

# Networking with UNIX

## Connecting Open Systems

First Edition

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Computer Technology Research Corp.  
Charleston, South Carolina 29401-2150 (1992), 171 p.  
ISBN 1-56607-003-1

The report entitled "Networking with Unix: Connecting Open Systems" reviews network capabilities of Unix and of alternative designs, and presents communication protocols such as OSI, TCP/IP, XNS.

The report is an outlook on the history of Unix, on its use in distributed, networked architectures (Unix-inspired networks and the appropriate communication protocols).

**Chapter 2** introduces general description and tools used with Unix: its file system, shell structures and communications methods such as named pipes, pipes.

The movement toward open systems that the last decades witnessed, layer groupings and implementations of OSI are outlined in **Chapter 3**.

The TCP/IP protocol is still broadening its use and area of application. Its layered services, relationship to OSI and future prospects are presented in **Chapter 4**.

One of the earliest protocol stacks was Xerox's XNS. Its various services and future development are detailed in **Chapter 5**.

**Chapter 6** describes another noteworthy communications offering: this time, it is IBM's SNA. Its development, the influence on other network designs and new-look features are presented.

One of the most important programming tools related to Unix networks and especially to client/server configurations is the RPC, a tool for developing applications.

**Chapter 7** describes RPC facilities from Sun and OSF.

The application programming interfaces (API) are also tools akin to Unix networking.

**Chapter 8** presents Socket system calls, their history and implementation. The TLI interface which accompanies Unix System V, and the flexible mechanism of streams offer new capabilities to network designers. Their implementation is detailed in **Chapter 9**.

**Chapters 10 and 11** examine security issues related to Unix networked environments. Existing solutions are reviewed and trends are put forward.

**Chapter 12** is a discussion about the future directions taken by the two major Unix consortia - UI and OSF.

The last chapter, the thirteenth, makes comparative analyses of OSI and TCP/IP, of RPC incompatibility or successful Unix security implementations.

The report concludes with an analysis of what is to be next in Unix networking.

**Carmen Sauer**