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ASCENS

Autonomic Service-Component Ensembles

D9.1.b: Progress Report on Dissemination and Collaboration

Grant agreement number: **257414**
Funding Scheme: **FET Proactive**
Project Type: **Integrated Project**
Latest version of Annex I: **7.6.2010**

Lead contractor for deliverable: **LMU**
Author(s): **All partners (Editor: Nora Koch (LMU))**

Due date of deliverable: **September 30, 2011**
Actual submission date: **November 15, 2011**
Revision: **Final**
Classification: **PU**

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SEVENTH FRAMEWORK PROGRAMME

Executive Summary

This report describes the efforts performed in the first reporting period of the ASCENS project to achieve the dissemination, collaboration and exploitation objectives of month 1-12. These objectives are defined in the Annex I "Description of Work" of the project contract and the dissemination and exploitation strategy is described in deliverable D9.1.a.

The report includes three main sections. The first section describes the activities completed to disseminate the knowledge of the project, the second section gives an overview on collaboration platforms and activities, and the third section addresses exploitable knowledge that is produced within the scope of the ASCENS project. Finally, a table of measurable results is presented as summary.

The dissemination activities performed during this first period of the project (October 2010 to September 2011) include publication of project results on the ASCENS web site and the ASCENS blog, publications and presentations at conferences and workshops, organizations of events, teaching at courses and tutorials, distribution of software products, and the preparation of dissemination material for a wide audience, such as a poster and a magazine overview article.

The collaboration activities with other projects comprise the participation in the AWARENESS coordination action (CA) meetings, the contact to associated researchers, bilateral meetings with other projects and teaching at the AWARENESS Virtual Lecture Series (AVLS). It is noticeable that three of eight of the AVLS lectures are presented by ASCENS project members.

During the first project year ASCENS members produced 50 publications. The list of accepted and submitted publications includes articles for journals (7), conference and workshop papers (37), book contributions (4), and technical reports (1) and a short overview article to be published in the Awareness Magazine. The number of joint publications in which two or more partners were involved adds up to 8 (16%). In addition, 40 presentations not directly related to a publication were held during this reporting period. Project members organized 11 conferences and workshops and participated in the organization of two summer schools covering ASCENS relevant topics.

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1 Dissemination of Project Knowledge

To attain the goal to promote and publish the results of the ASCENS project to a wide scientific and industrial audience, in the first year the research results were disseminated through scientific publications, invited speakers' presentations, tutorials and lectures. Another dissemination activity consisted in the organization of events such as conferences, workshops and symposiums on topics related to the ASCENS research areas. The general public is informed about the project through the web site and a blog. In the following sections the different dissemination activities and results are presented in detail.

1.1 Project Identity

ASCENS presented its project identity (PI) at the kick-off meeting in Munich, Germany on October 10-11, 2010. We believe that a strong PI helps to reinforce the image of the project and supports the dissemination activities. The PI is implemented by

- a set of colors,
- a logo (see Figure 1),
- template for presentations (ppt and beamer format), and
- template for deliverables, progress reports and technical reports (laTeX and Word format).

Figure 1: ASCENS logo

1.2 ASCENS Web Site

The ASCENS web site (http://www.ascens-ist.eu) was set-up by LMU before the start of the project by October 1st, 2011. The web site contains general information as well as all non-confidential results, i.e. papers, presentations, course material, software, etc. It allows easy access to this information for researchers, interested companies, and institutions. It includes a page for each partner of the project describing the role of the partner and the researchers involved in the project as well as a link to the social network facebook. The list of associated researchers is also published on the project web site.

The ASCENS web site (shown in Figure 2) is built using a content management application (open source Joomla of Apache) and imports the publications from the Publication Management Interface application (PMI) developed by LMU. For more details on the PMI see Section 1.4.

We use an ASCENS blog (see Figure 3) to communicate the goals and the progress of the ASCENS project to the public in a way that can be understood by people who are interested in engineering ensembles, but not experts in this field. Therefore, we address the non-technical public describing easy understandable scenarios to illustrate how methods, techniques and languages developed within the scope of ASCENS will be applied in the development of autonomic service-component ensembles. Over the course of the first year we have published eight blog articles covering not only the goals of our project, but also first results.

Figure 2: ASCENS website

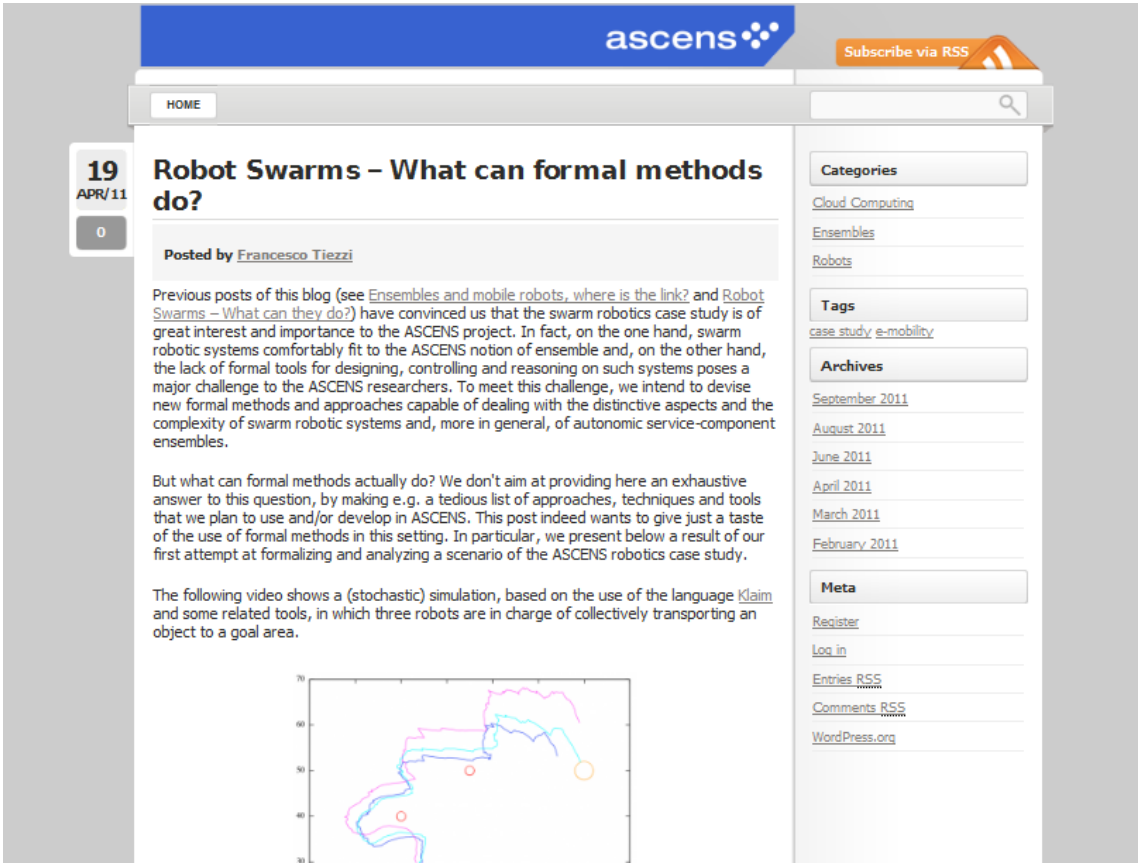

Figure 3: ASCENS blog

Regarding cross references, on the one hand the ASCENS web site provides links to many related projects grouped in categories, such as self-awareness, global computing, and swarm robotics. On the other hand, several web sites of organizations, universities, institutes and other projects as well as the homepages of many partner members include links to the ASCENS web site, e.g.

