Call for Papers
IEEE Network Magazine

Special Issue on **Implications and Control of Middleboxes in the Internet**

Important Dates:

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Manuscript Submission Due: March 8, 2008
Acceptance Notification: June 1, 2008
Final Manuscript Due: July 15, 2008
Special Issue Publication Date: September/October 2008

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Network Address Translators (NAT) and IP firewalls have been introduced to the Internet some time ago, and over the time become an integral part of the Internet architecture. Moreover, there are also other types of middleboxes, such as Virtual Private Network (VPN) gateways, Application Layer Gateways (ALG), Performance Enhancing Proxies (PEP) and web proxies. These intermediary boxes perform functions different from normal IP packet treatment, which can even change the content of packets or do rerouting of IP packets.

There have been diverse views on the value of middleboxes. Some believe that middleboxes introduce problems for network applications as well as challenges to the traditional end-to-end Internet architecture. These issues range, for instance, but not limited to, from naming and addressing of nodes behind NATs, directionality of communication establishment, and performance impairments. On the other hand, many administrators and operators see the middleboxes represent an important part for their network operations. For example, firewalls are widely deployed with the intention of securing enterprise, campus and home networks, so as to block attacks to nodes or keep nodes from sending malicious traffic.

The Internet community has acknowledged the emergence of the middleboxes and developed middlebox control and coordination protocols that allow end hosts (or application proxies) to learn about the presence of middleboxes and communicate their needs (i.e. required packet treatment) to those devices. A number of middlebox control protocols, such as UPnP, MIDCOM and STUN, have been developed over the years and are partially used in current deployments.

The papers in this special issue will focus on the state-of-the-art research in various aspects of middleboxes and middlebox control mechanisms, which help to understand their impact to the Internet architecture and network operations, and how they can be further integrated, or leveraged for different purposes, such as load balancing and mobile network environments, among the others. Specifically, within the aforementioned context in Internet middleboxes and their control mechanisms, the special issue will present tutorials, surveys and original research articles (written in a tutorial manner readable by non-specialists) that cover the following subjects, but not limited to:

* Middlebox-supported network architectures vs. other Internet evolution alternatives (e.g.,

IPv6)
* Design and/or performance evaluation of middlebox software architectures
* Control and coordination across middleboxes and their traversal mechanisms
* Security, including authentication, authorization and accounting issues with middlebox
    control/traversal mechanisms
* Scalability and performance studies of middlebox control/traversal mechanisms
* Deployment scenarios and case studies (corporate, ISP, content providers, mobile
    environments etc.) based on middleboxes
* Interaction and implications with other network protocols and components
* Interaction and implications with end-to-end applications and services
* Related standardization efforts

Manuscript Submission:
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With regard to both the content and formatting style of the submissions, prospective contributors must follow the IEEE Network guidelines for authors that can be found at http://www.comsoc.org/pubs/net/ntwrk/authors.html. Submitted papers must be original and must not be under current consideration for publication in other venues. Authors should submit a PDF format of their complete papers via http://www.edas.info/newPaper.php?c=6198.

Guest Editors :
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Prof. Xiaoming Fu
Institute for Computer Science
University of Goettingen
Goettingen, Germany
Email: fu@cs.uni-goettingen.de

Martin Stiemerling
NEC Europe Laboratories
Network Research Division
Heidelberg, Germany
Email: stiemerling@netlab.nec.de

Prof. Henning Schulzrinne
Department of Computer Science
Columbia University
New York, NY, USA
Email: hgs@cs.columbia.edu