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# REVIEW OF: Jed Hartman and Josie Wernecke. The VRML 2.0 Handbook: Building Moving Worlds on the Web. Reading, MA: Addison-Wesley, 1996.

by Grace B. Agnew

Hartman and Wernecke, both employees at Silicon Graphics, Inc., provide a comprehensive overview of VRML (Virtual Reality Modeling Language) 2.0 in a well-organized, coherent and lively format. They use a VRML 2.0 example, a re-creation of the ceremonial center of the ancient Aztec city of Tenochtitlan. The reader is pointed to the Web site, part of sgi.com, in the book's introduction and encouraged to follow along at the site, as the various VRML components that make up the site are explained throughout the book. It is not necessary to visit the Web site, either simultaneously or beforehand, to follow the instructions for setting up the component pieces. The book is profusely illustrated to guide the reader through the examples.

The authors take the practical approach that the reader learns by doing; they take the reader through step-by-step object building, using nodes and fields to create objects that rotate, contain geometric shape, have color, texture, ambient light, etc. The instructions are fairly easy to follow, although basic familiarity with programming syntax, particularly nested parenthetical statements, will keep the reader from getting lost as the objects increase in complexity. The book leads the reader from an introductory tour of the sample VRML world to simple object building; to lighting, sound, and complex shapes; and through animation and scripting using Javascript. The book is primarily intended to be read chapter by chapter, as the authors carefully build on the work of each preceding chapter, creating the objects that define the VRML Aztec world.

The authors' ambitious intent, however, is to meet the needs of the novice and the experienced user. For the novice, an introductory chapter explains the World Wide Web and browser requirements for viewing VRML. The more experienced user is encouraged to skip directly to chapter 10, "Improving Performance," which provides tips and tricks for more efficient and effective use of VRML. The chapter headings are descriptive, and the index is lengthy enough for the experienced user to treat this book as a reference manual for VRML nodes, fields, and other concepts. The book is less effective for the absolute novice. A reader with no exposure to the Web or to programming will be quickly lost and not likely to be a competent VRML programmer at the end of the book. The reader will definitely have an understanding and appreciation for the steps required to create three-dimensional (3-D) worlds and animation on the Web.

As the authors note, many of the programming steps illustrated in the book are handled for the user by commercial VRML programs. This fact only increases the importance of this book. Anyone wanting to explore the use of VRML will welcome a book that explains programming subroutines that may be hidden in a commercial program. Even a novice reader will finish this book with an appreciation of all the steps needed to create an animated 3-D object with light, sound, color, and a relationship to other objects, to the space it inhabits, and to the site visitor who experiences the object. All these critical pieces are covered in clear, concise prose. The more experienced user can take the programming steps and customize a commercial program, compensating for defects or failures in the commercial program.

Hartman and Wernecke have written a book that is at once a lively and complete overview of an important Web authoring tool, a comprehensive guide to an important Web standard, and a reference guide to keep propped up on a nearby shelf for VRML content developers. The reviewer recommends this book for anyone with an academic or practical interest in VRML 2.0.

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## REVIEW OF: Mary Millhollon, Luanne O'Loughlin, and Toni Zuccarini. Microsoft Internet Explorer 3.0 Frontrunner. Scottsdale, AZ: Coriolis Group, 1996.

by Steve Bonario

Microsoft Internet Explorer 3.0 Frontrunner is a well-written and well-organized reference manual for Microsoft's increasingly popular Web browser. It is also more than that, covering a broad range of Internet-related topics and concepts while introducing the features of MSIE 3.0. Every aspect of MSIE 3.0, from where to download the latest version of the browser, to a discussion of Active X technology, is here. Most topics are treated generally, with specific instructions provided only for the more common features (such as changing your start page). It is a great book for the not-so-absolute-beginner to the seasoned novice, explaining not only how to configure the browser, but also where to go and what else to do with it once it's up and running.

