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TOPICS IN INTERNET TECHNOLOGY

It is a great pleasure and an honor for us to take on the responsibility of editors for the Internet Technology Series of *IEEE Communications Magazine*. The previous series editors, Khaled Elsayed and Michah Lerner, have done a marvelous job in carrying out the responsibility. We hope to build on their success, and continue their efforts in improving the quality of the series.

The series is published in May and October every year. The quality of the series depends on the quality of papers 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 would also invite potential authors to continue submitting high-quality papers.

There are three articles that have been selected for publication in this issue of the series. We would like to acknowledge the efforts of the past series editors for selecting two of the articles during their term as series editors.

The Internet consists of a large number of independent network domains called autonomous systems. Various traffic engineering techniques are used to control and manage the flow of traffic between these domains. The first article, "Inter-domain Traffic Engineering with BGP" by Quoitin, Pelsser, Swinnen, Bonaventure, and Uhlig, discusses the use of Border Gateway Protocol, the de facto routing protocol for traffic flowing between domains, to manage that flow.

The characteristics of interdomain traffic determine the traffic engineering solutions that can be applied to manage interdomain traffic. The authors have analyzed the characteristic of interdomain traffic, from measurements in real networks, to conclude that a large fraction of the traffic routed through a domain originates from only a small number of the other domains. They have discussed techniques to control the flow of outgoing traffic, and carefully tune the route advertisements by a domain to control the incoming traffic to the domain.

The second article, "Dynamic RSVP Protocol" by G. S. Kuo and P. C. Ko, proposes an extension to the Resource Reservation Protocol (RSVP), Dynamic RSVP (DRSVP), to dynamically adjust the reserved resources on nodes to request quality of service (QoS) for multicast multimedia. They first discuss the protocol and its characteristics. Then they show how the protocol can be used by a host to request specific QoS for multicast multimedia flows on the Internet. The authors believe that this extension is needed because the resolutions of display systems used in different receiver nodes might be different; the multiresolution characteristic is supported in the MPEG-4 standard, and the EZW compression algorithm can cease decoding at any point in the bitstream. However, regular RSVP does not provide a flexible mecha-

nism for this issue. The new proposal provides different video resolutions to receiver nodes with different requirements for reserved resources. Therefore, it does not waste precious resources on the Internet transmitting unnecessary multimedia packets.

The third article in this series, "Tandem-Free VoIP Conferencing: A Bridge to Next-Generation Networks" by Paxton Smith *et al.*, discusses tandem-free voice-over-IP (VoIP) conferencing in order to provide a bridge to the next-generation networks. After surveying different approaches to teleconferencing VoIP networks, Smith *et al.* discuss a hybrid solution that incorporates tandem-free bridging and endpoint mixing (full mesh and multicast). The authors look at important parameters such as perceived quality, system scalability, conference control, and system compatibility. They show that centralized conference bridges used with compressed speech degrade speech quality when multiple talkers are mixed and subjected to tandem coding operations. In addition, they show that when the conference is large, full mesh and multicast solutions are inadequate.

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BIOGRAPHIES

MOHAMMED ATIQUZZAMAN [SM] received M.Sc. and Ph.D. degrees in electrical engineering from the University of Manchester, England. Currently he is a faculty member in the School of Computer Science at the University of Oklahoma. He is Co-Editor-in-Chief of *Computer Communications*. He is technical co-chair of the 2003 Workshop on High Performance Switching and Routing, and SPIE Quality of Service over Next-Generation Data Networks; he also serves on the technical program committees of many national and international conferences. His current research interests include wireless, satellite, and mobile networks, QoS for next-generation Internet, broadband networks, and multimedia over high-speed networks. He is co-author of the book *TCP/IP over ATM Networks*.

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. in electrical engineering, and M.S. and Ph.D. 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 is the founder and Editor-in-Chief of *Wireless Communications and Mobile Communications*; he is the author of three books and is in the process of writing another two. He has served as a committee member, chair, and general chair for a number of conferences. He is a member of ASEE, ACM, OSA, SCS, and Tau Beta Pi.