# In Search of Synergies between Policy-Based Systems Management and Economic Models for Autonomic Computing

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## Abstract

Policy-based systems management (PBM) and economics-based systems management (EBM) are two of the many techniques available for implementing autonomic systems, each having specific benefits and limitations, and thus different applicability; choosing the most appropriate technique is the first of many challenges faced by the developer. This talk begins with a critical discussion of the general design goals of autonomic systems and the main issues involved with their development and deployment. The discussion forms a backdrop for a detailed evaluation of the two techniques, in which the concepts underpinning each of PBM and EBM are reviewed and placed into context with each other as well as with the other popular techniques for autonomic computing. After considering the operation and suitability of the techniques in isolation, the focus shifts to look at how PBM and EBM could be combined in complementary ways to achieve more sophisticated and versatile control systems whilst keeping the complexity and human-configuration input low. There is then some deeper explanation of the features of PBM and a specific technology is briefly presented as a case example, focusing on its novel and advanced features. The talk ends by looking to the future of autonomic systems; identifying a possible next set of challenges and considering the roles that PBM and EBM may play in addressing these.

## Categories & Subject Descriptors:

D.2 [Software Engineering]: Management, Software Architectures;
K.6 [Management of Computing and Information Systems]: System Management.

## General Terms:

Algorithms, Management, Performance, Economics, Human Factors.

## Bio

The speaker is a reader in self-managing computer systems in the department of Computer Science at the University of Greenwich, UK. Richard received his D.Phil. from the University of York, UK in 2000. He has published over 75 papers in the areas of distributed systems and autonomic systems. He founded the Autonomics Research Group at the University of Greenwich in 2004, and was PI in the EU FP7 DySCAS project 2006-09, developing a smart, policy-based self-configuring middleware for automotive systems. His current research interests include: policy-based autonomic computing, validation of dynamic adaptive systems, policy-configured embedded systems, sensor technology, bio-inspired computing and self-organisation in wireless sensor networks.