The authors cover the preliminary bases of configuring the browser, explore using it to find and save information, then tuck in a section on HTML (Hypertext Markup Language) coding. To start, they offer brief explanations of the MSIE 3.0 menu options and interface. A full chapter on "MSIE Extras" follows, describing advanced features such as international language extensions, site ratings, and route tracing in just enough detail to make it worth the read. This is the extent of what Frontrunner provides in terms of describing MSIE 3.0 as a browser application.

Two chapters follow, discussing the integration of MSIE 3.0 with the Compuserve and AOL (American Online) online services. The majority of the rest of the book focuses on using the browser to find and store net-based information. The Searching and Search Engines chapter explains how to find and use the six popular Internet search engines found on Microsoft's default search page. Logically, the next chapters explain how to use the History List and Favorites Folder to return to the sites you want to visit again. The Internet Mail and News applications are introduced and described at length, and the book is rounded out with a brief introduction to designing Web pages and writing HTML code.

The chapters describing the basic interface and features of MSIE 3.0 hit the highlights of what you need to know to start using the browser right away. To their credit, the authors don't explore the more arcane features that those who want to get up and running quickly aren't likely to care about. But some critical areas are overlooked. For example, when it comes to configuring the security options in MSIE 3.0, the discussion of Internet security issues in chapter three offers a good introduction, but the user is left in the dark in chapter four as to which security options to use. If I want to know if I should be "warned before crossing zones," Frontrunner's index only guides me to the climate zone links in a section on plant and garden information. Users looking for more in-depth information on some MSIE 3.0 options must, then, look elsewhere.

Although well written and well organized, Frontrunner is not designed for quick scanning and reference. The writing is clear and easy to follow, and each chapter is a logical and cohesive whole, but the overall tone is conversational (like the friendly voice of a patient tour guide). While there are a few sections with step-by-step instructions, the majority of the instructions are buried amid paragraphs of friendly explanation. This is great for novice users or those new to surfing the Web, but liable to frustrate the more experienced user who is looking for "just the facts." Any chapter can be read on its own, though, and each topic in a chapter stands on its own as well.

Finally, all the useful information packed into Frontrunner periodically suffers from one irritating quirk: the authors' insanely peppy cheerleading for Microsoft. My suspicions were aroused by statements such as these: "As you work your way through this book and gain experience using MSIE, you'll come to appreciate Microsoft's intuitive approach to computing. With MSIE, Microsoft takes a huge leap toward blending your desktop, local area network, and the Internet into one big, happy communication system." (p.54) Also there appears the dubious contention "In the [secure channels protocol] area, MSIE carries a strong advantage simply because it is backed by Microsoft. Microsoft has the resources and technology to keep abreast of security issues." (p.69)

The chapters on MSIE extras, options, and the News and Mail applications are particularly valuable for their extensive coverage of the MSIE 3.0 package. Of less value are the chapters for integrating MSIE with America Online or Compuserve. And the chapters on writing HTML are really a bare bones introduction for those who have never created their own Web pages; this topic is better explored in other books. Despite a few flaws and quirks, when Frontrunner sticks to providing novice Internet surfers with the information they'll need to use MSIE 3.0 to get the most from the Web, it does succeed.

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## REVIEW OF: Lawrence Dowler, ed. Gateways to Knowledge: the Role of Academic Libraries in Teaching, Learning, and Research. Cambridge, MA: MIT Press, 1997.

by Brad Eden

This book is about the mission of the library and the university in the information age. The gateway concept envisions the academic library as a point of access to other research resources via technological tools; as a place for teaching; and as a site for services and support where students and faculty can obtain the information they need in the form in which they need it. The fifteen essays presented are the result of a conference sponsored by the Council on Library Resources and hosted by Harvard College Library. The conference explored in depth the concept of the gateway and the future of research libraries.

