

CALL FOR PAPERS
Autonomic Network Computing
IEEE Transactions on Computers
Special Section
July Issue of 2009

IEEE Transaction on Computers seeks original manuscripts for a Special Section on Autonomic Network Computing (ANC) scheduled to appear in **the July issue of 2009**.

Networked systems are created by composing a complex set of hardware and software components that are subject to continuous upgrade, replacement, and scaling. The networked systems' behavior is highly dynamic, in response to unpredictable events such as anomalies (hardware failures, residual software defects, intrusions, DoS, performance failures, power loss, bandwidth limitations etc.) They must be anticipated and viewed as "routine" properties of this environment. Networked system resilience can be determined by its ability to recover rapidly from anomalies.

ANC needs shift to more holistic approach for solving these problems. Yet, first of all, we need a paradigm shift of system design towards self-organising, self-healing and self-protection systems, which is the basis of the autonomic network computing.

Topics of interest are recent advances in "Autonomic Network Computing," including, but not restricted to:

Self-Healing of network resources for anomalies (DoS attacks, performance failures, node and link failures, Byzantine failures, intrusions in the network and computational nodes, failure margin and partitioning i.e., determining the maximum number of anomalies that can be tolerated without partitioning the network), improving availability by proactive failures handling;

Self-organization, (re-)negotiations, and adaptations of the applications and network resources in order to meet the users' QoS expectations (latencies, execution time and available bandwidth);

Self-reconfiguring - developing efficient algorithms for dynamic reconfiguration in the presence of anomalies, task migration, task management libraries, proactive task migration and dynamic reconfiguration - signalled by similar event prediction models for failures prediction (based on Markov theory and effective learning);

Self-optimization of the network in order to make best use of the resources and to be able to satisfied QoS requirements of the performance contract, dynamic task migration in case of violation of the contract, removing and adding new resources for load balancing and satisfying the performance contract;

Self-protecting – task migration and dynamic reconfiguration signalled by detected intrusions (intrusion - "malicious" fault resulting from an attack that has been successful in exploiting a vulnerability), proactive task migration and dynamic reconfiguration within virtual network (overlay network) triggered by predicted attacks (based on effective learning);

Virtualized Interfaces - Servers, Networks, Storage, Middleware, Application.

Submitted articles must not have been previously published or currently submitted for journal publication elsewhere. As an author, you are responsible for understanding and adhering to our submission guidelines. You can access them by clicking on <http://www.computer.org/mc/tc/author.htm>. Please thoroughly read these before submitting your manuscript.

Please submit your paper to Manuscript Central at <http://cs-ieee.manuscriptcentral.com/>. Please feel free to contact the Publications Coordinator for TC, Joyce Arnold, at tc@computer.org or the guest editors at autonomic@irianc.com, dverma@us.ibm.com and prokop@akamai.com if you have any questions.

Please note the following important dates.

Important dates:

Submission Deadline: 01 June 2008

Reviews Completed: 01 August 2008

Major Revisions Due (if Needed): 01 October 2008 **Reviews of Revisions Completed (if Needed): 15 November 2008**

Minor Revisions Due (if Needed): 30 December 2008 **Notification of Final Acceptance: 15 January 2009**

Publication Materials for Final Manuscripts Due: 01 February 2009

Please address all other correspondence regarding this special section to the Guest Editors **Dimiter Avresky, Dinesh Verma, and Harald Prokop** .

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