Global
Communications
Newsletter

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Update from IEEE ComSoc Russia Chapters

By Henrich Lantsberg, Vice-Chair, IEEE Russia Section

It is a great pleasure to share the experience and activity of the IEEE ComSoc Chapters established in the IEEE Russia Section. First, a brief history of our relations and cooperation with the IEEE as a whole. The first efforts to establish activities in cooperation with IEEE go back to the middle of the '50s. The Russian (since 1991) A. S. Popov Society for Radioengineering, Electronics & Communications (the counterpart of IEEE) has enjoyed continual relations and scientific exchanges with IEEE. The Russian Popov Society (RPS) is the successor of the All-Union Popov Society created in May 1945. The creation of the RPS was a result of the disintegration of the USSR and formation of the Commonwealth of Independent States (CIS).

The goals of the Popov Society correspond to the goals of IEEE. One of the main goal of the Society is to develop international cooperation and maintain productive beneficial relations with the world scientific community. The Popov Society has now more than 100,000 members and 45 regional branches located from Western to Eastern Russia. The Society consists of 30 scientifically-oriented sections on different aspects of modern radioelectronics and communications, and publishes several journals. The Society and its regional branches annually convene more than 350 conferences and workshops including some international ones.

The president of the RPS is a member (academician) of the Russian Academy of Sciences, Yuri Gulyaev. He is director of the Institute of Radioengineering & Electronics of the Russian Academy of Sciences and a world-famous scientist recently elected to the grade of IEEE Fellow for seminal contributions to acousto-electronics, acousto-optics, and microwave acoustics.

The impetus to the creation of the IEEE Russia Section came from friendly meetings with the colleagues during the Popov Society delegation visit to the International Conference on Communications (ICC '90)/SUPERCOMM '90 in Atlanta, in April 1990. This joint conference provided a great occasion for a better understanding of IEEE's aims, which were similar to those of the RPS. At the conference, I was extremely glad to meet my good friend, Paul Green, who was ComSoc President at that time. I first met Paul during his visit to Moscow at the early '60s. All these events inspired us to establish the

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IEEE Communications Surveys

The Electronic Magazine of Original Peer-reviewed Survey Articles

www.comsoc.org/pubs/surveys

By Roch Glitho, Surveys Editor-in-Chief

IEEE Communications Surveys is the very first electronic-only ComSoc magazine. It was launched in 1996 with two objectives: to post online selected articles previously published in ComSoc print magazines; and to publish online, on a periodical basis, original peer-reviewed state-of-the-art tutorial and survey papers.

The focus was on the first objective during *Surveys'* first two years. This objective has been largely met, given the amount of papers posted on the site in 1996 and 1997.

The first objective assigned to *Surveys,* although largely met, became somehow rapidly obsolete when the ComSoc print magazines started posting electronic versions. This explains why *Surveys* entered a new era in 1998, with a focus on the second objective. Two yardsticks of this new era are worth being mentioned.

In early 1998 the editorial board size increased significantly, with 20 new members located in more than 10 different countries. At the end of 1998 the very first periodical issue was published, containing six articles and two departments.

IEEE Communications Surveys' chief goal today is the publication of original peer-reviewed survey articles on a quarterly basis. Three quarterly issues have been published so far, including the inaugural issue of late 1998. The articles published in these issues are on a plurality of topics, including:

- CDMA
- Active networks
- ATM
- Cable TV networks
- Satellite communications
- Optical networks
- Network management

Subscription is free of charge. If you are interested in receiving the table of contents of new issues as soon as they are posted, please subscribe to the mailing list. The Web site has an immediate subscription form. If you are interested in submitting manuscripts for eventual publication, please consult the call for papers on the Web site. Papers are solicited on all communications topics. The review process takes a maximum of eight weeks. Accepted papers are rapidly published because there is no backlog for the time being.

