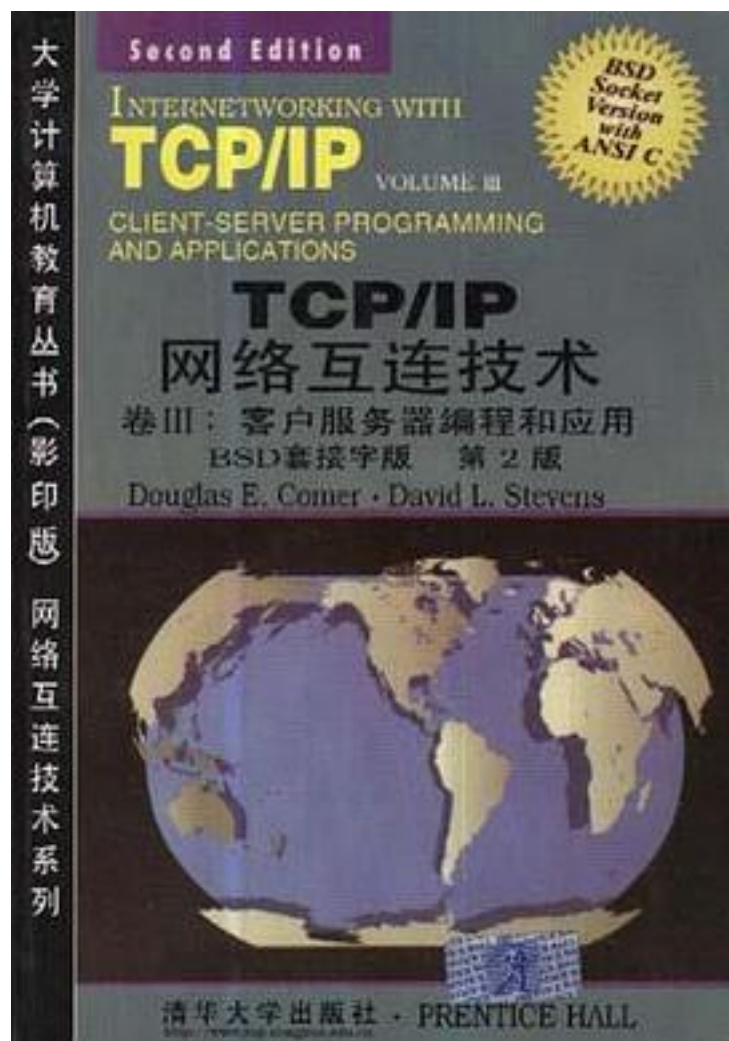


网络互连技术系列



[网络互连技术系列 下载链接1](#)

著者:(美)科默(Comer,D.E.)

出版者:清华大学出版社

出版时间:1998-09

装帧:平装

isbn:9787302029489

内容简介

TCP/IP网络互连技术系列的第III卷讨论客户/服务器编程和应用.讲述了构筑所有分布式计算系统的客户/服务器计算模型的基本概念,内容包括各种不同的服务器设计方法,以及用来构造客户/服务器的各种工具和技术,包括远程调用RPC。书中包括了用来说明每种设计和工具的运行程序示例的源代码。

第III卷有三个版本:分别对应于广为应用的BSD套接字,AT&TTLI接口和WindowsSockets。本书是BSD套接字版,在所有编程实例中使用BSDUNIX套接字机制。

作者介绍:

目录: Contents

Foreword xxiii

Preface xxv

Chapter 1 Introduction And Overview

1.1 UseOfTCP/IP

1.2 Designing Applications For A Distributed Environment

1.3 Standard And Nonstandard Application Protocols

1.4 An Example Of Standard Application Protocol Use

1.5 An Example Connection

1.6 Using TELNET To Access An Alternative Service

1.7 Application Protocols And Software Flexibility

1.8 Viewing Services From The Provider's Perspective

1.9 The Remainder OfThis Text

1.10 Summary

Chapter 2 The Client Server Model And Software Design

2.1 Introduction

2.2 Motivation

2.3 Terminology And Concepts

2.3.1 Clients And Servers

2.3.2 Privilege And Complexity

2.3.3 Standard Vs. Nonstandard Client Software

2.3.4 Parameterization Of Clients

2.3.5 Connectionless Vs. Connection-Oriented Servers

2.3.6 Stateless Vs. Stateful Servers

2.3.7 A Stateful File Server Example

2.3.8 Statelessness Is A Protocol Issue

2.3.9 Servers As Clients

2.4 Summary

Chapter 3 Concurrent Processing In Client-Server Software

3.1 Introduction

3.2 Concurrency In Networks

3.3 Concurrency In Servers

3.4 Terminology And Concepts

3.4.1 The Process Concept

3.4.2 Programs vs. Processes

3.4.3 Procedure Calls

3.5 An Example Of Concurrent Process Creation

3.5.1 A Sequential C Example

3.5.2 A Concurrent Version

3.5.3 Timeslicing

3.5.4 Making Processes Diverge

3.6 Executing New Code

3.7 Context Switching And Protocol Software Design

3.8 Concurrency And Asynchronous I/O

3.9 Summary

Chapter 4 Program Interface To Protocols

4.1 Introduction

4.2 Loosely Specified Protocol Software Interface

4.2.1 Advantages And Disadvantages

4.3 Interface Functionality

4.4 Conceptual Interface Specification

4.5 System Calls

4.6 Two Basic Approaches To Network Communication

4.7 The Basic I/O Functions Available In UNIX

4.8 Using UNIX I/O With TCP/IP

4.9 Summary

Chapter 5 The Socket Interface

5.1 Introduction

5.2 Berkeley Sockets

5.3 Specifying A Protocol Interface

5.4 The Socket Abstraction

5.4.1 Socket Descriptors And File Descriptors

5.4.2 System Data Structures For Sockets

5.4.3 Using Sockets

5.5 Specifying An Endpoint Address

5.6 A Generic Address Structure

5.7 Major System Calls Used With Sockets

5.7.1 The Socket Call

5.7.2 The Connect Call

5.7.3 The Write Call

5.7.4 The Read Call

5.7.5 The Close Call

5.7.6 The Bind Call

5.7.7 The Listen Call

5.7.8 The Accept Call

5.7.9 Summary Of Socket Calls Used With TCP

5.8 Utility Routines For Integer Conversion

5.9 Using Socket Calls In A Program

5.10 Symbolic Constants For Socket Call Parameters

5.11 Summary

Chapter 6 Algorithms And Issues In Client Software Design

6.1 Introduction

- 6.2 Learning Algorithms Instead Of Details
- 6.3 Client Architecture .
- 6.4 Identifying The Location Of A Server
- 6.5 Parsing An Address Argument
- 6.6 Looking Up A Domain Name
- 6.7 Looking Up A Well-Known Port By Name
- 6.8 Port Numbers And Network Byte Order
- 6.9 Looking Up A Protocol By Name
- 6.10 The TCP Client Algorithm
- 6.11 Allocating A Socket
- 6.12 Choosing A Local Protocol Port Number
- 6.13 A Fundamental Problem In Choosing A Local IP Address
- 6.14 Connecting A TCP Socket To A Server
- 6.15 Communicating With The Server Using TCP
- 6.16 Reading A Response From A TCP Connection
- 6.17 Closing A TCP Connection
 - 6.17.1 The Need For Partial Close
 - 6.17.2 A Partial Close Operation
- 6.18 Programming A UDP Client
- Chapter 7 Example Client Software
 - 7.1 Introduction
 - 7.2 The Importance Of Small Examples
 - 7.3 Hiding Details
 - 7.4 An Example Procedure Library For Client Programs
 - 7.5 Implementation Of ConnectTCP
 - 7.6 Implementation Of ConnectUDP
 - 7.7 A Procedure That Forms Connections
 - 7.8 Using The Example Library
 - 7.9 The DAYTIME Service
 - 7.10 Implementation Of A TCP Client For DAYTIME
 - 7.11 Reading From A TCP Connection
 - 7.12 The TIME Service
 - 7.13 Accessing The TIME Service
 - 7.14 Accurate Times And Network Delays
 - 7.15 A UDP Client For The TIME Service
 - 7.16 The ECHO Service
 - 7.17 A TCP Client For The ECHO Service
 - 7.18 A UDP Client For The ECHO Service
 - 7.19 Summary
- Chapter 8 Algorithms And Issues In Server Software Design
 - 8.1 Introduction
 - 8.2 The Conceptual Server Algorithm
 - 8.3 Concurrent Vs. Iterative Servers
 - 8.4 Connection-Oriented Vs. Connectionless Access
 - 8.5 Connection-Oriented Servers
 - 8.6 Connectionless Servers
 - 8.7 Failure, Reliability, And Statelessness
 - 8.8 Optimizing Stateless Servers
 - 8.9 Four Basic Types Of Servers
 - 8.10 Request Processing Time
 - 8.11 Iterative Server Algorithms 102
 - 8.12 An Iterative, Connection-Oriented Server Algorithm
 - 8.13 Binding To A Well-Known Address Using INADDR_ANY
 - 8.14 Placing The Socket In Passive Mode

