Global Communications *Newsletter*

A Report on APNOMS '2000
By Tomo Taniguchi, Japan

APNOMS 2000, the fourth Asia-Pacific Network Operations and Management Symposium, was held October 11–13, 2000 in Nara, Japan. This symposium, which follows the successful APNOMS '97, APNOMS '98, and APNOMS '99, was attended by 258 researchers, developers, service providers, and vendors from 12 countries. Although APNOMS 2000 strongly reflects the Asia-Pacific region's activities on network and service management issues, it is becoming a global symposium with participants from around the world.

The theme of this three-day symposium was "New Management Paradigms and Technologies Towards the Internet Millenium." Nowadays, the Internet is in widespread use in business and at home. Moreover, the integration of voice and data into one IP-based network through the development of voice over IP (VoIP) technology has changed the network architecture. At the same time, research and development continues apace on the operation and management of IP-based networks, addressing such issues as QoS measurement and control, policy management, and how to manage the integration of a network composed of elements supplied by various vendors. The migration from legacy networks to IP-based networks in terms of their operation and management also represents a significant challenge for carriers with a large legacy network.

On the first day of the symposium, APNOMS 2000 participants enjoyed six tutorials on the hottest topics in the area of network operations and management. Graham Chen (CiTR, Australia) gave a tutorial on "New Trends in Telecommunications Services." Masayuki Murata (Osaka Univ., Japan) gave a tutorial on "IP over WDM Networks towards the Next-Generation Internet." Edward L. Pinnes (Telcordia, USA) gave a tutorial on "Operations and Management for Next Generation Networks." Taesang Choi (ETRI, Korea) gave a tutorial on "The Essential Component Technologies for QoS and Traffic Management in IP Networks." Cherng Yeh (Lucent, USA) gave a tutorial on "TMN Architecture Evolution for End-to-End Management of Network in the IP Era." Finally, Al Vincent (TMF, USA) gave a tutorial on "Changing Direction — The Impact of the NGOSS on the Telecom Industry." All tutorials were well attended, and there were a lot of interesting discussions between the audience and speakers.

The second day started with a welcoming address from the general chair, Hiroshi Tokunaga (NTT, Japan) and was followed by two keynote speeches by distinguished invited speakers. Salah Aidarous (NEC America, USA) delivered a speech on "The Next Millenium Management Landscape." Jong-Tae Park (Kyungpook National Univ., Korea) delivered a speech "On the Evolving IP-Based Systems and Service Management." Following the keynote speeches on the second day of the symposium were special sessions and technical presentations.

The special session is the place to discuss issues while keeping our feet on the ground. Papers for this kind of topic usually are difficult to pass through the review process for technical sessions; it is also difficult to encourage submission of such papers even though they may contain important issues to be considered. The session was chaired by Masayoshi Ejiri (Fujitsu, Japan) on the topic "Migration to New Millennium — Experience, Practice and Technology." Seven invited speakers — Alexander Kostin (Saint Petersburg State Univ., Russia), Atsunori Kubota (NTT West, Japan), Teerapat Sanguankotchakorn (Asian Inst. of Technology, Thailand), Young-Jin Sim (Korea Telecom, Korea), Mans O. Jacobsson (Telia Sweden), James L. Warner (TMF, USA), and Yuval Levy (Vertel, U.S.A) — delivered speeches. There were a lot of interesting discussions between the audience and speakers.

The third day started with two keynote speeches by the distinguished invited speakers. Vijay Varadharajan (Univ. of Western Sydney, Australia) delivered a speech on "Secure Networked Computing." Kentaro Sumio (MPT, Japan) delivered a speech on "E-Japan Initiatives for the Deployment of Ultra High-Speed Network." Following keynote speeches on the third day were technical presentations. At APNOMS 2000, 34 papers were accepted for technical presentations and 13 for poster presentations. These high-quality technical papers on the latest results of research and development were presented. Technical paper and poster presentations covered topics on active network management, mobile network, service management, Java/CORBA-based management, IP network management, policy-based management and SLA, integrated network planning and management, TINA/TMN, and hot topics.