Communications Software Technical Committee

By Stan Moyer, CS TC Chair

The "official" charter of the Communications Software Technical Committee designates that its primary functions are to:

- Serve as the major forum for discussion among communications software professionals
- Act as a vehicle for elevating the state of the art in the areas of communications and computers
- Bring together professionals from the areas of communications and computers

Unofficially, we are simply a vehicle that enables software-oriented communications professionals to exchange ideas and concepts and discuss recent trends in technology and hot topics. We realize that there are many other societies and conferences for software-oriented professionals (e.g., ACM, IEEE Computer Society), but we believe that there is a need for providing a forum specifically for communications software professionals. However, we do suffer somewhat from this competition and could use more participation from IEEE Communications Society (and other) members. This participation can range from direct committee participation to simply submitting software-related papers to ICCs and GLOBECOMs.

This committee was originally split off from the Communications Switching Technical Committee. As such, initial topics of discussion tended to center around switching software (e.g., development techniques, coding practices, etc.). Like the rest of the software industry, our interests and topics have evolved. We now cover a range of topics from like Distributed Object Computing, Software Design Patterns, Unified Modeling Language, Fault Tolerant Computing, use of Java, Software Lifecycle Development methodologies, and mobile software agents.

We encourage interactions and discussions through several means. Our main activities revolve around the two annual IEEE Communications Society conferences — GLOBECOM and ICC. At both of these conferences we sponsor technical sessions, workshops, tutorials, panel sessions, and mini-conferences on a variety of software-related topics. We have also sponsored and co-sponsored separate conferences and seminars, such as:

- OPENARCH '98 and '99
- SoftCom '98 and '99
- 3rd International Baltic Workshop on DB and IS (1998)
- IWQoS '98 (16–18 May 1998, Napa, CA)
- IN '97 and '98
- 2IN '97 (2–5 Sept. 1997, Paris)
- Quality and Productivity for Communications in the New Millennium (May 1997, Ojai, CA)

To obtain Communications Software Technical Committee co-sponsorship for any software-related conference or seminar, please drop us a line (see contact information at the end of this article). Another means of promoting communications software awareness is through feature topics for *IEEE Communications Magazine,* for example:

- Design Patterns in Communications Software (April 1999)
- Distributed Object Computing (February 1997)

In addition, we are involved in standards activities as a sponsor of IEEE PIN 1520 (Open Programmable Interfaces for Networks).

We have committee meetings at every GLOBECOM and ICC — all are welcome and encouraged to attend and participate. There is an e-mail list (soft@cc.telcordia.com) that we use to share ideas, conference notices, etc. To subscribe to the list, send an e-mail to majordomo@cc.telcordia.com with the text, "subscribe commsoft" in the BODY of the e-mail. In addition, we have a web page at http://www.comsoc.org/~commsoft that contains technical committee news, events, call for papers, meeting notes, and other reference material — please surf on over.

If you have any questions, suggestions, and/or comments on any of the items in this article or any related topic, please feel free to contact me at stanm@research.telcordia.com

Report on the Technical Program of ICPWC '99

By Kumar Sivarajan, India

The fourth IEEE International Conference on Personal Wireless Communications (ICPWC '99), held 17–19 February 1999 in Jaipur, India, attracted more than 200 delegates from 30 countries. A total of 90 papers were selected for presentation at the conference. These were grouped in sessions entitled: Multicast, IMT-2000 Networks, Ad-Hoc Networks, Detection and Estimation, Random Access, CDMA Systems, Modulation, Equalization, Wireless TCP/IP and 802.11 Networks, Source and Channel Coding, Network Architecture and Design, Resource Allocation: Satellite Networks, Wireless Access and Local Loops, Software Radios, Mobility and Handovers, and Network Planning and Economics.

Tutorials were presented by Vijay Bhargava, University of Victoria, Canada, on "Multimedia Wireless Systems"; by Ramjee Prasad, Delft University of Technology, The Netherlands, and Neeli Prasad, Lucent Technologies, USA, on "GSM Evolution: Toward the Edge"; by Vijay Garg, Lucent Technologies, USA, on "Applications of CDMA to Wireless Communications"; and by A. Chockalingam, Indian Institute of Science, Bangalore, on "Internet and Data Services on Wireless Local Loop."

