

# 5th Latin American Network Operations and Management Symposium LANOMS

# 2nd Latin American Autonomic Computing Symposium LAACS

**LNCC - Petrópolis, RJ, Brazil**

**September,  
10-12, 2007**

[www.lanoms.org/2007](http://www.lanoms.org/2007)

## **Invited Speakers:**

**John Strassner**, Motorola US

**Florian Schreiner**, Fokus Germany

**Michael Stanton**, RNP BR

**José V. Martins**, Serpro BR

Organizing:

LNCC - UFC - UFCG - UNICAMP

Sponsors:

LNCC - CAPES

Technical Co-Sponsors:

IEEE - IFIP - SBC

**September,  
12-13, 2007**

[www.dc.uel.br/laacs2007/](http://www.dc.uel.br/laacs2007/)

## **Invited Speakers:**

**Roy Sterritt**  
University of Ulster, UK

**Manish Parashar** Rutgers / The State University of New Jersey, US

Organizing:

UEL - UFMG - LNCC

Sponsors:

IBM - CNPq

Technical Co-Sponsors:

IEEE- IEEE Computer Society - SBC

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## **Local Arrangements:**

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# LANOMS-LAACS 2007 – Final Program

	September 10, 2007	September 11, 2007	September 12, 2007		September 13, 2007
09:00 - 10:30	Tutorial 1 José Vicente Martins (SERPRO)	Tutorial 2 Thomas Magendaz and Florian Schreiner (Fokus)	LAACS Welcome	Keynote Speech 2 Roy Sterritt (University of Ulster)	LAACS Technical Session 1 Chair: Carlos Westphall
10:30 - 11:00	Coffee-break	Coffee-break	Coffee-break		Coffee-break
11:00 - 12:30	Tutorial 1 José Vicente Martins (SERPRO)	Tutorial 2 Thomas Magendaz and Florian Schreiner (Fokus)	Tutorial 3 Manish Parashar (Rutgers University)		LAACS Technical Session 2 Chair: Marcelo Perazolo
12:30 - 13:30	Lunch	Lunch	Lunch		Lunch
13:30 - 15:00	LANOMS Welcome	LANOMS Invited Paper Session 2 Chair: Liane Tarouco	Tutorial 3 Manish Parashar (Rutgers University)		Demo Session Chair: Joaquim Celestino (UECE)
	Keynote Speech 1 John Strassner (Motorola)				
15:00 – 16:00	LANOMS Invited Paper Session 1 Chair: Artur Ziviani	Invited Speech Michael Stanton (RNP)	Panel: Autonomic Computing impact on Network Operations and Management Chairs: Edmundo Madeira and John Strassner		LAACS Technical Session 3 Chair: Karin Breitman
16:00 – 16:30	Coffee-break	Coffee-break	Coffee-break		Coffee-break
16:30 - 17:30	LANOMS Technical Session 1 Chair: José Marcos Nogueira	LANOMS Technical Session 2 Chair: Eduardo Grampin	LANOMS Short Papers Chair: Bruno Schulze	LAACS Short Papers Chair: Jano Souza	Recess: LAACS Organization Committee Meeting
17:30 - 18:00					LANOMS Best Paper Award and Closing
18:00 - 18:30					

# LANOMS-LAACS 2007 – Social Activities

	September 10, 2007	September 11, 2007	September 12, 2007	September 13, 2007
19:30 - 20:00		Opening (*)		
20:00 - 20:30		Welcome Cocktail (*)	Dinner (*)	
20:30 - ...				

(\*) Please check at the symposium location for more details about the LANOMS-LAACS Social Activities.

## Keynote Speeches

### Keynote Speech 1: Managing Next Generation Networks and Services Using Autonomic Principles - A Case Study Focusing on Seamless Mobility

**Presenter: John Strassner, Motorola, USA**

**Short Bio:** John Strassner is a Motorola Fellow and Vice President, where he directs Autonomic Networking and Communications at Motorola Research Labs. He is also responsible for directing policy management and knowledge engineering. Previously, John was the Chief Strategy Officer for Intelliden and a former Cisco Fellow. John invented DEN (Directory Enabled Networks) and DEN-ng as a new paradigm for managing and provisioning networks and networked applications. Currently, he is the Chairman of the Autonomic Communications Forum, the Vice-Chair of the Autonomics and Reconfigurability working group of the WWRF, and the past chair of the TMF's NGOSS metamodel, policy, and Shared Information and Data modeling work groups. He is also active in the ITU, OMG, and OASIS. He has also authored two books (Directory Enabled Networks and Policy Based Network Management), contributed chapters for three other books, and has over 150 refereed conference and journal publications. John is a TMF Distinguished Fellow, a member of the TMF Advisory Board, and a member of the Industry Advisory Board of the University of California Davis. John is also an associate professor for the Waterford Institute of Technology, Waterford, Ireland.