- 8.15 Accepting Connections And Using Them
- 8.16 An Iterative, Connectionless Server Algorithm
- 8.17 Finding A Reply Address In A Connectionless Server
- 8.18 Concurrent Server Algorithms
- 8.19 Master And Slave Processes
- 8.20 A Concurrent, Connectionless Server Algorithm
- 8.21 A Concurrent, Connection-Oriented Server Algorithm
- 8.22 Using Separate Programs As Slaves
- 8.23 Apparent Concurrency Using A Single Process
- 8.24 When To Use Each Server Type
- 8.25 A Summary of Server Types
- 8.26 The Important Problem Of Server Deadlock
- 8.27 Alternative Implementations
- 8.28 Summary

Chapter 9 Iterative, Connectionless Servers (UDP)

- 9.1 Introduction
- 9.2 Creating A Passive Socket
- 9.3 Process Structure
- 9.4 An Example TIME Server
- 9.5 Summary

Chapter 10 Iterative, Connection-Oriented Servers (TCP)

- 10.1 Introduction
- 10.2 Allocating A Passive TCP Socket
- 10.3 A Server For The DAYTIME Service
- 10.4 Process Structure
- 10.5 An Example DAYTIME Server
- 10.6 Closing Connections
- 10.7 Connection Termination And Server Vulnerability
- 10.8 Summary

Chapter 11 Concurrent, Connection-Oriented Servers (TCP)

- 11.1 Introduction
- 11.2 Concurrent ECHO
- 11.3 Iterative Vs. Concurrent Implementations
- 11.4 Process Structure
- 11.5 An Example Concurrent ECHO Server
- 11.6 Cleaning Up Errant Processes
- 11.7 Summary

Chapter 12 Single-Process, Concurrent Servers (TCP)

- 12.1 Introduction
- 12.2 Data-driven Processing In A Server
- 12.3 Data-Driven Processing With A Single Process
- 12.4 Process Structure Of A Single-Process Server
- 12.5 An Example Single-Process ECHO Server
- 12.6 Summary

Chapter 13 Multiprotocol Servers (TCP, UDP)

- 13.1 Introduction
- 13.2 The Motivation For Reducing The Number Of Servers
- 13.3 Multiprotocol Server Design
- 13.4 Process Structure
- 13.5 An Example Multiprotocol DAYTIME Server
- 13.6 The Concept Of Shared Code
- 13.7 Concurrent Multiprotocol Servers
- 13.8 Summary

Chapter 14 Multiservice Servers (TCP, UDP)