A panel discussion on "Advances in Wireless Local Loop Technology" was organized by Eric Barnhart (Chair/Moderator), Georgia Tech Research Institute, USA. Participants included Bhasker Ramamurthi, Indian Institute of Technology, Madras, and Ashok Seth, Qualcomm, India. Plenary talks were presented by Jorgen Bach Anderson from Aalborg University, Denmark; Anil Kriplani from Qualcomm, USA; P. S. Saran and Arvind Krishna from IBM T J Watson Research Center, USA; Tero Ojanpera from Nokia Telecommunications, Finland; and Anil Sawkar from Lucent Technologies, USA.

The conference enjoyed corporate sponsorship from Hughes Software Systems (India), IBM Solutions Research Centre (India), Lucent Technologies (USA), Nokia (Finland), Qualcomm (USA), Ericsson Communication (India), Siemens Public Communication Network (India), Silicon Automation Systems (India), and ST2E (France).

Copies of the 507-page conference proceedings (IEEE Catalog Number 99TH8366; ISBN 0-7803-4912-1) are available from the IEEE Operations Center.

The fifth IEEE ICPWC is scheduled for the second half of December 2000 in Hyderabad, India. Details may be found on the ICPWC '2000 Web site at http://www.citr.ece.uvic.ca/icpwc2000

First IEEE/Russian POPOV Society Joint Conference on Internet

By Jacob Baal-Schem, Israel

IEEE Communications Society and its Russian Sister Society, the Russian Popov Society (RPS), will jointly sponsor the first Conference on Internet Technologies and Services, in Moscow, Russia, on 25–28 October 1999. The Conference is co-sponsored by IEEE Region 8. The Conference Chair is Yuri Gulyaev of the Russian Academy of Sciences and its co-chair is ComSoc Past-President Steven Weinstein.

The conference promotes the exchange of scientific, technical, and operational information on existing and emerging Internet technologies and services among the local and international technical community. Moscow itself has more than 1.5 million Internet users and the goal of this conference is to discuss technological developments, practical experience, policy and future directions, as well as foster future collaboration.

The conference begins with two 3-hour tutorials on IP Telephony by Roch Guerin, and on Quality of Service in the Internet by Henning Schulzrinne. On October 26 and 27, following the official opening ceremony and a keynote speech by a well known scientist, a series of single track technical sessions will cover technical and application topics. The technical Program co-chairs, Guerin, Zubarev, and Schulzrinne have reviewed all papers submitted and built a strong program. The lectures cover among other subjects problems of Internet traffic, Russian search engines,Internet for Education and the ways Internet changes our life. Papers will be presented by members of the Russian Academy of Sciences, by high ranking officials and by members of the Russia State Committee for Telecommunications and Informatization, as well as by prominent members of the Internet community in the US and Europe. On October 28, a technical visit to the Russian Center for Internet technologies will be organized, during which demonstrations by leading companies are planned.

For further information, please contact Gayle Weisman at ComSoc headquarters (g.weisman@comsoc.org).

Report on OpenArch '99

By Kevin Calvert, USA

The Second IEEE Conference on Open Architectures and Network Programming (OpenArch '99) was held 25–26 March 1999, at the Sheraton New York Hotel and Towers in Manhattan. More than 110 people attended the conference immediately following IEEE INFOCOM, which was held at the same venue. OpenArch '99 comprised four technical paper sessions as well as keynote, panel, and demonstration sessions. The goal of OpenArch is to promote the exchange of information related to the various facets and uses of "programmability," broadly defined, in networks. Attendees represented a range of regions and interests, from programmable interfaces as a way of doing signaling and control for hardware (e.g., ATM) switches, to uses and approaches for more powerful virtual machines on the forwarding path in a packet switch. The technical program featured papers from five areas.

After opening remarks by the General and Program Chairs, the conference got under way on Friday with a technical session on "Virtual Networks," which featured two papers, one describing uses and technologies for virtual networks in the Internet, the other describing a new approach based on "spawning" network architectures. This was followed by a panel session on "Security Issues in Active and Programmable Networks." The panelists, all from the DARPA Active Networks research community, highlighted some of the problems and solutions arising from networks executing code carried in packets, including specification and semantics of policies governing which nodes trust which packets, and vice versa.