## Keynote Speech 2: Autonomic Computing - A Paradigm for Engineering Effective Systems

**Presenter: Roy Sterritt, University of Ulster, UK**

**Contents:** The Autonomous and Autonomic Systems initiative has as its vision the creation of self-directed and self-managing systems to address today's concerns of complexity and total cost of ownership while meeting tomorrow's needs for pervasive and ubiquitous computation and communication. This talk reports on research and development, with examples from a deployed Biometric Identification and Tracking System, utilizing the biological metaphor of the autonomic nervous system to computing and communications, in which computer-based systems self-regulate by using automatic reactions to defend, optimize and heal.

**Short Bio:** Roy Sterritt currently is a Faculty member at the University of Ulster and Researcher within the Computer Science Research Institute (CSRI) and the Centre for Software Process Technologies (CSPT). Prior to this, he spent several years with IBM at North Harbour and IBM Hursley Park, U.K., as a Software Engineer developing intelligent distributed applications to support project management, risk assessment and mobile computing. He then returned to the University of Ulster to research automated and intelligent approaches to the development and testing of fault management telecommunications systems in a series of collaborative projects with Nortel Networks. Sterritt is the author of over 130 technical papers on Artificial Intelligence, Software Engineering, and Autonomic Computing & Communications and has been active within the research community on program and organizing committees and a visiting researcher at British Telecom and NASA. He is also a Vice-Chair of the IEEE Technical Committee on Engineering of Computer Based Systems (ECBS) and Chair of the IEEE Technical Committee on Autonomous and Autonomic Systems.

For more information please visit <http://www.infoc.ulst.ac.uk/staff/r.sterritt>

## Tutorials

### Tutorial 1: Introdução ao ITIL (IT Infrastructure Library)

**Presenter: José Vicente Martins, SERPRO, Brazil**

**Contents:** Introdução/ Background; Histórico do ITIL; Benefícios do uso em Organizações de TI; Suporte a Serviços; Entrega de Serviços; A Evolução para a v3 do ITIL; ITIL v3 - Os ciclos dos Serviços; O case Serpro: Gerência de Serviços no Serpro; Estrutura adotada com o ITIL; Ferramentas utilizadas.

**Short Bio:** José Vicente Martins has been at Serpro – the Brazilian Federal Government Data Processing Service – for 22 years. He initially worked with software development and data modeling and management. For the past 13 years, he has been working at the Customs Office of the Ministry of Revenue, developing the SISCOMEX system to manage Brazilian international

commerce. Since 2001, he has been involved with CMMI efforts at Serpro and has coordinated its implantation in the Customs Office. He is currently managing the Business Process Modeling group in the Customs Office. He is certified in ITIL and has been involved in the implantation of ITIL at Serpro.

## **Tutorial 2: Operations and Business Support Systems for Next Generation Networks and the IP Multimedia System**

**Presenters: Thomas Magedanz and F. Schreiner, Fraunhofer FOKUS, Germany**

**Short Bio:** Prof. Dr. **Thomas Magedanz** (magedanz@fokus.fraunhofer.de) is professor in the electrical engineering and computer sciences faculty at the Technical University of Berlin, Germany (www.av.tu-berlin.de). In addition, he is director of the “Next Generation Network Infrastructures” division at the Fraunhofer Institute FOKUS, which also provides the national NGN platforms and applications test and development centre in Germany (www.fokus.fraunhofer.de/ngni). This testbed, covering also the famous Open IMS playground forms the basis for many R&D and industry projects performed for many international vendors and network operators. In addition, Prof. Magedanz is extraordinary professor at the universities of Pretoria and Cape Town in South Africa and the Waterford Institute for Technology in Ireland. Prof. Magedanz is senior member of the IEEE, editorial board member of several journals, and the author of more than 200 technical papers/articles. Based on his 17 years of experience in teaching complex IT and telecommunication technologies to different customer segments in an easy to digest way, he is a globally recognised technology coach.

**Short Bio: Florian Schreiner** (schreiner@fokus.fraunhofer.de) is a research graduate with Prof. Thomas Magedanz and finalising PhD on this topic at Technical University Berlin, Germany. He received his "Master of Science in electrical engineering" from the Technical University of Berlin in Germany. He has been working for the Fraunhofer Institute FOKUS for the last 5 years. His major area of expertise is applications and media for Next Generation Networks, signalling protocols in IP-based networks as well as mobility and positioning mechanisms for mobile agents. He worked in national and international research projects and is currently designing and implementing IMS based solutions for major German mobile operators. He is the author of several research papers.

