

**WELCOME  
TO**



The 2<sup>nd</sup> IFIP WG6.3, WG6.6  
Workshop on Autonomic Communication  
<http://www.autonomic-communication.org/wac>  
October 3-5, 2005, Athens, Greece  
(The Margi Hotel, Vouliagmeni, Athens)

Organized by FP6 project ACCA

Sponsored by

International Federation for Information Processing  
TC Communication Systems (WG6.3 and WG6.6)

International Society for Information Sciences

**The 2<sup>nd</sup> IFIP  
Workshop on  
Autonomic Communication**

<b>General workshop Chair:</b> I. Stavrakakis, U Athens, Greece	C. Diot, INTEL, UK S. Denazis, Hitachi, France S. Dobson, UCD, Ireland C. Douligeris, U Piraeus, Greece H. Einsiedler, DTAG, Germany S. Fildis, UPMC, France M. Gerla, UCLA, USA E. Gregori, IT-CNR, Italy I. Chiamiac, Create-Net, Italy	D. Hutchison, U Lancaster, UK G. Karlsson, KTH, Sweden O. Koufopavlou, U Patras, Greece G. Leduc, ULG, Belgium D. Lewis, TCD, Ireland I. Maltis, U Boston, USA M. Mulvorna, U Ulster, UK B. Plattner, ETHZ, Switzerland G. Polyzos, AUEB, Greece G. Pujolle, UPMC, France	S. P. Romano, U Napoli, Italy C. Santivanez, BBN, USA I. Schierföderer, TUB, Germany F. Sestini, European Commission V. Siris, FORTH, Greece O. Spaniol, U Aachen, Germany C. Tschudin, Uni Basel, Switzerland J. Vicente, Intel, USA L. Wolf, U Braunschweig, Germany L. Yamamoto, U Basel, Switzerland
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## WAC 2005 Program

- 2.5 full days
- 22 peer-reviewed papers organized in 7 sessions
- 1 keynote talk
- 3 invited talks
- 2 panels
- 3 lunches and 1 dinner



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9:00 - 9:15	<b>Welcome</b> Ioannis Stavrakakis (University of Athens, Greece) Michael Smirnov (Fraunhofer-FOKUS, Germany)
9:15 - 10:15	<b>Keynote Talk: "Algorithmic Aspects of Sensor Networks"</b> Speaker: Paul Spirakis (University of Patras, Greece)
10:15 - 10:35	<i>Coffee break</i>
10:35 - 12:15	<b>Autonomic Session 1</b> Session chair: Enrico Gregori (CNR-IIT, Italy)  Pocket Switched Networking: Challenges, Feasibility, and Implementation Issues <i>Pan Hui (Cambridge University, United Kingdom), Augustin Chaintreau, Richard Gas, James Scott (Intel Research, United Kingdom), John Crowcroft (Cambridge University, United Kingdom), Christophe Diot (Intel Research, United Kingdom)</i>  Experiments on the Automatic Evolution of Protocols using Genetic Programming <i>Lidia Yamamoto, Christian Tschudin (University of Basel, Switzerland)</i>  Service Evolution in Nomadic Wireless Environment <i>Iacopo Carveras, Francesco De Pellegrini, Daniele Miorandi, Hagen Woessner (CREATE-NET, Italy)</i>  User Cooperation and Search in Intelligent Networks <i>Erol Gelenbe (Imperial College London, United Kingdom)</i>
12:15 - 14:00	<i>Lunch break</i>
14:00 - 15:00	<b>Invited Talk: "Opportunistic Spectrum Access for Wireless Ad Hoc Networks: Research Challenges"</b> Speaker: Cesar Santivanez (BBN Technologies, USA)
15:00 - 15:20	<i>Coffee break</i>
15:20 - 16:20	<b>Autonomic Session 2</b> Session chair: Cesar Santivanez (BBN Technologies, USA)  Autonomic Wireless Network Management <i>Kai Zimmermann, Sebastian Felix, Stefan Schmid, Lars Eggert, Marcus Brunner (NEC Europe, Germany)</i>  Context Driven Self-Configuration of Mobile Ad-Hoc Networks <i>Apostolos Malatras, George Pavlou (University of Surrey, United Kingdom)</i>  Autonomous Self-deployment of Wireless Access Networks in an Airport Environment <i>Holger Claussen (Lucent Technologies, United Kingdom)</i>
16:20 - 17:45	<b>Panel 1: Autonomicity vs. Complexity</b> Panel Organizer / Moderator: Paul Spirakis (University of Patras, Greece) Panellists: Radu Popescu-Zeletin (Fraunhofer-FOKUS), Cesar Santivanez (BBN Technologies), David Lewis (Trinity College Dublin), Tom Pfeifer (Waterford Institute of Technology), Stefan Schmid (NEC), Michael Smirnov (Fraunhofer-FOKUS)



