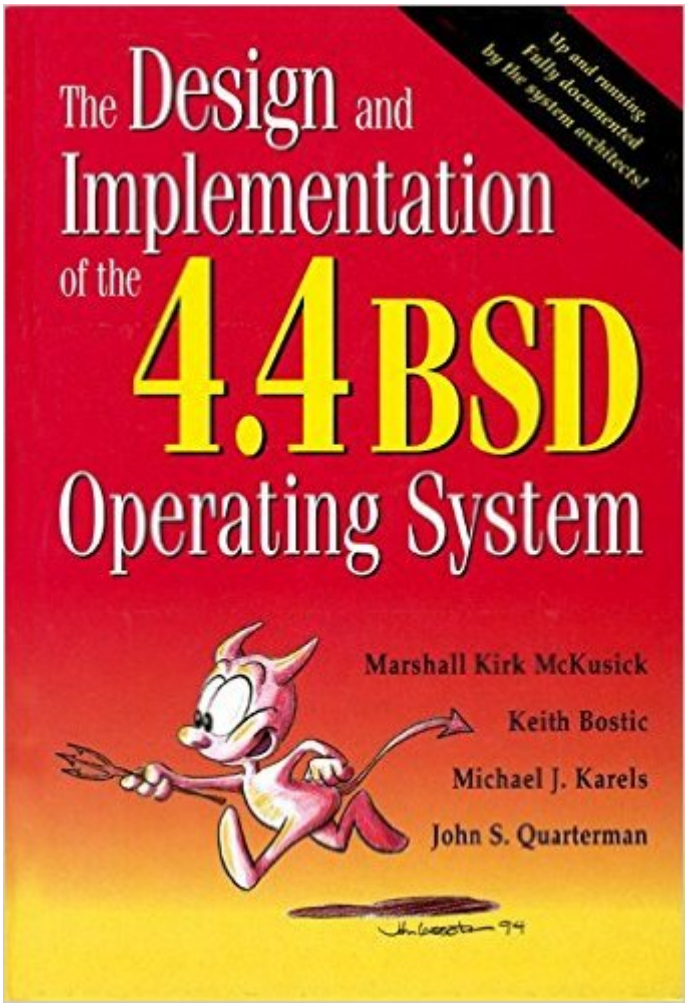
The Design And Implementation Of The 4.4 BSD Operating System (Addison-Wesley UNIX And Open Systems Series)



Synopsis

This book describes the design and implementation of the BSD operating system--previously known as the Berkeley version of UNIX. Today, BSD is found in nearly every variant of UNIX, and is widely used for Internet services and firewalls, timesharing, and multiprocessing systems. Readers involved in technical and sales support can learn the capabilities and limitations of the system; applications developers can learn effectively and efficiently how to interface to the system; systems programmers can learn how to maintain, tune, and extend the system. Written from the unique perspective of the system's architects, this book delivers the most comprehensive, up-to-date, and authoritative technical information on the internal structure of the latest BSD system. As in the previous book on 4.3BSD (with Samuel Leffler), the authors first update the history and goals of the BSD system. Next they provide a coherent overview of its design and implementation. Then, while explaining key design decisions, they detail the concepts, data structures, and algorithms used in implementing the system's facilities. As an in-depth study of a contemporary, portable operating system, or as a practical reference, readers will appreciate the wealth of insight and guidance contained in this book. Highlights of the book: Details major changes in process and memory management Describes the new extensible and stackable filesystem interface Includes an invaluable chapter on the new network filesystem Updates information on networking and interprocess communication

Book Information

File Size: 4366 KB

Print Length: 588 pages

Page Numbers Source ISBN: 0201549794

Simultaneous Device Usage: Up to 5 simultaneous devices, per publisher limits

Publisher: Addison-Wesley Professional; 1 edition (April 30, 1996)

Publication Date: April 30, 1996

Sold by:Â Digital Services LLC

Language: English

ASIN: B001FBFHEM

Text-to-Speech: Enabled

X-Ray: Not Enabled

Word Wise: Not Enabled

Lending: Not Enabled

Enhanced Typesetting: Not Enabled

Best Sellers Rank: #1,563,499 Paid in Kindle Store (See Top 100 Paid in Kindle Store) #49 inÂ Books > Computers & Technology > Operating Systems > BSD #327 inÂ Books > Computers & Technology > Programming > APIs & Operating Environments > Operating Systems Theory #1568 inÂ Kindle Store > Kindle eBooks > Computers & Technology > Operating Systems

