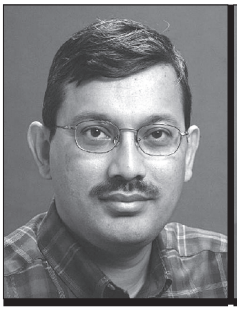

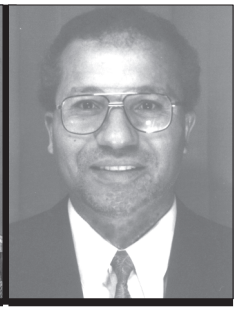

Mohammed Atiquzzaman

Mohsen Guizani

TOPICS IN INTERNET TECHNOLOGY

The Internet Technology series is published in May and October every year. The issue deals with survey and tutorial articles on current research issues relating to Internet Technology. Over the years, there has been a steady and increasing number of submissions to this series, indicating a strong interest in its topics among our readers.

This time, nine articles were submitted for possible publication in this issue. After a rigorous review process, we accepted only three articles for publication in this issue. The future Internet will consist of an interconnection of heterogeneous networks consisting of wireless, wired, and optical networks.

Wireless Internet access is challenging in terms of minimizing requirements for battery power and bandwidth, and interworking with heterogeneous networks. Caching can improve access latency, reduce battery power consumption, and reduce bandwidth usage in the wireless Internet. Chen and Xiao provide a classification and detailed survey of cache access mechanisms and replacement algorithms. They suggest that wireless networks should be designed keeping in consideration the limitations posed by wireless networks/devices and the future heterogeneous wireless Internet.

Heterogeneous networks also give rise to the problem of different networking protocols and packet formats. Tunneling, which consists of encapsulating a packet or frame within another packet of the same or a different network layer, is a commonly used technique to solve the issue of internetworking heterogeneous networks. Tunneling has also been used to provide end-to-end secure communications. The article by Saad, Alawieh, Gulder, and Mouftah discussed various tunneling techniques and looks at the interations between them to provide end-to-end connectivity.

The article by McGregor Kaczmarek, Mosley, Dease, and Adams discusses the requirements of the next-generation Internet for national security and emergency preparedness. Such users must be assured of effective and priority service even under catastrophic conditions such as natural disasters and terrorist attacks, similar to what is now-a-days offered by telecommunication providers. The authors present test results of voice over IP for such priority users.

The quality of this series depends on the quality of articles and the stringent refereeing carried out by a large number of volunteers. We would like to thank the authors and reviewers for their time and dedication to this series. We also invite potential authors to continue submitting high-quality articles.

We would like to acknowledge the help of the Editor in Chief, Tom Chen, and Joe Milizzo and Sue Lange of the ComSoc publications staff for helping with the production of this series. We welcome any comments you may have to further improve the quality of this series.

BIOGRAPHIES

Mohsen Guizani [SM] is currently a professor and chair of the Computer Science Department at Western Michigan University. He received his B.S. (with distinction) and M.S. degrees in electrical engineering, and M.S. and Ph.D. degrees in computer engineering in 1984, 1986, 1987, and 1990, respectively, from Syracuse University, New York. His research interests include computer networks, wireless communications and computing, and optical networking. He currently serves on the editorial boards of six technical journals, and is Founder and Editor-in-Chief of Wireless Communications and Mobile Computing Journal (http://www.interscience.wiley.com/jpages/1530-8669/). He is the author of three books and in the process of writing another two. He has guest edited a number of special issues in journals and magazines. He has also served as member, Chair, and General Chair of a number of conferences, including ICC, GLOBECOM, INFOCOM, and many others. He has more than 130 publications in refereed journals and conferences. He was selected as a Distinguished Speaker for IEEE Computer Society until 2005. He is a member of IEEE Communication Society, IEEE Computer Society, ASEE, ACM, OSA, SCS, and Tau Beta Pi.

Mohammed Atiquzzaman [SM] (atiq@ou.edu) received M.Sc. and Ph.D. degrees in electrical engineering from the University of Manchester, England. Currently he is a professor in the School of Computer Science at the University of Oklahoma. He is Co-Editor-in-Chief of Computer Communications Journal, and serves on the editorial boards of IEEE Communications Magazine, Telecommunications Systems Journal, Wireless and Optical Networks Journal, and Real Time Imaging Journal. He has guest edited many special issues in various journals, and organized special sessions at conferences. He was technical co-chair of the 2003 Workshop on High Performance Switching and Routing, and the SPIE Quality of Service over Next-Generation Data Networks Conference (2001, 2002, 2003). He also serves on the technical program committees of many national and international conferences, including IEEE INFOCOM, IEEE GLOBECOM, and IEEE International Conference on Computers and Communication Networks. His current research interests are in wireless, satellite, and mobile networks, quality of service for next-generation Internet, broadband networks, multimedia over high-speed networks, TCP/IP over ATM, multiprocessor systems, and image processing. He is co-author of the book TCP/IP over ATM Networks.