9:15 - 10:30	<b>Autonomic Session 3</b> Session chair: Serge Fdida (University Pierre et Marie Curie, France)  Knowledge Networks: the Nervous System of an Autonomic Communication Infrastructure <i>Maurice Mulverna (University of Ulster, United Kingdom), Franco Zambonelli (Universita di Modena e Reggio Emilia, Italy), Kevin Curran (University of Ulster, United Kingdom), Chris Nugent (University of Ulster, United Kingdom)</i>  Towards a Reliable, Wide-Area Infrastructure for Context Based Self-Management of Communications <i>Graeme Stevenson, Paddy Nixon, Simon Dobson (University College Dublin, Ireland)</i>  Semantic Interoperability for an Autonomic Knowledge Delivery Service <i>David Lewis, Declan O'Sullivan, Ruaidhri Power, John Keeney (Trinity College Dublin, Ireland)</i>
10:30 - 10:50	<i>Coffee break</i>
10:50 - 11:50	<b>Autonomic Session 4</b> Session chair: Guy Pujolle (University Pierre et Marie Curie, France)  Autonomic Communication Security in Sensor Networks <i>Tassos Dimitriou, Ioannis Krontiris (Athens Information Technology, Greece)</i>  Trust Management Issues for Ad Hoc and Self-organized Networks <i>Vassileios Tsetos, Giannis Marias, Sarantis Paskalis (University of Athens, Greece)</i>  Multipath Routing Protocol for Mobile Ad-hoc Networks: Security Issues and Performance Evaluation <i>Rosa Mavropodi, Christos Douligeris (University of Patras, Greece)</i>
11:50 - 12:50	<b>Autonomic Session 5</b> Session chair: David Lewis (Trinity College Dublin, Ireland)  Autonomous Network Equipments <i>Dominique Gatti (University of Troyes, France), Guy Pujolle (University Pierre et Marie Curie, France), Mikael Salam (France Telecom, France), Hubert Zimmermann (Gnko-Networks, France)</i>  Towards Self-Optimizing Protocol Stack for Autonomic Communication: Initial Experience <i>Xiaoyuan Gu (Technische Universität Braunschweig, Germany), Xiaoming Fu (Universität Göttingen, Germany), Hannes Tschofeleis (Siemens AG, Germany), Lars Wolf (Technische Universität Braunschweig, Germany)</i>  Towards Service Awareness and Autonomic Features in a SIP-enabled Network <i>Giuseppe Valetto, Laurent Walter Goix, Guillaume Delaire (Telecom Italia Lab, Italy)</i>
12:50 - 14:30	<i>Lunch break</i>
14:30 - 15:30	<b>Invited Talk: "Incentive Schemes in Memory-less P2P Systems"</b> Speaker: Costas Courcoubetis (Athens University of Economics and Business, Greece)
15:30 - 15:50	<i>Coffee break</i>
15:50 - 16:50	<b>Autonomic Session 6</b> Session chair: Andreas Pitsillides (University of Cyprus, Cyprus)  Integration of Decentralized Economic Models for Resource Self-Management in Application Layer Networks <i>Pablo Chacin, Felix Freitag, Leandro Navarro, Isaac Chao, Oscar Ardaiz (Polytechnic University of Catalonia, Spain)</i>  Service Discovery and Provision for Autonomic Mobile Computing <i>George C. Polyzos, Christopher N. Ververidis, Elias C. Efstathiou (Athens University of Economics and Business, Greece)</i>  Context Dissemination for Autonomic Communication Systems <i>Nadeem Akhtar, Klaus Moessner, Ralf Kernchen (University of Surrey, United Kingdom)</i>
20:00	<i>Dinner</i>



