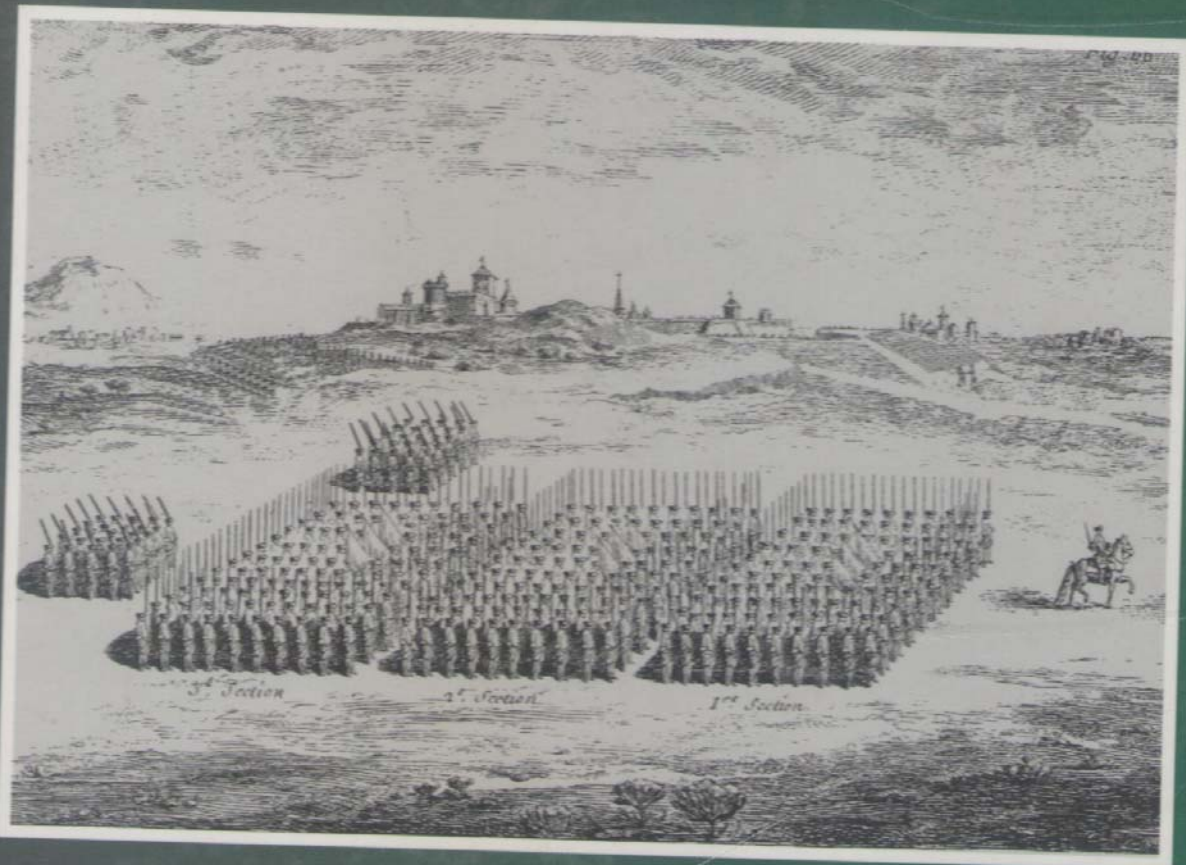


PLANNING & MANAGING ATM NETWORKS



DANIEL MINOLI THOMAS GOLWAY
WITH NORRIS PARKER SMITH

 MANNING

contents

Preface

PART I INTRODUCTION TO ATM

- 1 *Overview* 3
 - Asynchronous Transfer Mode 4
 - About this Book 6
 - The Networking Environment 7
 - Ubiquity, Intelligence, and Virtual Networks 11
 - Into the Future 14
 - The OSI Seven-Layer Model 15
- 2 *The Emergence of ATM* 17
 - Introduction 18
 - ATM's Predecessors 22
 - The Evolution of Broadband Connectivity 25
 - The Standardization of ATM 28
 - ATM as an Enabling Technology 31
 - Challenges Facing ATM 32