The Friday afternoon session was titled "Active Networks and Telephony." The session's first paper exemplified the desired cross-fertilization mentioned above, by proposing that an active network approach may be more effective for the telephone network than for a packet-switched network such as the Internet. Among the suggested reasons are the longer timescale exhibited by telephone calls compared with packets and the less sophisticated endpoints of the phone network. This session was rounded out with two papers dealing with the creation and deployment of new telephony services using the Internet and PSTN, and leveraging the mobile code capabilities of Java.

A demonstration session and an excellent reception at the Playwright Restaurant capped off Friday's activities. Demos included an application of active networks to network management, an architecture for transport of MPEG-4 video, the Mobiware mobility toolkit, and a troubleshooting capability for dialup networking.

A keynote speech by Dado Vrsalovic, V.P. of Internet Technology at AT&T Labs, began the day Saturday and was cited by many as one of the highlights of the conference. Dr. Vrsalovic described the motivations, objectives and characteristics of COIPP, the open platform "that is to be the foundation of AT&T's new network." Observing that computing was once sold as a service just as communication is today, he suggested that standard interfaces are transforming the communications industry as they did computing. "Open systems architectures reduce cost," he said, "while middleware expands the solution space."

A session on "Active Networks" followed the keynote. Its three papers described a high-performance active node that executes capsules containing native ix86 code; the "smart packets" approach to using active networks for network management developed at BBN; and AMNet, a hybrid hardware/software active network.

The final technical session of the conference focused on "Programmable Resource Management". The first presentation described the Darwin resource management architecture and introduced the notion of a "delegate," a runtime agent injected into the network by users to provide application-specific tailoring of resource management. Other papers in the session described the implementation and performance of a wireless ATM network based on the Xbind open signaling architecture; a bandwidth reservation scheme based on the "capsules" active network approach; and an object-based "meta-signaling" protocol based on extensions to the OMG GIOP, for end-to-end negotiation of network service requirements.

The final session of the conference was an open forum, featuring short talks by attendees on relevant subjects. These included: an overview of the CORSICA programmable network project; a suggestion to use active networks to perform service-level monitoring; an excellent overview of the IEEE P1520 APIs for the networks standardization effort; and announcement of a project investigating the implications active networking for low-power, mobile, multihop ad hoc networks.

The third Conference on Open Architectures and Network Programming is planned for 26–27 March 2000, in Tel Aviv, Israel. Check the OpenArch Web site at http://comet.columbia.edu/openarch for details.

RUSSIA CHAPTERS/*(Continued from page 1)*

IEEE Russia Section, which was created in August 1990. From that time on, we have constantly benefitted from the attention and understanding of IEEE leadership. Yuri Gulyaev was then elected to be the chair of the IEEE Russia Section. The Section now comprises more than 600 members — scientists and engineers have joined from 22 IEEE societies' chapters. The section also has several student branches. The chapters are located in several cities of Russia from the West (Moscow, Saint Petersburg, Nizhny Novgorod, Saratov) to the East In Siberia (Irkutsk, Novosibirsk).

The most active chapters created in the IEEE Russia Section include the following IEEE Communications Society Chapters:

1. IEEE ComSoc Chapter (Moscow) chaired by Yuri Zoubarev (zoubarev@niir.msk.ru)
2. IEEE ComSoc Chapter (Novosibirsk) chaired by Boris Kapilevich (boris@neic.nsk.su)
3. IEEE ComSoc Chapter (Saint Petersburg) chaired by Dmitry Tkachenko (ppdtkach@dux.ru)

It should be especially noted that the first member of the IEEE ComSoc Russia Chapter is a member (academician) of the Russian Academy of Sciences, Vladimir Kotelnikov, who is a Fellow of IEEE, Honorary Director of the Institute of Radioengineering & Electronics, Russian Academy and Sciences and world wide known in communications theory circles for his two contributions: his independent discovery of the sampling theorem for band-limited signals in 1933 and his celebrated theory of optimum noise immunity in 1947.

