Global
Communications
Newsletter
June 2011

The Spanish International Campus of Excellence Program

By David Montoro-Mouzo and Juan Pedro Muñoz-Gea, Polytechnic University of Cartagena, Spain

The International Campus of Excellence (ICE) program, promoted by the Ministry of Education of the Spanish Government, is working to improve the quality and excellence of the Spanish universities and their environments. Similar programs have been carried out in France (with the Opération Campus program) and Germany (with the Exzellenzinitiative program). All of them are based on additional funding for the best universities, with the intention of achieving excellence and more international presence. Another common characteristic of the three previous programs is that they consider reinforcing research activities, by supporting Ph.D. schools and research institutions, the key to achieving the proposed objectives. On the other hand, other multinational organizations, like the European Commission, have also promoted similar initiatives.

The ICE program was initially staged in 2009, and it is supported with a budget of €590 for the period 2008–2010. These funds are given in the form of direct subsidies for the campuses involved, and in the form of reimbursable credits for the regional public authorities of the territory where the campus is placed. Using these funds, the campuses and regional authorities are capable of implementing their strategic plans to move toward international excellence. The ICE program is intended to solve the problems caused by the weaknesses of the Spanish university model. The main problem is the geographic atomization of universities: there are 50 public institutions and 28 private centers, scattered across 232 campuses and territorial sites. This situation leads to high maintenance cost and an extensive duplicity of offered courses. From the point of view of research, this scattering means more difficulties in achieving a critical mass of talent. These, and other aspects, have led to none of the Spanish universities being placed among the world's top 200 in the Academic Ranking of World Universities (ARWU), and only eight were in the top 500.

The objectives of the ICE program can be summarized in three main aspects. First, it is intended to improve the international visibility of the best Spanish university campuses. The excellence concept extends beyond academic excellence to excellence in teaching, excellence in research and innovation, and excellence in the physical and social environments of the campuses. Second, it is intended to promote clustering and specialization, that is, universities specializing in only one to three disciplinary areas. This policy is intended to enhance the efficiency, performance, and international competitiveness of Spanish universities. Finally, the third objective is to redefine the concept of campus. In the ICE program, it is intended to improve the physical environments of the campuses, and the manner in which the universities interact with the cities and regions where they are placed. In this context, the objective of creating European Knowledge Regions based on collaboration among Spanish, French and Portuguese universities is especially remarkable. Furthermore, the possibility of creating cross-border campuses is also contemplated.

In order to select the best projects, the institutions have to go through a serious selection process that takes place every year. First, the institutions interested in turning into an ICE have to submit a project for approval by a Technical Committee. This committee selects the best projects, which are then laid before an International Assessment Committee. This international committee of experts chooses the list of ICE projects to be adopted in that year. Finally, the winner projects are funded and developed. In the choice of winner projects different aspects are considered: improvement of teaching, adaptation to the European Higher Education Area, renovation of teaching buildings, the transference of knowledge to businesses, development of the territorial environment, internationalization, and improvement of research activities. Currently there are around 20 projects under development to convert various universities and scientific institutions into Campuses of International Excellence. Among them, there are projects in Barcelona, Madrid, Cartagena, Seville, and Valencia.

In conclusion, it is expected that the program will contribute to improve the teaching and research quality of Spanish universities, as well as to increase their international visibility. Thus far, the ICE program has been a powerful tool to stimulate the process of modernizing the Spanish universities and transforming them into a key factor of the intended shift in the Spanish social and economic model. This will improve employment, social cohesion, and local development of the territories where the ICE campuses are located by the development of a better education system, and a better research and innovation system.

VITEL 2010 International Workshop: Transition to IPv6

By Ana Robnik and Marko Jagodic, EZS – SIKOM, Slovenia

The Slovenian Society for Electronic Communications, EZS–SIKOM, a Sister Society of IEEE Communications Society, has a very long tradition of organizing national and international events on telecommunications in Slovenia. The intention of the events has always been to concentrate on the most important and relevant topics at the time, leading to more efficient and useful or simply viable telecommunications for everybody. This principle also explains the name given to these events, which is VITEL (Viable Telecommunications).

