Global Communications Newsletter

September 2004

ISCC 2004: Message from the Technical Program Chairs

Dr. Symeon Papavassiliou, Technical Program Co-Chairman, New Jersey Institute of Technology, USA

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On behalf of the technical program committee, we would like to provide a summary of the challenging experience we had in acting as technical chairs for the Ninth IEEE Symposium on Computers and Communications (ISCC 2004), which was held in Alexandria, Egypt, from June 28 to July 1st, 2004.

We would like to first thank all the authors of contributed papers and all those who attended the conference. We would also like to extend our thanks to all the reviewers who contributed significantly to maintain high quality and fairness in the overall review and evaluation process. The technical program committee has ensured that only the highest quality papers have been accepted for presentation and publication in our conference proceedings. We received a very large number of paper submissions this year, 475 in total, from all over the world. Each paper has been reviewed by at least three international experts and then assessed by the program committee. We have accepted only 187 papers, an acceptance ratio of 39 percent.

The technical program contains 36 technical sessions arranged in four parallel tracks. These technical sessions and papers present interesting research and development efforts and results in the following diverse areas:

- Web services and e-commerce
- Agent technology
- Distributed computing systems
- Data mining
- Mobile ad-hoc and sensor networks
- Optical communications
- Security
- Wireless networks and systems
- QoS provisioning
- Signal processing
- Control and optimization of communication systems
- Network modeling and analysis
- Traffic engineering and network architecture
- Network and service management

Furthermore, four tutorials delivered by experts in their fields are included in the technical program. These tutorials covered several interesting aspects of the overall computer and communications fields, ranging from communications network design and architecture issues, to topics associated with project management for telecommunication services.

Distinguished keynote speakers have contributed with their talks to give insights into the fascinating world of computers and telecommunications, indicating new trends and future technology developments. Specifically, Dr. C. Magnusson covered issues related to IT security, shareholder value, and return on security investments, while Dr. R. Saracco dealt with leveraging of technology and markets to bring telecommunications business into the next decade. Dr. M. Campolargo, head of the Research Infrastructure Unit of the European Commission, delivered a speech on "e-infrastructures: changing the way research is done," which addressed issues such as the evolution of the pan-European GEANT network and presenting edge research currently ongoing on GRID technology.

In addition, a panel discussion on the management of telecommunication services was chaired by Dr. M. H. Sherif. Qualified speakers from both local and international telecommunication companies presented their views and experiences, and raised challenging issues of both practical and research importance.

We would like to express our sincere thanks to the program committee, session chairs, and expert reviewers who did a very professional job meeting all the tight deadlines we were forced to impose.

We believe that all the participants received great technical information at ISCC 2004 from the world's experts in the fields of communications and computers. The conference proceedings, published in both electronic and paper format, contain all the technical information and provide a source of knowledge for further discussions, while at the same time allowing information sharing among colleagues.

We are confident that ISCC 2004 provided a forum for high-quality interdisciplinary discussions on the various aspects of convergence between communications and computer technologies all over the world. The large diversity of the highly qualified participants and contributors, who come from a broad range of countries, universities, and companies, guarantee its success and quality.

In 2005 ISCC will be held in La Manga del Mar Menor, close to the city of Cartagena in Spain, and we would like to encourage everybody to contribute and participate in this event.

UMTS Mobile Services in Spain

By Juan José Alcaraz Espín and Fernando Cerdán, Spain

The commercial launch of third-generation UMTS mobile telephony services took place in Spain at the beginning of 2004, driven by Spain's two main wireless operators: Vodafone and Telefónica, the latter through its mobile services branch, MoviStar. Both competitors offer their 3G services to a selected number of corporate clients. Telefonica's third-generation product, released February 13, 2004, has been commercially branded as "Oficin@ MoviStar UMTS" and consists of a PCMCIA UMTS/GPRS dual card that enables access to 2.5G and 3G data services from a laptop at speeds of up to 384 Kb/s. On the other hand, Vodafone Spain launched a similar service three days later, by commercializing its dual-mode "G3 Card" capable of setting data service bearers of up to 384 Kb/s. Vodafone's cards are priced at 400 euros, and data services will be charged at one euro per megabyte. G3 Cards were first available in Spain's seven main cities: Madrid, Barcelona, Valencia, Sevilla, Bilbao, Zaragoza, and Málaga, spreading to 16 other cities through this year's second half, when both operators are announcing a full 3G commercial launch.

