

“Autonomics” – A Common Cause or a Flag of Convenience

ACC 2005 Panel Session

13th June 2005

Chair: David Lewis, Dave.Lewis@cs.tcd.ie

Trinity College Dublin

Issues

- Heated activity in autonomic and self-management research
- Attracts a wide range of research:
 - Policy-based management
 - Multi-agent systems
 - Bio-inspired systems
 - Emergent behaviour
 - Self-organising systems
 - Control Theory
 - Games Theory
 -

Focus Required

- Community need clearer guidance on
 - What does and what does not constitute autonomic research?
 - How would we recognise an autonomic system?
 - How different are Autonomic Computing and Autonomic Communications?

Characterising Autonomic Systems

- Functional Behaviour
- Elemental Behaviour
- Architectural FORM
- Shared Infrastructure
- Standards

Panel Position Statements

- John Helmbock
 - IBM Autonomic Computing
- Sajal Das
 - University of Texas in Arlington
- Archan Misra
 - IBM Research
- Spyros Denazis
 - Hitachi Europe
- Dave Lewis
 - Trinity College Dublin

Human Governance

- Managing adaptive, context-aware systems is about constraining the adaptive space
- Humans express constraints through high-level Governance Policies

Governance


- But Governance is an evolving, two-way conversation:
 - Drivers of policies change
 - Target of policies change
 - The system can't always understand or enforce policies
 - Governors must be convinced policies are correctly enforced
- This forms an Autonomic Governance Dynamic

Relationship-based Policy Engineering


- Policy Engineering must reflect
 - Organic change within organisations
 - Fluid service chains
 - Ad hoc collaboration between individuals
- Role-based models too brittle, hence...
- Attribute-based trust policies
 - Flexible, Personalised trust determination
- Community-based Policy Engineering
 - Policy authorship performed by groups delegating responsibility for resources
 - Policy conflicts naturally map back to the root organisational problems

Issues

- We must understand the governing system as well as the governed system
- How do we share knowledge between human governors and autonomic systems?
- Can this help us understand relationships between communities of autonomic agents?



Let's Talk



Next Steps

- Will assemble short panel report
- Publish on the Autonomic Communications Forum website

<http://www.autonomic-communication.org/index.html>

- How can we continue this conversation?