Wednesday, October 5, 2005

9:30 - 10:30	<b>Invited Talk: "Coordination and Resilience in Ad Hoc and Sensor Networks"</b> Speaker: Leandros Tassioulas (University of Thessaly, Greece)
10:30 - 11:30	<b>Autonomic Session 7</b> Session chair: Stavros Toumpis (University of Cyprus, Cyprus) On Natural Mobility Models <i>Vincent Borrel, Marcelo Dias de Amorim, Serge Fdida (University Pierre et Marie Curie, France)</i> Nomadic Wireless Sensor Networks for Autonomic Pervasive Environments <i>Jacopo Carreras, Antonio Francescon (CREATE-NET, Italy), Enrico Gregori (CNR-IT, Italy)</i> Adaptive Scheduling in Wireless Sensor Networks <i>A.G. Ruzzelli, M.J. O'Grady, G.M.P. O'Hare, R. Tynan (University College Dublin, Ireland)</i>
11:30 - 11:50	Coffee break
11:50 - 13:30	<b>Panel 2: Autonomic Communications Roadmap</b> Panel Organizer / Moderator: Michael Smirnov (Fraunhofer-FOKUS, Germany) Panel Talk 1: "Situating and Autonomic Communications in FET", Fabrizio Sestini (FET - European Commission) Panel Talk 2: "Management of Reconfigurability", Nancy Alonistioti (University of Athens, Greece) Panellists: Serge Fdida (UPMC), Lidia Yamamoto (U Basel), Spyros Denazis (U Patras, Hitachi SAL), Simon Dobson (UC Dublin), Ioannis Stavrakakis (U Athens), James Scott (Intel, UK), David Lewis (TC Dublin), Jaouhar Ayadi (CSEM)
13:30 - 13:45	<b>Closing Session</b>
13:45	Closing Lunch

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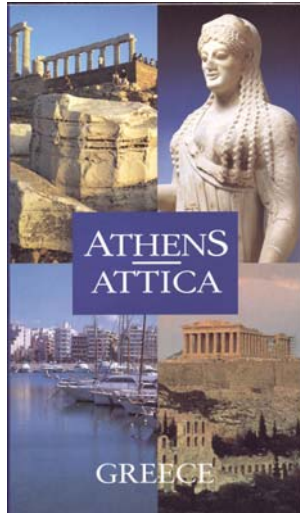
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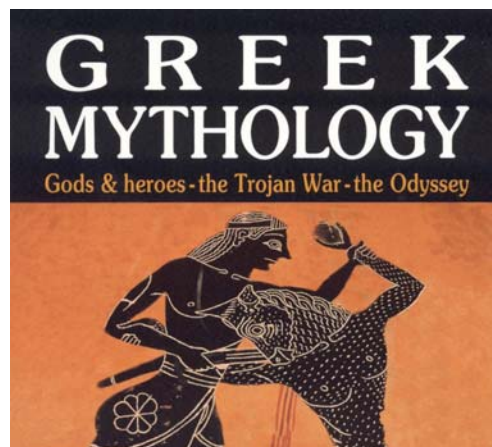
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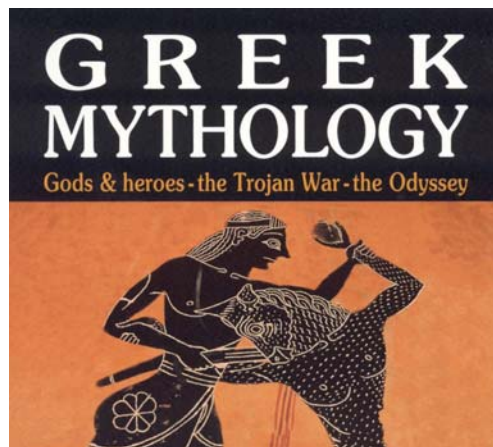
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(1)

## Mythology and Autonomic Communication ?!

(1) Published by EKDOTIKE ATHENON S.A., Athens, Greece



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Ioannis Stavrakakis, WAC2005, Oct 3, 2005, Athens, Greece 9

Lets consider  
the history and the outlook of  
Autonomic Communication (AC)



the history



**First,** the research community had to make a case for this research area

COSMOGONY

*Fate, the constant supporter of Zeus in the Battle of the Giants, fights against a monstrous Giant. (Altar of Zeus from Pergamon, northern frieze, c. 180 BC).*

## The battle of the Giants



**Then,** the EU had to adopt this area

COSMOGONY

## The battle of the Titans

*The Titan Themis, daughter of Uranus and Ge. (Statue of Themis)*

**T**he children of Cronus, as soon as they emerged into the light, were filled with admiration for their noble brother Zeus and immediately sided with him against their unjust father. In the war which followed, all the deities,




the benefits to the economy and health had to be clear

**GODS**

## Demeter, patron of farming

*In this rite of the Mysteries, the two great goddesses of Eleusis are shown. On the left is Demeter, wearing a grave expression, with a scepter in her left hand and ears of wheat in her right. These she is giving to Triptolemas, so that he can spread their cultivation throughout the world. Persephone is on the right: she too perhaps holds ears of wheat in one hand, while in the other she has a burning torch. (Relief, 440 - 430 BC)*




**T**his very ancient goddess of fertility was the protectress of work in the fields and was worshipped chiefly by countryfolk. The Modern Greek word for cereals (demetria-