It has been four years since March 13 2000, when the Government granted the operational licences in the UMTS frequencies to four companies: Telefónica, Vodafone (Airtel by then), Retevisión Móvil, and the newly established Xfera Móviles. For the concession process the so called "beauty contest" procedure was followed instead of the auction used in many other countries such as England and Germany. In those times of technology-bubble optimism there was a huge interest in obtaining one of those four licenses, since three of them were considered to be bound to the former GSM operators (the first three in the list above). With the objective of gaining the remaining license, some of the main Spanish companies joined together, in several cases also joining with foreign operators. The winner, Xfera, was a joint venture of the two main Spanish general contractor companies, ACS and FCC, with two technological partners, the French giant corporation Vivendi and the Finnish operator Sonera. Other contestants were MevilWeb 21, led by German operator Deutsche Telecom and Movi2 with France Télécom. This tough competition caused technical, financial, and development commitments by the candidates in their tenders to go far beyond the contest's requisites. As a result, the primary investment figure committed by the four winners, for a ten-year deployment schedule, rose to a total of 16296 million euros, with the additional duty of creating 36300 direct jobs and up to three times that number of indirect ones. An amount 7408 million euros guaranteed those commitments. However, license prices were set to the relatively low cost of 84 million euros each. The Spanish Government was criticized by several lobbies who considered that the 336 million euros collected by the administration was a negligible amount compared to the quantities achieved by countries that had chosen the auction method. For example, Germany had reached the astonishing sum of 8400 million euros. Those criticisms and a change of minister led to a change in collecting objectives, and a new tax was created for wireless operators to pay a yearly rate of 821.55 million euros on radioelectric spectrum operation. This rate triggered strong objections from the operators and was afterward lowered to 286.14 million. The initial launch deadline was August 1, 2001, a highly ambitious date even for those days of technological optimism, maybe due to the fact that license grants coincided in time with elections.

Since then changes in the sector and changes in the financial health of the operators have forced a delay in the final launch date three times, to the second half of 2004. Furthermore, initial budgets have been going down as well as other commitments such as new job expectations and service coverage. The last signed agreement among the four operators and the government, in March 2004, includes the provision of 6300 million euros in ten years, 10000 direct jobs, and 45 percent coverage the first year and 70 percent coverage in two years. In addition, there is the possibility of network infrastructure sharing among operators.

Nevertheless, the obligations to create development and research institutes, finance technological base companies, and other social projects for an amount of 2000 million euros were cancelled. To make that decision the government considered European Union recommendations and, in particular, Erkki Likanen's (European Information Society commissary), who

(Continued on page 4)

Comments on "Developments of the Telecommunications Regulation Framework in the Western Balkans," Published in Global Communications Newsletter, July 2004

Comment #1

Regarding the article cited in the title, I have seen some facts that are not correct in the Serbia-Montenegro section.

- Kosovo is not part of Montenegro; it is part of Serbia.
- In the Republic of Montenegro, the Telecommunication Law was adopted at the end of 2000, and in March 2001 an independent Agency for Telecommunication was established as a regulatory body.

It is clear now that the following functions have to be carried out at the federal level, since Serbia and Montenegro is a member of the United Nations:

1. Representation in international organizations (ITU, etc.).
2. Developing a numbering plan.
3. Frequency planning

We are now in the process of making decisions in these areas.

My references about these topics are articles in *IEEE Communications Magazine*, vol. 36, no. 11, and vol. 38, no. 8.

Dr Milan Jankovic, Director General, Community of Yugoslav PTT, Palmoticeva 2, 11000 Beograd, Serbia and Montenegro.

Comment #2

In the July issue of *Global Communications Newsletter*, in the article entitled "Developments of the Telecommunications Regulation Framework in the Western Balkans" there is an incorrect statement. The last sentence should read:

"It is worth mentioning that Kosovo, part of Serbia under United Nations supervision, has established an independent regulatory body and will launch two GSM licenses."

