图书基本信息

书名:《现代通信最新技术》

13位ISBN编号: 9787302028154

10位ISBN编号:730202815X

出版时间:1998-01

出版社:清华大学出版社

作者:布莱克(美)

页数:457

版权说明:本站所提供下载的PDF图书仅提供预览和简介以及在线试读,请支持正版图书。

更多资源请访问:www.tushu000.com

书籍目录

Contents

Preface xix

CHAPTER1 Introduction

Introduction

The Need for Enhanced Services

The Past

The Future Has Become the Present

Goals of the Emerging

Communications Technologies

LAN Interconnectivity

A Brief Summary

Need for Greater Communications Capacity

LAN and WAN Internetworking

Costs of Connecting Dispersed LANs

The Virtual Private Network (VPN)

Proposed Solutions

The Confusion Factor

Fast Relay Systems

Trends in Technology

Hardware and Software

New Technologies: To Use Them or Not

to Use Them?

Broadband Networks

Broadband Signaling Hierarchies

Applications Supported by the New Technologies

New Technologies: Competitive or Complementary?

Performance and Distance Considerations

Obtaining Services for the Networks:

Bandwldth on Demand

Where Services are Provided

Layered Architectures of the Emerging Technologies

Summary

CHAPTER2 Foundations for the Emerging Technologies

Introduction

Virtual Circuits

A Brief Digression

Permanent Virtual Circuit (PVC)

Switehed Virtual Circuit (SVC) or Connection

on Demand

Semi-permanent Virtual Circuits (SPVC)

Connection-oriented and Connectionless Systems

Connection-orientated Systems

Connectionless Systems

The Pros and Cons

The Coexistence of Connection-oriented Systems

and Connectionless Systems

Variable Bit Rate (VBR) and Constant Bit Rate

(CBR) Applications

VBR Applications

CBR Applications

Flow Control and Congestion Management

Explicit Flow Control

Implicit Flow Control

No Flow Control

User Payload Integrity Management

Layered Protocols and Protocol Data Units

Addressing and Identification Schemes

Multiplexing Methodologies

Switching, Routing, and Relaying

Source and Non-source Routing

Fixed and Adaptive Routing

Network Interfaces

Convergence, Segmentation,

and Reassembly Operations

Summary

CHAPTER3 Emerged Technologies

Introduction

T1/E1 CARRIER Systems

The Purpose of TI and EI

"Typical" Topology

TI and EI Layers

T1/EI PDUs

Conclusions on T1/E1

X.25

The Purpose of X.25

Typical Topology

X.25 Lavers

X.25 PDUs

Other Noteworthy Aspects of X.25

Conclusions on X.25

ISDN

The Purpose of ISDN

Typical Topology

ISDN Layers

ISDN PDUs

Conclusions on ISDN

Signaling System Number 7 (SS7)

The Purpose of (SS7)

Typical Topology

887 Layers

887 PĎUs

Conclusions on 887

FDDI

The Purpose of FDDI

Typical Topology

The FDDI Layers

FDDIPDUs

Other Notable Aspects of FDDI

Conclusion on FDDI

Summary

CHAPTER4 Frame Relay

Introduction

The Purpose of Frame Relay

Pertinent Standards

Typical Frame Relay Topology

The Frame Relay Layers

Frame Relay and Its Relationship

to ISDN Layers

OSI and ANSI Layers

The Frame Relay Protocol Data Unit (PDU)

Frame Relay Operations in More Detail

The Frame Relay Core Functions

The Data Link Connection Identifier (DLCI)

Frame Relay Link Layer Error Checking

Potential Congestion Problems

Traffic Management

Consolidated Link Layer Management

(CLLM)

The Discard Eligibility Bit

Committed Information Rate

Leaking CIR and Fast Forward CIR

Classes of Service Using Bc and Be

DLCIs in More Detail

The Frame Relay Network-to-Network

Interface (NNI)

NNI Operations

Bellcore Exchange Access FR (XA-FR)

PVC Service

Other Notable Aspects of Frame Relay

DLCI Values

Added Options to Frame Relay

The Local Management Interface (LMI)