- Homepages of universities, organisations and companies
  - European Commision, ICT Research in FP7, FET Proactive
    `http://cordis.europa.eu/fp7/ict/fet-proactive/aware_en.html`
  - Ludwig-Maximilians-Universität München (LMU), Institute for Informatics, Programming and Software Engineering Unit
    `http://www.pst.ifi.lmu.de/Research/current-projects`
  - Ludwig-Maximilians-Universität München (LMU), Institute for Informatics, Communication Systems and System Programming Unit
    `http://www.nm.ifi.lmu.de/projects/ASCENS/`
  - Ludwig-Maximilians-Universität München (LMU), European Projects
    `http://www.uni-muenchen.de/forschung/forschungsfoerderung/eu_programme/7frp/koord_7frp/index.html`
  - Consiglio Nazionale delle Ricerche, Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo" *(ISTI), Formal Methods and Tools Laboratory*
    `http://www.isti.cnr.it/research/unit.php?unit=FMT&section=projects`
  - IMT Institute for advanced studies Lucca, System Modelling and Analysis research unit
    `https://sysma.lab.imtlucca.it/?page_id=15`
  - IRIDIA-CoDE laboratory, Université; Libre de Bruxelles `http://code.ulb.ac.be/iridia.home.php`
  - Lero – the Irish Software Engineering Research Centre, University of Limerick
    `http://www.lero.ie/project/ascens`
  - Universitá di Firenze, Dipartimento di Sistemi e Informatica, Concurrency and Mobility Group
    `http://gdn.dsi.unifi.it/cmg/index.php/projects/`
  - Fraunhofer FIRST, Projects
    `http://www.first.fraunhofer.de/projekte/ascens/`
  - Mobysa association
    `https://sites.google.com/site/mobsya/activites?pli=1`
  - Verimag web site
    `http://www-verimag.imag.fr/ASCENS.html`
  - EPFL MOBOTS, self-assembling robots page
    `http://mobots.epfl.ch/self-assembling-robots.html`
  - Department of Distributed and Dependable Systems, Charles University in Prague, project page
    `http://d3s.mff.cuni.cz/projects/`
- Homepages of other projects
  - AWARENESS Coordination Action
    `http://www.aware-project.eu/`

  - SAPERE project
    http://www.sapere-project.eu
  - CoCoRo Collective Cognitive Robots project
    http://cocoro.uni-graz.at/

- Homepages of ASCENS members

  - Martin Wirsing, Nora Koch, Annabelle Klarl (LMU)
    http://www.pst.ifi.lmu.de/people/staff/
  - Diego Latella and Mieke Massink (ISTI)
    http://www.isti.cnr.it/about/people.php
  - IMT members
    https://sysma.lab.imtlucca.it/?page_id=4
  - Roberto Bruni, Andrea Corradini, Gianluigi Ferrari, Fabio Gadducci, Ugo Montanari, Matteo Sammartino (UNIPI)
    http://compass2.di.unipi.it/amministrazione/persone/index.asp
  - Marco Dorigo, Mauro Birattari, Carlo Pinciroli (ULB)
    http://iridia.ulb.ac.be/~mdorigo/HomePageDorigo/projects.php, http://iridia.ulb.ac.be/~mbiro/projects.html, http://iridia.ulb.ac.be/~cpinciroli/research.php
  - Franco Zambonelli (UNIMORE)
    http://www.agentgroup.unimo.it/Zambonelli
  - Emil Vassev (Lero at UL)
    http://www.vassev.com/
  - Lucia Acciai, Michele Boreale, Michele Loreti, Rosario Pugliese (UDF)
    http://www.dsi.unifi.it/~lacciai/, http://www.dsi.unifi.it/~boreale/, http://www.dsi.unifi.it/~loreti/, http://www.dsi.unifi.it/~pugliese/
  - Jacques Combaz (Verimag)
    http://www-verimag.imag.fr/~jcombaz/
  - Jan Kofron, Petr Hnetynka (CUNI)
    http://d3s.mff.cuni.cz/~kofron/, http://d3s.mff.cuni.cz/~hnetynka/index.cgi/index/research

1.3 Press Releases

A press release was posted at the web site of the project coordinator (LMU) in order to provide general information on the start of the project to a wide audience. In addition, announcements were also done by two Italian local newspapers and the Università di Modena e Reggio Emilia. These press releases and the corresponding links are listed below.

- LMU site (October 11,2010)
  http://www.en.uni-muenchen.de/news/newsarchiv/2010/2010-ascens-wirsing.html

- UNIMORE site (November 15, 2010)
  http://www.magazine.unimore.it/index.php?option=com_content&view=article&id=526 finanziamenti-europei-per-la-ricerca-unimore&catid=91:ricerca&Itemid=346

- Modena 2000 newspaper (November 21, 2010)
  http://www.ascens-ist.eu/images/ascens/modena2000.pdf

- Giornale di Reggio Emilia newspaper (November 22, 2010)
  http://www.ascens-ist.eu/images/ascens/modena2000.pdf

An overview article on the ASCENS project was written during the first reporting year and will be published by the AWARENESS magazine in 2012 (see list of publications in Sec. 1.4).

1.4 ASCENS Publications List

During the first year of the ASCENS project 50 publications were produced. The list of publications includes articles for journals, conference and workshop papers, book contributions, and technical reports. With exception of the technical report and the overview article all these publications were peer reviewed. They have been already published or accepted for publication. More than 15% of them are joint publications, that means at least two partners were involved. The papers and articles were submitted to the best scientific journals like *Theoretical Computer Science* and *ACM Transactions on Autonomous and Adaptive Systems*, major international conferences, ranging from the more foundation-oriented like FACS, FORTE and NASA Formal Methods, to those that address more methodological and application-oriented aspects of software engineering, such as DEXA and IROS.

The list of publications below includes all those papers that were published during the first reporting period and those that were accepted for publication.

[ABN11] Lucia Acciai, Michele Boreale, and Rocco De Nicola. Linear-time and may-testing in a probabilistic reactive setting. In Roberto Bruni and Juergen Dingel, editors, *Formal Techniques for Distributed Systems*, volume 6722 of *LNCS*, pages 29–43. Springer Berlin / Heidelberg, June 2011.

[BBB+10] Ananda Basu, Saddek Bensalem, Marius Bozga, Benoît Caillaud, Benoît Delahaye, and Axel Legay. Statistical abstraction and model-checking of large heterogeneous systems. In *Formal Techniques for Distributed Systems, Joint 12th IFIP WG 6.1 International Conference, FMOODS 2010 and 30th IFIP WG 6.1 International Conference, FORTE 2010, Amsterdam, The Netherlands, June 7-9, 2010.*, volume 6117 of *LNCS*, pages 32–46. Springer, 2010.

[BBGM10] Paolo Baldan, Filippo Bonchi, Fabio Gadducci, and Giacoma Valentina Monreale. Concurrency can't be observed, asynchronously. In Kazunori Ueda, editor, *Programming Languages and Systems - 8th Asian Symposium, APLAS 2010, Shanghai, China, November 28 - December 1, 2010. Proceedings*, volume 6461 of *LNCS*, pages 424–438. Springer, 2010.

[BCDCM11] Marzia Buscemi, Mario Coppo, Mariangiola Dezani-Ciancaglini, and Ugo Montanari. Constraints for service contracts. In Roberto Bruni and Vladimiro Sassone, editors, *TGC'11*, LNCS. Springer, 2011. To appear.

[BCMZ11a] Nicola Bicocchi, Gabriella Castelli, Marco Mamei, and Franco Zambonelli. Augmenting mobile localization with activities and common sense knowledge. In *International Joint Conference on Ambient Intelligence*, LNCS, Amsterdam (NL), November 2011. Springer Verlag.

[BCMZ11b] Nicola Bicocchi, Gabriella Castelli, Marco Mamei, and Franco Zambonelli. Improving situation recognition via commonsense sensor fusion. In *1st DEXA Workshop on Information Systems for Situation Awareness and Situation Management*, Toulouse (F), September 2011. IEEE CS Press.

[BDF11a] Chiara Bodei, Viet Dung Dinh, and Gian-Luigi Ferrari. A g-local π-calculus. In *Fourth Workshop on Programming Language Approaches to Concurrency and Communication-cEntric Software, PLACES 2011*, pages 1–8, 2011.

[BDF11b] Chiara Bodei, Viet Dung Dinh, and Gian-Luigi Ferrari. Predicting global usages of resources endowed with local policies. In Mohammad Reza Mousavi and António Ravara, editors, *FOCLASA*, volume 58 of *EPTCS*, pages 49–64, 2011.