APNOMS 2000 participants were also treated to two days of demo exhibitions on the latest tools and systems in network operations and management. There were 13 exhibitions by ETRI, Fujitsu, GAURI Info-Comm, HP, Korea Telecom, NEC, NTT-AT, NTT Comware, NTT Soft, Sumisho Net Solutions, Sumitomo Electric Industries, and Vertel.

APNOMS 2000 ended its three days with a very interesting distinguished experts panel on the topic of "New Management Paradigms and Technologies Towards the Internet Millenium." The panel was chaired by James W. Hong (Postech, Korea), and the panelists were Salah Aidarous (NEC America, USA), Graham Chen (CiTR, Australia), Seong-Boem Kim (Korea Telecom, Korea), Mans O. Jacobsson (Telia, Sweden), and Masayuki Murata (Osaka Univ. Japan).

Overall, APNOMS 2000, was a very successful symposium

IEEE Aerospace and Electronic Systems, Communications, and Lasers and Electro-Optics Society Chapter-India Major Technical Activities in 2000

By R. G. Gupta, India

The Chair of the Chapter was awarded the IEEE 1999 Region 10 Outstanding Award." The award was ceremoniously presented at TENCON 2000 at Malaysia.

The major event of the Chapter, the 2000 IEEE International Conference on Personal Wireless Communications (ICPWC 2000), was held December 17–20, 2000 at Hyderabad. The Conference was hosted by IEEE Hyderabad Section and sponsored by IEEE Information Theory Society besides the Chapter and Hyderabad Section. The University of Victoria, Ministry of Information Technology, India, and IEEE Aerospace Electronics System Society technically supported ICPWC. One hundred twenty-two participants from 22 countries (61 from outside India and 61 from India) attended. There were eight exclusive tutorials along with 24 technical sessions. In all, about 128 technical paper presentations were made. The Plenary session had a keynote address by Dr. T. H. Choudary, Information Technology Adviser to the government of Andhra Pradesh, India.

The Chapter has technically participated in organizing the Electronics and IT Exposition (ELITEX 2000 and 2001), the annual event of the Ministry of Information Technology, India. The Chair of the Chapter was the Member Convenor of ELITEX. Each individual event attracted more than 8000 visitors from all over the country; these included individuals from industry, user organizations, and R&D laboratories, including defense and academic institutions. The 2001 exposition has official participation from Asian countries. Participation from other countries included the United Kingdom, Germany, and counsellors from most countries. The events were inaugurated by the Honorable Shri Pramod Mahajan, Minister of Information Technology, India, and the keynote address by Dr. A. P. J. Abdul Kalam, Principal Scientific Advisor to the Prime Minister, and Shri R. S. Pawar, CMD, NIIT (the leading human resource development institution in India). The seminar in the exposition covered Special Theme Sessions on Convergence, Technologies of Convergence, Infrastructure, Intellectual Property Rights, and other legislations in IT and their impact on India, IT Enabled Services, Electronics Governance, Wireless Communications, Multilingual Technologies, Electronic Commerce, Online Learing Education, Venture Capital/Brand Equity, and others attracted the largest audiences. The ELITEX Website, http://www.elitexindia.com, has been developed, launched, and continuously updated to provide information related to the new technologies developed. The online proceedings of the exposition was also made available on the site. Newly developed products and software were launched, and some technologies were transferred to the industry on the spot. One hundred thirty technologies developed are given wide publicity for mass commercialization. Students from engineering and management colleges participated in the expositions.

The Chapter, in association with the Institution of Electronic Data Processing, organized a one-day workshop covering IPR issues, low-cost multimedia, and electronic governance applications.