The first IEEE ComSoc Moscow Chapter was inaugurated at the 1st International Conference on Satellite Communications (ICSC '94) held October 1994 in Moscow. That event was one of the first endeavors convened in close cooperation between the RPS, IEEE ComSoc, and IEEE Region 8. Great efforts toward the creation of the ComSoc chapter in Russia and the organization of the conference were made by Jacob Baal-Schem (Region 8 ComSoc Coordinator from Israel).

The creation of the IEEE ComSoc Russia Chapter was a significant example of willingness and readiness of the world science community and Russian scientists and engineers to get together and share information on vital problems of modern science and technology in the field of communications. The conference exploring the theme "Satellite Communications that Unite Nations" was attended by 300 participants from UK, Italy, France, Turkey, USA, Russia, and CIS countries. The conference made a success and we conducted the 2nd conference on Satellite Communications in Moscow in September 1996, with the participation of ComSoc Past President Steve Weinstein, who presented an interesting paper. During his visit to Moscow he had an opportunity of visiting some research institutes and met with the members of the Executive Board of the RPS and the officers of the IEEE Russia Section and its chapters. The most important event was the signing ceremony of the "Sister Society" agreement to the cooperation between IEEE ComSoc and the RPS. The two organizations expressed their strong desire to pursue scientific-technical relations. The members of the Popov Society and IEEE ComSoc may mutually submit papers to their meetings, conferences and journals with some subscription privileges according to this agreement.

The recent 3rd Conference and Exhibition on Satellite Communications was convened in Moscow in September 1998. One of the main events annually organized every March since 1996 is Business Forum on Mobile Systems. This March was marked by the 4th Business Forum on Mobile systems.

It was a great success that the event was attended by more than 500 participants. During 1997 to 1998, the IEEE ComSoc Russia Chapter organized several conferences and workshops in cooperation with some other entities. June 1998 was marked by organizing the 1st International Conference and Exhibition on Digital Signal Processing and its Applications (DSPA '98). The 2nd DSPA '99 Conference and Exhibition will be held on June 29–July 2,1999 in Moscow. A new scientific journal, *Digital Signal Processing,* will be inaugurated during this conference. The new journal's Editor-in-Chief, Yuri Zoubarev, is Chair of the IEEE ComSoc Russia Chapter. This is a significant event since the journal appears for the first time in Russia due to the initiative and efforts made by the ComSoc Russia Chapter. The nearest most important event of the ComSoc Chapters is the preparation and convening the 1st IEEE ComSoc-IEEE Region 8-RPS Conference on Internet Technologies and Services (Moscow Internet'99) to be held in Moscow October 25–28. The conference convened on the initiative of the ComSoc will promote the exchange of scientific, technical and operational information on existing and emerging Internet technologies and services among members of the IEEE Communications Society, IEEE Region 8, the RPS and members of the international technical community.

Signing the agreement to the organization of this conference ComSoc President Thomas Plevyak said, "This Conference is an ambitious and exciting initiative of ComSoc, Region 8, and the RPS. It is the beginning of a more intense cooperation. In concluding, I should assure members of the IEEE ComSoc that you have many good sincere friends among your colleagues in Russia who really desire to cooperate with your respected Society for the sake of further development of science and technology, friendship and peace on the Earth. I do look with great optimism to the development and strengthening of our future cooperation for our mutual benefit."

See also the article on the first IEEE/Russian POPOV Society Joint Conference on Internet on page 3 of this issue of GCN.

Global Communications Newsletter

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NELSON L. S. DA FONSECA
Editor

Institute of Computing
State University of Campinas
P.O. Box 6176
13083-970 Campinas SP, Brazil
Tel: +55-19-7885878
Fax: +55-19-7885847
E-mail: nfonseca@dcc.unicamp.br
gcn@comsoc.org

ALGIRDAS PAKSTAS, Associate Editor
KENZO TAKAHASHI, Chapters Corner Editor

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