[BGL+11] Saddek Bensalem, Andreas Griesmayer, Axel Legay, Thanh-Hung Nguyen, Joseph Sifakis, and Rongjie Yan. D-finder 2: Towards efficient correctness of incremental design. In Mihaela Gheorghiu Bobaru, Klaus Havelund, Gerard J. Holzmann, and Rajeev Joshi, editors, *NASA Formal Methods - Third International Symposium, NFM 2011, Pasadena, CA, USA, April 18-20, 2011. Proceedings*, volume 6617 of *LNCS*, pages 453–458. Springer, 2011.

[BHW10] Sebastian S. Bauer, Rolf Hennicker, and Martin Wirsing. Building a modal interface theory for concurrency and data. In Till Mossakowski, editor, *Proceedings of WADT 2010, 20th International Workshop on Algebraic Development Techniques*, LNCS. Springer Verlag, 2010. To appear.

[BHW11] Sebastian S. Bauer, Rolf Hennicker, and Martin Wirsing. Interface theories for concurrency and data. *Theoretical Computer Science*, 412(28):3101–3121, 2011. Festschrift in Honour of Jan Bergstra.

[BKK11] Marianne Busch, Alexander Knapp, and Nora Koch. Modeling Secure Navigation in Web Information Systems. In Janis Grabis and Marite Kirikova, editors, *10th International Conference on Business Perspectives in Informatics Research*, LNBIP. Springer Verlag, 2011.

[BL11] Roberto Bruni and Alberto Lluch-Lafuente. Evaluating the performance of model transformation styles in maude. In *Proceedings of FACS 2011, 8th International Workshop on Formal Aspects of Component Software*, LNCS, page 18 pages. Springer, 2011. To appear.

[BLL+11] Sebastian S. Bauer, Kim G. Larsen, Axel Legay, Ulrik Nyman, and Andrzej Wasowski. A modal specification theory for components with data. In Farhad Arbab and Peter Csaba Ölveczky, editors, *Proceedings of FACS 2011, 8th International Symposium on Formal Aspects of Component Software*, LNCS. Springer Verlag, 2011. To appear.

[BLM11] Roberto Bruni, Alberto Lluch Lafuente, and Ugo Montanari. On structured model-driven transformations. *International Journal of Software and Informatics*, 5(1-2):185–206, 2011.

[BML11] Sebastian S. Bauer, Philip Mayer, and Axel Legay. MIO Workbench: A Tool for Compositional Design with Modal Input/Output Interfaces. In Tevfik Bultan and Pao-Ann Hsiung, editors, *Proceedings of ATVA 2011, 9th International Symposium on Automated Technology for Verification and Analysis*, LNCS. Springer Verlag, 2011. To appear.

[BMM11] Roberto Bruni, Hernán Melgratti, and Ugo Montanari. A connector algebra for p/t nets interactions. In J.-P. Katoen and B. Koenig, editors, *Proceedings of CONCUR 2011, 22nd International Conference on Concurrency Theory*, volume 6901 of *LNCS*, pages 312–326. Springer, 2011.

[BMZ12a] Nicola Bicocchi, Marco Mamei, and Franco Zambonelli. In-network aggregation of high-level sensorial knowledge for environment-aware services and ensembles. In Misra Bijan, editor, *Computational Intelligence in Sensor Networks*. Springer Verlag, Berlin (D), 2012.

[BMZ12b] Nicola Bicocchi, Marco Mamei, and Franco Zambonelli. Towards self-organizing virtual macro sensors. *ACM Transactions on Autonomous and Adaptive Systems*, 2012.

[BNL11] Marco Bernardo, Rocco De Nicola, and Michele Loreti. Uniform labeled transition systems for nondeterministic, probabilistic, and stochastic process calculi. In Luca Aceto and Mohammad Reza Mousavi, editors, *Proceedings First International Workshop on Process Algebra and Coordination*, volume 60 of *Electronic Proceedings in Theoretical Computer Science*, pages 66–75, July 2011.

[BPP11a] Michele Boreale, Francesca Pampaloni, and Michela Paolini. Asymptotic information leakage under one-try attacks. In Martin Hofmann, editor, *Foundations of Software Science and Computational Structures*, volume 6604 of *LNCS*, pages 396–410. Springer Berlin / Heidelberg, March 2011.

[BPP11b] Michele Boreale, Francesca Pampaloni, and Michela Paolini. Quantitative information flow, with a view. In Vijay Atluri and Claudia Diaz, editors, *Computer Security - ESORICS 2011*, volume 6879 of *LNCS*, pages 588–606. Springer Berlin / Heidelberg, 2011.

[CPCA11] Nicola Capodieci, Giuliano Andrea Pagani, Giacomo Cabri, and Marco Aiello. Smart meter-aware domestic energy trading agents. In *Proceedings of the First International E-Energy Market Challenge (IEEMC 2011) at the 8th International Conference on Autonomic Computing*, Karlsruhe (D), June 2011. ACM Press.

[CPZ11] Giacomo Cabri, Mariachiara Puviani, and Franco Zambonelli. Towards a taxonomy of adaptive agent-based collaboration patterns for autonomic service ensembles. In *2011 International Conference on Collaboration Technologies and Systems*, pages 508–515, Philadelphia (PA), May 2011. IEEE Press.

[DFM11] Pierpaolo Degano, Gian-Luigi Ferrari, and Gianluca Mezzetti. On quantitative security policies. In *11th International Conference on Parallel Computing Technologies*, LNCS, 2011. To appear.

[DLLM11] Rocco De Nicola, Diego Latella, Michele Loreti, and Mieke Massink. State to function labelled transition systems: a uniform framework for defining stochastic process calculi. Technical Report ISTI-2011-TR-012, CNR - ISTI, May 2011. Submitted for journal publication.

[FJN+11] Yliès Falcone, Mohamad Jaber, Thanh Hung Nguyen, Marius Bozga, and Saddek Bensalem. Runtime verification of component-based systems. In *SEFM*, 2011.

[GBC+11] Roberto Guanciale, Roberto Bruni, Andrea Corradini, Gianluigi Ferrari, Tito Flagella, and Giorgio Spagnolo. Applying process analysis to the italian egovernment enterprise architecture. In *Proceedings of WS-FM 2011, 8th International Workshop on Web Services and Formal Methods*, LNCS. Springer, 2011. To appear.

[GBL+11] Andreas Griesmayer, Saddek Bensalem, Axel Legay, Thanh-Hung Nguyen, and Doron Peled. Efficient deadlock detection for concurrent systems. In *MEMOCODE*, 2011.

[GLLV10] Fabio Gadducci, Alberto Lluch-Lafuente, and Andrea Vandin. Counterpart semantics for a second-order *micro;*-calculus. In Hartmut Ehrig, Arend Rensink, Grzegorz Rozenberg, and Andy Schürr, editors, *Graph Transformations - 5th International Conference, ICGT 2010, Enschede, The Netherlands, September 27 - - October 2, 2010. Proceedings*, volume 6372 of *LNCS*, pages 282–297. Springer, 2010.

[GM11] Fabio Gadducci and Giacoma Valentina Monreale. A decentralised graphical implementation of mobile ambients. *Journal of Logic and Algebr. Program.*, 80(2):113–136, 2011.

[HW11] Matthias Hölzl and Martin Wirsing. Towards a system model for ensembles. In Gul Agha, Olivier Danvy, and José Meseguer, editors, *Festschrift in honor of Carolyn Talcott*, LNCS. Springer, 2011. To appear.

[LV11] Alberto Lluch Lafuente and Andrea Vandin. Towards a maude tool for model checking temporal graph properties. In Fabio Gadducci and Leonardo Mariani, editors, *Proceedings of the 10th International Workshop on Graph Transformation and Visual Modelling Languages (GT-VMT'11)*. ECEAAST, 2011. To appear.

[MLB+11] Mieke Massink, Diego Latella, Andrea Bracciali, Michael Harrison, and Jane Hillston. Scalable context-dependent analysis of emergency egress models. *Formal Aspects of Computing. The International Journal of Formal Methods*, July 2011. Springer On Line First pubblication. Paper version to appear.

[MLBH11] Mieke Massink, Diego Latella, Andrea Bracciali, and Jane Hillston. Modelling non-linear crowd dynamics in bio-pepa. In Dimitra Giannakopoulou and Fernando Orejas, editors, *Fundamental Approaches to Software Engineering (FASE 2011)*, volume 6603 of *LNCS*, pages 96–110. Springer-Verlag, May 2011.

