Open Books

Reviews of Recent Titles on Open Systems Subjects

Building a Network: How to Specify, Design, Procure, and Install a Corporate LAN

by Peter D. Rhodes
McGraw-Hill
237 pages, $40
ISBN# 0-07-052134-4

Network Management Systems Essentials

by Divakara K. Udupa
McGraw-Hill
575 pages, $50
ISBN# 0-07-065766-1

Building a Network: How to Specify, Design, Procure, and Install a Corporate LAN

This book is intended for readers who do not have a network or are unhappy with their present one. The reader should have some technical knowledge of the network currently running in the organization and be responsible for modifying an existing network or installing a new network. Both the computer professional who desires practical advice and direction and the university-level student who needs a reference work will find it suitable, but the core audience is managers charged with the installation of or upgrade to a company's network.

It defines and spotlights four basic steps; following them allows one to align business objectives with technological realities. These four sequential steps are specify, design, install and test. There are feedback loops between each stage, which enable newly found information to change the results of a prior stage.

A separate chapter is devoted to each of the four steps. Additional chapters are devoted to how to write a request for quotation (RFQ), how to analyze RFQ responses from vendors, how to evaluate the installation and how to manage the overall project. Also included is a chapter on contractual, legal and insurance information.

Building a Network includes a significant amount of discussion regarding the pros and cons of the different choices that are available at each stage. For example, the chapter on design covers the capabilities and limitations of copper media, fiber-optic media, radio and free-space light for the transmission of data. Rhodes compares each of these in relation to such issues as electrical noise, interference, weight, corrosion, flexibility, strength, signal loss, bandwidth, building codes and installation problems. Each feature is discussed in clear terms, easily understandable to a person with a modest technical background.

Case Studies Highlight Pitfalls

Rhodes includes many case studies to help illustrate the pitfalls to avoid. For example, the chapter on installation includes 18 case studies, among which is a study of a retail grocery store updating its system to include scanners with debit card readers to enable payment via electronic funds transfer. Because the store had to stay open during the day, all work had to be done between midnight and seven in the morning. This resulted in higher labor costs, along with shoplifting problems caused by lack of supervision. It was suggested that these higher labor costs be included in the budget and that security guards or other supervision be included in the plans.

Rhodes includes three appendices. The first is an organizational description of a fictitious company. It includes sample forms for equipment distribution, telecommunications frequency and other details, all of which guide the reader in collecting the right information to help in the specification and design phases. Also included is a sample request for proposal for a network specification, design and installation project, along with a sample contract for network installation.

Other topics that are covered include evaluating and choosing technology; negotiating with vendors and assessing specifications; overall project management; budgeting; reporting; network management systems; building code compliance; and equipment inspection, test and evaluation.

Rhodes recommends that the reader acquire certain tools. The most important one is a plan of action, which can be developed with information from the book. This is in addition to the obvious equipment: a computer with a spreadsheet or database program, a word processor and a graphics or computer-aided design package and a laser or inkjet printer. Recommended (but not mandatory) are an e-size plotter, a fax machine, a scanner and a modem.

Each chapter of *Building a Network* starts with a list of topics to be covered and ends with a summary of them. Each chapter has 20 to 50 topics and subtopics, whose headings are printed in large, bold type at the start of each section and match the listing in the table of contents. This organization makes it easy to find the answers to questions the reader might have. The book is well-written, easy to understand and practical in its approach. It should be mandatory reading for anyone who is considering installing or upgrading a network. The amount of money that can be saved could be many times the price of the book.

By Stephan M. Chan

Network Management Systems Essentials

This book ups the ante over the previous one, technically speaking. It covers most of the popular network protocols and is useful to readers interested in understanding the different concepts, standards and architectures in network management. It is written for professionals in network management, LAN management and the computer industry. It is also useful as a textbook for an advanced course on network management, which should be preceded by a course in basic networking.

The book covers network management for OSI, TCP/IP, IEEE-based LANs and IBM System Network Architecture (SNA) environments. The author also covers advanced peer-to-peer networking (APPN) and IBM peer-to-peer networking. Although network management is an application-layer technology (as defined by the seven-layer Open Systems Interconnection [OSI] model), Udupa realizes that the lower layers are also important and includes that material where it is helpful.

Network Management Systems Essentials is divided into five major sections consisting of 19 chapters and four appendices. The section on OSI systems management starts by introducing important concepts, such as manager, agent, system management functional areas (SMFAs), scoping, filtering, polymorphism, allomorphism and other critical terms necessary to understand the theories and explanations. It moves on to systems management support functions, such as remote operations service elements (ROSE) and common management information service elements (CMISE), as well as abstract and transfer syntax, such as Abstract Syntax Notation 1 (ASN.1) and basic encoding rules (BER). Udupa finishes this section by covering the structure of management information, as described in the guidelines for the definition of managed objects (GDMO) templates.

The section on Internet network management starts with a thorough exploration of the TCP/IP suite. Udupa continues by covering the Simple Network Management Protocol (SNMP), Management Information Base (MIB-II), Request for Comment (RFC 1213), Remote Network Monitoring (RMON), RMON for Ethernet and Token Ring, and numerous other protocols and standards.

The IEEE LAN/MAN management section introduces the differences between local-, metropolitan- and wide-area networks (LANs, MANs and WANs), and their topologies, protocols, standards and connectivity. Udupa discusses the architecture and limitations of IEEE 802.1B LAN/MAN management standards, among them the lack of network support for routing, which limits 802.1B to a subnetwork.

The Peer SNA and systems management section includes coverage of APPN, advanced program-to-program communications (APPC), Common Programming Interface-Communications (CPI-C), Message Queuing Interface (MQI) and SNA management services. An entire chapter is devoted to IBM's SystemView network management product, its goals, objectives, levels, dimensions, infrastructure and object and data models. The network management and issues section deals with configuration management, fault management, performance management, systems management functions and conformance, and network management issues and future trends.

Designed for Usability

Each chapter in *Network Management Systems Essentials* includes an introduction, a summary and reference and further readings suggestions. The book ends with four appendices, which include a discussion of the International Organization for Standardization (ISO), the International Telecommunications Union (ITU), the standardization process for ISO, the Internet Activities Board (IAB) and TCP/IP. Information on how to obtain standards publications also is included.

Considering the nature of this subject matter, the included list of acronyms is mandatory for making sense of the alphabet soup that makes up much of this book. Also included are numerous exercise questions for each chapter, suitable for an assignment to a class of students or to test the reader's mastery of the topics presented.

It is a good thing that the book makes liberal use of tables, diagrams and figures to illustrate the numerous protocols and relationships that are presented. Because the topics covered are necessarily related to numerous standards documents, the material presented can get quite heavy and be a challenge to read. For example, section 11.4 deals with LAN layer standards and refers to 11 separate IEEE LAN standards, ranging from Mac bridges and logical link control to secure data exchange. It also references two IEEE technical advisory groups on broadband LANs and fiber optics. A diagram is included to show the interrelationship between the different standards and the physical, medium access control and logical link control layers of the OSI model.

Network Management Systems Essentials makes an excellent source for those who require a thorough discussion of the numerous facets involved in a modern, multivendor network management environment. It is also excellent for the professional who has the motivation to learn the many new standards that have come into existence since he or she last studied the field. IT

Stephan M. Chan *is president of Uniprime Systems, a consulting firm in Baltimore that specializes in systems design engineering with Unix. He can be reached at 70402.1755@compuserve.com.*

To purchase books in this column, contact your local bookseller.