

Index

1.	Multimedia Applications.....	3
1.1	Presence.....	4
1.1.1	Introduction.....	4
1.1.2	Presence services and standardization.....	4
1.2	Instant messaging.....	5
1.2.1	Overview.....	5
1.2.2	Instant Messaging and Presence.....	6
1.2.3	Instant Messaging Client Features.....	7
1.3	Push.....	7
1.3.1	Introduction.....	7
1.3.2	Push Solutions and Architectures.....	8
1.4	Games.....	8
1.4.1	Business drivers for Games.....	8
2.	UMTS and IMS.....	9
2.1	Why UMTS?.....	9
2.2	UMTS Specification process.....	11
2.3	Network Architecture.....	12
2.3.1	Network Models.....	12
2.4	IMS.....	14
2.4.1	IMS Architecture.....	14
2.4.2	Distribution of CS functionality.....	16
2.4.3	Services Architecture.....	17
2.4.4	Identification of Users.....	17
2.4.5	Call Flows.....	18
2.4.6	How it works.....	18
3.	Reference Scenario.....	28
3.1	Exploit Project.....	28
3.2	IMSes Platform.....	28
3.2.1	Platform for a Variety of Network Services.....	28
3.2.2	IMS@vantage Experimental System (ES) Architecture.....	29
3.2.3	Element Description.....	30
3.3	Client Description.....	31
3.3.1	Pocket PC 2002.....	32
3.3.2	Java Virtual Machine.....	32
3.3.3	Jeti Application.....	34
3.4	Selected Services.....	35
4.	JetiClient Architecture.....	37
4.1	Reference Architecture (JETI).....	37
4.2	Plug in Extensibility.....	43
4.2.1	Plug in deployment and creation.....	44
4.2.2	Plugin start.....	45
4.2.3	Plugin stop.....	45
4.2.4	Handling of incoming SIP requests.....	46
4.2.5	Implementation of a sample plug in class.....	47

5.	Exploit Client Architecture.....	49
5.1	Exploit plug-in interfaces.....	51
5.1.1	The ServiceConnector Interface.....	52
5.1.2	The PluginConnector Interface.....	54
5.1.3	Alias Management and Service discrimination.....	56
5.2	Exploit plug-in main classes.....	57
5.2.1	The CommonPlugin class.....	57
5.2.2	The CommonFunction class.....	59
5.2.3	The Communication classes.....	61
5.3	Exploit Plug in Message coding.....	63
5.3.1	SIP INVITE.....	63
5.3.2	SIP MESSAGE.....	66
5.3.3	SIP NOTIFY.....	67
5.3.4	SIP REGISTER.....	67
5.4	CommonPlugin interaction with the GUI.....	69
5.4.1	The Mind class.....	71
5.4.2	The GUI class.....	73
5.5	Exploit Service example.....	74
5.5.1	Rolegames challenge request and succeed.....	74
5.5.2	Rolegames challenge invitation and acceptance.....	76
5.6	GUI related sequence diagrams.....	77
5.6.1	ExploitPlugin start.....	77
5.6.2	Exploitplugin show.....	78
5.6.3	Service activation from control panel.....	79
5.6.4	Navigation through the service GUI pages.....	81
5.6.5	User Registration.....	83
5.6.6	Chat with a buddy.....	84
5.7	Java Packages.....	85
6.	Audio Call Solution.....	88
6.1	Signaling.....	88
6.2	Media.....	97
7.	Functional Evaluation.....	99
7.1	Instant Messaging Evaluation.....	99
7.2	Chat Evaluation.....	99
7.3	VoIP Evaluation.....	99
7.4	Presence Evaluation.....	100
7.5	Integration Tests.....	100
8.	Conclusions and Future Developments.....	101
	Appendix A.....	103
	Appendix B.....	116
	Appendix C.....	119