The book is divided into six areas: "The Academy in Transition"; "Changing Scholarship: Influences on Teaching and Research"; "The Gateway in Research and Scholarly Communication"; "Concepts of the Gateway: Libraries and Technology"; "Technology and Education: the Role of Libraries in Teaching and Learning"; and "Tools for Learning." Each area is preceded by the editor's short summary of the articles in that section; he also wrote a postscript at the end of the book to bring together all the ideas it presents.

I found the ideas presented revolutionary, challenging, and absolutely necessary for the continued survival and future of the academic/research library. Instead of joining new technologies, programs, and services with existing library functions, this book challenges the academic library community to seriously question the purposes, functions, and processes with which we approach our clients, and to seriously question our mission and future in academia.

The presentation of ideas, current projects, and future potential of the gateway concept that this book describes should be examined by every academic librarian, and seriously researched and discussed by all academic library administrators. We should be positioning our libraries as the center of the campus teaching and learning environment; while we often think that they already are, there are so many other ideas and approaches that the gateway concept can help us envision and develop towards the future. Every reviewer who has written about this book to date has basically indicated that this is the best collection of essays on this subject, and that it is essential reading in all academic libraries. I most heartily agree with these reviewers, and recommend the same.

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## REVIEW OF: Jack Kessler. Internet Digital Libraries: International Dimensions. Boston: Artech House, 1996.

by Martin R. Kalfatovic

Regular readers of the PACS-L electronic discussion group will be familiar with Jack Kessler from his regularly posted e-newsletter, FYI France. In FYI France (as well as in the accompanying Web site of the same name-- http://www.fyifrance.com (http://www.fyifrance.com/)), Kessler explores library issues, networking, and assorted digital issues in France. For the work being reviewed, Kessler has taken up many of these same themes and expanded his scope to the global environment.

Kessler rightfully notes that the term "libraries" has "lost its clarity of definition." (p.xii) At the same time, "digital" has become ubiquitous. In exploring "digital libraries" in a global context, Kessler notes that: "As the exact sciences that construct our digital world progress, from academic testbeds to user applications and beyond, they perhaps could find no better ally than libraries, with all the uncertainty and malleability--but also the user-friendliness, user experience, tradition, and history that the term a implies." (p.xiv)

Opening with a brief overview of the development of worldwide networking capabilities, Kessler focuses on the Internet in the United States and the Minitel system in France. This is followed by an excellent historical sketch of the development of digital libraries in the United States. Here, Kessler describes a period of digital incunabula from the introduction of the digital computer in the 1940s through the 1990s when the concept of a "digital library" become a buzzword in the library field. In this discussion, Kessler makes the often overlooked point of recognizing the importance of the digital bibliographic record as the foundation for much of the current work in the creation of digital libraries.

The second part of Internet Digital Libraries focuses on specific projects from a number of nations around the world. In opening this section, Kessler is careful to point out the difficulties and incongruities of pairing the terms "Internet" and "national." In Kessler's formulation for the purpose of his work, the use of current nation-states as the baseline unit is logical because of the network technologies covered and the governmental financing of a number of the projects he discusses.

Those familiar with FYI France will not be surprised to find Kessler leading off with a discussion of digital libraries in France. After a survey of a number of the digital projects of France's larger libraries (including those of the Bibliotheque Nationale de France and the bibliotheques municipales--institutions analogous to large, public research libraries in the United States such as The New York Public Library), Kessler discusses the Minitel service which has provided an online presence to a large portion of the French population since the late 1970s.

Shorter sections are devoted to digital library projects in Singapore, China, India, Australia, Thailand, United Kingdom, Hungary, Japan, and Indonesia. The scope of projects in these disparate nations as well as the common ties that bind them into a global network community are discussed in varying degrees of detail. Kessler ends this section with a summary of the jointly funded (by the National Science Foundation, ARPA (Advanced Research Projects Agency), and NASA (National Aeronautics and Space Administration)) digital libraries projects in the U.S.

In the third part, Kessler focuses on specific elements of the global network: language, technical standards, business, international organizations, and political structures. The challenges of creating a decentralized global network in the face of these issues are provocatively outlined by Kessler.