VITEL is guided by the International Advisory Committe,e composed of well-known telecommunication experts primarily from the Central and Eastern European Region and chaired by Marko Jagodic. The selection of papers and creation of the final program is prepared by the Program Committee composed of eminent telecommunication professionals from Slovenia and chaired by Alojz Hudobivnik from Iskratel. The Organizing Committee, responsible for the realization of the event, is different for each event. This one was chaired by Ana Robnik from Iskratel.

The committees decided to select "Transition to IPv6" as the appropriate theme for the VITEL 2010 International Workshop with the objective of bringing together experts from operators, service providers, academia, and industry alike to address this very important topic for the future development of telecommunications and the Internet with fast growing numbers. The event was sponsored by the IEEE Communications Society Chapter of Slovenia, the Ministry for Higher Education, Science and Technology, and the Ministry for Economy.

Multimedia-rich communications in modern converged fixed and mobile networks have triggered a rapid increase in the number of endpoints, particularly mobile users, and rapid expansion of all IP communication infrastructures, boosting demand for IP addresses well beyond the capacity of IPv4 address space. Theoretically only 4.3 million users can be connected with public IPv4 addresses. Therefore, desktops in various organizations, mobile phones, and standalone devices use private address space, connected to a single or a few public IPv4 addresses. With network address translation and usage of private addresses instead of public ones, the third-generation (3G) community and service providers solved on a short-term basis the problems with shortage of IPv4 address space; they got these from either the Internet Assigned Numbers Authority (IANA) or the Regional Internet Registry for Europe (RIPE). As a consequence, network providers have faced many problems with the complexity of managing such networks, visibility of end users in a public network, and collisions among IP addresses in case of merging such networks.

Accelerated transition from IPv4 to IPv6 has thus become one of the most important conditions for the efficient realization of the future Internet, which is also listed among the four priority areas for investment in the Digital Agenda for Europe.

The Workshop took place in the Congress Centre Brdo-Kranj on 19 and 20 April 2010. Mr. Nikolaj Simic, General Director of the Directorate for the Information Society of the Republic of Slovenia, opened the Workshop. In his opening address he discussed the extreme importance of the theme, and its short-term and long-term positive influence on the evolution of future telecommunications and Internet. Presentations for the workshop were prepared by representatives from universities, ministries, the regulator, network operators, providers of services and applications, and equipment vendors and suppliers. The most important foreign participants were Mr. Teemu Savolainen from Nokia and Mr. Marco Hogewoning, co-chair of the RIPE IPv6 Working Group.

Ana Robnik, Chairwoman of the Organizing Committee.

On the first day of the Workshop the status of the transition to IPv6 in Slovenia and around the world was discussed as well as the existing transition strategies of major equipment vendors and network operators together with encountered problems. Although using strategically different approaches for the transition to IPv6 around the world, the achieved results and experience are encouraging. What is worrisome is that the number of countries deciding to make this transition is far smaller than expected. The main reasons are rather high expenses, which are difficult to justify, and lack of interest in make the transition through the whole chain, starting with users and providers of services and applications. A big deficiency is also the lack of backward compatibility between IPv6 and IPv4. Therefore, it is extremely important that a very detailed and systematic plan be in place before the actual transition starts.

The first day ended with a roundtable entitled "Transition to IPv6 — Waiting for Godot?" The roundtable, moderated by Dr. Mitja Štular, was very provocative and inspiring. One of the most important results was the decision to prepare a document for the Directorate for the Information Society of the Republic of Slovenia, which will serve as a basis for its future activities in this area.

On the second day examples of good practice were presented and discussed, based on different strategies, different network and service environments, and different business or technology initiatives. The workshop was concluded with the presentation of transition mechanisms Dual Stack Light, 6RD, A+P, and others. More than 150 participants attended the workshop.