- 14.1 Introduction
- 14.2 Consolidating Servers
- 14.3 A Connectionless, Multiservice Server Design
- 14.4 A Connection-Oriented, Multiservice Server Design
- 14.5 A Concurrent, Connection-Oriented, Multiservice Server
- 14.6 A Single-Process, Multiservice Server Implementation
- 14.7 Invoking Separate Programs From A Multiservice Server
- 14.8 Multiservice, Multiprotocol Designs
- 14.9 An Example Multiservice Server
- 14.10 Static and Dynamic Server Configuration
- 14.11 The UNIX Super Server. Inetd
- 14.12 An Example Inetd Server
- 14.13 Summary
- Chapter 15 Uniform, Efficient Management Of Server Concurrency
- 15.1 Introduction
- 15.2 Choosing Between An Iterative And A Concurrent Design
- 15.3 Level Of Concurrency
- 15.4 Demand-Driven Concurrency
- 15.5 The Cost Of Concurrency
- 15.6 Overhead And Delay
- 15.7 Small Delays Can Matter
- 15.8 Process Preallocation
- 15.8.1 Preallocation In UNIX
- 15.8.2 Preallocation In A Connection-Oriented Server
- 15.8.3 Preallocation In A Connectionless Server
- 15.8.4 Preallocation, Bursty Traffic, And NFS
- 15.8.5 Process Preallocation On A Multiprocessor
- 15.9 Delayed Process Allocation
- 15.10 The Uniform Basis For Both Techniques
- 15.11 Combining Techniques
- 15.12 Summary
- Chapter 16 Concurrency In Clients
- 16.1 Introduction
- 16.2 The Advantages Of Concurrency
- 16.3 The Motivation For Exercising Control
- 16.4 Concurrent Contact With Multiple Servers
- 16.5 Implementing Concurrent Clients
- 16.6 Single-Process Implementations
- 16.7 An Example Concurrent Client That Uses ECHO
- 16.8 Execution Of The Concurrent Client
- 16.9 Concurrency In The Example Code
- 16.10 Summary
- Chapter 17 Tunneling At The Transport And Application Levels
- 17.1 Introduction
- 17.2 Multiprotocol Environments
- 17.3 Mixing Network Technologies
- 17.4 Dynamic Circuit Allocation
- 17.5 Encapsulation And Tunneling
- 17.6 Tunneling Through An IP Network
- 17.7 Application-Level Tunneling Between Clients And Servers
- 17.8 Tunneling, Encapsulation, And Dialup Phone Lines
- 17.9 Summary
- Chapter 18 Application Level Gateways
- 18.1 Introduction

- 18.2 Clients And Servers In Constrained Environments
 - 18.2.1 The Reality Of Multiple Technologies
 - 18.2.2 Computers With Limited Functionality
 - 18.2.3 Connectivity Constraints That Arise From Security
- 18.3 Using Application Gateways
- 18.4 Interoperability Through A Mail Gateway
- 18.5 Implementation Of A Mail Gateway
- 18.6 A Comparison Of Application Gateways And Tunneling
- 18.7 Application Gateways And Limited Functionality Systems
- 18.8 Application Gateways Used For Security
- 18.9 Application Gateways And The Extra Hop Problem
- 18.10 An Example Application Gateway
- 18.11 Implementation Of An Application Gateway
- 18.12 Code For The Application Gateway
- 18.13 An Example Gateway Exchange
- 18.14 Using Rfc2596 With UML's .forward
- 18.15 A General-Purpose Application Gateway
- 18.16 Operation Of SURP
- 18.17 How SURP Handles Connections
- 18.18 IP Addressing And SLIRP
- 18.19 Summary

Chapter 19 External Data Representation (XDR)

- 19.1 Introduction
- 19.2 Representations For Data In Computers
- 19.3 The N-Squared Conversion Problem
- 19.4 Network Standard Byte Order
- 19.5 A De Facto Standard External Data Representation
- 19.6 XDR Data Types
- 19.7 Implicit Types
- 19.8 Software Support For Using XDR
- 19.9 XDR Library Routines
- 19.10 Building A Message One Piece At A Time
- 19.11 Conversion Routines In The XDR Library
- 19.12 XDR Streams, 1/0, and TCP
- 19.13 Records, Record Boundaries, And Datagram 1/0
- 19.14 Summary

Chapter 20 Remote Procedure Call Concept (RPC)

- 20.1 Introduction
- 20.2 Remote Procedure Call Model
- 20.3 Two Paradigms For Building Distributed Programs
- 20.4 A Conceptual Model For Conventional Procedure Calls
- 20.5 An Extension Of the Procedural Model
- 20.6 Execution Of Conventional Procedure Call And Return
- 20.7 The Procedural Model In Distributed Systems
- 20.8 Analogy Between Client-Server And RPC
- 20.9 Distributed Computation As A Program
- 20.10 Sun Microsystems' Remote Procedure Call Definition
- 20.11 Remote Programs And Procedures
- 20.12 Reducing The Number Of Arguments
- 20.13 Identifying Remote Programs And Procedures
- 20.14 Accommodating Multiple Versions Of A Remote Program
- 20.15 Mutual Exclusion For Procedures In A Remote Program
- 20.16 Communicating Semantics
- 20.17 At Least Once Semantics

