

Table of Contents

Infinity Workshop

A Satellite Network Emulation Platform for Implementation and Testing of TCP/IP Applications	1
<i>Michele Luglio, Cesare Roseti, and Francesco Zampgnaro</i>	
GAIA Extended Research Infrastructure: Sensing, Connecting, and Processing the Real World	3
<i>Pedro Martinez-Julia, Antonio J. Jara, and Antonio F. Skarmeta</i>	
MTT CropInfra.....	5
<i>Ari Ronkainen, Frederick Teye, Markku Koistinen, Jere Kaivosoja, Liisa Pesonen, and Pasi Suomi</i>	
The IBBT w-iLab.t: A Large-Scale Generic Experimentation Facility for Heterogeneous Wireless Networks	7
<i>Stefan Bouckaert, Bart Jooris, Pieter Becue, Ingrid Moerman, and Piet Demeester</i>	
UMA Testing Facility	9
<i>Almudena Díaz Zayas, Francisco Javier Rivas, and Pedro Merino Gomez</i>	
Infrastructure Overview with Focus on Experimental Facility	11
<i>Rudolf Vohnout, Lada Altmannova, Stanislav Sima, and Pavel Skoda</i>	

Wireless

LTE Emulation over Wired Ethernet	18
<i>Roman Chertov, Joseph Kim, and Jiayu Chen</i>	
Environment-Independent Virtual Wireless Testbed	33
<i>Hiroshi Mano</i>	
FPGA-Based Wireless Link Emulator for Wireless Sensor Network	48
<i>Wei Liu, Luc Bienstman, Bart Jooris, Opher Yaron, and Ingrid Moerman</i>	
Implementation and End-to-end Throughput Evaluation of an IEEE 802.11 Compliant Version of the Enhanced-Backpressure Algorithm	64
<i>Kostas Choumas, Thanasis Korakis, Iordanis Koutsopoulos, and Leandros Tassiulas</i>	

Clouds and Networks

BonFIRE: A Multi-cloud Test Facility for Internet of Services
Experimentation 81
*Alastair C. Hume, Yahya Al-Hazmi, Bartosz Belter,
Konrad Campowsky, Luis M. Carril, Gino Carrozzo,
Vegard Engen, David García-Pérez, Jordi Jofre Ponsatí,
Roland Kübert, Yongzheng Liang, Cyril Rohr, and
Gregory Van Segbroeck*

ExoGENI: A Multi-domain Infrastructure-as-a-Service Testbed 97
*Ilia Baldine, Yufeng Xin, Anirban Mandal, Paul Ruth,
Chris Heerman, and Jeff Chase*

Experimental Demonstration of Network Virtualization and Resource
Flexibility in the COMCON Project 114
*Michael Duelli, Sebastian Meier, David Wagner, Thomas Zinner,
Matthias Schmid, Marco Hoffmann, and Wolfgang Kiess*

Measurements

A Passive Measurement System for Network Testbeds 130
*Charles Thomas, Joel Sommers, Paul Barford, Dongchan Kim,
Ananya Das, Roberto Segebre, and Mark Crovella*

Monitoring Pairwise Interactions to Discover Stable Wormholes
in Highly Unstable Networks 146
Luis C.E. Bona, Elias P. Duarte Jr., and Thiago Garrett

DNEmu: Design and Implementation of Distributed Network Emulation
for Smooth Experimentation Control 162
Hajime Tazaki and Hitoshi Asaeda

Implementation and Performance Evaluation of a New Experimental
Platform for Medium Access Control Protocols 178
*Francisco Vázquez Gallego, Jesús Alonso-Zarate, Danica Gajic,
Christian Liss, and Christos Verikoukis*

Sensor Networks

MagicLink: Weaving Multi-site Wireless Sensor Networks
for Large-Scale Experiments 194
Xinxin Liu, Li Yu, Di Wang, and Xiaolin Li

Data Filtering and Aggregation in a Localisation WSN Testbed 210
Ivo F.R. Noppen, Desislava C. Dimitrova, and Torsten Braun

A Framework for Resource Selection in Internet of Things Testbeds	224
<i>Michele Nati, Alexander Gluhak, Hamidreza Abangar, Stefan Meissner, and Rahim Tafazolli</i>	

Routing

Automated Deployment and Customization of Routing Overlays on Planetlab	240
<i>Claudio Daniel Freire, Alina Quereilhac, Thierry Turletti, and Walid Dabbous</i>	
A Real-Time Testbed for Routing Network	256
<i>Kang Yao, Weiqing Sun, Mansoor Alam, Mingzhe Xu, and Vijay Devabhaktuni</i>	
VF2x: Fast, Efficient Virtual Network Mapping for Real Testbed Workloads	271
<i>Qin Yin and Timothy Roscoe</i>	

Testbeds

How to Build a Better Testbed: Lessons from a Decade of Network Experiments on Emulab	287
<i>Fabien Hermenier and Robert Ricci</i>	
Federating Wired and Wireless Test Facilities through Emulab and OMF: The iLab.t Use Case	305
<i>Stefan Bouckaert, Pieter Becue, Brecht Vermeulen, Bart Jooris, Ingrid Moerman, and Piet Demeester</i>	
Designing a Federated Testbed as a Distributed System	321
<i>Robert Ricci, Jonathon Duerig, Leigh Stoller, Gary Wong, Srikanth Chikkulapelly, and Woojin Seok</i>	
Experimentation in Heterogeneous European Testbeds through the Onelab Facility: The Case of PlanetLab Federation with the Wireless NITOS Testbed	338
<i>Stratos Keranidis, Dimitris Giatsios, Thanasis Korakis, Iordanis Koutsopoulos, Leandros Tassioulas, Thierry Rakotoarivelo, and Thierry Parmentelat</i>	

