This issue presents two submissions dealing with wireless networking and two submissions covering research efforts linked to wired networks. This small sample of networking work highlights the spread and reach of current research efforts: from schemes used to improve old traditional telecommunications or electricity networks to advances on wireless local and wide area networks.

The first article, entitled “Wireless Proxy: Distributed System to Mitigate the Effects of User Mobility Over Streaming Services on IEEE 802.11 Wireless LANs” and written by Manuel Vilas, Xabiel G. Pañeda, David Melendi, Roberto Garcia, and Victor García, introduces a distributed system, called wireless proxy, in which control of the handoffs is managed by the system (rather than by the client). The authors argue that client control of the handoff procedure results in poorer performance when using streaming services. The proposed system induces handoffs when it deems them necessary. Additionally, the authors’ report on a series of tests carried out to prove the benefits of the wireless proxy which, by the way, can be implemented on off-the-shelf wireless networking equipment. The second wireless networking article turns its attention to 3G cellular networks. In “Performance Analysis of 3-Stage Cell Search Process in a WCDMA System” Shailendra Mishra studies the performance benefits of estimating multiple “code-time” hypotheses in each stage of the cell search process and he proposes an improved cell search design (CSD) that aims to achieve faster synchronization between the mobile station (MS) and the base station (BS) with the intended goal of improving system performance. The enhanced design also requires lower hardware utilization when compared with the third generation partnership project (3GPP)-comma free cell search design (CSD) scheme under the same design constraints.

With the third article: “Suitability of IP Telephony in the Public Switched Telephone Network (PSTN): A Case Study,” Hak Ju Kim uses a real options approach and simulation techniques to study the use of IP telephony within a traditional (PSTN) telecommunications network. The author uses data from an actual local exchange carrier (LEC) company that is the focus of their case study. His preliminary results show that an IP-based telephony network would save about 73% of the total link capacity of a circuit switched network and it could also carry some integrated services traffic at low incremental costs. These preliminary results suggest that a compelling business case for IP telephony exists and that carriers should be studying whether and how to convert their networks to this new technology. It also suggests that the regulatory issues raised by IP telephony will not go away.

Finally, in the last article entitled “Spread Spectrum Techniques for an Intelligent Energy
Meter," C.D. Suriyakala and P.E. Sakaranarayanan concentrate on improving a labour-intensive and time-consuming task: reading energy meters. Their system allows a power company to use the network they already have to carry out those readings. The proposed system requires some design changes to the meters to enable them to directly send the reading through the power line back to a controlling station. The "intelligent energy meter" designed by the authors is basically a digital energy meter, which uses a single-phase energy metering IC. The metered reading is transmitted using the "echo model" and the authors present a study of the utilization of different robust spread spectrum techniques, such as code division multiplexing (CDM), orthogonal frequency division multiplexing (OFDM) and COFDM (combined), for transmitting the data over the selected channel model.

As always, please feel free to contact me with your feedback or suggestions regarding this or any of our previous issues via e-mail at j.gutierrez@auckland.ac.nz.

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Jairo Gutiérrez has expertise in networking and data communications. He has worked in industry as a research and development manager, systems integration consultant, and information systems manager. His current research topics are in network management systems, viable business models for mobile commerce, programmable networks, and quality of service issues associated with Internet protocols. Gutiérrez is a senior lecturer in information systems at the University of Auckland and coordinator of its Cisco Networking Academy Program. He teaches data communications and computer networking. He has supervised more than 35 post-graduate students during the last nine years with research projects covering a wide range of networking technologies issues. He received a Systems and Computer Engineering degree from The University of The Andes (Colombia, 1983), a master’s degree in computer science from Texas A&M University (1985), and a PhD (1997) in information systems from The University of Auckland (New Zealand).