15 *Collateral Tools for Effective
Network Management* 289

The Planning Function 290

Making a Network Model 291

Support and the Help Desk 291

Information and Support Flows 293

Dynamic Documentation 294

Prioritization: Levels of Service 296

Outsourcing and Insourcing 297

16 *Summary of ATM Network Management
Platforms on the Market* 301

Some Aspects of Performance
Management 303

Hewlett Packard—OpenView Distributed
Management Platform 303

AT&T/Lucent Technologies—BaseWorX 305

OSF—DME 306

IBM—NetView/6000 306

NetLabs—DiMONS 3G 307

Objective Systems Integrators (OSI)—Net
Expert 308

SunConnect—SunNet Manager 309

Digital Equipment Corporation (DEC)—
PolyCenter 309

Other Products 310

Index 311

- 3 *ATM Architecture* 37
 - Overview 38
 - The ATM Cell 40
 - Addressing 41
 - The Physical and ATM Layers 42
 - LAN Emulation 49
 - Narrowband ATM Access 55
 - ATM Switches 57
 - Tasks Receiving Continuing Attention 59

PART II MANAGEMENT PRINCIPLES OF ATM NETWORKS

- 4 *Fundamentals* 65
 - Introduction 66
 - Types of Management Capabilities 71
 - OSI Network Management Categories 73
 - ATM Services Requiring Network Management 81
- 5 *Fundamentals: Managing the Physical and ATM Layers* 85
 - Introduction 86
 - Physical Layer Operations Flows 90
 - DS1 Level Operations Flows 90
 - DS3 Level Operations Flows 90
 - PLCP Level Operations Flows 91
 - SONET Level Operations Flows 94
 - ATM Layer Operations Flows 94
 - Broadband Local Management Interface 99
- 6 *Fundamentals: Customer Network Management* 105
 - The Manager-Agent Model 106
 - SNMP Constructs 109
 - CNM Functionality in the ATM Context 111
 - The Simple Network Management Protocol 118

- Carriers' CNM Roles 127
- Network Management Systems ATM Products 132
- Key Vendors of ATM NMSs 136

PART III OPERATIONAL MANAGEMENT OF ATM NETWORKS

- 7 *Managing ATM Networks: Fault and Configuration Management* 141
 - Fault Management 142
 - Configuration Management 156
 - ATM-based Services Other than CRS 160
- 8 *Managing ATM Networks: Performance Management* 163
 - Performance Monitoring 164
 - Monitoring Details 166
- 9 *Managing ATM Networks: Accounting and Security Management* 185
 - Accounting Management 186
 - Security Management 190
- 10 *Telecommunications Management Network* 195
 - Introduction 196
 - TMN Architecture 196
 - Specific Functions Associated with a TMN 201
 - Conclusion 213

PART IV PLANNING OF ATM NETWORKS

- 11 *Emerging Computing and Communications Environments* 217
 - Introduction 218
 - Present Market Drivers 219

	Emerging Applications	226
	Service Model for Networks	229
12	<i>Corporate Network Management Goals</i>	233
	Introduction	234
	Availability	236
	Reliability/Serviceability	236
	Seamlessness	237
	Performance	238
	Responsiveness	239
	System Costs	240
	Operating Costs	241
	Improved Feedback and Diagnosis	244
	Integrated Proactive Modeling	246
	Flexibility	246
13	<i>Managing the Deployment of ATM</i>	249
	Pilots: Start Small, Start Simple	250
	People and Technology: The ATM Lab	253
	Transitioning the Physical Layer	254
	Physical Topology for ATM	257
	The Logical Control Level	258
	The Service Layer	259
	ATM WAN Deployment	261
	Transition Issues	268
	Consider Every Possibility	270
14	<i>Managing the Deployment of Virtual LANS</i>	271
	Benefits and Drawbacks	272
	Planning the Virtual Environment	273
	Managing Virtual LAN Sprawl	277
	Dynamic Virtual LANS	285
	Virtual LANS and Multicasting	285
	VLAN Technologies	287