The fourth part finds Kessler waxing more philosophical as he explores the key issues facing libraries in a digital age. With such questions as "is the pipe neutral?" (p.187) and "Libraries and information--warehouses and service?" (p.191), Kessler confronts a number of basic questions about our profession that are too often ignored in library and information science literature. Unlike others, Kessler is not afraid to make some predictions; he offers suggestions that answer the questions raised and help chart the course the "digital library" should take, while at the same time preserving the ideals of librarianship's long history.

Kessler also provides a few appendices to the work. The first two are a hodgepodge of information about Minitel and electronic discussion groups for those interested in French library issues. The third, which Kessler terms a "statistical essai," is a useful snapshot of the size of the Internet as of January 1996.

A glossary of terms and acronyms will be, as Kessler notes, useful for the non-American-English speakers. The annotated bibliography and reading list is full of up-to-date sources and is a good jumping off point for readers interested in exploring the issues Kessler has raised in more depth.

Kessler's lively style, nuggets of intriguing information, and passionate advocacy of libraries as key players in the digital information future make fascinating reading. In the individual chapters on projects in specific nations, however, the limitations of traditional print media are glaringly obvious. The hypertext and

multimedia nature of many of the projects are too often lost when transferred to the printed page, even when augmented by Kessler's description. Additionally, the time lag between writing and publishing has made a number of the sites unrecognizable to the reader who visits them today. Still, even with these drawbacks, Kessler's work is recommended for those interested in the international implications of today's digital libraries.

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## REVIEW OF: Daniel Minoli. Distance Learning Technology and Applications. Boston: Artech House, 1996.

by Hillary Sherwood

In my senior year of high school in the early 1980s, our small high school and another small high school in a nearby town decided to get together for budgetary reasons. Students from each high school would be able to take selected classes in the other school's strong subjects. For example, students from our high school could take classes in science and math at the other high school. Yet only a handful of students from each school took advantage of this opportunity, partially because having to travel several miles away to attend class, and then return to finish the day, was such a hassle. Now such an exchange would be much easier using the technology and applications of interactive distance learning (IDL) such as CU-SeeMe video conferencing technology.

According to Daniel Minoli, "Interactive distance learning (IDL) is the interactive delivery of educational programming to remote sites." (p. xv) By interactive, he means that the technology allows the students to ask questions of the teacher and each other. While IDL is a potentially exciting topic, this book is less so. The title of this book is a bit of a misnomer. This book is really about IDL policy, not the applications and technology itself. As the author mentions in the preface, "The primary goals of this book are to provide...an encompassing guide to the business, technical, and regulatory factors that are shaping the growth of distance learning industry...." (p.xvi) If you are expecting a book which covers practical information about using IDL applications or installing an IDL network, you will be disappointed.

This book is not for beginners. While there is a helpful appendix of all the acronyms used in the book, if you are not comfortable with either telecommunications terminology or bureaucratese, you will be lost. This book will be useful to anyone who needs to persuade a funding body that IDL is a worthy investment or that a specific application or technology is worth using, but it will be of no help to "front line" personnel.

This book is divided into two main sections. Preceding these sections is an introductory chapter which lays out the pros and cons of IDL as well as introducing the broad categories of applications and technologies that will be discussed in the book. The first section explains the needs of IDL consumers: K-12 schools,

universities, and corporations. This section is capped by a survey of state-based IDL initiatives. The survey is based on material published in 1994, so it's somewhat out of date. However, this chapter does give you a ballpark idea of how much or how little a state is committed to IDL.

The second section examines the contributions of the providers of IDL applications and technology to the NII (National Information Infrastructure) and IDL in general: state and federal governments, the phone companies, cable and other alternate access providers, and the Internet community. The book concludes with three case studies. One case study discusses implementing K-12 IDL networks, the second discusses the Virtual College program at New York University (NYU), and the third covers Wescott Communications which provides IDL to corporations. Besides the acronym appendix, there is a second appendix that provides examples of course activities and assignments for the Virtual College course covered in the second case study.

