



# **ICNS 2013**

The Ninth International Conference on Networking and Services

## **LMPCNA 2013**

The Fifth International Workshop on Learning Methodologies and Platforms used in the Cisco  
Networking Academy

March 24 - 29, 2013

Lisbon, Portugal

## **ICNS 2013 Editors**

Eugen Borcoci, University 'Politehnica' Bucharest, Romania

Steffen Fries, Siemens, Germany

Sandra Sendra Compte, Universidad Politécnica de Valencia, Spain

Mak Sharma, Birmingham City University City, UK

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2013) by International Academy, Research, and Industry Association (IARIA)  
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2013)

International Academy, Research, and Industry Association (IARIA)  
412 Derby Way  
Wilmington, DE 19810

Phone: (408) 893-6407  
Fax: (408) 527-6351

[petre@aria.org](mailto:petre@aria.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## LMPCNA: LEARNING METHODOLOGIES AND PLATFORMS USED IN THE CISCO NETWORKING ACADEMY

Automated Dynamic Topology Configuration: An Innovative Approach to Online Rack Renting .....	1
<i>V. Mudiyanselage, R. Dravid</i>	
Cisco Academy Support Center and Distance Education Course .....	8
<i>K. Islam, L. Alessandro</i>	

## ICNS 1: NETWORK CONTROL AND MANAGEMENT

Technical Points in the Implementation of the Support System for Operation and Management of DACS System .....	16
<i>K. Odagiri, N. Ishii, S. Shimizu</i>	
Infrastructure Optimization in a Transmission Network .....	22
<i>M. Mouronte</i>	
Virtual Network Topologies Adaptive to Large Traffic Changes by Reconfiguring a Small Number of Paths .....	28
<i>M. Yoshinari, Y. Ohsita, M. Murata</i>	
Comparison of Contemporary Solutions for High Speed Data Transport on WAN 10 Gbit/s Connections .....	34
<i>D. Kachan, E. Siemens, V. Shuvalov</i>	
Performance of Cloud-based P2P Game Architecture .....	44
<i>V. Clincy, B. Wilgor</i>	

## ICNS 2: MULTI-TECHNOLOGY SERVICE DEPLOYMENT AND ASSURANCE

Improving the Quality of Life of Dependent and Disabled People through Home Automation and Tele-assistance.....	47
<i>C. Costa, M. Carballa, L. Rifon, S. Rodriguez, M. Iglesias</i>	
Customized and Geolocated TV Channels about The Way of Saint James.....	53
<i>S. Rodriguez, M. Iglesias, R. Barreiros, L. Rifon, C. Costa</i>	
User and Device Adaptable Service Managing Mechanism In Ubiquitous Computing Environment .....	59
<i>J. Sung, J. Lee, J. Huh</i>	
Automated Audio-visual Dialogs over Internet to Assist Dependant People .....	63
<i>T. Simonnet, S. Hamou</i>	

## ICNS 3: NEXT GENERATION NETWORKS AND UBIQUITOUS SERVICES

Tiered Interior Gateway Routing Protocol.....	68
<i>Y. Nozaki, P. Bakshi, N. Shenoy</i>	
A Reconfiguration Trial on the Platform of Allied Information for Wireless Converged Networks.....	76
<i>J. Zeng, X. Su, Y. You, L. Liu, X. Xu</i>	
Optimization of Overlay QoS Constrained Routing and Mapping Algorithm for Virtual Content Aware Networks .....	81
<i>R. Miruta, E. Borcoci</i>	

## ICNS 4: EMERGENCY SERVICES AND DISASTER RECOVERY

Electric-Vehicle-based Ad Hoc Networking and Surveillance for Disaster Recovery: Proposal of Three-Dimensional Mobile Surveillance Using Electric Helicopters.....	87
<i>K. Mase, T. Saito</i>	
Resilience of a Network Service System: Its Definition and Measurement.....	95
<i>J. Wang, K. Furuta, W. Zhang</i>	

<b>Survey on Survivable Virtual Network Embedding Problem and Solutions.....</b>	99
<i>S. Herker, A. Khan, X. An</i>	
<b>The Impact Of Extra Traffic On The Control Channel Over The Performance Of CCA Applications .....</b>	105
<i>I. Santos, F. Mazullo, A. Soares</i>	

## **ICNS 5: EMERGING NETWORK COMMUNICATIONS AND TECHNOLOGIES I**

<b>Different Scenarios of Concatenation at Aggregate Scheduling of Multiple Nodes .....</b>	111
<i>U. Klehmet, K. Hieltscher</i>	
<b>Full Dedicated Optical Path Protection in the WDM Mesh Networks without Wavelength Conversion .....</b>	117
<i>S. Mylonakis</i>	
<b>Security Attack based on Control Packet Vulnerability in Cooperative Wireless Networks .....</b>	123
<i>K. Kim</i>	
<b>Codebook Subsampling and Rearrangement Method for Large Scale MIMO Systems .....</b>	129
<i>T. Zhang, X. Su, J. Zeng, L. Xiao, X. Xu, J. Li</i>	

## **ICNS 6: EMERGING NETWORK COMMUNICATIONS AND TECHNOLOGIES II**

<b>A Power-Aware Real-Time Routing Mechanism for Wireless Sensor Networks.....</b>	134
<i>M. Aissani, S. Bouznad, B. Djamaa, I. Tsabet</i>	
<b>Mobility-based Greedy Forwarding Mechanism for Wireless Sensor Networks .....</b>	140
<i>R. Kouah, M. Aissani, S. Moussaoui</i>	
<b>Evaluation of Data Center Network Structures Considering Routing Methods .....</b>	146
<i>Y. Shimotsuma, Y. Trutani, Y. Ohsita, M. Murata</i>	
<b>Economically Efficient Interdomain Overlay Network Based on ISP Alliance.....</b>	153
<i>X. Shao, G. Hasegawa, Y. Taniguchi, H. Nakano</i>	

## **ICNS 7: EMERGING NETWORK COMMUNICATIONS AND TECHNOLOGIES III**

<b>Evaluation of Reliable Multicast Implementations with Proposed Adaptation for Delivery of Big Data in Wide Area Networks .....</b>	160
<i>A. Bakharev, E. Siemens</i>	
<b>Optimizing Multicast Content Delivery over Novel Mobile Networks .....</b>	165
<i>T. Nguyen, C. Bonnet</i>	
<b>Wireless Sensor Actor Networks For Industry Control .....</b>	172
<i>Y. Nozaki, N. Shenoy, Q. Li</i>	
<b>An Analysis of Impact of IPv6 on QoS in LTE Networks .....</b>	179
<i>T. Zheng, D. Gu</i>	

## **ICNS 8: EMERGING NETWORK COMMUNICATIONS AND TECHNOLOGIES IV**

<b>Smart Network Selection and Packet Loss Improvement during Handover in Heterogeneous Environment .....</b>	185
<i>A. Rahil, N. Mbarek, O. Togni</i>	
<b>A High-precision Time Handling Library .....</b>	193
<i>I. Fedotova, E. Siemens, H. Hu</i>	
<b>Optimization of Server Locations in ServerMigration Service .....</b>	200
<i>Y. Fukushima, T. Yokohira, T. Murase, T. Suda</i>	
<b>SecDEv: Secure Distance Evaluation in Wireless Networks .....</b>	207
<i>G. Dini, F. Giurlanda, P. Perazzo</i>	
<b>A Hybrid Model for Network Traffic Identification Based on Association Rules and Self-Organizing Maps (SOM).....</b>	213
<i>Z. Nascimento, D. Sudok, S. Fernandes</i>	
<b>Author Index</b>	