## **Tutorial 3: Autonomic & Grid Computing - Concepts, Infrastructure and Applications**

**Presenters: Manish Parashar, Rutgers University, USA**

**Contents:** Emerging pervasive Grid computing environments are enabling a new generation of applications in all domains, which are based on seamless aggregation and interactions of resources, services and information. However the scale, dynamism and uncertainty of these environments and applications present significant development, configuration and management challenges. Addressing these challenges has led researchers to consider alternative programming paradigms and management techniques that are inspired by strategies used by biological systems

to deal with complexity, dynamism, heterogeneity and uncertainty. In this talk I will motivate and introduce autonomic Grid computing, highlight its challenges and opportunities and describe potential applications. I will then introduce solutions being developed at TASSL, Rutgers University as part of Project AutoMate for enabling autonomic applications on Grids.

**Short Bio: Manish Parashar** is Professor of Electrical and Computer Engineering at Rutgers University, where he also is co-director of the Center for Advanced Information Processing (CAIP) and director of the Applied Software Systems Laboratory (TASSL). He received a BE degree in Electronics and Telecommunications from Bombay University, India and MS and Ph.D. degrees in Computer Engineering from Syracuse University. He has received the Rutgers Board of Trustees Award for Excellence in Research (2004-2005), NSF CAREER Award (1999) and the Enrico Fermi Scholarship from Argonne National Laboratory (1996). His research interests include autonomic computing, parallel & distributed computing (including peer-to-peer and Grid computing), scientific computing, and software engineering. Manish is the co-founder of the IEEE International Conference on Autonomic Computing (ICAC) and is the co-editor the handbook "Autonomic Computing: Concepts, Infrastructure, and Applications" published in December 2006. He is also a member of the executive committee of the IEEE Computer Society Technical Committee on Parallel Processing (TCPP), part of the IEEE Computer Society Distinguished Visitor Program (2004-2006), and a member of ACM.

For more information please visit <<http://www.caip.rutgers.edu/~parashar/>>.

## Invited Speeches

### Invited Speech 1: Cyber-infrastructure and e-science Applications in Latin America

**Presenter:** Prof. Michael Stanton, RNP, Brazil

**Short Bio:** Michael Stanton was born and brought up in England until he was 23. After two years of postgraduate study at Johns Hopkins University in Baltimore, USA, he moved to Brazil, and resides presently in Rio de Janeiro. He holds a PhD in mathematics from Cambridge University, and from 1972 onwards has been committed to the study, teaching and practice of computing and its applications. His present passion for communications networks dates from 1986, and he played an active role in the setting up of both Bitnet and Internet connectivity in Brazil, having served as co-ordinator of the Rede-Rio (Rio de Janeiro state academic network) and as R&D co-ordinator of the RNP (National Network for Research and Education) in their formative years. After long service as a professor of the Informatics Department at the Catholic University of Rio de Janeiro (PUC-Rio), he now occupies the post of professor of computer networking at the Computing Institute of the Universidade Federal Fluminense (UFF) in Niterói. In 2001 he returned to serve the National Network for Research and Education as Director of Innovation, responsible for oversight of R&D and new networking projects.

## Invited Paper Sessions

### Invited Paper Session 1

**Chair:** Artur Ziviani, LNCC, Brazil

1. **A Test-oriented Architecture for Network Fault Management**, Ronaldo Salles, Edmundo Cecílio, Sérgio Cardoso (IME, Brazil), Adolfo Correia, Fábio Bleasby (Silicon Strategy, Brazil)
2. **Management Issues on Wireless Mesh Networks**, Jairo L. Duarte (UFF), Diego Passos (UFF), Rafael L. Valle (UFF), Etienne Oliveira (UFF), Débora Muchaluat-Saade (UFF) and Célio V. Albuquerque (UFF).

