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Autonomic Networking

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Proceedings

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Preface

The autonomic communication paradigm has been defined mainly through the Autonomic Communications Forum (ACF) and particularly as follows: Autonomic communication is centered on selfware – an innovative approach to perform known and emerging tasks of a network control plane, both end-to-end and middle box communication-based. Selfware assures the capacity to evolve; however, it requires generic network instrumentation. Selfware principles and technologies borrow largely from well-established research on distributed systems, fault tolerance among others, from emerging research on non-conventional networking (multihop ad hoc, sensor, peer-to-peer, group communication, etc.), and from similar initiatives, such as Autonomic Computing of IBM, Cognitive Network of DARPA, Harmonious Computing of Hitachi, Resonant Networking of NTT, etc.

A visionary network would be able to (a) configure and re-configure itself, (b) identify its operational state and take actions to drive itself to a desired stable state and finally (c) organize the allocation and distribution of its resources. To build such a network, it is necessary to go beyond the improvement of techniques and algorithms by using a new concept, the knowledge plane. The knowledge plane is able to collect information available in the network to provide other elements of the network with services and advice and make the network perform what it is supposed to. There are many objectives to the configuration and reconfiguration of the network, from the optimization of resources to the use of best available techniques in order to offer the most appropriate service, best adapted to the terminal capabilities.

The goal of Autonomic Networking 2006 was to bring together researchers and practitioners to discuss the latest developments in this area of autonomic communications applied to networking. This development spans both the theoretical and the practical aspects of the domain.

The Autonomic Networking Conference is the first international conference on all the aspects of autonomic networking (architecture, services, tools, security, communications, etc.). This conference groups four past events: SMARTNET focused on tools for autonomy, INTELLCOMM on autonomic management and services, IWAN on active networks and WAC on autonomic communications.

We hope you will enjoy the papers and find this book a valuable addition to your library.

Dominique Gaiti
Guy Pujolle
Ehab Al-Shaer
Ken Calvert
Simon Dobson
Guy Leduc
Olli Martikainen

Table of Contents

AN'06

Autonomic Networks

Towards Autonomic Networks	1
<i>Stefan Schmid, Manolis Sifalakis, David Hutchison</i>	
A Cognitive Architecture for Personal Networks	12
<i>Yunfei Wu, Ignas Niemegeers</i>	
A Cross-Layer Architecture for Autonomic Communications	25
<i>Mohammad A. Razzaque, Simon Dobson, Paddy Nixon</i>	

Self-configuration

Self-configuration of Network Devices with Configuration Logic	36
<i>Sylvain Hallé, Éric Wenaas, Roger Villemaire, Omar Cherkaoui</i>	
Dynamic Decision Making for Candidate Access Point Selection	50
<i>Burak Simsek, Katinka Wolter, Hakan Coskun</i>	
A Multi Agent System Approach for Self Resource Regulation in IP Networks	64
<i>Gérard Nguengang, Louis Hugues, Dominique Gaiti</i>	

Autonomic Platform and Services

DoS Protection for a Pragmatic Multiservice Network Based on Programmable Networks	76
<i>Bernardo Alarcos, María Calderón, Marifeli Sedano, Juan R. Velasco</i>	
Lessons for Autonomic Services from the Design of an Anonymous DoS Protection Overlay	86
<i>David Ellis, Ian Wakeman</i>	
An Extensible and Flexible System for Network Anomaly Detection	97
<i>Thomas Gamer, Marcus Schöller, Roland Bless</i>	

Design and Implementation of a Service Provisioning Platform Using Smart Cards 109
Vincent Guyot, Nadia Boukhatem

Autonomic Management and Discovery

Autonomous Agents for Self-managed MPLS DiffServ-TE Domain 119
Rana Rahim-Amoud, Leila Merghem-Boulahia, Dominique Gaiti

An Efficient Dynamic Bandwidth Allocation Algorithm for Quality of Service Networks 132
Jocelyne Labib Elias, Fabio Martignon, Antonio Capone

Artificial Intelligence Techniques in the Dynamic Negotiation of QoS: A User Interface for the Internet New Generation 146
Zeina Jrad, Francine Krief, Lahcene Dehni, Younès Bennani

An Approach to Integrated Semantic Service Discovery 159
Shanshan Jiang, Finn Arve Aagesen

Policy-Based Management

Policy-Based Management and Context Modelling Contributions for Supporting Services in Autonomic Systems 172
Jaime Martín Serrano, Joan Serrat, John Strassner, Ray Carroll

Implicit Context-Sensitive Mobile Computing Using Semantic Policies 188
Hamid Harroud, Ahmed Karmouch

GXLA a Language for the Specification of Service Level Agreements 201
Badis Tebbani, Issam Aib

Ad Hoc, Sensor and Ambient Autonomic Networks

A Service Management Approach for Self-healing Wireless Sensor Networks 215
Helen P. Assunção, Linyer B. Ruiz, Antônio A. Loureiro

Integration of Mobile IPv6 into Mobile Ad-Hoc Network Systems 229
Kazuya Monden, Hiroki Satoh, Junji Yamamoto, Yusuke Shomura, Atsushi Shimizu, Masato Hayashi, Susumu Matsui, Satoshi Yoshizawa

AToM: Atomic Topology Management of Wireless Sensor Networks	243
<i>Song Shen, G.M.P. O'Hare, D. Marsh, D. Diamond, D. O'Kane</i>	
An Architecture for Autonomic Management of Ambient Networks	255
<i>Marcos A. Siqueira, Fabio L. Verdi, Rafael Pasquini, Mauricio F. Magalhães</i>	
Autonomic Control of Mobile Networks	
Autonomic Communications: Exploiting Advanced and Game Theoretical Techniques for RAT Selection and Protocol Reconfiguration	268
<i>Eleni Patouni, Sophie Gault, Markus Muck, Nancy Alonistioti, Konstantina Kominaki</i>	
Managing Policies for Dynamic Spectrum Access	285
<i>David Lewis, Kevin Feeney, Kevin Foley, Linda Doyle, Tim Forde, Patroklos Argyroudis, John Keeney, Declan O'Sullivan</i>	
An Intermediate Framework for Unifying and Automating Mobile Communication Systems	298
<i>Giannis Koumoutsos, K. Lampropoulos, N. Efthymiopoulos, A. Christakidis, S. Denazis, K. Thramboulidis</i>	
Author Index	315