*Demeter. From the northern frieze of the Parthenon.*

**GODS**

## Asclepius, god of medicine



Overall, AC should give great things to humankind

**COSMOGONY**

## Prometheus, the benefactor of mankind

*Part of a composition showing the creation of the human race. Athena breathes life into newly-formed man, who is held by Prometheus, who has fashioned him. On the pedestal, man stands in a state of dejection. (Sarcophagus, c. 270 AD).*





# the outlook



**AC** : A new world in communications  
is about to be created

## COSMOGONY

## COSMOGONY COSMOGONY



*I*n the beginning ... was the myth! In prehistoric times, man found himself at a loss before the magnitude of the universe, unable to comprehend the world and interpret natural phenomena by the power of reasoning. The vital

Helios (the :  
Eos (Dav



# We will need to come up with good ideas

GODS

## Athena, goddess of wisdom

Athena with a Doric peplos, helmet, and spear looks thoughtfully at a column which stands in front of her (Relief of the 'Mourning Athena', c. 460 BC).



# Some of us will solve some big problems

THE HEROES

THE HEROES

The gods were not the only protagonists in the Greek myths: there were also certain exceptional mortals, gifted with beauty and intelligence, with courage and magnanimity - in other words, the heroes. The heroes were those who rid the world of monsters, wiped out bloodthirsty robbers, and redressed in-

HEROES

Labours of Heracles in the Peloponnese -1

In accordance with the instructions of the oracle, Heracles had to carry out the orders of Eurypylus



Heracles and the Centaurs

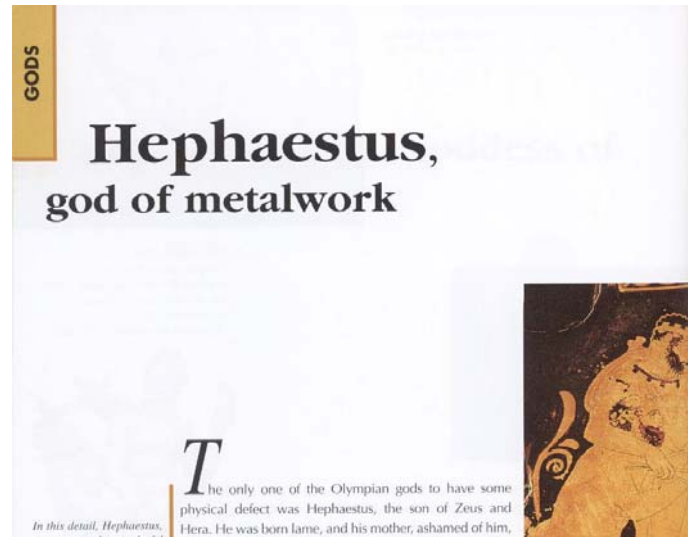
On his way to capture the Erymanthian boar, Heracles met with the Centaur Pholus, who invited him to his cave and provided him with food. However, Pholus opened a jar of wine which he brought to all the Centaurs, and its aroma attracted his companions, who began to gather in an ugly mood. A battle followed in which Heracles slew many of the Centaurs with his personal arrows. Pholus, out of curiosity, drew one of his arrows from a wound in the body of one of the dead, but it slipped from his hand

to the lake at Lerna. The hero, the son of Iphicles, emerged, the hero, its heads, one by one of each head which this crucial moment