[MPT11] Massimiliano Masi, Rosario Pugliese, and Francesco Tiezzi. A standard-driven communication protocol for disconnected clinics in rural areas. In George Demiris and Kendall Ho, editors, *Proc. of HEALTHCOM 2011*, pages 308–315. IEEE, 2011.

[NAT11] Rocco De Nicola, Margheri Andrea, and Francesco Tiezzi. Orchestrating tuple-based languages. In Roberto Bruni and Vladimiro Sassone, editors, *Proc. of TGC*. Springer, 2011.

[PTO+11] Carlo Pinciroli, Vito Trianni, Rehan O'Grady, Giovanni Pini, Arne Brutschy, Manuele Brambilla, Nithin Mathews, Eliseo Ferrante, Gianni Di Caro, Frederick Ducatelle, Timothy Stirling, Alvaro Gutierrez, Luca Maria Gambardella, and Marco Dorigo. Argos: a modular, multi-engine simulator for heterogeneous swarm robotics. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2011)*. IEEE Press, Piscataway, NJ, September 2011.

[SFT+11] Alessandro Stranieri, Eliseo Ferrante, Ali Emre Turgut, Vito Trianni, Carlo Pinciroli, Mauro Birattari, and Marco Dorigo. Self-organized flocking with a heterogeneous mobile robot swarm. In *Advances in Artificial Life, ECAL 2011*, pages 789–796. MIT press, Cambridge, MA, August 2011.

[Vas11a] Emil Vassev. Knowledge representation for autonomous systems – the "ascens" case study [organic computing - design of self-organizing systems (dagstuhl seminar 11181)]. *Dagstuhl Reports*, 1(5):16–17, May 2011.

[Vas11b] Emil Vassev. Knowledge representation for intelligent systems. In Phillip A. Laplante, editor, *Encyclopedia of Software Engineering*. Taylor & Francis, 2011.

[vEJ11] Christian von Essen and Barbara Jobstmann. Synthesizing systems with optimal average-case behavior for ratio objectives. In *International Workshop on Interactions, Games and Protocols (iWIGP)*, pages 17–32, 2011.

[VH11a] Emil Vassev and Mike Hinchey. Knowledge representation and awareness in autonomic service-component ensembles – state of the art. In *14th IEEE International Symposium on Object/Component/Service-oriented Real-time Distributed Computing*, pages 110–119. IEEE Computer Society, March 2011.

[VH11b] Emil Vassev and Mike Hinchey. Knowledge representation and reasoning for intelligent software systems. *IEEE Computer*, 44(8):96–99, August 2011.

[VH11c] Emil Vassev and Mike Hinchey. Representing knowledge in robotic systems with knowlang. In *Proceedings of the 1st International ISoLA Workshop on Software Aspects of Robotic Systems*, Communications in Computer and Information Science. Springer Verlag, Heidelberg, October 2011.

[VH11d] Emil Vassev and Mike Hinchey. Towards a formal language for knowledge representation in autonomic service-component ensembles. In *Proceedings of the 3rd International Conference on Data Mining and Intelligent Information Technology Applications (ICMIA2011)*. AICIT, IEEE Xplore, October 2011.

[VHGN11] Emil Vassev, Mike Hinchey, Benoit Gaudin, and Patrick Nixon. Requirements and initial model for knowlang – a language for knowledge representation in autonomic service-component ensembles. In *C3S2E 2011: The Fourth International C* Conference on Computer Science & Software Engineering*, pages 35–42. ACM, 2011.

[WHKK11] Martin Wirsing, Matthias Hölzl, Annabelle Klarl, and Nora Koch. Engineering autonomic ensembles, 2011. Awareness Magazine.

[ZBC+11] Franco Zambonelli, Nicola Bicocchi, Giacomo Cabri, Letizia Leonardi, and Mariachiara Puviani. On self-adaptation, self-expression, and self-awareness in autonomic service component ensembles. In *2011 International Conference on Self-Adaptive and Self-Organizing Systems Workshops*, Ann Arbor (MC), October 2011. IEEE CS Press.

[ZH11] Gefei Zhang and Matthias Hölzl. Aspect-oriented modeling of web applications with hila. In Andreas Harth and Nora Koch, editors, *Current Trends in Web Engineering - 11th International Conference on Web Engineering, ICWE 2011 Workshops*, LNCS, Paphos, Cyprus, June 2011. Springer.

Publications Management System

Publications are managed in ASCENS by a web application called PMI (Publications Management Interface). The PMI has been developed by the LMU for a user friendly management of publications providing a user interface for input and search of publications as shown in Figure 4. It supports the CRUD operations, provides a set of Rich Internet Application (RIA) features, such as validation on the fly, and is implemented in Ruby on Rails. The PMI provides simple and advanced search facilities and generation of different types of publications lists, such as ordered by year, by author, and by type of publication.

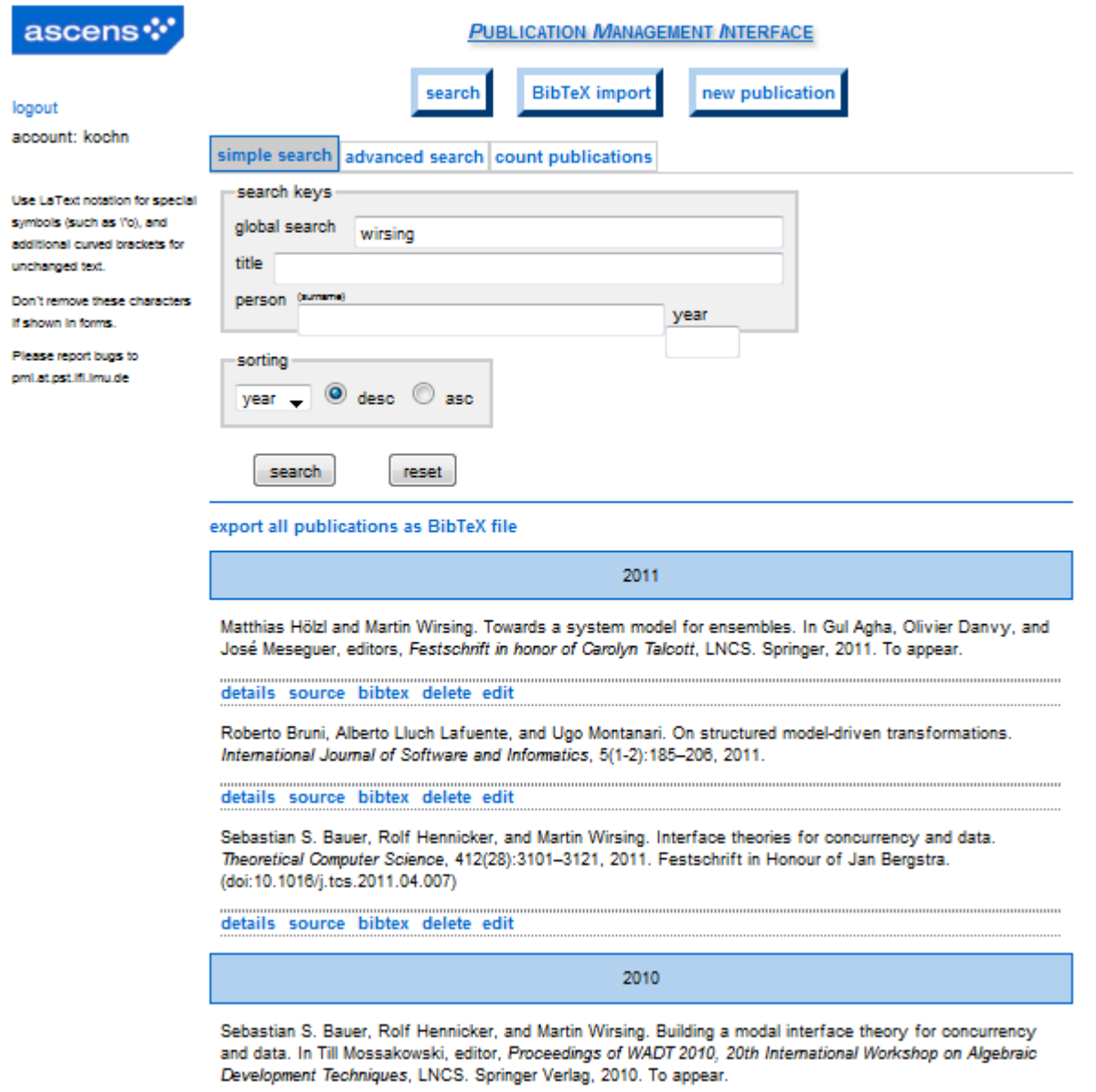

Figure 4: Publication Management Interface

1.5 Presentations

The project members have presented ASCENS results at many events. The following list includes 36 presentations that comprise tutorials, invited and keynote talks held during months 1 – 12 of the project and four presentations planned for the beginning of the next reporting period. The table does not include – in order to avoid repetitions – presentations performed at conferences and workshops directly related to accepted papers listed in the previous section.