As published, this sentence incorrectly stated:

"It is worth mentioning that Kosovo, part of the Montenegro territory, which is under United Nations supervision, has established an independent regulatory body and will launch two GSM licenses."

Dusan Radovic, Beograd, Serbia and Montenegro

A Developing Countries' Perspective of Power Line and Wireless Communications

By Atli Lemma, Addis Ababa, Ethiopia

The penetration of power and telecommunication networks in developing nations is significantly lower than in the developed nations due to many factors such as high capital cost and a lack of expertise, as well as social and demographic problems. Hence, developing nations need cost-effective technologies, such as powerline and wireless/mobile communications systems, to quickly improve their networks. The penetration of power systems in many developing countries is considerably higher than that of telecommunication networks. For example, in Ethiopia the power network has a penetration of 13 percent, whereas telecommunications penetration is under 3 percent. There are plans underway to connect more towns to the telecom network and the power grid. At the completion of the major planned projects, the national output will still be approximately 1 GW for a population of 70 million. By the end of 2004 the number of mobile subscribers will be 0.2 million. The number of fixed lines has been on the rise for a few years now, with the total still under one million, indicate very limited penetration. The scenario is similar for most developing countries. Therefore, in view of the high capital cost and the economic and social problems, power utilities and telecom in these countries need to plan, expand, develop, and administer their "common" resource, such as cables and towers. The potential benefit of sharing cables and towers has become attractive even for developed nations (field trials of PLC have been conducted in Europe and the United States [1]). Another opportunity for developing nations exists in the evolution of telecommunication services to wireless/mobile — anytime and anywhere — which will make it possible to "reach" a large population of nomads and widely spread farmers. The considerable size of these disperse populations — 10 percent to 15 percent in Ethiopia — makes the business and the development of wireless/mobile telecommunications easier than following the conventional cable-to-house approach, which will enable developing countries to quickly close the digital gap that currently exists with developed countries.

Power utilities and telecom in these countries need to plan, expand, develop, and administer their "common" resource, such as cables and towers.

There are unique factors in developing countries that make resource sharing a necessity. First, the purchasing capacity of many citizens is weak. If utilities and telcos share cables and towers, the unit service cost will be lower, and hence they will support more customers and expand and further reduce service cost. A second factor is the mobility of a large portion of the population. The usage and deployment of existing and new telecommunications/power infrastructures through resource sharing will provide significant value for business and make possible sustainable development. Hence, planning, research, and development of resource sharing by relevant industries and academia are needed to accelerate the advancement of information technology in developing countries.

References

[1] S. Galli, A. Scaglione, and K. Dostert, "Broadband is Power: Internet Access through the Power Line Network."

Call for Submissions

IEEE Global Communications Newsletter (*GCN*) seeks original papers of general interest in the field of communications and related areas. Topics include, but are not limited to:

- National and regional developments in communications technologies, services, markets and standards
- Pilot experiences in communications
- Communications research and development
- Reports on national and international large-scale projects (e.g., NSF, EU IST)
- Telecommunications convergence, regulatory, and legal matters
- Information and knowledge society
- New applications of communications in politics, health, education, commerce, security and defense, surveillance, agriculture, standard of life, handicapped people care, industry, tourism, space, transportation and navigation, environment, sustained development, globalization, and so on
- Research trends
- Market trends
- Historical perspectives in communications
- Education in communications
- Reports on key workshops or conferences
- ComSoc chapter activities

Authors willing to present research results in communications are encouraged to avoid exhaustive or theoretical descriptions and focus on the general interest of their work. In that case, they should cite the sources (project URLs, journals, conference proceedings) where detailed descriptions can be found.

Authors willing to submit reports on workshops or conferences are especially encouraged to do so in case of IEEE-backed ones, although *GCN* is open to disseminate the conclusions of any event in the field of communications.

Please check previous issues in *IEEE Communications Magazine* or contact Joang.Haro@upct.es or javier@det.uvigo.es if there are any questions about the suitability of a paper.