### Invited Paper Session 2

**Chair:** Liane Tarouco, UFRGS, Brazil

1. **Implementing and Deploying Network Monitoring Service Oriented Architectures**, Leobino Sampaio (Unifacs), Ivo Koga (Unifacs), Rafael Costa (Unifacs), Herbert Monteiro (Unifacs), José A. Suruagy Monteiro (Unifacs), Fausto Vetter (UFSC), Guilherme Fernandes (UFSC), Murilo Vetter (UFSC)
2. **A Management Platform for Multimedia Distribution in Country-wide Networks**, Daniel C. Uchoa (USP), Raoni Kulesza (USP), Reinaldo Matushima (USP), Samuel Kopp (USP), Graça Bressan (USP) and Regina M. Silveira (USP)
3. **The RUCA Project and Digital Inclusion**, Ricardo Campanha Carrano (UFF), Raphael Ruiz Martins (UFF), Luiz Claudio Schara Magalhães(UFF)

## Panel: Autonomic Computing impact on Network Operations and Management

**Chairs:** Edmundo Madeira and John Strassner

**Panelists:** Roy Sterritt (University of Ulster), Manish Parashar (Rutgers University), John Strassner (Motorola), additional panelists to be defined.

## LANOMS Technical Sessions

### Technical Session 1: Network Management

**Chair:** José Marcos Nogueira, UFMG, Brazil

1. **Open Source Tool for Management Network Information**, Vreixo Formoso (Universidade da Coruña), Fidel Ccheda (Universidade da Coruña), Víctor Carneiro (Universidade da Coruña), Juan Valiño (Universidade da Coruña)

2. **On Metrics to Distinguish Skype flows from HTTP traffic**, Emanuel Freire (Instituto Militar de Engenharia), Artur Ziviani (LNCC), Ronaldo Salles (Military Institute of Engineering)
3. **Using Statistical Discriminators and Cluster Analysis to P2P and Attack Traffic Monitoring**, Marcus Fabio Fontenelle do Carmo (UNIFOR), Gabriel Paulino (UNIFOR), José Everardo Bessa Maia (Universidade Estadual do Ceará), Raimir Holanda (UNIFOR), José Neuman de Souza (UFC)
4. **A PCE-based Connectivity Provisioning Management Framework**, Eduardo Grampin (Universidad de la Republica de Uruguay)

## Technical Session 2: Service, Security and Policy Management

Chair: Eduardo Grampin, Universidad de la Republica de Uruguay

1. **Team and Task Based RBAC Access Control Model**, Wei Zhou (University of Potsdam)
2. **Policy Interactions and Management of Traffic Engineering Services Based on Ontologies**, Steven Davy (TSSG, Waterford Institute of Technology), Keara Barret (WIT-TSSG), Brendan Jennings (TSSG, Waterford Institute of Technology), Jaime Martin Serrano (Universitat Politècnica de Catalunya), John Strassner (Motorola Labs)
3. **Service Level Agreement Design and Service Provisioning for Outsourced Services**, Filipe Marques (Universidade Federal de Campina Grande), Jacques Sauv e (Universidade Federal de Campina Grande), Ant o Moura (Universidade Federal de Campina Grande)
4. **The Design of a New Policy Model to Support Ontology-Driven Reasoning for Autonomic Networking**, John Strassner (Motorola Labs), Jos  Neuman de Souza (UFC), David Raymer (Motorola), Srini Samudrala (Motorola Labs, Schaumburg, IL), Steven Davy (TSSG, Waterford Institute of Technology), Keara Barrett (WIT)

## Short Paper Session

Chair: Bruno Schulze, LNCC, Brazil

1. **Towards an Autonomic Management for Service Specific Overlay Networks**, Ibrahim Aloqily (University of Ottawa), Ahmed Karmouch (University of Ottawa)
2. **Virtual Organizations: An ISO/IEC 17799-based tool for evaluating the maturity level of the organizations security practices**, Michel Kamel (Universit  Paul Sabatier - IRIT/SIERA), Romain Laborde (Institut de Recherche en Informatique de Toulouse), Abdelmalek Benzekri (Universit  Paul Sabatier), Fran ois Barrere (Institut de Recherche en Informatique de Toulouse)
3. **Evaluating a High Accuracy TCP/IP QoS Measurement Toolset**, Leandro Auler (Instituto Tecnol gico de Aeron utica), Roberto d'Amore (ITA)



4. **Towards a large-scale AS-level IP traceback system**, André Castelucio (IME - Instituto Militar de Engenharia), Ronaldo Salles (IME), Artur Ziviani (LNCC)
5. **On the Performance of Playout Delay Prediction Methods: An Empirical Evaluation**, José Aragão Júnior (Universidade Federal do Ceará), Maiquel Sampaio de Melo (Universidade Federal do Ceará), Rômulo Araújo (Universidade Federal do Ceará), Danielo Gomes (Universidade Federal do Ceará), Guilherme Barreto (Universidade Federal do Ceará), José Neuman de Souza (UFC)