No.	Type of activities	Presenter	Title	Date	Place	Type of audience	Size	Countries
1	Invited Talk	Joseph Sifakis (Verimag)	Component-based Construction of Heterogeneous Real-time Systems in BIP	22.11.2010	ETH, Zurich, Switzerland	University	–	Italy
2	Seminar	Franco Zambonelli (UNI-MORE)	Research Trends in Autonomic Computing and Communication.	16.12.2010	Faculty of Engineering Enzo Ferrari, Modena (Italy)	Master and PhD. students, Faculty	30	Italy
3	Invited Talk	Rocco De Nicola (IMT)	A Uniform Framework for Modeling Processes Behaviors and their Performances	04.02.2011	ICE'11 & PACO'11 at Reykjavik, Iceland	Workshop	40	all
4	Tutorial	Diego Latella (CNR-ISTI)	A Uniform Framework for the Definition of (Stochastic) Process Languages (Part I)	04.02.2011	MT-Lab Seminars, Lyngby (Copenhagen), DK	Faculty and PhD. students	20	all
5	Talk	Nora Koch (LMU)	Integration of Methodologies and Tools	09.02.2011	NESSoS Plenary Meeting, Madrid, Spain	NESSoS partners	40	all
6	Tutorial	Diego Latella (CNR-ISTI)	A Uniform Framework for the Definition of (Stochastic) Process Languages (Part II)	11.02.2011	MT-Lab Seminars,Lyngby (Copenhagen), DK	Faculty and PhD. students	20	all

No.	Type of activities	Presenter	Title	Date	Place	Type of audience	Size	Countries
7	Invited Talk	Ugo Montanari (UNIPI)	Logica e Modelli di Calcolo: Due Facce della Stessa Medaglia (in Italian)	17.02.2011	Fano, Info-Incontri Informatica, Dalla Logica Computazionale all' Intelligenza Artificiale	Series of Seminars	80	all
8	Invited Talk	Mieke Massink (CNR-ISTI)	A Process Algebraic Fluid Flow Model of Emergency Egress.	18.02.2011	MT-Lab Seminars, Lyngby (Copenhagen, DK)	Faculty and PhD. students	20	all
9	Invited Talk	Mieke Massink (CNR-ISTI)	Modelling Crowd Dynamics in Bio-PEPA.	25.02.2011	MT-Lab Seminars, Lyngby (Copenhagen, DK)	Faculty and PhD. students	20	all
10	Invited Talk	Mieke Massink (CNR-ISTI)	A formal fluid-flow approach to agent based models.	11.03.2011	Model Based & Formal Verification Techniques, Pisa (Italy)	Faculty and PhD. students	40	Italy
11	Invited Talk	Nikola Serbedzija (FhG)	This Pervasive Day Exhibtion	19.04.2011	Science Festival, Edinbourgh 19 April, 2011	Exhibition	40	UK
12	Invited Talk	Lucia Acciai (UDF)	Spatial and Behavioural types: safety, liveness and decidability.	20.04.2011	Faculdade de Ciencias e Tecnologia, Universidade Nova de Lisboa (Portugal)	Workshop	40	all
13	Seminar	Emil Vassev (UL)	Knowledge Representation for Autonomous Systems: The ASCENS Case Study.	02.05.2011	Organic Computing & Design of Self-Organizing Systems (Dagstuhl Seminar 11181)	Workshop	40	all
14	Invited Talk	Ugo Montanari (UNIPI)	Ensambles Autonomici	05.05.2011	Pisa, Aula Magna Facoltá di Scienze	Internet Festival	40	all

No.	Type of activities	Presenter	Title	Date	Place	Type of audience	Size	Countries
15	Invited Talk	Nikola Serbedzija (FhG)	Heaven and Hell: Visions for Pervasive Adaptation	05.05.2011	FET'11, Budapest, HU	Special session	30	Hungary
16	Invited Talk	Michele Loreti (DSIUF)	A Uniform Framework for Process Models and Behavioral Equivalences of Nondeterministic, Probabilistic, or Stochastic Nature	24.05.2011	Quantitative Modelling and Formal Analysis, Lucca (Italy)	Workshop	20	all
17	Invited Talk	Mieke Massink (CNR-ISTI)	Modelling Non-linear Crowd Dynamics in Bio-PEPA.	24.05.2011	Quantitative Modelling and Formal Analysis, Lucca (Italy)	Faculty and PhD. students	20	all
18	Invited Talk	Michele Boreale (UDF)	A survey on Quantitative Information Flow.	24.05.2011	Quantitative Modelling and Formal Analysis, Lucca (Italy)	Faculty and PhD. students	20	all
19	Invited Talk	Stephan Reiter (LMU)	The ASCENS Science Cloud.	25.05.2011	Working Group: Grid, Leibniz Supercomputing Centre	Staff and PhD. students	10	all
20	Invited Talk	Nikola Serbedzija (FhG)	Reflective Computing	30.05.2011	Véhicules et transports intelligents et communicants, Telecom ParisTech	Workshop	80	France
21	Seminar	Franco Zambonelli (UNI-MORE)	The SAPERE and the ASCENS Projects.	31.05.2011	Faculty of Engineering Reggio Emilia, Reggio Emilia (Italy)	Master and PhD. students	20	Italy

No.	Type of activities	Presenter	Title	Date	Place	Type of audience	Size	Countries
22	Invited Talk	Joseph Sifakis (Verimag)	Embedded Systems Design – Challenges and Work Directions	01.05.2011	IMT Institute for Advanced Studies, Lucca, Italy	University	–	Italy
23	Invited Talk	Ugo Montanari (UNIPI)	Un'Algebra di Connettori Per le Reti di Petri (in Italian)	22.06.2011	Universitá di Milano		100	all
24	Invited Talk	Ugo Montanari (UNIPI)	Connector Algebras And Petri Nets	30.06.2011	Siberian Academy of Sciences, Akademgorodok, Novosibirsk	PSI'11, Ershov Informatics Conference	80	all
25	Workshop	Annabelle Klarl (LMU)	Hands-on Robots: Simulation with ARGoS	10.07.2011	PST Hut Seminar, Bayrischzell (Germany)	Faculty and PhD. students	15	Germany
26	Workshop	Martin Wirsing (LMU)	Towards a System Model for Ensembles.	12.07.2011	PST Hut Seminar, Bayrischzell (Germany)	Faculty and PhD. students	15	Germany
27	Invited talk	Michele Boreale (UDF)	Quantitative Information Flow, with a View	21.07.2011	Trinity College, Dublin (Ireland)	Faculty and PhD. students	15	Europe
28	Invited Talk	Bernd Werther (VW)	E-Mobility as a Challenge for New ICT Solutions in the Car Industry	09.09.2011	Trustworthy Global Computing, Aachen, Germany	Symposium	50	international
29	Invited Talk	Henry Bensler (VW)	Volkswagen und Elektromobilität	09.09.2011	Elektromobilität von morgen, Aachen, Germany	Symposium	60	national
30	Invited Talk	Matthias Hölzl (LMU)	Adaptation and Awareness in Ensembles	09.09.2011	Trustworthy Global Computing, Aachen, Germany	Symposium	50	international