In the introductory chapter, Minoli asserts that IDL can overcome the time and distance constraints of traditional classrooms. For example, a student with a full time job can access class material after work, at a time convenient to him or her, not just the school. The potential customers of IDL face a variety of fiscal challenges. IDL can help meet these challenges by making interesting and challenging education easier to provide at more locations, thereby costing less money. Public schools, universities, and even corporations all share the need for applications and technologies that are easy to use, fit well with their installed technology base, provide a range of geographic coverage that encompasses the entire organization, and provide different access methods and speeds.

All these potential consumers also share the need for IDL applications that support remote education, whether this involves corporate employees taking a course at a local university or a university "sending" a course to a distant branch. Another important application of IDL is collaborative learning and research, for example, by students across a district or by professors from distant universities sharing their research. Other important uses include communication within an organization and providing access to libraries, museums, databases, supercomputers, and the Internet.

Minoli divides IDL applications into two categories: video applications and data applications. Video applications range from traditional broadcast television to top-of-the-line videoconferencing systems with audio and video to and from each location. The data applications include groupware like Lotus Notes which allows a closed group of people to use the Internet, electronic messaging and conferencing, and to work with data collaboratively.

Minoli covers a wide variety of networking and telecommunications technologies to implement IDL application solutions. These technologies range from varieties of cable TV (broadcast and "business TV"), dial-up and private lines, ISDN (Integrated Services Digital Network), ATM (Asynchronous Transfer Mode), SMDS ("switched multimegabit data service, a high performance, public, connectionless service") (p. 28), satellite connections, and frame relay service. For each technology and consumer of that technology, Minoli discusses the IDL applications it can support, the benefits and problems of that particular solution, and, frequently, the technical details involved. Minoli provides informative tables at the ends of chapters two, three, and four that concisely summarize the IDL tasks, applications, and networking solutions discussed in those chapters.

Minoli views the NII as essential for creating IDL solutions that are universal and affordable. In the second section of the book, he explores the roles of state and federal government agencies, telephone companies, emerging network service providers including cable TV, and the Internet community in creating the NII and supporting IDL.

In the chapter in which Minoli covers government roles, he discusses the ICN (Iowa Communications Network) and the NCIH (North Carolina Information Highway). He favors the NCIH over the ICN because Iowa owns and runs the ICN, while North Carolina only uses the NCIH and put its building and maintenance up for bids. He cites the large cost overruns of the ICN as well as its competition with the local and long distance telephone carriers' networks in Iowa as faults of the ICN.

The role Minoli sees for state and federal government is to remove barriers to competition within the telecommunications industry. In the states, he praises deregulation for allowing phone companies to offer discount prices to IDL consumers in order to spur interest in IDL. On the federal level, he praises the Telecommunications Act of 1996 because it will allow local and long distance phone companies as well as cable companies to compete in each other's businesses. Minoli believes that this heightened competition will lead to lower prices for consumers. Since one of his primary objections to the role of the Internet in IDL is the availability of pornography on it, he does not have a bad word to say about the Communications Decency Act.

The next two chapters discuss the roles of the local and long distance phone carriers, and the cable TV and Alternate Access Providers. In both chapters Minoli discusses the IDL initiatives of these providers as well as the strengths and weaknesses of those initiatives. All these providers see IDL as a way of creating a new source of revenue by upgrading their digital networks and offering new services to replace the revenue that they are losing to competition. Many telephone and cable companies are providing free or reduced-rate IDL connections to educational institutions for a set amount of time to create interest in IDL services. The strengths of these services are that they are becoming more affordable, are supported by a high performance backbone, and include an expanding range of applications. On the downside, there is little support for K-12 schools and rural communities.