1st Alexander Graham Bell Memorial Lecture by Tapan K. Sarkar in Hyderabad

By Deergha Rao Korrai, Chairman of the Communications and Signal Processing Societies Joint Chapter, IEEE Hyderabad Section

The Communications and Signal Processing Societies Joint Chapter of the IEEE Hyderabad Section was inaugurated on April 17, 2010. Since then, the Chapter has organized several Distinguished Lectures, technical lectures, and tutorials. The Hyderabad Chapter is initiating a series of lectures starting in 2011 to mark the anniversary of the birth of Alexander Graham Bell, who took up Meucci's invention of the telephone and transformed it into an industry product with telephone service and its infrastructure. The Chapter wishes these lectures to be delivered by distinguished scientists on the birthday of Alexander Graham Bell, 3 March, every year, in the broad areas of communications and signal processing.

Dr.Tapan K Sarkar, IEEE Fellow and professor in the Department of Electrical and Communications Engineering, Syracuse University, New York, delivered the 2011 memorial lecture, "A Look at Some of the Principles of Mobile Communication from an Electrical Engineering Perspective," on 3 March 2011 at Seminar Hall CR Rao Advanced Institute of Mathematics, Statistics, and Computer Science (CR Rao AIMSCS), University of Hyderabad, Hyderabad Campus.

The IEEE Signal Processing Society funded Dr. Sarkar's international air travel and accommodation for two nights in Hyderabad. His domestic air travel, travel within Hyderabad, and accommodation for one night in Hyderabad were arranged by CR Rao AIMSCS.

The audience for this lecture was 46 students, research scholars, participants from industry, and faculty from universities and colleges.

During the lecture Dr. Sarkar stressed that one of the basic tenets of contemporary mobile communication is directing electromagnetic energy from a transmitter to a receiver by employing an array through space-division multiple access. As the antenna beam pattern can only be characterized in the far field, it is useful to recollect where the far field of an antenna starts. For example, if a half-wave dipole is operating at 1 GHz in free space, its far field starts 0.15 m from the dipole. However, if that same dipole is placed on top of a tower 20 m above the Earth, its far field starts approximately 10 km away from the antenna, which is quite a large distance. Under a Maxwellian approach, it is difficult to visualize what antenna beamforming means in a near field environment and increasing channel capacity under this environment through antenna diversity. Since in a near field environment power is complex, it is difficult to visualize what a complex value for power in the expression of Shannon channel capacity will signify. However, through application of the reciprocity principle, it is possible to direct the signal from a transmit array to a preselected receiver and produce minimal signals simultaneously at other undesired receivers, even in a near field environment. It has been shown that the propagation measurements made by Okamura, and the development of the model by Hata and the plethora of refinements of this model can all be explained quite simply using a commercial electromagnetic simulation tool for analyzing antennas over an imperfect ground plane using the Sommerfeld formulation. Such an analysis can duplicate the slope of the propagation measurements with remarkable accuracy, and can thus perform propagation modeling.

Antonio Meucci, the first electromagnetic telephone inventor.

Dr. V. U. Reddy (first from right), IEEE Life Fellow, memorial lecture subcommittee chair Dr. Tapan K Sarkar (second from right), Dr. Deergha Rao Korrai (third from right), Chapter Chair, and IEEE volunteers of the Hyderabad section after the lecture at Seminar Hall, CR Rao AIMSCS.

Finally, he discussed broadband systems where dispersionless communication can take place over a 40 GHz band width. Experimental results were provided to illustrate how that can be accomplished. However, to arrive at this goal, we need to reorient our way of thinking. The conventional wisdom that the radiation pattern of an antenna when it is operating as a transmitter is equal to the same pattern when it is operating as a receiving antenna does not hold in the time domain. The transmit impulse response of an antenna is the time derivative of the receive impulse response of the same antenna. This is relevant for wideband baseband communication. For a certain choice of transmitting and receiving antenna systems, the entire propagation wireless channel can be made completely dispersionless over a 40 GHz bandwidth.

At the end, all the participants agreed that the lecture was excellent.