No.	Type of activities	Presenter	Title	Date	Place	Type of audience	Size	Countries
31	Colloquium	Martin Wirsing (LMU)	Adaptation and Awareness in Ensembles.	12.09.2011	IMDEA Software, Madrid (Spain)	Faculty and PhD. students	20	Spain
32	Invited Talk	Michele Loreti (DSIUF)	Uniform Labeled Transition Systems for Nondeterministic, Probabilistic, and Stochastic Process Calculi	19.09.2011	PASTA'11, Ragusa (Italy)	Workshop	20	all
33	Invited Talk	Mieke Massink (CNR-ISTI)	Fluid Analysis of Foraging Ants.	19.09.2011	PASTA'11, Ragusa (Italy)	Faculty and PhD. students	20	all
34	Invited Talk	Matthias Hölzl (LMU)	Research Challenges for Ensembles	21.09.2011	AWARENESS Steering Committee, Amsterdam	Symposium	20	international
35	Invited Talk	Alberto Lluch Lafuente (IMT))	A Conceptual Framework for Behavioural Adaptation	22.09.2011	Department of Computer Science, University of Leicester	Seminar	20	all
36	Talk	Carlo Pinciroli (ULB)	The ARGoS simulator	30.09.2011	IROS2011, San Francisco, CA	IROS2011	–	USA
37	Keynote talk	Joseph Sifakis (Verimag)	Rigorous System Design	03.10.2011	VLSI-SoC Conference, Hong Kong, China	Conference	–	international
38	Invited Talk	Matthias Hölzl (LMU)	Adaptation and Awareness in Ensembles	04.10.2011	Formal Methods for Components and Objects, Turin, Italy	Conference	30	international

No.	Type of activities	Presenter	Title	Date	Place	Type of audience	Size	Countries
39	Tutorial	Joseph Sifakis (Verimag)	Rigorous System Design in BIP	09.10.2011	Tutorial on Time-Predictable and Composable Architectures for Dependable Embedded Systems in Esweek, Taipeih, Taiwan	Conference	–	international
40	Invited Talk	Ugo Montanari (UNIPI)	Models and Languages for Service Component Ensembles	18.11.2011	Departamento de Computación, Buenos Aires	Seminar	40	all

1.6 Organization of Events

ASCENS members participated in the organization of eleven conferences and workshops in different roles, such as chairs of the event, Program Committee (PC) or Steering Committee (SC) members.

The list presented below is limited to events in which ASCENS partners participated actively in the roles of PC chairs, SC members or organizers. Events that contained ASCENS partners only in the role of PC members are not included, as this would lead to an unduly long table with hundreds of entries. In addition to the event name, the type and size of the audience is provided as additional information. All the events addressed participants of all countries.

An increasing number of international conferences welcome the organization of satellite events that focus on aspects that are more specific than the topics of the conference, as a means to maximize interaction between participants and to give visibility to emerging areas with clear impact on science and technology. ASCENS members seized this opportunity by collocating some of the workshops organized with major conferences, such as GT-VMT at ETAPS 2011 and ICE at DisCoTec'11.

1.6.1 Conferences

- Joint 13th IFIP International Conference on Formal Methods for Open Object-based Distributed Systems and 31th IFIP International Conference on FORmal TEchniques for Networked and Distributed Systems (FMOODS-FORTE 2011), 6 – 9 June 2011, Faculty and Ph.D. Students (40).
- 9th International Conference on Integrated Formal Methods, 18 – 22 June 2012, Faculty and Ph.D. Students (100).
- 20th European Conference on Artificial Life (ECAL), 8 – 12 August 2011, Faculty and Ph.D. Students (500).
- 4th Conference on Algebra and Coalgebra in Computer Science (CALCO 2011), 30 August – 2 September, 2011, Faculty and Ph.D. Students (70).
- 6th International Symposium on Trustworthy Global Computing (TGC 2011), 9 – 10 September 2011, Faculty and Ph.D. Students (30).

1.6.2 Workshops

- Ninth Workshop on Quantitative Aspects of Programming Languages (QAPL 2011), April 1-3, 2011, Saarbrücken (Germany), International (30).
- 10th International Workshop on Graph Transformation and Visual Modelling Techniques (GT-VMT 2011), April 2 – 3, 2011, Faculty and Ph.D. Students (40).
- 7th International Workshop on Automated Specification and Verification of Web Systems (WWV 2011), June 9, 2011, Reykjavik (Iceland), International (15).
- 4th Interaction and Concurrency Experience (ICE 2011), 9 June 2011, Faculty and Ph.D. Students (25).
- Third Annual Meeting and Workshop of the Models and Logics for Quantitative Analysis ERCIM WG (MLQA 2011), 5 September, 2011, Aachen (Germany), International (30).
- Workshop on Foundations and Applications of Component-based Design (WFCD in ESWeek), 24 October 2010, Scottsdale (Arizona, USA), University and Industry (39).

1.7 Summer Schools

ASCENS members actively participated in the organization of the Artist Summer School Europe 2011 and in the preparation of the AWARENESS Virtual Lectures Series.

- Artist Summer School Europe 2011, 4 – 9 September 2011, Aix-les-Bains (France), University and Ph.D. Students (87).
- Awareness Virtual Lecture Series (AVLS), 14 October – 9 December, 2011
  http://www.aware-project.eu/lectures/index.html including the following lectures of ASCENS members:
  - SCEL: Service Component Ensemble Language - Rosario Pugliese (October 28, 2011)
  - Self-aware Pervasive Service Ecosystems - Franco Zambonelli (November 11, 2011)
  - Adaptation and Awareness in Robot Ensembles - Matthias Hölzl (November 25, 2011)

1.8 Courses

During the first reporting year, mainly in the spring half term, the academia partners have been teaching ASCENS-related topics in several courses. The list below includes 17 graduate and postgraduate courses and tutorials. It provides name of the courses, type and size of the audiences (if available), location, members responsible for the course and the acronym of the partner.

- Modellierung dynamischer und adaptiver Systeme, Autumn 2010-2011, Ludwig-Maximilians-Universität München, Munich, master and diploma students (10), LMU, Martin Wirsing and Wolfgang Hesse.
- Models of Computation, Spring 2011, University of Pisa, graduate students (50), University of Pisa, Ugo Montanari.
- Semantica e Teoria dei Tipi (in Italian), Spring 2011, University of Pisa and Scuola Normale, Pisa, graduate and PhD students (10), University of Pisa, Ugo Montanari.
- Elements of Computability Theory, Spring 2011, IMT, Lucca, PhD students (10), University of Pisa, Ugo Montanari.
- Concurrency Models, Spring 2011, IMT, Lucca, PhD students (10), University of Pisa, Ugo Montanari.
- Formal Methods for Security Policies and Protocols, University of Pisa, master students (15), UNIPI, Fabio Gadducci.
- Methods for the specification and verification of business processes, Spring 2011, UNIPI, master students (23), UNIPI, Roberto Bruni.
- Formal Methods for Concurrent System, Spring 2011, IMT Lucca, PhD students (7), UNIPI and IMT, Roberto Bruni and Rocco De Nicola.
- Probabilistic and Stochastic Methods in Process Algebras, Spring 2011, IMT Lucca, IMT, Rocco De Nicola.
- Software Verification Methods, Spring 2011, University of Pisa, master students (5), UNIPI, Andrea Corradini and Gianluigi Ferrari.

- Techniques for System Verification and Evaluation, 2010-2011, Universitá di Firenze, Italy, undergraduate students (10), ISTI, Mieke Massink.
- Swarm Intelligence INFO-H-414, Spring 2011, Université Libre de Bruxelles, Belgium, IRIDIA-ULB, Marco Dorigo, Mauro Birattari, Carlo Pinciroli
- Software and Service Engineering, Spring 2011, Universitá di Modena e Reggio Emilia; Italy, UNIMORE, Franco Zambonelli.
- Formal Methods for Specification and Validation, Phd students, IMT Lucca, UNIPI, Gianluigi Ferrari.
- Methods for the specification and verification of business processes, Autumn 2011, UNIPI, master students (20), UNIPI, Roberto Bruni.
- Distributed systems and computer networks, Autumn 2010, University of Florence, master students (10), UDF, Rosario Pugliese and Francesco Tiezzi.
- Simulation with ARGoS, Spring 2011, Ludwig-Maximilians-Universität München, Munich, students and PhD students (7), LMU, Annabelle Klarl.

