

# Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
	Fabio Paternò	
1.1	Overall View .....	1
1.2	Motivations .....	2
1.3	Objectives .....	3
1.4	Technical and Architectural Aspects .....	5
1.5	Structure of the Book .....	6
<b>2</b>	<b>State of the Art in Migration .....</b>	<b>9</b>
	Fabio Paternò, Carmen Santoro and Rasmus Olsen	
2.1	Introduction to Migration Frameworks .....	9
2.2	Support for Application Migration .....	11
2.2.1	Middleware Support for Migration .....	11
2.2.2	Network Mobility Support for Migration .....	12
2.2.3	Context Management Support for Migration .....	14
2.3	Migratory Services for Games .....	14
2.4	Advances Over the State of the Art .....	15
2.4.1	Advances in Migratory User Interfaces .....	15
2.4.2	Advances in the Migration of the Application Logic .....	18
2.4.3	Summary of Main Advances Over the State of Art .....	19
	References .....	20
<b>3</b>	<b>Migration Opportunities .....</b>	<b>25</b>
	Agnese Grasselli, Alessandro Vangelista and Stefano Bolli	
3.1	Setting the Scene .....	25
3.2	Multiscreen Ambition .....	27
3.3	Migration Platform Value Chain .....	29
	References .....	30
<b>4</b>	<b>The OPEN Migration Platform Architecture .....</b>	<b>31</b>
	Miquel Martin	
4.1	The Concept of Migration .....	31
4.2	The Advantages of the OPEN Approach .....	32

4.3	Architectural Overview of the OPEN Platform .....	33
4.4	Making Applications OPEN-Aware.....	35
4.4.1	The OPEN Adaptors .....	35
4.4.2	Client and Server Side Applications .....	36
4.4.3	Partial Migration.....	38
4.5	Platform Communication: The OPEN Dispatchers .....	38
4.5.1	Communication Models.....	40
4.6	OPEN Platform Architecture .....	40
4.7	OPEN Interfaces .....	41
4.7.1	Interface Design Philosophy.....	43
4.7.2	Ensuring Data Consistency.....	43
4.8	Conclusions.....	44
<b>5</b>	<b>User Interface Migration Based on the Use of Logical Descriptions .....</b>	<b>45</b>
	Giuseppe Ghiani, Fabio Paternò and Carmen Santoro	
5.1	Introduction.....	45
5.2	Architecture.....	47
5.2.1	OPEN Platform Integrated Orchestration.....	48
5.2.2	Stand-Alone Web Migration Orchestration .....	49
5.3	An Application Example of Total Web Migration .....	49
5.4	An Application Example of Partial Web Migration.....	50
5.5	Usability Evaluation .....	54
5.6	Technical Migration Evaluation.....	56
5.7	Considerations and Open Issues .....	57
5.8	Conclusions.....	58
	References.....	58
<b>6</b>	<b>Service Migration Network Support .....</b>	<b>61</b>
	Rasmus Olsen, Kim Højgaard-Hansen, Anders Nickelsen, Huan Cong Nguyen, Miquel Martin, Carmen Santoro, Björn Schindler and Simone Mazzei	
6.1	Network and Deployment Scenarios .....	61
6.2	Network Domain and Entities.....	61
6.3	Deployment Scenarios .....	62
6.4	Overview of the Network Support.....	63
6.5	Migration Orchestration and Orchestration Procedure.....	64
6.6	Context Management.....	66
6.7	Internal Structure, Architecture and Interaction .....	67
6.7.1	Internal Structure and Architecture.....	67
6.7.2	Interaction with the Context Management Framework .....	68
6.7.3	Adapting the Context Management Framework.....	69
6.8	Trigger Detection and Management .....	72
6.8.1	Manual Migration Triggering .....	73
6.8.2	Automatic Migration Triggering.....	74