The Chapter, in association with the Delhi Section, organized a one-day tutorial by Prof. Gordon L Stuber on "Mobile Communications" at the Indian Institute of Technology (IIT), Delhi.

The Chapter partially supported the National Symposium on Advances in Microwaves and Lightwaves at the University of Delhi South Campus. Eighteen Technical Sessions were held, and the keynote address was delivered by Prof. A. K. Ghatak on "Recent Trends in Fiber Optics" and Prof. G. P. Srivastava on "Growth of Microwaves." On this occasion a workshop on "Modelling, Design and Characterization of Microelectronic Devices" was also conducted.

The Chapter has supported the International Conference on Fiber Optics and Photonics at IIT Kharagpur. During the conference, there were 40 invited talks and 200 contributory papers along with five specific tutorials. The Conference emphasizes the future growth of fiber optic communication and networks in India.

The Chapter has technically supported the Conference on Connecting Villages with Communication Facilities organized by FICCI (an industry association) at Delhi.

The Chapter has successfully organized a lecture/workshop under the Distinguished Lecturer Tour (DLT) program. Recently, Prof. K. K. Ramakrishna visited India and gave a workshop/lecture on QoS support for Internet technology. In all, more than 800 members attended at Delhi, Chennai, and Bangalore. Local hospitality was offered by the respective Sections. Next, a DLT of Prof. Bhargava is planned during November–December 2001. Mrs. Bharoti Sinha was also proposed for the DLT program from India.

The Chapter actively participated in the renewal of the Sister Society Memorandum of Understanding between IEEE Communications Society and IETE India. The MOU was renewed through July 2002. The Chapter is actively pursuing technical activities with IETE and also sharing its resources in terms of technical books/journals, lectures/conferences/workshops, and so on. Proposed joint activity with the Communications Society include issues like dual membership, group affiliation, a joint paper award, and representation on the IEEE Communications Society Board of Governors.

The Chapter has supported the IETE Zonal Conference on Information Technology and E-Commerce at Jaipur.

The Chapter co-sponsored organizing the 32nd World Telecommunication Day Celebrations on the theme "Mobile Communications" along with IETE. The Honorable Minister of Communications Shri Ram Vilas Paswan was Chief Guest of the Day.

The Chapter successfully supported opening up a Subsection at Jaipur and a Student Chapter at Pune. Another 30 Student Branches are in process of opening with the help of the India Council.

The Chapter financially and technically supported the participation of student members at international conferences for presentation of technical work, and technically supported a two-day seminar on Digital Signal Processing organized by the Student Chapter at Pune.

The Chapter shared its activities with the Student Chapter at Parshvanath College of Engineering, Mumbai University.

The Chapter has participated in the India Council organized Student Congress at Chennai.

The Chapter sponsored an IEEE Student Branch at Manipal Institution of Technology for organizing INTELLECT 2000.

The Chair of the Chapter attended the Regional Communications Society Chapter Chairs meeting at Seoul, Korea, and presented the views and activities of the Chair. The feedback from the meeting was shared with the members. Copies of the proceedings of ICPWC '99 were given to all the members of RCCC.

Major Technical Activities in 2000/*(cont'd from preceding page)*

The Chapter has initiated programs to enroll new members and recommend for membership to IEEE. Furthermore, the Chapter has widely published the new initiation of activities for membership development of the IEEE Communication Society. The half-year free membership program has had a very good response. With the Chapter initiative, the Communications Society Chapter membership has increased manifold and reached 2794.

Membership in all three societies has substantially increased; the present status is AES-10, 90 members; COM-19, 2794 members, and LEO-036, 124 members.

The Chair of the Chapter has recommended five IEEE members for upgrade to Senior Member and requested from the India Council the nomination of two Senior Members for Fellow.

The Chapter has successfully published its activities in AP Newsletter, IEEE Global Communications Newsletter, IEEE India Bulletin, and BEACON. The publication charges for one issue of IEEE India Bulletin were supported by the Chapter.