1.9 Distribution of Software Products

Within the scope of ASCENS, first prototypes were built or existing software tools developed in previous projects were improved during the first year of the project. The objective is the construction of demonstrators of the technologies that have been developed by the members of the ASCENS consortium. The final aim is to integrate these software tools in the Service Development Environment (SDE), which provides a tool integration platform enabling this way the combined use of tools, i.e. the construction of so-called tool chains.

The software products built or adapted so far comprise a tool for stochastic analysis (SAM), a robot simulator (ARGoS), a cloud management software (ZEC) and a tool integration platform (SDE). The next sections provide more details on these software products.

1.9.1 SAM: Stochastic Analyser for Mobility

- Acronym: SAM
- Description: SAM is a command-line tool, developed in OCaML, that supports the stochastic analysis of StoKlaim specifications. StoKlaim is the stochastic extension of Klaim, an experimental language that is aimed at modeling and programming mobile code applications. Properties of Klaim systems can be specified by means of MoSL (Mobile Stochastic Logic). SAM provides an environment for interactive execution of StoKlaim specifications. When a specification is executed, a user can select interactively possible computations. Moreover, a simulator is also available for randomly generating possible computations and reporting the average amount of resources available in the system at specified time. Finally, SAM permits verifying whether a given StoKlaim specification satisfies a MoSL formula or not. This module can either be used on a (standard) numerical model-checking or on a statistical model-checking algorithm. The latter relies on a randomized algorithm that infers the probability to satisfy a given formula after a set of independent observations.
- URL: `http://rap.dsi.unifi.it/SAM/`

- Partner: UDF
- Contact: Michele Loreti (michele.loreti@unifi.it)
- License: GPL

1.9.2 ARGoS: Autonomous Robots Go Swarming

- Acronym: ARGoS
- Description: ARGoS is a software designed to make it easier to prototype robot control code for large heterogeneous swarms of robots. ARGoS can simulate the physics of thousands of robots of different kinds in real time. This high level of scalability is achieved through a number of innovative design choices. First, in ARGoS it is possible to assign different portions of the environment to different physics engines running in parallel. Second, robot sensors and actuators can be simulated at different levels of accuracy. In this way, users can allocate computational resources to the sensible aspects of the simulation. Third, the architecture of ARGoS is very flexible, because most of the components users that users typically want to customize are implemented as plug-ins: controllers, sensors, actuators, physics engines, visualizations and simulated entities. In particular, simulated entities can be composed into more complex ones, allowing users to add easily new robot and object types.
- URL: `http://iridia.ulb.ac.be/argos`
- Partner: ULB
- Contact: Carlo Pinciroli (cpinciro@ulb.ac.be)
- License: GPL

1.9.3 Zimory Enterprise Cloud

- Acronym: ZEC
- Description: Zimory Enterprise Cloud is Zimory's product for IaaS Clouds. It is the base for the Science Cloud scenario and will be used by the ensembles to access the infrastructure layer. It provides a web based front-end and a RESTful API to be used within the PaaS solution. Currently is installed at LMU and will be installed soon at IMT Lucca. New installations are open to any partner under request.
- URL: `http://www.zimory.com`
- Partner: Zimory
- Contact: Jose Velasco (jose.velasco@zimory.com)

1.9.4 Service Development Environment

- Akronym: SDE
- Description: The main aim of the Service Development Environment is to provide a service-oriented platform for (development) tool integration. On this platform,
  - tools are services, and provide arbitrary functionality

  - tools can be used as-is, or combined using orchestration mechanisms
  - tools can be published and discovered

  By integrating them into the Service Development Environment, individual development tools become available to a broader user range and in a larger context, and are thus more usable by developers. In the view of the Service Development Environment, tools each consist of functions, which can be invoked in the tool with or without User Interface (UI). The UI is not necessarily tied to a specific function, but can also be provided in a cross-function way. Tools are easy to write, add, and remove. Accessing remote or legacy applications is possible.

  To enable composition, tools are intended to provide an Application Programming Interface (API) allowing tool orchestration with arbitrary (contributed) orchestration languages.

  The Development Environment can be used for integrating all kinds of development utilities, regardless of platform or programming language.

- URL: `http://svn.pst.ifi.lmu.de/trac/sde`
- Partner: LMU
- Mailing list: sde@maillist.ifi.lmu.de.
- Contact: Stephan Reiter (reiter@nm.ifi.lmu.de)

1.10 Poster

The objective of a poster is to present key information at a glance. The ASCENS overview poster shown in Figure 5 contains the key information of the project as name of the project, URL of the website, list of partners, objectives and case studies. It includes a graphical representation of the ASCENS approach and the main research areas.

1.11 Use of Other Dissemination Channels

The ASCENS project uses a variety of additional and non-traditional channels for the dissemination of project key information and project results, such as presence in social networks, presentations on monitors at the university hall, internal reports at the partners' organizations or local events.

- **Social Networks**. ASCENS has created a Facebook page that provides general information about the project, a discussion forum for interaction with interested Facebook users, and a platform for content sharing with the public, e.g. graphics and videos illustrating and explaining the progress we make. The Facebook page is also integrated with the ASCENS blog, providing users with another way of commenting on our articles and discussing them. Lastly, Facebook is a means of improving cooperation and communication among project members by further connecting them.
- **Internet Festival, Pisa, May 5-8 2011:** In 2011 Italy celebrates the 150th Anniversary of Italian unification. The programme of national celebrations includes a calendar of initiatives throughout the Italian territory, particularly in the cities that played a key role in the unity process, including Pisa. Pisa has been selected to represent the excellence of Italy in computer science. The Computer Science course at University of Pisa was the first one in the area to be activated in the whole Italy, during the 1960s. While information technologies are changing the changing the ways we understand and construct the world, by providing new ways of sensing, communicating

