UNIX Internetworking

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The place of Unix environment in the computer world of today takes the space of the preface, with the author,s explicit attraction to such a subject ("*...despite the fact that the UNIX command interface is cryptic and system configuration is no easy task...*" "*UNIX is slowly but surely asserting itself as the operating system for commercial organizations*" *because it "supports features that are hard to find in any other operating system, past or present" and because "TCP/IP is increasingly being accepted as the common thread to interconnect heterogeneous computer systems and X as the common denominator for graphical user interfaces*"). The book's scope is "to take you through the critical elements of the UNIX operating system and describe how they relate to the network, so that no only can we connect UNIX systems to the network but also understand how to communicate between Novell, VAX/VMS, X, Macintosh and DOS systems and UNIX hosts".

The book is structured in 6 chapters; each chapter's sections begin with a presentation of the problems to be discussed and conclude with a summary (generally emphasizing the practical conclusions) and a list of related references.

Chapter 1 ("Fundamentals") describes:

- the evolution and the architecture of the UNIX operating system (with its various flavours);
- such technologies as processors and peripheral devices;
- the network architecture and the protocol stack that UNIX systems support (TCP/IP) (presented on a layered basis).

Chapter 2 ("UNIX Network Elements") presents:

- various ways in which you can get access to UNIX hosts on the network (commands such as "telnet", "rlogin", "ftp", "rcp" being discussed); - the critical network-related files (containing information on incoming and outgoing network connections) and the processes referring some of these files (UNIX systems providing support for TCP/IP application layer protocols in the form of processes);
- the network - related commands (used for configuring the UNIX system on the network and for its maintenance).

Chapter 3 ("Distributed Computing") details:

- the specific characteristics associated with the network file system protocol (how to configure UNIX systems as NFS servers and clients);
- the key components of NIS (network information service, an extremely useful protocol, at the application layer, to manage client-server configurations of UNIX systems);
- various types of DNS server systems (DNS - domain name service - to support in the near future a number of services besides the host-name-to-address translation).

Chapter 4 ("Security") first describes the OSI/RM security architecture used as a basis to define security services, mechanisms and protocols and next, very specifically, potential security problems on the UNIX system and steps to be taken for making the operating system more secure in a TCP/IP network.

Chapter 5 ("**Client-Server Applications**") takes a look at the various possibilities available to applications developers to design client-server applications (such as Berkeley sockets, the transport layer interface and remote procedures calls). Further, mechanisms to be used in developing interprocess communication applications are investigated. Various types of port numbers and system calls are explored.

Chapter 6 ("**Internetworking**") first describes concepts associated with routing, the emphasis being placed on routing protocols used on networks with UNIX systems: such protocols as RIP, OSPF and EGP. Further, information is provided on how to configure a UNIX system for static or dynamic routing.

Some next sections are devoted to the problems of integration of UNIX systems into the most representative environments of present networking. Strategies for integrating UNIX hosts into a predominantly DECnet environment and VAX/VMS nodes on a TCP/IP network are investigated. The focus is on Novell's NetWare architecture and on how to integrate best Novell NetWare systems with UNIX hosts on the same network. AppleTalk architecture is examined, showing how to integrate Macintosh systems on a LocalTalk or AppleTalk environment with UNIX hosts on a TCP/IP network.

Another section describes the X Window System.

The last section deals with the key components of network management.

This book's readers are supposed to be computer specialists, with enough knowledge of operating systems and data communication.

The reviewer found this book to be an excellent guide for research workers, system managers and application programmers in the domain; it covers a complete area of concepts and topical problems, being, at the same time, concise, well-structured, easy to read. The theoretical considerations can provide a fast and deep understanding of the notions and the practical indications are very systematized (usually as procedures to follow step by step). The style of presentation and the final appendices (glossary of associated terms, list of acronyms, index) ensure a fast retrieval of a desired item or procedure description.

As an overall evaluation, it may be concluded that this book has to be included in the library of every specialist involved in UNIX internetworking.

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