Teletraffic Insights for Network Design

Teletraffic models and analyses have been applied for over a century to planning and design of telecommunication networks including the telephone network and the Internet. The general aim has been to minimize cost subject to meeting quality of service and reliability requirements. This talk will address a range of topical networking research questions that for which teletraffic models and analyses can provide useful answers. We will present an application of a multilayer network model that considers stochastic traffic composed of heavy tailed flows for optimizing traffic engineering, network design and evolution prediction. It will enable decisions on flow size dependent routing and the choice of dynamic optical circuit switching. In addition, we will discuss recently developed models and related performance analyses of optical networks that lead to an efficient optical burst switching strategy and enable evaluation of the trade-off between capacity dimensioning and wavelength conversion.

Moshe Zukerman received his B.Sc. in Industrial Engineering and Management and his M.Sc. in Operation Research from Technion-Israel Institute of Technology and a Ph.D. degree in Engineering from The University of California Los Angeles in 1985. During 1986-1997 he served in Telstra Research Laboratories (TRL). During 1997-2008 he was with The University of Melbourne. In Dec 2008, he joined City University of Hong Kong where he is a Chair Professor of Information Engineering. He has served on the editorial boards of various journals such as IEEE JSAC, IEEE/ACM Transactions on Networking, IEEE Communications Magazine, Computer Networks and Computer communications, and on numerous technical program committees of national and international conferences. Prof. Zukerman has over 350 publications in scientific journals and conference proceedings. He is a Fellow of the IEEE and has served as a member and Chair of the IEEE Koji Kobayashi Computers and Communications Award Committee.