Frame Relay SVC Operations

Other Quality of Service (QOS) Options

Internetworking Frame Relay and ATM

Multiprotocol Operations over Frame Relay

The Frame Relay MIB

Frame Relay Worksheet

Summary

CHAPTER5 Fast and Switched Ethernet

Introduction

Generations of LANs

First Generation

Second Generation

Third Generation

Fourth Generation

Switched Ethemet

Switched Ethernet Architecture

Store and Forward and Cut-through Switches 1

Virtual LANs

Fast Ethernet

IOOBASET

AnyLAN

Fast/Switched Ethernet Worksheet

Summary

CHAPTER6 Metropolitan Area Networks (MANs) and Switched

Multimegabit Data Service (SMDS)

Introduction

The Purpose of a MAN

Pertinent Standards

A Typical MAN Topology

Topology Reconfiguration with Self-Healing

Networks

The MAN Layers

MAN Protocol Data Units (PDUs)

MAN Operations in More Detail

The Access Unit (AU)

Overview of the DQDB Protocol

DQDB Counters

Location Discovery

Segmentation and Encapsulation Operations

Other Notable Aspects of the MAN

MAN Summary

Introduction to SMDS

The Purpose of SMDS

Pertinent Standards

A Typical SMDS Topology

SMDS Layers

SMDS Protocol Data Units

SMDS Operations in More Detail

Defining and Measuring Congestion

The Sustained Information Rate (SIR)

and Access Classes

SIP Segmentation and Encapsullation Functions

SNI Quality of Service (QOS) Operations

The Interchange Carrier Interface (ICI)

Quality of Service (QOS) Objectives

Other Notable Aspects of SMDS

SMDS Address Management Operations

The ISSI

The Operations System/Network Element (OS/NE)

Interface (Operations Technology)

The SMDS MIB

MAN/SMDS Worksheet

SMDS Summary

CHAPTER7 Asynchronous Transfer Mode (ATM) 1

Introduction

The Purpose ot ATM

Pertinent Standards

An ATM Topology

The VPI and VCI Labels

ATM Layers

ATM and the B-ISDN Model

ATM Protocol Data Units (Cells)

ATM Operations in More Detail

Physical Layer Interfaces

ATM over Copper

Rationale for the Cell Size

Network Transparency Operations 202

ATM Labels

Multiplexing VCIs and VPIs

ATM Connections on Demand

ATM Switching

Classes of Traffic

AAL Types

Traffic Management in an ATM Network

ATM Forum and ITU-T Traffic Control

and Congestion Control

The ATM B-ISDN Intercarrier Interface (B-ICI)

Physical Layer Requirements at the B-ICI

Traffic Management at the B-IC!

Reference Traffic Loads

B-ICI Layer Management Operations

Other Notable Aspects of ATM

Addressing in an ATM Network

Network Management

The ATM MIB

ATM Worksheet

Summary

CHAPTER8 Synchronous Optical Network (SONET)/

Synchronous Digital Hierarchy (SDH)

Introduction

Purpose of SONET/SDH

Synchronous Networks

Pertinent Standards

Typical SONET/SDH Topology

SONET/SDH Lavers

SONET/SDH in More Detail

Automatic Protection Switching (APS);

The SDH Multiplexing Structure

Payloads and Envelopes

Payload Pointers

Examples of Payload Mapping

Mapping and Multiplexing Operations

Error Checking, Diagnostics, and Restoration

The Control Headers and Fields

SONET/SDH Equipment

Other Notable Aspects of SONET/SDH

Operation Administration and Maintenance

(OAM) Operations

Progress in SONET/SDH Penetration

SONET/SDH Worksheet

Summarv

CHAPTER9 Mobile Communications Technologies

Introduction

The Purpose of Mobile Communications Systems 7

Typical Cellular Systems Topology

Cellular Systems Operations in More Detail

Cellular System Types and Market Penetration 3

GSM

GSM Interfaces

Call Routing

Location Updating

GSM 900/DC1800: Foundation for PCS 1900

(TDMA)