The Chapter has been successfully distributing information related to the following to its members:
- IEEE Communications Society— newsletter
- Mail Manager — Communications Society information about its future activities in terms of conferences/seminars and so on
- LEO Newsletter
- IEEE Global Communications Newsletter
- Publications of the IEEE Communication Society

The Chapter Chair represents India on the IEEE GCN Editorial Board.

The Chapter has financially supported technical books for the libraries of Ramakrishna Mission at Kanpur and donated 500 books, journals, and magazines available through the Chair of the Ministry of Information Technology and IEEE Communications Society to Father Angel Polytechnic and Delhi College of Engineering. All journals received from the IEEE Communications Society through December 2000 were sent to the above libraries after their use by members.

Copies of the proceedings of TENCON 2000, ICC '99, ICC 2000, and GLOBECOM 2000 were donated to the library of the Ministry of Information Technology.

The Chair of the Chapter also holds the Chair of the Delhi Section Communications Chapter. The meetings organized by the India Council and Delhi Section were well attended and the feedback was shared with the members.

The Chapter jointly organized the visit of IEEE President Dr.Eisenstein and hosted a dinner in his honor. Common issues were discussed.

The Chair of the Chapter was awarded a Professional Travel grant to attend GLOBECOM 2000 with financial support of US$1000. However, he could not attend due to non-availability of sufficient funds to cover expenses.

Future activities are:
Advances in Electronics — ELECTRO 2001
ELITEX 2002
ICPWC 2002
IN 2002

Communications Valley at the Adriatic Coast
By Dinko Begusic, Croatia

*T*he city of Split, Croatia, has been known for over 1700 years for the beauty of its unique natural site where the Roman emperor Diocletian found the perfect location for his famous palace. Tourists from all around the world have been enjoying the beauties of the sea and the city's antiquities. Others know it for its famous sports teams and schools of tennis, soccer, basketball, and water polo, and names such as Nikola Pilic, Goran Ivanisevic, Toni Kukoc, Dino Radja, and Tomislav Ivic.

In the second part of the 20th century, Split grew to nearly 300,000 inhabitants and developed into the largest industrial, urban, and university center of Dalmatia and the whole Croatian coastal area along the Adriatic Sea. By the end of the century, after Croatia's opening to the open market economy, industries such as cement, polymer, electronics, and chemical manufacturing as well as shipbuilding have run into hard times. However, besides the always promising tourism, one single branch of industry has not only survived collision with the open market conditions but appears to be the fastest growing industry in the area: the communications software industry.

Worldwide industrial trends in the area of communication and information technology helped local academic and industrial resources create the nucleus of a new Communications Valley in the city of Split.

The history of communications software in Split began in 1966, when the Faculty of Electrical Engineering in Split (founded in 1960), with the help of the local industry, acquired its first electronic computer. The Iskra ZUSE Z23/V, a hybrid transistor technology machine, was the first computer in an academic institution in Croatia. It was the start of computer engineering in the area. Celebrating its 40th anniversary in 2000, the Faculty, as well as the whole University of Split, has grown and developed into an enthusiastic team of experts in the field of communications engineering.

Eight years ago, the communications engineering group from the Faculty, together with the Croatian Telecom-Telecommunications Centre Split, joined forces and started an International Conference on Software, Telecommunications and Computer Networks, SoftCOM, and combined with the Software Fair organized by the World Trade Centre Split. Over eight years, the SoftCOM conference and the accompanying meetings have developed into a powerful telecom engineering and business event. The Ministry of Science and Technology as well as the Faculty of Electrical Engineering and Computing in Zagreb were gained as collaborators. For the last three years, Technology Centre Split joined these activities and introduced some new ideas. The conference has been held aboard the cruise ship Marko Polo traveling between Split and Venice, Italy, or between Dubrovnik and Bari, Italy. Technical cosponsors were IEEE ComSoc and other related organizations, including the Telecom Business Forum and telecom equipment exhibitions. SoftCOM 2000 attracted authors from more than 30 countries from all around the world.