- 20.18 RPC Retransmission
- 20.19 Mapping A Remote Program To A Protocol Port
- 20.20 Dynamic Port Mapping
- 20.21 RPC Port Mapper Algorithm
- 20.22 ONC RPC Message Format
- 20.23 Marshaling Arguments For A Remote Procedure
- 20.24 Authentication
- 20.25 An Example Of RPC Message Representation
- 20.26 An Example Of The UNIX Authentication Field
- 20.27 Summary
- Chapter 21 Distributed Program Generation (Rpcgen Concept)
 - 21.1 Introduction
 - 21.2 Using Remote Procedure Calls
 - 21.3 Programming Mechanisms To Support RPC
 - 21.4 Dividing A Program Into Local And Remote Procedures
 - 21.5 Adding Code For RPC
 - 21.6 Stub Procedures
 - 21.7 Multiple Remote Procedures And Dispatching
 - 21.8 Name Of The Client-Side Stub Procedure
 - 21.9 Using Rpcgen To Generate Distributed Programs
 - 21.10 Rpcgen Output And Interface Procedures
 - 21.11 Rpcgen Input And Output
 - 21.12 Using Rpcgen To Build A Client And Server
 - 21.13 Summary
- Chapter 22 Distributed Program Generation (Rpcgen Example)
 - 22.1 Introduction
 - 22.2 An Example To Illustrate Rpcgen
 - 22.3 Dictionary Look Up
 - 22.4 Eight Steps To A Distributed Application
 - 22.5 Step 1: Build A Conventional Application Program
 - 22.6 Step 2: Divide The Program Into Two Parts
 - 22.7 Step 3: Create An Rpcgen Specification
 - 22.8 Step 4: Run Rpcgen
 - 22.9 The h File Produced By Rpcgen
 - 22.10 The XDR Conversion File Produced By Rpcgen
 - 22.11 The Client Code Produced By Rpcgen
 - 22.12 The Server Code Produced By Rpcgen
 - 22.13 Step 5: Write Stub Interface Procedures
 - 22.13.1 Client-Side Interface Routines
 - 22.13.2 Server-Side Interface Routines
 - 22.14 Step 6: Compile And Link The Client Program
 - 22.15 Step 7: Compile And Link The Server Program
 - 22.16 Step 8: Start The Server And Execute The Client
 - 22.17 Using The UNIX Make Utility
 - 22.18 Summary
- Chapter 23 Network File System Concepts (NFS)
 - 23.1 Introduction
 - 23.2 Remote File Access Vs. Transfer
 - 23.3 Operations On Remote Files
 - 23.4 File Access Among Heterogeneous Computers
 - 23.5 Stateless Servers
 - 23.6 NFS And UNIX File Semantics
 - 23.7 Review Of The UNIX File System
 - 23.7.1 Basic Definitions

- 23.7.2 A Byte Sequence Without Record Boundaries
- 23.7.3 A File's Owner And Group Identifiers
- 23.7.4 Protection And Access
- 23.7.5 The Open-Read- Write-Close Paradigm
- 23.7.6 Data Transfer
- 23.7.7 Permission To Search A Directory
- 23.7.8 Random Access
- 23.7.9 Seeking Beyond The End Of File
- 23.7.10 File Position And Concurrent Access
- 23.7.11 Semantics Of Write During Concurrent Access
- 23.7.12 File Names And Paths
- 23.7.13 Inode: Information Stored With A File
- 23.7.14 Stat Operation
- 23.7.15 The File Naming Mechanism
- 23.7.16 File System Mounts
- 23.7.17 UNIX File Name Resolution
- 23.7.18 Symbolic Links
- 23.8 Files Under NFS
- 23.9 NFS File Types
- 23.10 NFS File Modes
- 23.11 NFS File Attributes
- 23.12 NFS Client And Server
- 23.13 NFS Client Operation
- 23.14 NFS Client And UNIX
- 23.15 NFS Mounts
- 23.16 File Handle
- 23.17 Handles Replace Path Names
- 23.18 An NFS Client In UNIX
- 23.19 File Positioning With A Stateless Server
- 23.20 Operations On Directories
- 23.21 Reading A Directory Statelessly
- 23.22 Multiple Hierarchies In An NFS Server
- 23.23 The Mount Protocol
- 23.24 Summary
- Chapter 24 Network File System Protocol (NFS, Mount)
- 24.1 Introduction
- 24.2 Using RPC To Define A Protocol
- 24.3 Defining A Protocol With Data Structures And Procedures
- 24.4 NFS Constant, Type, And Data Declarations
 - 24.4.1 NFS Constants
 - 24.4.2 NFS Typedef Declarations
 - 24.4.3 NFS Data Structures
- 24.5 NFS Procedures
- 24.6 Semantics Of NFS Operations
 - 24.6.1 NFSPROC_NULL (Procedure 0)
 - 24.6.2 NFSPROC_GETATTR (Procedure 1)
 - 24.6.3 NFSPROC_SETATTR (Procedure 2)
 - 24.6.4 NFSPROC_ROOT (Procedure 3) [Obsolete in NFS3]
 - 24.6.5 NFSPROC_LOOKUP (Procedure 4)
 - 24.6.6 NFSPROC_READLINK (Procedure 5)
 - 24.6.7 NFSPROC_READ (Procedure 6)
 - 24.6.8 NFSPROC_WRITECACHE (Procedure 7) [Obsolete in NFS3]
 - 24.6.9 NFSPROC_WRITE (Procedure 8)
 - 24.6.10 NFSPROC_CREATE (Procedure 9)