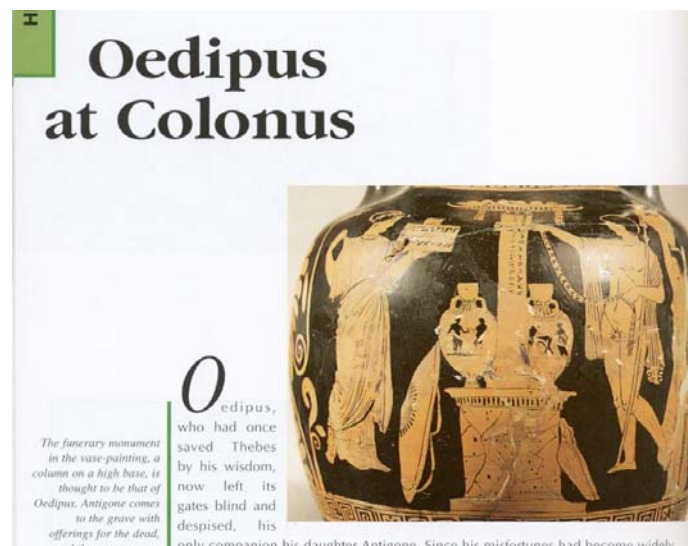
HEROES

Theseus and the Minotaur

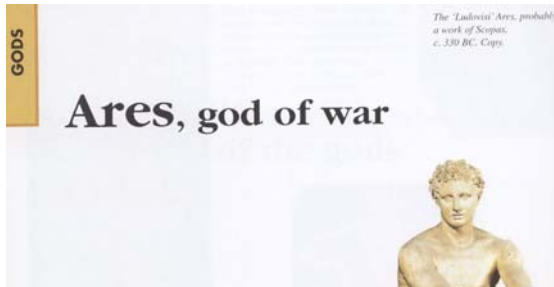
and certainly the work has to be  
real and be tested



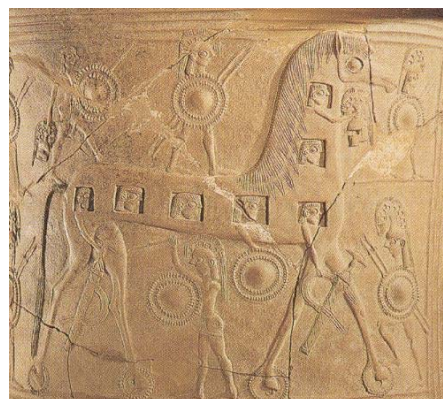
we will face some unfortunate times  
and tragedies



We should be prepared to fight  
for funding and scientific dominance




Should not be caught by surprise by any  
war machinery



Sometimes difficulties will almost take us under

GODS

## Gods of the Underworld




**T**he absolute ruler of the Underworld was Pluto or Hades, like Zeus and Poseidon, a

But there would also be some good times

GODS

## Dionysus, god of wine

*Dionysus sits resting on a rock, his leg on the thigh of Ariadne, a pose symbolic of 'sacred marriage'. At their feet is the sacred panther.*  
(Bronze krater from Derveni, 320 - 300 BC).



# Hopefully, we will manage to go through the rough seas

GODS

*Poseidon attacks the Giant Ephialtes with his trident, while at the same time he prepares to hurl a piece of the earth covered with land and sea creatures.*  
(Red-figure krater, c. 480 BC)

## Poseidon, lord of the seas



*Poseidon, ruler of the seas, is shown here brandishing his trident (which has not survived).*

**T**he revered brother of Zeus, Poseidon, was the deity responsible for stirring up the waters with his trident, and, again with his trident, for soothing them again, thus granting calm



# The journey is not an easy one:

## THE ODYSSEY

## THE ODYSSEY



**T**he Odyssey, the second epic creation of Homer, narrates the tribulations and feats of Odysseus from the time when he left Troy with his



# A really big adventure

ODYSSEY

## From the island of Calypso to the island of the Phaeacians



**T**he only one to escape alive from the shipwreck caused by Zeus was Odysseus, who had refused to taste the flesh of the Sun's cattle. Hanging on to the mast and hull of his ship, which he had bound together with a rope, he was carried by the wind to the

ODYSSEY

## From the island of Aeolus to the island of Circe

*Circe stirs the magical drink with her staff, preparing to offer it to Odysseus. One of the transformed Achaeans departs, looking anxiously behind him. (Black-figure Ixythos with white background, 490 - 480 BC).*



ODYSSEY

## Among the Cicones, the Lotus-eaters, and in the land of the Cyclopes



ODYSSEY

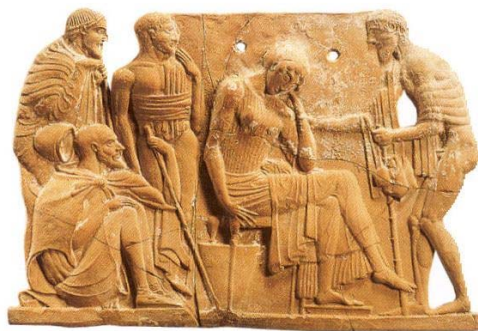
## From the Sirens to Thrinacia



# But we should get there !

ODYSSEY

## Odysseus on Ithaca



**O**n Ithaca, where people had long ceased to believe that Odysseus would return, the palace was full of young men from noble families who were pressing Penelope to be their wife. She, in order to buy time, said that she would select her second husband as soon as she had woven a shroud for old Laertes. The suitors agreed, but the shroud

*Odysseus, as a humble beggar, takes the hand of the sorrowful Penelope.*

# Will AC turn out to be a MYTH?

# Will AC turn out to be a MYTH?

Well,  
mythology brings so many great things!



# Too much of antiquity !

Lets get back to our times and our workshop

THANK  
YOU !