CDMA: A New Arrival into the Commercial

Mobile, Wireless World TDMA versus CDMA

Cordless Systems Operations in More Detail

CT2

DECT

Other Standardization Efforts for PCS

The Auctions in the U.S. and the PCS Marketplace 31

Candidates for PCS Technologies

The Cellular Digital Data Packet System

Specification (CDPD)

CDPD Services and Servers

Third-Generation Mobile Systems

Some Concluding Thoughts

Mobile Communications Systems Worksheet

Mobile Communications Summary

CHAPTER10 Residential Broadband

Introduction

The Problem with the Subscriber Loop

The Proposed Solutions: Two Interlocking Approaches,

Coding/Modulation and Wiring

How Much Bandwidth Is Needed to Satisfy

the Subscriber?

Downstream Bandwidth

Upstream Bandwidth

Beyond the Coding/Modulation and Wiring:

Service Provisions

Switched Digital Video (SDV)

Coding and Modulation

HDSL

ADSL

Wiring at the Local Loop: Subscriber Loop Options

Hybrid/fiber Copper (HFCop)

Hybrid/fiber Coax (HFC)

Fiber to the Curb (FTTC) and Fiber to the

Home (FTTH)

The Wireless Option

Mananging the Broadband Signals

Bellcore's TR-303 Specification

Residential Broadband Worksheet

Summary

Appendix IOA: Coding and Modulation Techniques

for Residential Broadband

Introduction

Quadrature Amplitude Modulation (QAM)

Examples of Modulation Schemes and Bit Rates

Carrierless Amplitude/Phase Modulation (CAP)

CHAPTER11 Broadband Signaling Networks

Introduction

What Are Broadband Signaling Networks?

Differences between Broadband and Conventional

Signaling Systems

N-ISDN and B-ISDN

Example of a Broadband Signaling Network Operation

Examples of Services Provided

by the Broadband Network

ISO 9577

ATM Parameters

The Broadband Signaling Protocols

How the Broadband Signaling Stacks Operate

Broadband Signaling Worksheet

Summary

CHAPTER12 Advanced Intelligent Network

Introduction

Operator Services Systems (OSS)

The 800 Service-Inklings of an Advanced Intelligent

Network (AIN)

Key Aspects of the AIN

The Intelligent Network and the Advanced Intelligent

Network

Distribution of Functions

Evolution to the AIN

Other Parts of the AIN

Example of an AIN Operation

The AIN Basic Call Model

Standardized Messages

The Private Virtual Network

AIN Worksheet

Summary

CHAPTER13 Internet Protocol, Version 6 (IPv6)

Introduction

Functions of the Internet Protocol (IPv4)

The IP Address

Problems with IP and the IP Address

The Solution--an Expanded IP Address

Space

Alternatives to the Overhead of IPv6

Addresses

The Next Generation IP-IPv6

Functions of the IPv4 Header Fields 84

Functions of the IPv6 Header Fields 187

IPv6 and ATM

Fixed Routing and Virtual Circuits 1

Supporting Different Types of Traffic 889

The IPv6-ATM Debate

IPv6 Worksheet

Summary

APPENDIXA A Tutorial on Communications Networks

Introduction

Data Communications Networks

Classifying Networks

Wide Area and Local Area Networks

Network Components

Voice Networks

Nonhierarchical Routing

History of and Inherent Problems with Coexistence

of Analog and Digital Systems

Analog-to-Digital Conversion

Data Images over Voice Channels

FDM, TDM, and STDM

Circuit, Message, Packet, and Cell Switching

Network Routing Operations

The Challenge of Integrating Voice, Data,

and Video Applications

Fast Packet Switahing (FPS)

Hybrid Switching

APPENDIXB Layered Protocols, OSI, and TCP/IP

Introduction

Protocols and the OS1 Model

OS1 Layer Operations

The Internet Protocols (TCP/IP)

The Internet Layers

IP Functions

TCP Operations

APPENDIXC Management Information Bases (MIBs)

Introduction
Purpose of a MIB
Examples of MIB Objects and Other Entries 436
APPENDIXD EmergIng Communications
Technologles Worksheet
Abbreviations
References
Index

精彩短评

1、通信技术 06.12

版权说明

本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:www.tushu000.com