

Proceedings

# IEEE INFOCOM 2000

The Conference on Computer Communications

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of the IEEE Computer and Communications Societies**

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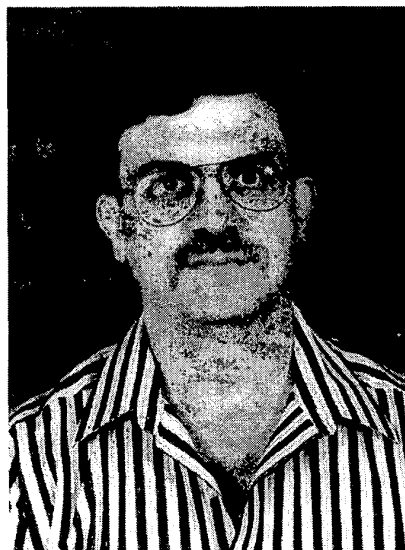
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## Message from the General Chair



**Moshe Sidi**

"It's all about branding" – this is the mantra of the day in the Internet era. INFOCOM, the major conference on computer communications and networking, has become a brand name. INFOCOM's competitiveness, excellence and technical innovation has been well-known for years, and INFOCOM 2000 is no exception. The conference's success is guaranteed with a technical program of exceptionally high quality and diversity, including 192 judiciously selected papers, 9 outstanding tutorials on hot and up-to-date topics, 2 panels on controversial issues, and a keynote address by Prof. Leonard Kleinrock – one of the founders of the field of computer networks.

The first communication revolution of the 20th century resulted in widely spread telephone-based communications. The second communication revolution gave us computer-based communications, the Internet, with applications ranging from e-mail to the web and beyond. The new millennium promises to bring a knowledge-based communications revolution where intelligent networks will enhance and expand human knowledge. The Internet will evolve from being a complex environment that takes time to master to a behind-the-scenes tool that will improve the quality of life.

Progress, however, results not only by revolution but also by evolution. Networks are like amoebas; they do not stay in one shape for very long. According to the amoeba theory of networks, things are always in transition, and there is no final form. Networks started as terminal-to-host creatures. Then they moved to become 10BaseT LAN, FDDI backbone, T1/E1

WAN organisms during the client/server era. Currently they undergo major topological transformations, becoming Internet-centric and gearing up to handle huge amounts of voice, data and video. Typical networks today are a mix of technologies. Although IP is the universal glue, Gigabit Ethernet is now being deployed in quantity, fiber backbones are running SONET, and veterans such as ATM, frame relay and 10/100 Ethernet continue to thrive. What is the next form of networks? The INFOCOM conference is the right place to learn and discuss the plausible futuristic directions. Definitely, the aspiration for the near future is to have intelligent networks (more than an amoeba) that are customized to the needs of individuals, giving the user a ubiquitous identical network view.

We are living in the big bandwidth era. One can never be too rich, too thin or have enough bandwidth – that has never been more true than it is today. Large amounts of bandwidth will continue to be needed as far into the future as we can see. Optical fiber capacity is doubled every nine months. Yet, Gigabit Ethernet trunks with Fast Ethernet to the desktop or even fatter pipes are not enough. Technologies that provide quality-of-service prioritization are inevitable for many of the foreseen applications. This is even more critical for bandwidth-limited technologies such as wireless networks. Their expansion is assured due to the proliferation of mobile devices such as cellular phones, laptops, notebooks, PDAs and Internet appliances. During the INFOCOM conference we will explore the coexistence of new massive wireless networks that provide low-bandwidth access and the high-bandwidth corporate networks, along with evolving technologies such as ad-hoc networks, multicast, quality-of-service and more.

Having the first INFOCOM of the new millennium in Israel is not accidental. Israel has established itself as a global technology incubator, especially in the communications and networking arenas. Many leading international technology companies have located their advanced development centers in Israel, including Lucent, Qualcomm, Sun Microsystems, Intel, IBM, Cisco, Microsoft, 3Com, and Bay Networks (now Nortel). These companies have chosen to develop their future product generation in Israel. Furthermore, Israel is home to quite a few internationally renowned companies such as Rad, CheckPoint, Comverse, VocalTec, Galileo and many more. All this is due to highly educated and competitive Israeli engineers and scientists, as is also reflected in active and noticeable participation in international conferences, including INFOCOM. It is therefore only natural that the next INFOCOM outside of the US will be held in Israel. Yet, without the continuous instigation of Kazem Sohraby, starting in 1995, this would not have become a reality, and we deeply thank him for that.

The high quality and breadth of INFOCOM 2000 is the cumulative result of the great time and effort invested by many volunteers who have worked continuously as reviewers, technical program committee members and executive committee members. Special thanks go to my close colleagues, Israel Cidon, Ariel Orda and Raphael Rom and to the chair of the INFOCOM steering committee, Harvey Freeman, with whom I shared the responsibilities for the conference. They were always ready to help with their good advice and step in when necessary. The technical program chairs, Henning Schulzrinne and Raphael Rom, were challenged with about 720 submissions and they, together with the authors, are to be commended for the outstanding program. The tutorial chairs, Reuven Cohen and Daniel Pitt, were able to attract a set of renowned experts in their fields and put together very attractive tutorials. The panel chairs, Roch Guerin and Hanoch Levy, organized two panels that will yield lively and informative

discussions. The financial chairs, Shlomi Dolev and Nina Taft-Plotkin, the local arrangements chairs, Yehuda Afek and Meir Herzberg, the publicity chair, Fred Bauer, the publication chairs, Irene Katzela and Yuval Shavitt, the Internet chairs, Yitzhak (Tsahi) Birk and Joe Touch, the corporate partners chair, Ran Giladi, the keynote lecture chair, Israel Cidon and the registration chair, Amotz Bar-Noy, have been an exceptional and dedicated team without whom INFOCOM 2000 could not have happened. The international vice-chairs, Luigi Fratta, Ramesh Nagarajan, Laszlo Pap, Guy Pujolle and Tetsuya Takine, have played an important role in increasing worldwide awareness about INFOCOM. Last but not least, I would like to thank the INFOCOM 2000 vice-chair, Bhaskar Sengupta, and local vice-chair, Ariel Orda, for their constant support and help. To all these people, I want to again extend my deepest thanks and appreciation. They are the ones to be credited for the success of INFOCOM 2000.

I would like to take this opportunity to thank the NSF and the Communications Society for providing student grants and the INFOCOM 2000 corporate partners, Lucent Technologies Networks (Israel), Qualcomm Israel, Rad Data Communications and Sun Microsystems for supporting the conference.

This year's INFOCOM promises to be one of the best ever. We feel that we have succeeded in assembling a comprehensive and attractive technical content in an enjoyable setting. Tel-Aviv, the non-stop city, offers a myriad of stretches of sandy clean beaches, outdoor cafes and vibrant streets. Israel, the promised land of the Bible, is a modern, thriving, and vibrant country. On behalf of the INFOCOM 2000 organizers, I extend a sincere welcome to you: I hope you'll extend your stay to enjoy not just the conference, but also Tel-Aviv and Israel.

Moshe Sidi  
Tel-Aviv, Israel, 2000

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