



Table of Contents

Foreword by Jon Crowcroft

Preface

1	Introduction	1
1.1	IP Signaling Scenarios	2
1.2	IP Signaling Protocol Design Issues	8
1.3	Outline of This Book	16
2	A Review of IP Signaling Protocols	18
2.1	Evolution of IP Signaling Protocols	18
2.2	QoS Architectures: a Brief Review	21
2.3	Early Internet Signaling Protocols	25
2.4	RSVP: Resource Reservation Protocol	28
2.5	RSVP Extensions in Various Application Scenarios	37
2.6	Limitations of RSVP	42
2.7	Two-Layer RSVP	45
2.8	IP Signaling Protocols Developed after RSVP	47
2.9	The Need of a New Signaling Framework	55
2.10	A Taxonomy of IP Signaling and Middlebox Control Protocols	57
3	CASP: a New Extensible IP Signaling Framework	59
3.1	CASP Overview	59
3.2	An Example of CASP Operations	61
3.3	Design Principles of the CASP Framework	63
3.4	CASP Design Details	65
3.5	Summary	72
4	NSIS: Next Steps In Signaling	74
4.1	NSIS Signaling Model and Objectives	74
4.2	NSIS Overview	79
4.3	NSIS Architectural Framework	81
4.4	GIST: Generic Internet Signaling Transport	83



4.5	Introduction to QoS and NAT/Firewall NSLPs	89
4.6	GIST Extensibility and GIST over SCTP	92
4.7	Diagnostics Function	93
4.8	Mobility Support in NSIS	95
4.9	NSIS Security Issues	98
4.10	Summary of This Chapter	101
5	Evaluation	103
5.1	Analysis of Functional Properties	103
5.2	Analysis of Protocol Overhead	105
5.3	Building Extensible IP Signaling Systems	108
5.4	Performance Evaluation Method and Results	116
5.5	Summary of This Chapter	128
6	Prospect and Conclusions	133
6.1	NSIS and ITU-T	133
6.2	NSIS and 3GPP/3GPP2	133
6.3	NSIS and IEEE 802.21	134
6.4	Open Issues with NSIS	134
6.5	Summary	136
Bibliography		138