux kernel.

### **What you will learn from this book**

- Various ways of viewing the kernel—as an enhanced machine, a resource manager, and a library
- How the kernel handles all time-related requirements, both with low and high resolution
- The mechanisms required to ensure proper operation of the kernel on multiprocessor systems
- How modules add new functionality to the kernel
- How the kernel deals with memory management, page reclaim, and swapping
- How the kernel deals with networks and implements TCP/IP

### **Who this book is for**

This book is for system programmers, administrators, developers of Linux-based solutions, and overall Linux enthusiasts. A solid foundation of C programming is required.

**Wrox Professional guides** are planned and written by working programmers to meet the real-world needs of programmers, developers, and IT professionals. Focused and relevant, they address the issues technology professionals face every day. They provide examples, practical solutions, and expert education in new technologies, all designed to help programmers do a better job.

### **About the Author**

Wolfgang Mauerer is a quantum physicist whose professional interests are centered around quantum cryptography, quantum electrodynamics, and compilers for -- you guessed it -- quantum architectures. With the confirmed capacity of being the worst experimentalist in the known universe, he sticks to the theoretical side of his profession, which is especially reassuring considering his constant fear of accidentally destroying the universe. Outside his research work, he is fascinated by operating systems, and for more than a decade -- starting with an article series about the kernel in 1997 -- he has found great pleasure in documenting and explaining Linux kernel internals. He is also the author of a book about typesetting with LaTeX and has written numerous articles that have been translated into seven languages in total. When he's not submerged in vast Hilbert spaces or large quantities of source code, he tries to take the opposite direction, namely, upward -- be this with model planes, a paraglider, or on foot with an ice axe in his hands: Mountains especially have the power to outrival even the Linux kernel. Consequently, he considers planning and

accomplishing a first-ascent expedition to the vast arctic glaciers of east Greenland to be the really unique achievement in his life. Being interested in everything that is fundamental, he is also the author of the first compiler for Plankalkul, the world's earliest high-level language devised in 1942-1946 by Konrad Zuse, the father of the computer. As an avid reader, he is proud that despite the two-digit number of computers present in his living room, the volume required for books still occupies a larger share.

## **Users Review**

### **From reader reviews:**

#### **Pearl Sanders:**

What do you think about book? It is just for students because they're still students or that for all people in the world, the particular best subject for that? Merely you can be answered for that query above. Every person has several personality and hobby for every other. Don't to be compelled someone or something that they don't would like do that. You must know how great as well as important the book Professional Linux Kernel Architecture. All type of book are you able to see on many resources. You can look for the internet sources or other social media.

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