- 24.6.11 NFSPROC_REMOVE_(Procedure 10)
- 24.6.12 NFSPROC_RENAME_RENAME (Procedure 11)
- 24.6.13 NFSPROC_LINK (Procedure 12)
- 24.6.14 NFSPROC_SYMLINK (Procedure 13)
- 24.6.15 NFSPROC_MKDIR (Procedure 14)
- 24.6.16 NFSPROC_RMDIR (Procedure 15)
- 24.6.17 NFSPROC_READDIR (Procedure 16)
- 24.6.18 NFSPROC_STATFS (Procedure 17)
- 24.7 The Mount Protocol
 - 24.7.1 Mount Constant Definitions
 - 24.7.2 Mount Type Definitions
 - 24.7.3 Mount Data Structures
- 24.8 Procedures In The Mount Protocol
- 24.9 Semantics of Mount Operations
 - 24.9.1 MNTPROC_NULL (Procedure 0)
 - 24.9.2 MNTPROC_MNT (Procedure 1)
 - 24.9.3 MNTPROC_DUMP (Procedure 2)
 - 24.9.4 MNTPROC_UMNT (Procedure 3)
 - 24.9.5 MNTPROC_UMNTALL (Procedure 4)
 - 24.9.6 MNTPROC_EXPORT (Procedure 5)
- 24.10 NFS And Mount Authentication
- 24.11 Changes In NFS Version 3
- 24.12 Summary
- Chapter 25 A TELNET Client (Program Structure)
 - 25.1 Introduction
 - 25.2 Overview
 - 25.2.1 The User's Terminal
 - 25.2.2 Command And Control Information
 - 25.2.3 Terminals, Windows, and Files
 - 25.2.4 The Need For Concurrency
 - 25.2.5 A Process Model For A TELNET Client
 - 25.3 A TELNET Client Algorithm
 - 25.4 Terminal I/O In UNIX
 - 25.4.1 Controlling A Device Driver
 - 25.5 Establishing Terminal Modes
 - 25.6 Global Variable Used For Saved State
 - 25.7 Restoring Terminal Modes Before Exit
 - 25.8 Client Suspension And Resumption
 - 25.9 Finite State Machine Specification
 - 25.10 Embedding Commands In A TELNET Data Stream
 - 25.11 Option Negotiation
 - 25.12 Request/Offer Symmetry
 - 25.13 TELNET Character Definitions
 - 25.14 A Finite State Machine For Data From The Server
 - 25.15 Transitions Among States
 - 25.16 A Finite State Machine Implementation
 - 25.17 A Compact FSM Representation
 - 25.18 Keeping The Compact Representation At Run-Time
 - 25.19 Implementation Of A Compact Representation
 - 25.20 Building An FSM Transition Matrix
 - 25.21 The Socket Output Finite State Machine
 - 25.22 Definitions For The Socket Output FSM
 - 25.23 The Option Subnegotiation Finite State Machine
 - 25.24 Definitions For The Option Subnegotiation FSM