The final chapter concerning IDL providers looks at the Internet circa 1995. Minoli examines the educational applications of the World Wide Web, also emphasizing videoconferencing over the Internet to connect students and teachers. In this chapter he covers Internet speeds and access methods, as well as the strengths and weaknesses of the Internet in terms of IDL. Minoli maintains that the Internet can only be considered a short term substitute for the NII because of its lack of support for rural communities and lack of information filters. He compares the Internet to talk radio, and claims that it cannot take the place of the NII because ideas are discussed there and "some of these ideas, however, spread negativism and cynicism." (p. 246) Other drawbacks to the use of the Internet for IDL are a lack of performance guarantees, a lack of antiviral software on every machine connected to the Internet (his solution to eliminating viruses), junk email, and security weaknesses.

If you want to be excited about the possibilities of IDL, read chapter 11. This is a case study of the Virtual College Systems Analysis course contributed by Richard Vigilante, who developed NYU's Virtual College program. This chapter is well written and provides the reader with a good idea of what is involved in setting up and running such a course, including the telecommunications issues that need to be addressed. This chapter made me enthusiastic about the potential of IDL and was a reminder of how exciting the subject matter could be.

There are some real problems with this book. Some of the information is out of date. For example, this book was written before the existence of Internet content filters became common knowledge. However, this datedness is more an unavoidable function of print publishing than a fault of the author. One major factor that was under the author's control is that Minoli is a corporate engineer and writes like the stereotype of

one. The reader has to wade through so much bureaucratese and jargon that it is too hard to uncover the worthwhile aspects of the book. This is borne out by the fact that, while the case studies were written by other authors, two of those case studies are the clearest and best written parts of the book.

Furthermore, the author wears his biases on his sleeves. It is no surprise that he writes positively of the NCIH since he worked on that network. Additionally, Minoli assumes that deregulation is always an unmixed blessing. The author is almost evangelical about ATM and ISDN, which only financially well off businesses can afford, even here in the New York City area where ISDN services are advertised to the general public. Furthermore, while the NII seems to have dropped off the radar elsewhere, it is a primary concern in this book. Finally, this book seems to be two books instead of one: one about IDL policy and one about the NII. This book is an optional purchase.

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## REVIEW OF: Paul Taylor. Windows NT 4 Administrator's Black Book. Scottsdale, AZ: Coriolis Group, 1997.

by John Weible

The Windows NT4 Administrator's Black Book is written for a target audience of novice and intermediate NT administrators. A typical NT Workstation user would gain useful knowledge from the book but would be better served by other books which focus more on the interface, software installation, and workstation configuration. The writer assumes a certain degree of familiarity with the Windows environment, but given the abundance of screen snapshots and the clearly written text, most will find the book easy to read.

For a novice network administrator, the book could be a brief introduction to networking in general, given the explanations of common network devices, protocols (TCP/IP (Transmission Control Protocol/Internet Protocol), Novell's IPX (Internet Packet Exchange), and NetBEUI (Network Basic Input/Output System Extended User Interface)), and addressing services like Domain Name Service (DNS), Dynamic Host Configuration Protocol (DHCP), and Windows Internet Naming Service (WINS). A server administrator will likewise appreciate the depth of detail in sections on security, disk management, troubleshooting, printing, and others.

The book's style is a useful mixture of tutorial and reference guide with a dash of humor thrown in. Each chapter begins with a presentation of the ideas, terminology, and programs involved. The bulk of the book consists of the "Practical Guide" portions of each chapter, which are written as step-by-step solutions to everyday problems an administrator might face. A few of the dozens of "Project Sections" are "Allowing Automatic Logins," "Extending A Volume," "Creating A Stripe Set With Parity," "Sharing A Folder," and "Restoring The Administrator Password."

Although the book claims to target novice and experienced administrators, some experienced network administrators might find certain sections lacking in depth. For example, there is no mention of how to perform networked or unattended NT installations, and advice is limited for integrating NT with an existing Novell NetWare network. A user who has experience with previous NT versions but is unfamiliar with NT4's new look might look for a book on Windows 95 instead, unless they seek details about the administrative functions of NT4.

