

Public Review: A Research Agenda for Business-Driven Information Technology

Jeff Kephart, Steve White, and Edith Stern

Public Reviewer: Karsten Schwan

Georgia Institute of Technology

This paper provides a brief overview of the state of the art of autonomic computing, followed by a more extensive discussion of how autonomic computing methods may be placed into the broader picture of business-driven IT. The latter is characterized by reference to ongoing industry and academic research in the area of Business process integration and management (BPIM) and to ongoing work in an OMG standards group, the Business Modeling and Integration Domain Task Force (BM&I DTF). Along with reference to the widely accepted ITIL (IT Infrastructure Library) set of IT service management practices, are used to motivate the need for utility- or goal-based management of IT infrastructures and to lay out a research agenda for future business-driven IT. The agenda is stated as a set of questions about how to:

- More precisely formulate business goals and then effectively link IT infrastructure actions and behavior to such goals, and
- Automate the mapping process from business goals to IT infrastructure deployment and configuration, including feedback loops across these different levels of abstraction.

With these questions, the authors appropriately characterize the nature of ongoing research in autonomic computing, bolstered by references to a few papers produced by authors at IBM and HP. While not complete and somewhat IBM-centric, the reference list can 'get readers started' in better understanding this important domain. However, it should be noted that there are alternative or complementary approaches to solving the 'complex IT' problem noted by the authors being pursued by business and academia. One such approach is to attempt to simplify overly complex enterprise software and to make it more manageable in the first place. Evidence of this fact is to be found in ongoing work on platform and system virtualization (i.e., to construct 'firewalls' across which undesired IT behaviors cannot spread) and in similar efforts ongoing at the middleware level. Additional evidence is ongoing work on Business Activity Monitoring (BAM), where initial goals are simply to

better explain current system operation to human end users, thereby building the trust in autonomic behaviors desired by the authors and ultimately, enabling the autonomic behaviors sought by the authors. One might ask if such more modest goals might not be more appropriate ways of going about moving ahead the autonomic computing agenda than the more ambitious goals articulated by the authors.