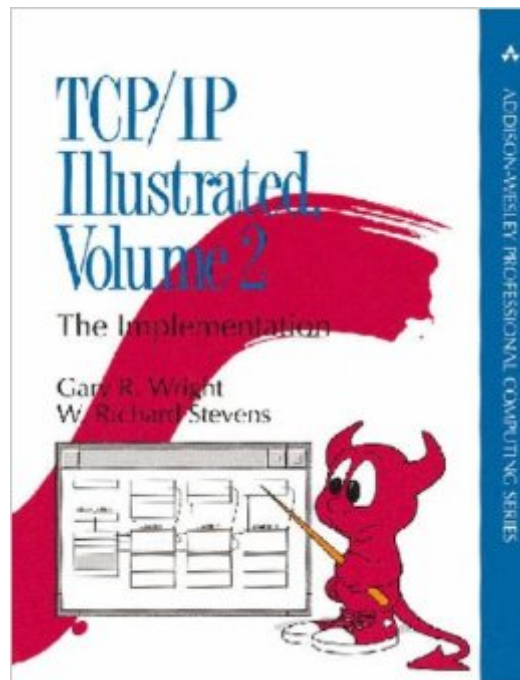# TCP/IP Illustrated: The Implementation, Vol. 2

Synopsis

TCP/IP Illustrated, an ongoing series covering the many facets of TCP/IP, brings a highly-effective visual approach to learning about this networking protocol suite. TCP/IP Illustrated, Volume 2 contains a thorough explanation of how TCP/IP protocols are implemented. There isn't a more practical or up-to-date bookothis volume is the only one to cover the de facto standard implementation from the 4.4BSD-Lite release, the foundation for TCP/IP implementations run daily on hundreds of thousands of systems worldwide. Combining 500 illustrations with 15,000 lines of real, working code, TCP/IP Illustrated, Volume 2 uses a teach-by-example approach to help you master TCP/IP implementation. You will learn about such topics as the relationship between the sockets API and the protocol suite, and the differences between a host implementation and a router. In addition, the book covers the newest features of the 4.4BSD-Lite release, including multicasting, long fat pipe support, window scale, timestamp options, and protection against wrapped sequence numbers, and many other topics. Comprehensive in scope, based on a working standard, and thoroughly illustrated, this book is an indispensable resource for anyone working with TCP/IP.

Book Information

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Customer Reviews

Even though this book was first published in 1995, it still serves as a useful research and reference guide to those involved in changing the TCP/IP protocol or the mathematical and simulation modeling of it. Most of the source code is included for the protocol and UDP is treated also, with Berkeley TCP/IP used as the protocol implementation. A brief introduction to descriptors and

memory buffers is given in Chapter 1, along with a discussion of input processing. The authors treat memory buffers (Mbufs) in detail in Chapter 2. Four different types of Mbufs are used in the protocol, depending on the flag setting in the m_flags member of the header. The source code clearly illustrates the data structures used for the Mbufs. This is followed by a detailed discussion of the Mbuf macros and functions. This is followed in the next chapter with a discussion of the interface layer and the all-important sockaddr data structure. In addition, the system initialization procedures are treated very nicely. This is followed by a very informative overview of the Ethernet interface, with most of the source code omitted since it is hardware specific. The LANCE driver is discussed thoroughly in this chapter. Then, in the next chapter, the SLIP and loopback interfaces are discussed with a very effective diagram used to illustrate the device drivers. The authors do manage to spend a few helpful paragraphs on SLIP performance considerations. Chapter 6 is a very detailed treatment of IP addressing, the most useful discussion being the one on the in_ifinit function. This is followed by a discussion of the data structures used in domains and group protocols, with the IP initialization and transport multiplexing discussion being of particular interest to me.

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