Chapter one begins the book with introductions to the basic NT architecture, the differences between NT Workstation and Server, and between domains and workgroups. An introduction to the Windows Registry is also given.

NT system security is explained in chapter two. Everything from how the login process works, to changing the Access Control Lists (ACL) on files and other objects, to locking the system, is discussed. The security features in NT are so pervasive that it makes sense to start the book with this overview. Many individual items later in the book deal with specific parts of the security system as well.

Chapter three covers system start up and shutdown. Here, the mysteries of the BOOT.INI file are explained, and explanations of the various system services are given in fair detail. Also, a procedure is given for attempting to resurrect a system which fails to boot normally.

Excellent coverage of the significant capabilities of NT for handling disks and files is given in the fourth chapter. The old FAT (File Allocation Table) file system is compared to the NTFS (New Technology File System), and the conversion methods from both FAT and HPFS (OS/2's High Performance File System) to NTFS are explained. Also, disk striping and RAID (Redundant Array of Inexpensive Disks) are explained in detail. Notably, even though NT Server just supports RAID levels 0, 1, and 5, the differences between all 6 RAID levels are explained here. The "Practical Guide" gives numerous examples of creating, modifying, and expanding file systems to reach the desired results.

Chapter five is dedicated to the tasks related to managing user accounts. Account profiles, policies, groups, login scripts, and domain policies are all explained and illustrated with numerous "Practical Guide" examples. NT has numerous capabilities for restricting passwords, account expiration, modifying the desktop, etc. There are examples of configuring each of these things and more.

Printing and sharing printers is explained in chapter six. Advanced features, such as printer pools and auditing, are shown. Printer security options and queue management are, of course, covered as well.

The central networking features of NT are discussed in chapter seven. Emphasis is placed on understanding concepts such as NT domains versus workgroups, configuring network protocols, and sharing resources. Briefer explanation is also given to topics like the NetWare Gateway Service, Remote Access Service (RAS), and Macintosh Services.

Chapter eight covers the methods of monitoring the system's performance and event logs. Specifically, it explains how to use the Network Monitor, Monitoring Agent, Task Manager, Event Viewer, and the Performance Monitor.

An extensive and essential chapter, "Troubleshooting," explains recovery from common problems such as failed boot-up, disk mirror set failures, RAS difficulties, and others. The preventives and cures revolve around creating Emergency Boot Floppies, using NT Backup, and installing Service Pack updates.

The chapter on installation is one of the shortest in the book unfortunately. Only the normal installation methods are discussed, which are already well explained in the manual Microsoft includes with NT. Explanation of across-the-wire and customized unattended installations would be welcome.

The eleventh and final chapter is "Hints and Tips." It is a miscellaneous collection of tips for the average user as well as the administrator. Tips include such things as "Using the AT Command" to schedule processes, "Converting FAT Volumes to NTFS," "Using the Find Utility," and "Optimizing Server Throughput."

There are four appendices in the book. They are as follows: "Administrative Tools Reference," "Windows NT Changes and Enhancements," "Windows NT User Rights," and "Networking Technologies." One thing that stood out as lacking in the book as a whole was any reference to related books, Web sites, or other materials to expand on the topics in the book.

In summary, the Windows NT 4 Administrator's Black Book explains many of the things an NT administrator needs to know. It is well organized, easy to read, and covers the most common topics and problems well. There are some advanced topics which could benefit from more explanation, but not many.

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## TER Update

On or about January 5, 1998 Telecommunications Electronic Reviews will no longer be available via a Gopher site. Due to a drop in usage and an increase in overhead (not to mention the software going away), this decision has been made. We thank the University of Houston Libraries for having hosted the Gopher version of TER. TER will remain available at http://www.lita.org/ter/ (http://www.lita.org/ter/) as its main site and will continue to be distributed through LITA-L.

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