## LAACS Technical Sessions

### Technical Session 1: Autonomic Networking

**Chair:** Carlos Westphall, UFSC, Brazil

1. **A Self-Management Scheme for Self-Organizing Networks: Integrating the Concepts**  
Carlos Mauricio Figueiredo, FUCAPI  
Antonio Alfredo Ferreira Loureiro, UFMG  
Linnyer Ruiz, UEL
2. **Dynamic Routing Algorithm in the Application-layer Multicast Networking**  
Wang Zhaoping, Wuhan University
3. **Combining MPLS, Computational Intelligence, and Autonomic Computing into a Self-Managing Traffic Engineering System**  
Nilton Maia, UFMG  
Luciano Errico, UFMG  
Walmir Caminhas, UFMG

### Technical Session 2: Services & Policies

**Chair:** Marcelo Perazolo, IBM Corporation, USA

1. **Self-managed services over a P2P-based Network Management Overlay**  
Clarissa Marquezan, UFRGS  
Carlos Raniery Paula dos Santos, UFRGS  
Jéferson Nobre, UFRGS  
Maria Janilce Bosquiroli Almeida, UFRGS  
Liane Tarouco, UFRGS  
Lisandro Zambenedetti Granville, UFRGS
2. **The Autonomic Balanced Scorecard**  
Jonice Oliveira, UFRJ  
Pedro Calisto, UFRJ  
José Rodrigues, UFRJ  
Jano Souza, UFRJ  
Marcelo Perazolo, IBM Corporation
3. **Personal Autonomic Desktop Manager**  
Alberto Kopiler, CEPEL

## Technical Session 3: Multi-Agent Systems

**Chair:** Karin Breitman, PUC-Rio, Brazil

1. **Towards Autonomic Fault-Tolerant Multi-Agent Systems**

Alessandro Almeida, Université de Paris  
Jean-Pierre Briot, Université de Paris & PUC-Rio  
Samir Aknine, Université de Paris  
Zahia Guessoum, Université de Paris  
Olivier Marin, Université de Paris

2. **Trust in Intelligent Agents**

Juliana Imperial, PUC-Rio  
Edward Hermann Haeusler, PUC-Rio

## Short Papers Session

**Chair:** Jano Souza, UFRJ, Brazil

1. **Using Policy-Based Framework to Support QoS Autonomic Management**

Romildo Martins, UFBA & UNIFACS  
Joberto Martins, UNIFACS

2. **Architecture for Peering Autonomic Control of Always Best Connected Networks**

Jouni Karvo, Helsinki University of Technology  
Mika Ilvesmäki (Helsinki University of Technology)

3. **Resilient Topology Discovery in Dynamic Systems Based on Self-Diagnosis**

João Gustavo Borges, UFPR  
Elias P. Duarte Jr., UFPR

4. **An Ontology for Information Security Management in Autonomic Computing Environments**

Marcelo José Almeida, Centro Federal de Educação Tecnológica  
Fred Freitas, Universidade Federal de Pernambuco  
Ryan Ribeiro de Azevedo, Universidade Federal de Pernambuco  
Guilherme Dias, Universidade Federal da Paraíba

## Demo Session

**Chair:** Joaquim Celestino, UECE, Brazil

1. **Demo 1 – IBM Autonomic Computing Tooling & Scenarios**

Marcelo Perazolo, IBM Corporation (presenter)

Summary: IBM's autonomic computing group offers many useful tools and applications to the software development community. These tools can be used to solve problems in real self-management scenarios, such as particular aspects of self-discovery, self-configuration and self-healing functions, using open standards such as WS-DM, Policies and Symptoms.

2. **Demo 2 – ManP2P - Towards an Autonomic P2P-Based Network Management Environment**

Clarissa Markezan, UFRGS (presenter)  
André Panisson, UFRGS  
Carlos Raniery Paula dos Santos, UFRGS  
Jérferson Nobre Campos, UFRGS

Lisandro Zambenedetti Granville, UFRGS

Summary: ManP2P is a network management environment based on a P2P overlay. The peers composing the overlay can provide management services, network management availability and load balancing when performing management tasks. The next step on ManP2P is the introduction of self-healing and self-configuration features.

3. **Demo 3 – Methexis – A Framework for Autonomic Knowledge Management for Manageable Resources**

Jonice Oliveira, UFRJ (presenter)

Jano Souza, UFRJ

Summary: Methexis is a Knowledge Management framework created and inspired by an e-Science scenario and then applied to the problem of managing autonomic computing knowledge associated to self-manageable resources. Its goal is to optimize the acquisition, distribution and evaluation of knowledge made available to autonomic managers.