6.8.3	Score-Based Trigger Decision Approach.....	74
6.8.4	Model-Based Trigger Decision Approach .....	78
6.9	Mobility Support.....	81
6.9.1	Requirements for Mobility Support Module .....	82
6.9.2	Terminal Mobility .....	82
6.9.3	Session Mobility .....	84
6.9.4	Architecture of Mobility Support Module .....	92
	References.....	93
<b>7</b>	<b>Dynamic Reconfiguration of Application Logic During Application Migration .....</b>	<b>95</b>
	Holger Klus, Björn Schindler and Andreas Rausch	
7.1	Introduction.....	95
7.2	The Application Logic Reconfiguration Module.....	96
7.3	ALR Application Components.....	97
7.4	Application Logic Specification and Reconfiguration.....	99
7.5	Related Work.....	104
7.6	Conclusions and Future Work.....	106
	References.....	106
<b>8</b>	<b>Design and Development of a Migratory Application Based on OPEN Migration Service Platform .....</b>	<b>109</b>
	Giancarlo Cherchi and Francesca Mureddu	
8.1	Introduction.....	109
8.2	Aspects of a Migratory Application .....	109
8.3	Guidelines for Making an Application OPEN-Compliant.....	111
8.3.1	Application Logic .....	113
8.3.2	User Interface.....	115
8.3.3	Network .....	116
8.3.4	Context .....	117
8.3.5	Policy .....	118
8.4	Perception and Awareness of the Migration Process .....	119
8.5	An Example of a Migratory Application: The Social Game.....	120
8.5.1	Scenario .....	121
8.5.2	Description.....	125
8.5.3	Aspects .....	126
8.5.4	Architecture.....	130
8.5.5	Examples of Migration .....	132
8.6	Conclusions.....	135
<b>9</b>	<b>Next-Generation Migratory Emergency Management Application ...</b>	<b>137</b>
	Kay-Uwe Schmidt, Veselina Milanova, Jörg Dörflinger and Susan Marie Thomas	
9.1	Introduction.....	137
9.2	Motivating Example .....	138

9.3	Requirements .....	139
9.4	Agile User Interfaces .....	139
9.5	Agile User Interfaces Implemented .....	141
9.6	Agile User Interfaces Evaluated .....	142
9.7	Related Work .....	146
9.8	Conclusions and Future Work.....	147
	References .....	147
<b>10</b>	<b>Integration of User Interface Migration and Application Logic Reconfiguration: An Example in the Game Domain .....</b>	<b>149</b>
	Giuseppe Ghiani, Holger Klus, Fabio Paternò, Carmen Santoro and Björn Schindler	
10.1	Introduction .....	149
10.2	Description of the PacMan Game.....	150
10.3	Migration and the Main Architecture of the PacMan Game .....	150
10.4	Application Logic Reconfiguration .....	151
10.5	User Interface Migration .....	154
10.6	State Persistence .....	157
10.7	Integration of the User Interface Migration and Application Logic Reconfiguration .....	159
10.8	Advantages of the OPEN Migration Platform.....	160
10.9	Conclusions .....	161
	References .....	161
<b>11</b>	<b>The Usability Evaluation and the Programmability Assessment of Migration .....</b>	<b>163</b>
	Agnese Grasselli, Alessandro Vangelista and Stefano Bolli	
11.1	What Does Testing a Migratory Middleware Platform Mean?.....	163
11.2	Usability.....	164
	11.2.1 The ISO Definition of Usability .....	164
11.3	Programmability .....	169
	11.3.1 Definition.....	170
	11.3.2 Programmability Assessment .....	171
	11.3.3 Programmability Validation.....	173
11.4	Conclusion About Testing Activity.....	174
	References .....	174
<b>Appendix</b>	.....	<b>177</b>
	Appendix A: System Usability Scale .....	177
	Appendix B: Product Reaction Cards .....	178
<b>Index</b>	.....	<b>179</b>



<http://www.springer.com/978-0-85729-249-0>

Migratory Interactive Applications for Ubiquitous  
Environments

Paternò, F. (Ed.)

2011, XVI, 180 p., Hardcover

ISBN: 978-0-85729-249-0