

1. Record Nr.	UNINA9910830984003321
Autore	Ahmad Khalid
Titolo	Sourcebook of ATM and IP internetworking / / Khalid Ahmad
Pubbl/distr/stampa	Piscataway, New Jersey : , : IEEE Press, , c2002 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2005]
ISBN	1-280-54205-5 9786610542055 0-471-66094-9 0-471-72286-3
Descrizione fisica	1 online resource (486 p.)
Collana	IEEE Press series on network management ; ; 9
Disciplina	004.62
Soggetti	Asynchronous transfer mode Internetworking (Telecommunication)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 457-462) and index.
Nota di contenuto	Preface -- 1 Introduction -- 2 ATM Principles and Basic Definitions -- 2.1 The B-ISDN Protocol Reference Model (PRM) -- 2.2 Transfer Plane Functions and ATM Process Overview -- 2.3 Network Models and Reference Points -- 3 Functions of the ATM Layer -- 3.1 Virtual Path and Virtual Channel Identifiers -- 3.2 Relation between VPC, VCC and VPL, VCL -- 3.3 Preassigned Header Values -- 3.4 The Pay load Type Field -- 3.5 The Cell Loss Priority (CLP) Field -- 3.6 Generic Flow Control (GFC) Function -- 3.7 Primitives and Service Access Points -- 4 Functions of the Physical Layer -- 4.1 Frame-Based and Cell-Based Physical Interfaces -- 4.2 The Cell-Based Physical Interface -- 4.3 The Frame-Based Physical Interface -- 4.4 Cell Delineation Using the HEC -- 5 ATM Traffic Control -- 5.1 The Need for Traffic Control in ATM -- 5.2 Traffic Control Functions Overview -- 5.3 Reference Configuration and Timescales for Traffic Control -- 5.4 Traffic Contracts, Descriptors, and Parameters -- 5.5 The Peak Cell Rate (PCR) -- 5.6 Cell Delay Variation (CDV) -- 5.7 Sustainable Cell Rate (SCR) and Burst Tolerance -- 5.8 The Generic Cell Rate Algorithm (GCRA) and the "Leaky Bucket" Algorithm -- 5.9 ATM Transfer Capabilities (ATC) -- 5.10 Deterministic Bit Rate (DBR) Transfer Capability -- 5.11 Statistical Bit Rate (SBR)