Prospective authors should prepare their manuscripts preferably in plain ASCII or MS Word format, with a maximum length of 1200 words, and send them to either of the submission addresses below. MS Word files may have pictures and tables embedded (subtract 200 words per each figure or table). Alternatively, provide them as separate files using any standard coding. Only send screen dumps if strictly necessary, since they will be subjected to a minimum resolution of 300 dpi in the final version.

Submission addresses:

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Report on ELITEX '2004

By R. G. Gupta, India

ELITEX '2004 was inaugurated by Dr. R. A. Mashelkar, DG, CSIR and Secretary, DSIR. The keynote address was delivered by Shri K. K. Jaswal, Secretary, DIT. During their speeches the honorable guests mentioned the role of technology as a leader during the current century. The close association between academia, R&D institutions, and industries was clearly described and emphasized.

Dr. Mashelkar appreciated the efforts made by DIT in organizing ELITEX '2004.

The honorable minister visited the exhibition on the second day and appreciated the efforts in showcasing technologies developed under the support from DIT. He expressed his wishes for the continuation of ELITEX as an annual feature of DIT.

The following products/technologies were transferred and released:

- A general purpose control system developed by CDAC Trivandrum.
- A distribution automation system developed by CDAC Trivandrum.
- Solder paste for hybrid circuits and surface mount technologies developed by C-MET.
- A vehicle underside scanner (VUS) developed by IIT Delhi.
- A software application system entitled "Manus Granthavali," developed by National Informatics Centre.
- Shruti drishti software developed by Media Lab Asia.
- A cell phone jammer for GSM and CDMA developed by SAMEER-Chennai.
- A 2RF channel CDMA receiver developed by SAMEER-Chennai.
- Calligraphic fonts for devanagri language developed by CDAC.
- A C-VPN developed by CDAC.
- Pressure sensors developed by SCL Ltd.
- An IPR manual for industrial design.
- A Patent sampler.
- A cyber law book.
- IPR public outreach CDs.
- A fine-tuned search engine.
- Software code compliance developed by the Centre for Reliability, Chennai.
- Software test coverage developed by the Centre for Reliability, Chennai.

The seminar sessions were focused on the theme of ELITEX '2004: Technology Vision: India in 2010, including innovation exchange; high-performance and grid computing; human computer interface; next-generation wireless technologies; India: a global R&D hub for ICTE; IT security: emerging scenarios; software technology trends; trends in nanotechnologies; e-governance: implementation issues and strategies; and the broadband economy. Besides creating awareness about DIT technologies, ELITEX '2004 promoted R&D industry linkages essential for the absorption of indigenous technology by industry and for stimulating innovations. Seminar deliberations were available online via direct Webcasting on www.elitexlive.nic.in and www.elitexindia.com, and also at all the video-conferencing centers of NIC. The video-conferencing centers attracted a large number of visitors to watch the proceedings.

A compilation of 352 "Technologies/Products Developed under DIT Funding," containing an abstract of each of the technologies, was circulated.

Global Communications Newsletter

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A publication of the
IEEE Communications Society

UMTS IN SPAIN/*(cont'd from page 2)*

in January 2004 sent a letter to European Union governments discussing the legality of suits against operators, but those strictly related to service. By doing so, new complaints from consortiums that had competed for and lost a license were avoided.

After the crisis the central administration wished to transmit optimism to the market, since Spain has one of the highest penetration levels of mobile services in Europe and worldwide. Spain has a market of 37 million users of GSM services (90 percent of its population) and mobile terminal sales grew by 10 percent in 2003 thanks to multimedia terminals, which account for 30 percent of the market. It is also important to note that the traffic generated is another competitive advantage, since seven out of 10 Spaniards initiate mobile calls every day.

Amena and Xfera, the two other operators without a service launch deadline, are discussing an agreement on roaming as well as for equipment and network sharing (the latter including Vodafone and Telefonica). In any case, the Spanish government is opposed to nationwide distribution of UMTS, so each operator is in charge of a small number of provinces, leading to the cheapest deployment. It seems clear that this will be the case for rural areas, whereas in big cities there will be different networks, favoring competition. So far the four operators have installed approximately 2000 base stations, with a projection of 21500 base stations by 2014.