Customer Reviews

Okay, I'll be the first to admit that I am not a kernel hacker by any means. I can't even program my way out of a wet paper bag (a bit of an exaggeration, but you get the idea). However, as a sysadmin, I firmly believe that you should have a solid understanding of whatever OS platform that you are working on. For me, that would be Solaris and Linux. So why am I recommending a BSD book? Well, BSD has a rich heritage in UNIX. It was the first UNIX to incorporate TCP/IP and it gave us sockets, FFS, and a rich set of tools (csh). FreeBSD, the most well-known of the *BSD family, powers some of the largest sites in the world (e.g., yahoo). It is an extremely robust and stable Operating System. It is also much more elegant than Linux.This book is the ultimate BSD bible. It is written by some of the Gods of BSD and is extremely rigorous. I've made my way through this book twice and I've learned something new each time. If you put the effort into this book, you will come out with a greater understanding of UNIX in general. If you are a BSD hacker, then you should already have this book. This is a hard read, but it is really worth your time and effort to read this book at least once.

The book is good, no doubt about it. And it covers a big gap in the Unix world. It helped me numerous times to understand how things work in the kernel of FreeBSD. But, and there is a big but here, the book does not contain even a single line of code. Strange for a book that is supposed to describe a kernel. There are a few instances of pseudo-code here and there but nothing more. The book gives you the big picture, describes the various parts of the kernel like virtual memory, scheduling, filesystems but it is too descriptive in my opinion. I would like to see instead of long descriptions some real kernel code. Ofcourse you may argue that you can find all the source code in the world in FreeBSD, but thats different. Its not a book for beginners, you should already have read some other Operating System book first before you dig in this one as the authors themselves agree. Bottomline: good book but too theoretical for my taste. I recommend it only to the serious reader. Its not a bed time book. You need to work your brain to make the connection.

I’m shocked that no one has reviewed this book yet. This is it, one of the top books ever written documenting a version of the Unix kernel. If you are interested in kernel design, you probably already have this book on your shelf. If you haven’t worked through it yet, you have a real treat ahead of you. One thing that makes this book more exciting than some of the other books on unix kernel design, such as Bach’s venerable tome or _Magic Garden Explained_ , is that the source code is available for closely related, modern systems -- FreeeBSD, NetBSD, and OpenBSD.

While this book has been written by some of the best in the UNIX arena, their strong focus on packing a lot of content into these pages at times can prove a burden to the reader.Reading through the chapters, it appears that the book could have been rendered more readable if a knowledgeable technical editor had put the finishing touches on it.Nevertheless, even though it takes a bit of time to get used to the different writing styles and differences in quality of several chapters, this books is a well of insights into the internal workings of BSD 4.4 and its derivatives (like Mac OS X).In order to gain the most from this title, I strongly urge interested readers to already have worked their way through Maurice J. Bach’s "The Design of the UNIX Operating System".

Although it does give good coverage of 4.4 BSD, I was surprised to see that both reviewers gave it 5 stars. A number of the chapters are very tedious to read and don’t explain things as well as they should. I would recommend it only after the reader had read Vahalia’s and Bach’s books.

Seriously, despite of the funny little daemon on the cover, this book is quite difficult.First, it’s a technical book about the BSD kernel. The only reason why you would want to read it is that you really want to know How It Works(tm). It’s all about kernel. The drivers are only slightly touched, the API is touched even less. Rather than that, this book shows you the fields and flags of internal structures and the ways they are handled. Therefore I’d only recommend it to the system programmers and may be to the enthusiastic admins.Second, certain chapters are written much worse than the others. The language in chapters 4 (Process Management) and 5 (Memory Management) is sort of a tangled making reading a challenge and it’s really a pity because these two topics would better be covered best.Also note that this book does not include sample code AT ALL. All the principles and algorithms are described using plain English and I’d say it’s great, because it’s much easier to follow, rather than making your way through somebody else’s C scribbling.Anyway, 5 stars, because it gives you 500 pages of pure distilled info. And it’s info from the authors of BSD !I’m definetely looking forward to read this book again and this is one of the

books that are worth it.

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