Editorial

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Biographical notes: S.U. Khan received his BS from Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Pakistan and his PhD from the University of Texas, Arlington, TX, USA in 2007. He is currently an Assistant Professor of Electrical and Computer Engineering at the North Dakota State University, Fargo, ND, USA. He has extensively worked on the general topic of resource allocation in autonomous heterogeneous distributed computing systems. He is the Associate Editor of the *International Journal of Communication Systems* and the *Security and Communication Networks Journal*.

P. Bouvry earned his undergraduate degree in Economical and Social Sciences and his Masters in Computer Science with distinction ('91) from the University of Namur, Belgium. He went on to obtain his PhD ('94) in Computer Science with great distinction at the University of Grenoble (INPG), France. He is currently heading the Computer Science and Communications (CSC) research unit of the Faculty of Sciences, Technology and Communications of Luxembourg University and serving as a Professor. He is also the Treasurer of the Administration Board of CRP-Tudor, and active in various scientific committees (ERCIM WG, COST, ANR, etc.).

In pursuit of a wider bandwidth and higher communication efficiency, traditional buses are being replaced by innovative communication fabrics as the principal interconnect. However, interconnection networks consume a significant portion of the total system energy. It has been reported in most systems up to 35% of energy is consumed by the interconnection networks. Thus, we must develop innovative and effective solution that can reduce power consumption for the interconnection networks for high-performance systems.

This special issue is targeted towards cutting edge research that reduces the energy consumption of the communication medium in distributed systems. We received some

very high quality submissions and in the end we selected the following four articles that encompass various trends in current state-of-the-art research domain.

'Implications of energy efficient Ethernet for hubs and switches' studies the affects of the mandate of energy efficient Ethernet on hubs and switches.

'UETS/EFR World Wide Net: a new network paradigm, simple, secure, highly scalable and energy-efficient' proposes a new paradigm to build high capacity network nodes that address the scalability and energy consumption of the deployed core network infrastructure.

'Modelling of staged routing for reduced carbon footprints of large server clusters' presents a mathematical performance analysis of a simple routing mechanism that uses staged overflow routing techniques to assign requests to servers.

'Throughput optimisation of inter- and intra-domain autonomous systems traffic engineering' proposes a set of techniques that can be used to better control the flow of packets inside an IP network.

We sincerely hope that the readers will enjoy the aforementioned articles and also find them extremely valuable. We also would strongly encourage the readers to contact the corresponding authors, if they need any further clarifications regarding their articles presented in this special issue.