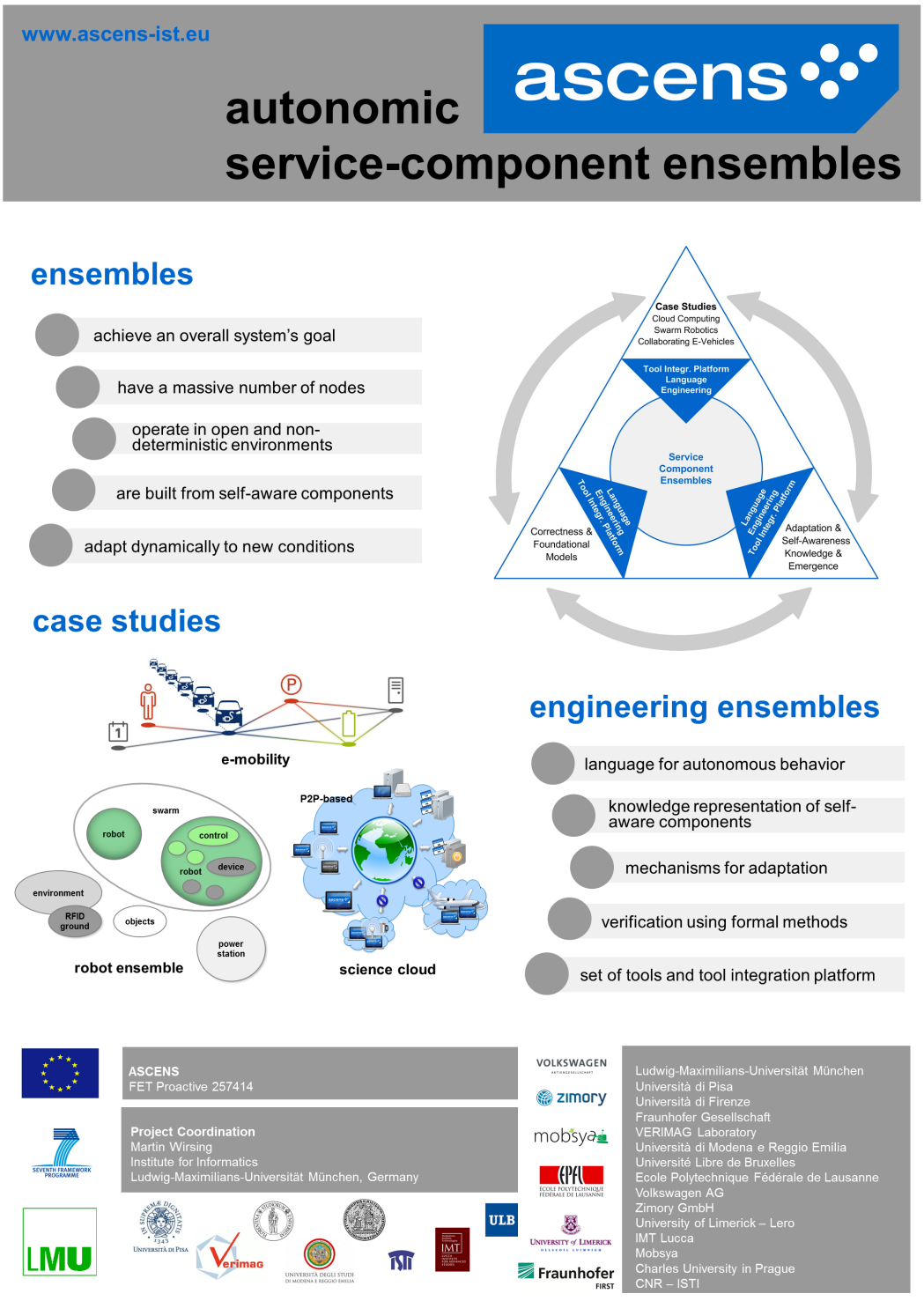

Figure 5: ASCENS poster

and analyzing data, remains largely unknown to the general audience. Hence, on the occasion of the celebration of the 150th Anniversary of Italy Unification, the Pisa University, the Italian National Research Institute, Scuola Superiore Sant'Anna and Scuola Normale Superiore have organized a conference devoted to the dissemination of research results in computer science. Detailed description of the event is available at `http://2011.internetfestival.it/`. ASCENS contacts: Gianluigi Ferrari (UNIPI), Scientific Chair of Internet Festival 2011. (Ugo Montanari (UNIPI) gave a Lecture on Autonomic Ensables. Fabio Gadducci (UNIPI) presented a video on History of Computing).

- **LMU Monitors, Munich, June 2011**. ASCENS key data were published on monitors distributed through public accessible areas of the LMU building.

- **Fraunhofer Annual Report 2011, September 2011.** An overview on ASCENS is included in the Annual Report
`http://www.first.fraunhofer.de/uploads/tx_wfproject/Jahresbericht_2010_Projekt_ASCENS_03.pdf` (in German).

2 Collaboration Platforms and Activities

The collaboration task includes the creation of communication mechanisms and infrastructure at project level and inter-project activities under the umbrella of the proactive initiative's associated Coordination Action AWARENESS. The communication mechanisms within the project are the basis for the creation of collaboration possibilities with other projects, academia and industry in general.

These communication mechanisms comprise mailing lists, an internal collaboration platform (ASCENS wiki), social networks and a set of associated researchers. In particular, the activities within the scope of the coordination action AWARENESS are very promising.

2.1 Coordination Action AWARENESS

Members of the ASCENS project have been actively involved in the following activities organized by the coordination action AWARENESS or activities in which AWARENESS projects were involved.

- AWARENESS Inaugural Meeting in Amsterdam, The Netherlands on December 14–15, 2010. Presentation of the ASCENS project.

- Bilateral meeting of the coordinators of both AWARENSS projects ASCENS and SYMBRION in Munich on February 15, 2011.

- AWARENESS Advisory Board Meeting in Amsterdam, The Netherlands on September 22–23, 2011. Presentation on "Research Challenges for Ensembles " (see Sect. 1.5).

- Preparation of the AWARENESS Virtual Lecture Series (http://www.aware-project.eu/lectures/) (see Sect. 1.7).

2.2 Associated Researchers

ASCENS invited selected researchers of the relevant communities to become an associated researcher to the project and to keep contact during the duration of the project. Associated researchers were invited to ASCENS meetings and informed by email (twice a year) on the project progress. In particular,

Heinz Schmidt, Mario Coppo and Marianguola Dezani used these facilities to participate in the project kick-off and general meeting in Grenoble.

The following is the list of the current associated researchers to the ASCENS project.

- Heinz Schmidt (University of Melbourne)
- Alexander Knapp (University of Augsburg)
- Anders Lyhne Christensen (Inst. Telecom. of Lisbon)
- Hernán Melgratti (University of Buenos Aires)
- Carla Ferreira (Universidade Nova de Lisboa)
- Paolo Baldan (University of Padova)
- Barbara Koenig (University of Duisburg-Essen)
- Gefei Zhang (Bertelsmann IT, Munich)
- Tobias Heindel (University of Paris XIII)
- Mariangiola Dezani (University of Torino)
- Mario Coppo (University of Torino)
- Stefano Bistarelli (University of Perugia)
- Emilio Tuosto (University of Leicester)
- Massimo Bartoletti (University of Cagliari)
- Vincenzo Ciancia (ILLC Asmsterdam)
- Filippo Bonchi (Ecole Normale Sup Lyon)

2.3 Contacts to Industry and other Projects

ASCENS partners got in contact with industry, members of other national and European projects; in particular to those related to the AWARENESS coordination action. The most relevant projects, which focus on topics related to the ASCENS research areas, and industrial contacts are listed below. The ASCENS members who are responsible for the contact are included in each item of the list.

- Industry, Intecs Sistemi S.p.A., ISTI, Mieke Massink, Diego Latella
- Symbrion EU Project, Sergej Kernbach, Universität Stuttgart, Martin Wirsing, Matthias Hölzl, Nora Koch (LMU)
- SAPERE EU Project, Franco Zambonelli (UNIMORE)
- COST EU Action Towards Autonomic Road Transport Support Systems, Lee McCluskey, University of Huddersfield, Franco Zambonelli (UNIMORE)
- RUPOS (funded by Regione Toscana, Italy), Partners: Link.it and Hyperborea, ASCENS contacts: Roberto Bruni, Andrea Corradini and Gianluigi Ferrari (UNIPI)

- SisteR (funded by Italian Ministry for the University), Partners: University of Padua, University of Udine, ASCENS contacts: Andrea Corradini, Fabio Gadducci and Valentina Monreale (UNIPI)
- IPODS (funded by Italian Ministry for the University), Partners: University of Turin, University of Bologna, University Ca Foscari of Venice, ASCENS contacts: Roberto Bruni and Ugo Montanari (UNIPI)
- TESLA – Techniques for Enforcing Security in Languages and Applications (funded by Regione Sardegna, Italy), Partners: University of Cagliari, University Ca Foscari of Venice, ASCENS contact: Gianluigi Ferrari (UNIPI)
- Member of Scientific Advisory Board of FP7 FET Integrated Project HATS (Highly Adaptable and Trustworthy Software using Formal Methods), ASCENS contact: Ugo Montanari (UNIPI)
- Member of Scientific Advisory Board of ICT-2007.8.6, FET Proactive 6, ICT Forever Yours project CONNECT, Emergent Connectors for Eternal Software Intensive Networked Systems, ASCENS contact: Ugo Montanari (UNIPI)
- Pro3D of FP7 (Programming for Future 3D Architecture with Many Cores) ASCENS contact: Jacques Combaz (Verimag)
- NESSoS of FP7 (`http://www.nessos-project.eu/`) Fabio Martinelli, CNR, ASCENS contact: Nora Koch (LMU)

3 Summary

This section presents the ASCENS project results summarizing them in the following table.

Measurement Category	Subcategory	Results Year 1
Partners	Universities	10
	Research organizations	3
	Companies	2
Countries		7
Participants	Researchers	68
	Associated researchers	16
Publications	Book contributions	4
	Articles in journals	7
	Papers in conferences and workshops	37
	Technical reports	1
	Overview online publication	1
	Joint publications	8
Presentations and tutorials		40
Summer schools	participation in organization of	2
Courses		17
Conferences and workshops	organized by project members	11
Software	CASE tool	1
	Model checker	1
	Tools supporting case studies	2

Table 2: ASCENS in numbers