

CALL FOR PAPERS

IEEE Journal on Selected Areas in Communications

Recent Advances in Autonomic Communications

Today's networks present a highly complex and dynamic environment. This may be due to their size, dynamics, heterogeneity, traffic diversity, fragility (e.g., increasing number of security threats), etc. The applications and services that make use of these networks also grow in complexity and impose increasing demands on the underlying network infrastructure: virtual services running on top of virtual networks, data centers and computing clouds, content distribution based on peer-to-peer overlay networks, roaming users and mobile devices, advanced service functionalities and service oriented architectures, etc. It is largely uncontested that the initial Internet design no longer fits the current and future networking and service environment, and perhaps a clean-slate approach to next generation network design is necessary.

Autonomic communications strive to ease the burden of managing complex and dynamic networks, better support the ever-growing and fast-evolving network technologies and services, and establish the foundations of next-generation networks. The idea is to design networks that are self-configuring, self-organizing, self-stabilizing, self-optimizing, self-healing and self-protecting. Such networks should be able to learn and adapt to their environment (changes in topology, technologies, service demands, application context, etc) thus providing much needed flexibility and functional scalability.

In the last few years, significant attention to autonomic communications has been given in both academia and industry. The aim of this special issue is to gather articles that present the state-of-the-art in this field. Some of the contributions could present theories, methodologies and novel concepts. Others could present testbeds and benchmarks meant for providing objective comparison figures between different solutions. Others could derive best practices from the study of innovative system designs and use cases. Yet others could describe the empirical validation of concepts or industrial experiments in the field. To this end, original contributions are solicited in all areas relevant to autonomic communications, including (but not limited to) the following:

- Theoretical foundations of autonomic communications
- Models and architectures for autonomic communications
- Tools and techniques for designing, analyzing and building autonomic networks
- Autonomic aspects of service oriented networking and management
- Adaptive security for self-protection
- Performance evaluation of autonomic networks and services
- Enabling technologies for self-management
- Languages and development frameworks for autonomic communications
- Validation methodologies for autonomic communications
- Lessons learned from real-life experiments and best practices

Prospective authors should prepare their manuscript in accordance with the IEEE J-SAC format described in the Information for Authors: <http://jsac.ucsd.edu/Guidelines/info.html>. Authors should submit an electronic version (PDF format) to a Guest Editor according to the following schedule:

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