Transfer Capability -- 5.12 Available Bit Rate (ABR) Transfer Capability -- 5.13 ABR RM Cell Structure and Parameters -- 5.14 ATM Block Transfer (ABT) Capability -- 5.15 Unspecified Bit Rate (UBR) and Guaranteed Frame Rate (GFR) -- 5.16 Credit-Based Flow Control Capabilities -- 5.17 Generic UPC/NPC and CAC Requirements -- 5.18 General Comments on ATM Traffic Control -- 6 ATM Signaling -- 6.1 B-ISDN Signaling Principles -- 6.2 ATM Signaling Protocol Architectures -- 6.3 Metasignaling -- 6.4 ATM Connection Types -- 6.5 The UNI Signaling Message Set -- 6.6 UNI Information Elements (IEs) -- 6.7 Examples of Message Flows at the UNI -- 6.8 Point-to-Multipoint Connections -- 6.9 The NNI Signaling Message Set-B-ISUP. 6.10 Broadband Inter Carrier Interface (B-ICI) -- 6.11 Message Transfer Part Level 3 (MTP 3) Functionality -- 6.12 ATM Addressing and B-ISUP Routing -- 7 Private NNI (PNNI) Signaling and Routing -- 7.1 Introduction -- 7.2 Basic PNNI Signaling and Routing Concepts -- 7.3 PNNI Signaling Protocols -- 7.4 Source Routing in PNNI Signaling -- 7.5 PNNI Crankback Function -- 7.6 PNNI "Soft" Permanent Virtual Circuit (SPVC) Function -- 7.7 PNNI Routing Functions -- 7.8 PNNI Routing Hierarchy -- 7.9 Addresses and Identifiers in PNNI -- 7.10 PNNI Routing Packet Structure and Functions -- 7.11 General Comments on PNNI Routing and Signaling -- 8 ATM Layer Operations and Maintenance (OAM) Functions -- 8.1 Introduction -- 8.2 OAM Principles and General Network Management Architecture -- 8.3 OAM Flows -- 8.4 ATM Layer OAM Flows and Functions -- 8.5 Fault Management Functions-AIS/RDI -- 8.6 Fault Management Functions-Continuity Check (CC) -- 8.7 Fault Management Functions-Loopback (LB) -- 8.8 Performance Management OAM Function -- 8.9 Activation and Deactivation Procedures -- 8.10 OAM Cell Formats and Codings -- 8.11 Functions Specific to the AIS/RDI and CC OAM Cell -- 8.12 Loopback OAM Cell Format and Functions -- 8.13 Functions and Formats of PM OAM Cells -- 8.14 Functions and Format of Activation/Deactivation OAM Cell -- 8.15 Overview of the OAM Cell Types -- 8.16 Relationship between OAM Functions and Connection Availability -- 8.17 Protection Switching at the ATM Layer -- 9 ATM NE Functional Modeling and Requirements -- 9.1 The Need for ATM NE Functional Model Specifications -- 9.2 A General Taxonomy of ATM Equipment Types -- 9.3 Examples of ATM Equipment Types -- 9.4 The Detailed Functional Modeling of ATM NEs -- 9.5 Layer Management Indication (LMI) and the CoF -- 9.6 Examples of the Detailed Functional Model -- 9.7 The AEMF and TMN-Related Interface Protocols -- 9.8 CMIP/CMISE Messages and Functions -- 9.9 Simple Network Management Protocol (SNMP) Functions and Messages -- 9.10 Interim Local Management Interface (ILMI). 9.11 ATM Performance Objectives and QoS Classes -- 10 ATM Adaptation Layer (AAL) and Interworking -- 10.1 The General AAL Functional Model and AAL Types -- 10.2 AAL Type 1-Functions and Format -- 10.3 AAL Type 3/4 Functions and Format -- 10.4 AAL Type 5 Functions and Format -- 10.5 AAL Type 2 Functions and Format -- 10.6 AAL Type 2 Switching and Signaling -- 10.7 The Service-Specific Convergence Sublayer (SSCS) -- 10.8 Interworking -- 11 Frame Relay and ATM Internetworking -- 11.1 Introduction -- 11.2 Frame Relay and ATM Comparison -- 11.3 Frame Relay Service-Specific Convergence Sublayer (FR-SSCS) -- 11.4 FR/ATM Network and Service Interworking -- 11.5 Translation and Transparent Mode in Service Interworking -- 11.6 FR/ATM Management and Control Plane Interworking -- 12 IP and ATM Internetworking -- 12.1 Introduction -- 12.2 IP Internetworking Overview -- 12.3 Overview of LAN Protocol Architectures -- 12.4 Internetworking Protocol (IP) Layer Functions -- 12.5 IP Packet

Structure and Functions -- 12.6 Transmission Control Protocol (TCP) Structure and Functions -- 12.7 Encapsulation of IP over ATM -- 12.8 The "Classical" IP over ATM Network Architecture Model -- 12.9 Quality of Service in IP Networks -- 12.10 Integrated Services Architecture (IntServ) and RSVP -- 12.11 The Differentiated Services (DiffServ) Model -- 13 Internetworking Framework Architectures in IP and ATM -- 13.1 Introduction -- 13.2 LAN Emulation over ATM (LANE) -- 13.3 IP Switching -- 13.4 Multiprotocol over ATM (MPOA) -- 13.5 MPOA Functional Overview and Data Transfer Procedures -- 13.6 Flow Characterization and Connection Management in MPOA -- 13.7 Multiprotocol Label Switching (MPLS) -- 13.8 MPLS Architecture and Functions -- 13.9 The Label Distribution Protocol (LDP) -- 13.10 Explicit and Constrained Routed LDP (CR-LDP) -- 13.11 The Generic MPLS Encapsulation Structure -- 14 Perspectives in Networking Technologies -- References -- Index.

Sommario/riassunto

. Provides a comprehensive, detailed description of the fundamental architectural principles and protocols used in ATM-based networks, as well as interworking with IP and Frame Relay based networks. Begins with general coverage of ATM, but moves quickly into the most important new area of ATM--IP switching, which allows communications companies to combine IP routing with ATM switching. Offers the reader a clear understanding of the evolutionary trends in the development of ATM A Wiley-IEEE Press publication.
