Book Reviews

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Client/Server Technology for Managers

Addison–Wesley Publishing Company, Reading, 1995, pp. xiv, 235, ISBN 0–201–40920–8

Karen Watterson is a consultant on database design and the author of several books on database programming, including bestselling Visual Basic Database Programming (Addison-Wesley). She is also the editor of the Visual basic Developer newsletter and Contributing Editor to Windows Sources magazine.

Client/Server Technology for Managers consists of nine chapters, preceded by a foreword and an introduction, and followed by a glossary and an index. The foreword to the Client/Server Technology for Managers starts with description of a popular cartoon showing IS manager talking to his mainframe programmers: "Your're either going to make the move to to client/server computing or learn how to ask, 'You want fries with that?'" Mrs. Watterson states that it's no longer a question of whether you're going to client/server, but rather when you are going to make the transition.

The introduction is very short but gives the questions that Mrs. Watterson promises to answer into the rest of the book, and she did a honest work to do this. The questions are interesting enough to be conveyed here: What is client/server? Are mainframes really obsolete? Can I move existing mainframe software onto smaller computers? How are client/server, downsizing, and enterprise computing related? Where does reengineering fit in? What does object-oriented mean? What's SQL? Do I need middleware? Should I get a data warehouse? What's an open system? Do I need parallel processing? Can I trust UNIX and PC LANs? How long will it take my programmers to learn the new methods? Should I consider outsourcing? Where do I start? How much is all this going to cost me?

Chapter 1 introduces the main concepts of client/server paradigm. It reveals that the network is the main part of the underlying architecture, and describes the meaning of popular buzzwords such as downsizing, rightsizing, upsizing and reengineering, together with their impact on client/server approach.

After defining the three major components of client/server (clients, servers and networks) in the second chapter, Watterson continues to deal with them more elaborately in the following three chapters. Chapter 3 describes clients which mine for data, chapter 4 gives insight into servers which keep data, and the fifth chapter is about networks and middleware that make the former two communicate.

The sixth chapter introduces objects and software reusability, and describes their role in the client/server play. Standardization, much needed for object orientation to succeed, is the theme of chapter 7 together with open systems concept. Chapter 8 deals with the costs and implementation of client/server concept. The future of information technology is lamented upon in the ninth chapter.

I found the glossary very good and extensive and the index is well compiled.

As its title implies, this book should find the main body of its readers among managers who need to decide, not if, but when to implement client/server concept into their information systems. They will find it a very good reading on the subject since this book concisely explains the uses, abuses, technology and process of client/server computing. Client/Server Technology for Managers will enable them to create

an informed client/server strategic plan for their business or organisation.

While the managers will probably draw out the greatest benefit from this book, wider audience will also find the book interesting and worth reading. Besides being concise, systematic and professionally corect work on the subject, it is also very humorous. Cartoons by Rich Tennant are used to illustrate some dilemmas, and there are also other anecdotes hidden in the text. So it pays off to read it carefully. Surely this book will find a place on my bookshelf and will certainly be browsed from time to time, if for nothing else, then for a sheer amusement.

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The Indispensable PC Hardware Book: Your Hardware Questions Answered, 2nd ed.

Addison–Wesley Publishing Company, Reading, Massachusetts, 1995, pp. 33, 1311, ISBN 0–201–87697–3, paperback

This survey fulfils its basic purpose by providing an overview and in-depth examination of the personal computer architecture based on Intel processor.

The author particularly wishes to provide programmers with a single volume that can largely replace a multitude of separate reference manuals.

This book features 33 chapters divided into six parts, which are self-contained and can be used independently, Appendices, Glossary and Index.

The first part, in one chapter, provides a brief overview of the personal computer basic components and miscellaneous associated peripherals. It is given typical structure of the components and their functions are outlined together with the practical tips for handling and maintaining. This chapter also covers an overall description of the relationship between individual components, description of necessary accompanying documentation, operating system basics, BIOS, and memory organisation. This part is mostly intended for beginners as an introduction to the PC world.

The second part, which includes chapters 2 to 17, thoroughly discusses technology and ideas behind two major motherboard components: Processor and Memory.

Chapters 2 to 16 cover in details internal structure, instruction set, pins and signals, and differences between Intel CPU's from 8086 to DX/4, Pentium 60MHz and coprocessors 8087 to i387 with referring compatibility downwards. Logical and physical memory addressing and memory access are explained in details with numerous examples in chapter 3 and 4. Chapter 8 and 11 are dedicated to 386 and 486 clones from AMD, Cyrix, C&T and IBM, cut down versions, upgrades, and overdrives. Chapter 9 explains cache organisation and different caching strategies used in PC's.

Chapter 17 provides the structure and operational principles of DRAM and SRAM memories as well as 82C212 Page/Interleave Memory Controller with explanation of extended and expanded memory.

The third part, including chapters 18 to 22, introduces various implementations of a PC architecture, from legendary 8-Bit PC/XT, 16–Bit AT, advanced 32–Bit EISA and Microchannel, to VESA Local Bus and Peripheral Component Interconnect. For each architecture comprehensive description of bus structure, cycles, signals, arbitration, DMA architecture, interrupt subsystem, address space, slot pining, specific BIOS routines and configuration is given.

Part 4, including chapters 23 to 26, provides extensive information about most important support chips used in PC's: 8259A Programmable Interrupt Controller, 8253/8254 Programmable Interval Timer, DMA Chip 8237A, 8255 Programmable Peripheral Interface, MC146818 CMOS RAM and Real-Time Clock.

Part 5, including chapters 27 and 28, is dedicated to mass storage devices. Chapter 27 describes physical principles of magnetic recording, structure and functioning of floppy disks

and floppy drives, physical and logical organisation in DOS operating system. There are also described DOS version differences; recording formats FM, MFM. The structure and functioning of a floppy controller with various floppy drives programming examples are given at the end of the chapter. The following chapter provides a more detailed overview of the hard disc drives structure and operations and discusses basic recording formats MFM and RLL(2,7). This chapter also provides elementary information on IDE and SCSI interfaces between CPU and disk with a few programming examples. Advanced concepts of translating and zone recording, as well as a preview of optical mass storage CD-ROM, WORM and MO drives are presented.

The final part, comprising chapters 29 to 33, presents parallel, serial and PCMCIA interfaces, keyboards, mice, graphic adapters, and the theory of operation of sound cards. This part demistifies the structure, functioning and programming of those components.

The appendices provide useful information for programming various peripherals at BIOS level, programming floppy drives, IDE disks and SCSI peripherals using ASPI programming interface. In addition, functions of standard EGA/VGA BIOS and PCMCIA Socket Services are presented.

The book is covered with an extensive glossary which explains most terms and concepts of personal computer hardware.

The index is very detailed and should help the reader locate related information in the book. Unfortunately, the book lacks bibliographic references.

The book's stated intent is to address "everybody who wants or who has to understand the structure and functioning of a personal computer" and "programmers who want to access hardware components at very low level". Everybody without prior experience could use this book. The book's presentation is excellent in terms of its cover and size; the author has given examples on the subjects and addresses his audience properly.

The best feature is its systematic approach that is clear and concise. The text is easy to read, figures and examples are used wisely to augment the text.

Although this book doesn't depict the newest achievement, it sustains essential information necessary for understanding basics of PC system architecture, and still can be used as a basic introduction into the hardware world of PC's and reference for the hardware programmers.

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