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Next-Generation Access Networks Are Fostered to a Competitive Market in Spain

By J. C. Sanchez-Aarnoutse, F. Garcia-Sanchez P. Manzanares-Lopez, Spain

The Spanish Telecommunications Regulatory Authority (CMT) has published its guidelines on the future regulation for next-generation access (NGA) networks. A telecom regulator is an independent public organization with legal recognition formed by experts from various companies and governmental organizations. Their responsibility is managing the telecommunications industry by means of regulatory documents, giving fairness to the competitive telecommunications market.

The NGA network of global communications services for final users is based on optical fiber technology, which allows high bandwidth and faster systems. Therefore, its final deployment is a very useful improvement that facilitates the generation of new services and research in different fields such as integration systems (Internet TV, Internet access, or interactive services) and multimedia.

Needless to say, the current market is a dynamic environment that changes constantly: every day sees the appearance of new technology, competitors, and services. Without regulations, stronger operators could offer lower prices in order to eliminate competitors, reaching an undesirable monopoly situation. Therefore, dominant companies would be free to offer services at any cost and could reduce the investment in new technologies or updated services.

In Spain, as in most European countries, telecommunications was monopolized by a government company (i.e., Telefonica) up until the late 1990s, when the European Union stipulated that this situation needed a telecom regulator. CMT is still in the charge of changing from a governmental monopoly situation to a competitive one.

In its new guidelines, the CMT clearly states that the main objective is to promote investment and technological innovation of operators in the deployment of optical fiber networks. That is, the CMT aims to create a framework that boosts investment in optical fiber throughout the country, achieving competition not only in services, but also in infrastructure. This will allow final speeds of up to 100 Mb/s and multiplicity of services.

Obviously, incoming NGAs are the next step in network deployment; therefore, this new scenario should represent an economic challenge to the entire telecommunications sector. These guidelines are not the definitive document, but they outline the CMT's key ideas. For a more detailed document, the CMT needs to carry out exhaustive market analyses to check if competition exists and determine what kind of competition it is, whether it is territorial or national and how it could evolve. The CMT will also regulate each particular area according to "objective and identifiable" criteria.

Among the most relevant challenges, the first one is ensuring investments in infrastructures carried out by operators (Telefonica and alternative competitors). The document suggests that optical fiber networks are not going to be regulated at first, forcing them to develop their own infrastructure. This is the most critical point in the regulation and is still being discussed. It might provide strategic advantages to current operators that have different optical infrastructures, leaving recent competitors at a disadvantage in infrastructure deployment.

Regarding passive infrastructures (ducts, etc.), the CMT stated that network operators would be obliged to share these infrastructures with other competitors should they wish to deploy their own optical networks.

The second priority is to guarantee wide bandwidth access even when optical fiber is not available in difficult accessibility areas. In this case the CMT will recommend that the government create a secondary market which will complement the optical fiber networks with wireless technologies.

Finally, the regulation for legacy copper networks will maintain their existing rules since they offer a competitive advantage for Telefonica. This way, alternative operators can keep offering current access.

The CMT guidelines have provoked different opinions about these main criteria. Some experts think it is unnecessary to deploy more than one optical network. Why do we need two or thee different fibers entering our homes? Other experts are even more critical, and argue that this regulation will clearly benefit Telefonica because (1) Telefonica has been deploying its own optical network, and (2) several guidelines related to Telefonica's infrastructures and competitive/non-competitive areas (large cities and populated places/rural and less populated territories) are too ambiguous.

In our opinion this scenario represents a good chance for Spain to foster access technology and to close two gaps: the digital gap existing between Spain and the most advanced countries in Europe, and that existing between the two types of areas within the country, competitive and non-competitive.

Nowadays, deploying more than one optical network may be risky, and the model may not be applicable to all situations. Some operators may not even consider it profitable, reducing their activity in Spain. However, access replication may be only a minor risk, considering investment recovery and the opportunity of new challenge markets. To conclude, let us highlight, first, that the CMT document is not definite; and second, the operators have the chance to manage strategic alliances in order to reduce the final cost to users.