Posters

Smart Information Network: A Testbed Architecture for Future Internet	355
<i>Xiangyang Xue, Yi Li, Xiaoyuan Lu, Xin Wang, and Lingwei Chu</i>	

Photonic Services and Their Applications 358
Josef Vojtech, Vladimir Smotlacha, Stanislav Sima, and Pavel Skoda

An Instrumentation and Measurement Architecture Supporting
Multiple Control Monitoring Frameworks 363
*Marcelo M. Pinheiro, Igor L.E. Macêdo, Igor L.O. Souza,
Thiago S. Hohlenweger, Paulo R.R. Leite, Adriano L. Spínola,
Herbert Monteiro, Raphael A. Dourado, Leobino N. Sampaio,
José A. Suruagy Monteiro, and Joberto S.B. Martins*

A Self-organized, Service-Oriented GMPLS Optical Network Testbed ... 365
Apostolis Siokis and Kyriakos Vlachos

A Framework for Multidimensional Measurements on an Experimental
WiMAX Testbed 369
Fraida Fund, Chen Dong, Thanasis Korakis, and Shivendra Panwar

FIBRE Project: Brazil and Europe Unite Forces and Testbeds
for the Internet of the Future 372
*Sebastia Sallent, Antonio Abelém, Iara Machado, Leonardo Bergesio,
Serge Fdida, Jose Rezende, Siamak Azodolmolky, Marcos Salvador,
Leandro Ciuffo, and Leandros Tassiulas*

Demos

Cross-Testbed Experimentation Using the Planetlab-NITOS
Federation 373
*Nikos Makris, Stratos Keranidis, Dimitris Giatsios,
Thanasis Korakis, Iordanis Koutsopoulos, Leandros Tassiulas,
Thierry Rakotoarivelo, and Thierry Parmentelat*

OpenFlow and P2P Integrated Testing, Project: OpenLab..... 377
Christos Tranoris and Spyros Denazis

An Integrated Chassis Manager Card Platform Featuring Multiple
Sensor Modules 379
*Giannis Kazdaridis, Stratos Keranidis, Harris Nivais,
Thanasis Korakis, Iordanis Koutsopoulos, and Leandros Tassiulas*

An Experimental Framework for Channel Sensing through USRP/GNU
Radios 383
*Virgilios Passas, Stratos Keranidis, Thanasis Korakis,
Iordanis Koutsopoulos, and Leandros Tassiulas*

Integrating FlowVisor Access Control in a Publicly Available OpenFlow
Testbed with Slicing Support 387
*Dimitris Giatsios, Kostas Choumas, Dimitris Syrivelis,
Thanasis Korakis, and Leandros Tassiulas*

A Demonstration of Video over an IEEE 802.11 Compliant Version of the Enhanced-Backpressure Algorithm	390
<i>Kostas Choumas, Thanasis Korakis, Iordanis Koutsopoulos, and Leandros Tassiulas</i>	
The QUEENS Experiment through TEFIS Platform.....	394
<i>Georgios Aristomenopoulos, Argyris Kaninis, Panagiotis Vlahopoulos, Annika Sällström, Farid Benbadis, and Symeon Papavassiliou</i>	
Integrating Sensor Measurements through CM Cards as an OMF Service	397
<i>Vasilis Maglogiannis, Dimitris Giatsios, Giannis Kazdaridis, Thanasis Korakis, Iordanis Koutsopoulos, and Leandros Tassiulas</i>	
Demonstrating an Information-Centric Network in an International Testbed.....	400
<i>George Parisis, Ben Tagger, Dirk Trossen, Dimitris Syrivelis, Paris Flegkas, Leandros Tassiulas, Charilaos Stais, Christos Tsilopoulos, and George Xylomenos</i>	
Demonstration of a Vehicle-to-Infrastructure (V2I) Communication Network Featuring Heterogeneous Sensors and Delay Tolerant Network Capabilities	403
<i>Donatos Stavropoulos, Giannis Kazdaridis, Thanasis Korakis, Dimitrios Katsaros, and Leandros Tassiulas</i>	
A Semantic Interface for OpenLab Network Measurement Infrastructures.....	406
<i>Jorge E. López de Vergara, Víctor Acero, Mario Poyato, and Javier Aracil</i>	
A Demonstration of a Relaying Selection Scheme for Maximizing a Diamond Network's Throughput	408
<i>Apostolos Apostolaras, Kostas Choumas, Ilias Syrigos, Giannis Kazdaridis, Thanasis Korakis, Iordanis Koutsopoulos, Antonios Argyriou, and Leandros Tassiulas</i>	
A Demonstration of Fast Failure Recovery in Software Defined Networking	411
<i>Sachin Sharma, Dimitri Staessens, Didier Colle, Mario Pickavet, and Piet Demeester</i>	
Controllable Packet Prioritization on PlanetLab Using NEPI	415
<i>Alina Quereilhac, Claudio Daniel Freire, Thierry Turletti, and Walid Dabbous</i>	

Testing of LTE Configurations and Applications 417
 *Francisco Javier Rivas, Almudena Díaz Zayas, and
 Pedro Merino Gomez*

TaaSOR – Testbed-as-a-Service Ontology Repository 419
 Milorad Tosic, Ivan Seskar, and Filip Jelenkovic

Enabling Sensing and Mobility on Wireless Testbeds 421
 *Harris Niavis, Giannis Kazdaridis, Thanasis Korakis, and
 Leandros Tassioulas*

Remote Control of Robots for Setting Up Mobility Scenarios during
Wireless Experiments in the IBBT w-iLab.t 425
 *Pieter Becue, Bart Jooris, Vincent Sercu, Stefan Bouckaert,
 Ingrid Moerman, and Piet Demeester*

Author Index 427