- 25.25 FSM Initializatwn 393
- 25.26 Argumenfs For The TELNET Client
- 25.27 TheHeartOfTheTELNETClient
- 25.28 Imptementation Of The Main FSM
- 25.29 Summar)
- Chapter 26 A TELNET Client (Implementation Oetails)
- 26.1 Introduction
- 26.2 The FSM Action Procedures
- 26.3 Recording The Type OfAn Option Request
- 26.4 Performing No Operation
- 26.5 Responding To WILL/WONT For The Echo Option
- 26.6 Responding To WILL/WONT For Unsupported Options
- 26.7 Responding To WILL/WONT For The No Go-Ahead Option
- 26.8 Generating DO/DONT For Binary Transmission
- 26.9 Responding To DO/DONT For Unsupported Options
- 26.10 Responding To DO/DONT For Transmit Binary Option
- 26.11 Responding To DO/DONT For The Terminal Type Option
- 26.12 Option Subnegotiation
- 26.13 Sending Terminal Type Information
- 26.14 Terminatmg Subnegotiation
- 26.15 Sending A Characler To The Server
- 26.16 Displaying Incoming Data On The User's Terminal
- 26.17 Using Termcap To Control The User's Terminal
- 26.18 Writing A Block OfData To The Server
- 26.19 Interacting With The Client Process
- 26.20 Responding To Illegal Commands
- 26.21 Scripting To A File
- 26.22 Implementation OfScripting
- 26.23 Initialization OfScripting
- 26.24 Collecting Characters Of The Script File Name
- 26.25 Opening A Script File
- 26.26 Terminating Scripting
- 26.27 Printing SlatuS Information
- 26.28 Summary
- Chapter 27 Practical Hlnts And Technlques For UNIX Servers
- 27.1 Introduction
- 27.2 Operating In Background
- 27.3 Programming A Server To Operate In Background
- 27.4 Open Descriptors And Inheritance
- 27.5 Programming A Server To Close Inherited Descriptors
- 27.6 Signals From The Controlling TTY
- 27.7 Programming A Server To Change Its Controlling TTY
- 27.8 Moving To A Safe And Known Directory
- 27.9 Programming A Server To Change Directories
- 27.10 TheUNIXUmask
- 27.11 Programming A Server To Sel Its Umask
- 27.12 Process Groups
- 27.13 Programming A Server To Set Its Process Group
- 27.14 Descriptors For Standard 1/0
- 27.15 Prcgramming A Server To Open Standard Descriptors
- 27.16 Mutual Exclusion For The Server
- 27.17 Programming A Server To Avoid Multiple Copies
- 27.18 Recording A Server's Process ID
- 27.19 Programming A Server To Record Its Process ID

- 27.20 Waiting For A Child Process To Exit
- 27.21 Programming A Server To Wait For Each Child To Exit
- 27.22 Extraneous Signals
- 27.23 Programming A Server To Ignore Extraneous Signals
- 27.24 Using A System Log Facility
 - 27.24.1 Generating Log Messages
 - 27.24.2 The Advantage Of Indirection And Standard Error
 - 27.24.3 Limitations Of I/O Redirection
 - 27.24.4 A Client-Server Solution
 - 27.24.5 The Syslog Mechanism
 - 27.24.6 Syslog Message Classes
 - 27.24.7 Syslog Facilities
 - 27.24.8 Syslog Priority Levels
 - 27.24.9 Using Syslog
 - 27.24.10 An Example Syslog Configuration File
- Summary
- Chapter 28 Deadlock And Starvation In Client-Server Systems
 - 28.1 Introduction
 - 28.2 Definition Of Deadlock
 - 28.3 Difficulty Of Deadlock Detection
 - 28.4 Deadlock Avoidance
 - 28.5 Deadlock Between A Client And Server
 - 28.6 Avoiding Deadlock In A Single Interaction
 - 28.7 Starvation Among A Set Of Clients And A Server
 - 28.8 Busy Connections And Starvation
 - 28.9 Avoiding Blocking Operations
 - 28.10 Processes, Connections. And Other Limits
 - 28.11 Cycles Of Clients And Servers
 - 28.12 Documenting Dependencies
 - 28.13 Summary
- Appendix 1 System Calls And Library Routines Used With Sockets
- Appendix 2 Manipulation Of UNIX File And Socket Descriptors
- • • • • [\(收起\)](#)

[网络互连技术系列 下载链接1](#)

标签

TCP/IP

programming

network

Linux

评论

[网络互连技术系列_下载链接1](#)

书评

[网络互连技术系列_下载链接1](#)