The Federation of Telecommunication Engineers of the European Union: The European ComSoc Sister Society

By Andrea Penza, FITCE President, Italy

The Federation of Telecommunication Engineers of the European Union (FITCE) is a forum for the information and communications technology (ICT) and media professionals community to exchange views and gain insights on the new developments and challenges related to technical, regulatory, societal, and economic aspects of ICT and media technologies and services. Since 2009 it has been one of the European ComSoc Sister Societies.

2011 is really a special year: FITCE is going to celebrate its golden anniversary, 50 years of life, a meaningful life and rich with great successes.

Since the beginning, FITCE was a technical reference point within the European Union, trying to convey the interests of all the technological worlds, universities, the business world, governments, and institutions. In the past 50 years FITCE committed itself to developing the telco culture, and stimulated the relationship between members and the stakeholders in the market. Every year FITCE has organized an important congress in a different European location, and most of the reference people of the European telecommunications bodies attended and offered great contributions to the development of the culture of the sector. For many years the yearly FITCE Congress represented the meeting point for exchanging information, ideas, and opinions in telecommunications. For many years the yearly Congress was named "The European Days of Telecommunications," outlining the great meaning and importance this event represented in the European telco community.

Since its beginning FITCE has been a valuable theatre and reference point of prestigious meetings between the most important stakeholders in the telco market, sharing opinions, points of view, and common values. After 50 years, FITCE has to be fully proud of the high-level contributions offered by all its members to the development of the telecommunication culture either in specific European countries (via National Associations) or in European organizations.

Now, after 50 years, as FITCE President I am pleased to announce that we have decided to celebrate this special birthday during our yearly congress. It will be held in Palermo, Italy, from 31 August to 3 September, with the strong support of a joint partnership with IEEE ComSoc, the most important and prestigious telecommunications society in the world. That constitutes for FITCE great motivation of pride and success. We decided to celebrate this important event with a special program where specific awards will be assigned to all the people who, since the beginning of FITCE'S history, have offered strategic and prestigious contributions to its development and growth. All those who have distinguished themselves within FITCE life have also experienced great success in their professional life, offering meaningful contributions to the evolution of the telecommunication world.

The title of the Congress, "ICT: Bridging the Ever Shifting Digital Divide," will create the opportunity to discuss the most up-to-date topics in the telecommunication market of today, always with an eye open to future trends. Mobile and fixed telco trends will receive top priority in the development of the strategic topics of the Congress.

The Congress will explore many issues: technological, economic, financial, and strategic; all these aspects of the telecommunication world will resonate deeply, and special attention will be given to the new emerging topics of sustainability and green ICT in order to discuss and consolidate ideas and contributions to the social well being of all of us.

My best wishes for FITCE's future and our partnership with IEEE ComSoc.

Global Communications Newsletter

www.comsoc.org/pubs/gcn

STEFANO BREGNI
Editor

Politecnico di Milano - Dept. of Electronics and Information
Piazza Leonardo da Vinci 32, 20133 MILANO MI, Italy
Ph.: +39-02-2399.3503 - Fax: +39-02-2399.3413
Email: bregni@elet.polimi.it, s.bregni@ieee.org

IEEE COMMUNICATIONS SOCIETY

KHALED B. LETAIEF, VICE-PRESIDENT CONFERENCES
SERGIO BENEDETTO, VICE-PRESIDENT MEMBER RELATIONS
JOSÉ-DAVID CELY, DIRECTOR OF LA REGION
GABE JAKOBSON, DIRECTOR OF NA REGION
TARIQ DURRANI, DIRECTOR OF EAME REGION
NAOAKI YAMANAKA, DIRECTOR OF AP REGION
ROBERTO SARACCO, DIRECTOR OF SISTER AND RELATED SOCIETIES

REGIONAL CORRESPONDENTS WHO CONTRIBUTED TO THIS ISSUE
MARKO JAGODIC, SLOVENIA (JAGODIC.MARKO@GUEST.ARNES.SI)
JOSEMARIA MALGOSA SANAHUJA, SPAIN (JOSEM.MALGOSA@UPCT.ES)
EWELL TAN, SINGAPORE (EWELL.TAN@IEEE.ORG)

A publication of the
IEEE Communications Society