During the last decade, the Faculty has hosted the regional node of the Croatian Academic and Research Network (CARNet), which played a crucial role, not only in academic networking, but also in the introduction of the Internet in all areas and segments of society in Croatia. In this period the collaboration of the Faculty with the main telecommunication services and infrastructure provider of the area, Croatian Telecom-Telecommunications Centre Split, was particularly fruitful. Together with CARNet, HT-TKC Split helped the Faculty build a new communication and information infrastructure. The collaboration with HT-TKC Split resulted in a

Electronics and Information Technology Exposition '2001
By R.G.Gupta, India

Ministry of Information Technology (MIT) has been funding research and development projects in the areas of electronics and information technology at various institutions. To disseminate information about indigenous R&D among the users and the industry, and also to promote interaction between industry and R&D institutions, ELITEX (Electronics & IT Exposition) has been organized since 1999. These expositions have generated a lot of interest among industry and users and have given a boost to indigenously developed technologies. The response of industry has been very positive and they have participated in the events with great enthusiasm.

ELITEX '2001 was held on February 5-6,2001 at India Habitat Centre, Lodi Road, New Delhi. The exciting new feature this time was the participation of Asian countries. Ministry of External Affairs (MEA) has extended technical and financial support to ensure the success of the event.

The theme of the ELITEX this year was CONVERGENCE. The Seminar covered sessions on convergence covering Technologies, Infrastructure, Management and IPRs including the legislation passed by the Parliament on IT Act 2000 and the Protection of Semiconductor Layout Designs Act and the proposed Convergence Bill being drafted by the Fali Nariman Committee.

The exhibition will focus on the technologies/know-how developed at various institutions related to the above theme. The participating institutions will get an opportunity to highlight their activities and technological/management services that can be offered to the industry and public at large.

It was a unique opportunity

• For industry to pick a product/technology for commercial exploitation
• For R&D institutes and academics to identify industry needs
• Sharing your views and experience with other experts
• Interaction with commercial attaches and delegates of other countries

ELITEX '2001 provided a forum for interaction among the technology developers and technology users.

number of projects in the area of contemporary communication technologies and services.

The University of Split is one of the cofounders of the Technology Centre Split, which helps small startup businesses based on new technologies. An example of such a succesful startup company is Kron, whose telecommunications software products have been exported into neighboring Slovenia.

The Faculty succesfully collaborates with the local telecommunictions industry. The Croatian telecommunications company Nikola Tesla, with headquarters in Zagreb, formed a software development group and started a collaboration with the Faculty in 1985. The group was steadily growing, developing the software for Ericsson switches. Today, the group has more than 60 engineers and holds a respectable position within the privatized Ericsson Nikola Tesla company.

In spring 2000, Siemens opened a department in Split, which grew very fast to nearly 50 engineers with university degrees. Both Ericsson and Siemens have announced plans to double their capacity by the end of 2001. A joint laboratory at the Faculty has been established as part of the collaboration with Ericsson Nikola Tesla and the Croatian Telecom-Telecommuunications Centre Split. Besides that, the Faculty has established contacts with Symbol Technologies of New York, which recently expressed readiness to equip a telecom laboratory at the Faculty. The Faculty has also joined CAR-Net's initiative to establish a Cisco Networking Academy to further the worldwide spread of professional education in the field of communication networking technology.

The combination of an academic institution capable of producing highly educated engineers together with powerful companies willing to invest in new software-based telecom technologies, all situated within a very attractive natural setting, has created a nucleus with great potential for fast development of a new Communications Valley in the heart of Europe.

in terms of the number of participants, the quality of technical and poster presentations, the number and quality of exhibitions, the visionary keynote speeches and special session speeches, and finally, lively discussions between attendees and presenters.

APNOMS 2001 is planned to be held in autumn 2001 in Australia.