The Italian Scientific Association for Telecommunications GTTI Meets in Florence

By Marco Luise, GTTI Secretary, University of Pisa, Italy

The arrival of the Italian summer and the statues of the Giambologna in Florence greeted the annual meeting of the Italian scientific association for telecommunications Gruppo Telecomunicazioni e Teoria dell'Informazione (GTTI, http://www.gtti.it) held in the city of the Renaissance June 16–18, 2008. GTTI means National Telecommunications and Information Theory Group, and is a long-standing association of teachers and researchers from all Italian universities and research institutions that operate in the field of telecommunications and, more generally, in the broad area of the information and communication technologies (ICT). Specifically, the GTTI was established in the 1980s under the aegis of the Italian national research council (Consiglio Nazionale delle Ricerche, CNR) as a scientific reference body in the field of telecommunications, and now represents an informal association (Group) on a par with other "sister" Groups that operate in different but related academic areas, such as electronics and/or electromagnetism. Currently, 37 Italian universities are partners of GTTI with a total of about 300 people in their capacities of full professors, associate professors, and assistant professors (researchers). In addition to this, seven research centers and 20 companies are also members of GTTI, including Telecom Italia, Ericsson, Selex, Siemens/Nokia, and Alcatel/Lucent, among others. The Group encourages initiatives at the national level to spread culture, and promote research and education in telecommunications and telematics, in order to foster interaction between academic and industrial research, and improve the general national expertise in the field.

The GTTI main periodic event is an annual plenary meeting, during which academic and entrepreneurial/business components in the field of telecommunications discuss several subjects such as teaching, scientific research and its applications, and regulatory aspects. Such a meeting has become an essential common ground between universities and companies over the years, thereby making its contribution to the development of a crucial field in national economics. Most of the professors and researchers who belong to GTTI are also members of the ComSoc Italy Chapter, the second largest IEEE Chapter in Italy with about 750 members spread all over the country. The ComSoc Chapter expressed its deep appreciation for the GTTI meeting in Florence and GTTI's commitment in disseminating scientific knowledge among young researchers and Ph.D. students.

The meeting this year was held in Florence for a very special and good reason. 2008 marks the 200th anniversary of the birth in Florence of Antonio Meucci, the man who is thought to have operated the first working prototype of a telephone, with some advance on the similar invention by Alexander Graham Bell. The GTTI meeting, under the organization of Enrico del Re and Romano Fantacci from the local university, became one of the events that celebrated such a key anniversary in the history of telecommunications in Italy. About 150 researchers gathered in the beautiful cloister of the Palazzo del Bargello in Florence and the Aula Magna (main hall) of the University of Florence to discuss scientific advances in communication technologies as well as their social implications. The international guest of the event was Vincent H. Poor, Dean of the Faculty of Engineering of Princeton University (one of the most distinguished scientists worldwide in the field of information theory and wireless communications), who gave a talk about the latest advances in physical layer security in wireless communications. At the end of the meeting, the President and Secretary of the Association, Marco Ajmone Marsan from Politecnico di Torino and Marco Luise from the University of Pisa, respectively, announced the location of next year's get together: the city of Parma, where Giuseppe Verdi was born, with its Teatro Regio, the theater where the first operas by young Verdi had their premieres.

Activities of AICT (COMSOC Sister Society, Italy)

Roberto Saracco, Telecom Italia, Italy
IEEE Communications Society, Director Sister and Related Societies

The AICT is one of ComSoc's Sister Societies. It is based in Italy and it has as membership telecommunications engineers in Italy and the support of the main players in the Italian Telecommunications market.

AICT, the Association for Information and Communications Technology, is a cultural association stemming from the merging of the Italian Association of Engineers in Telecommunications (AIIT) and the Information Science and Communications group belonging to the Italian Association of Electrotechnic, Electronic, Automation, Information and Telecommunications (AEIT). AICT is part of the AEIT.

The AEIT (http://www.federaeit.it) federation comprises, in addition to AICT:

- AEE: Electrical Energy Association
- AMES: Microelectronics, Semiconductors, Electronics Association
- ASTRI: Science and Technology for Research and Industry Association

The federation is based on a matrix structure. In addition to the above mentioned association, it comprises 19 Sections spread out over the Italian peninsula, active in the broad spectrum of interest of the AEIT. The federation scheme is very flexible, in line with many other international institutions, and it is open to other aggregations.

The AICT is very active in promoting events on a monthly basis (see http://www.comsoc.org/sistersocieties/italy_aict/whats.html). All events are open and free, sponsored by some of the telecommunications companies in Italy.

Although most events are in Italian, anyone is welcome to attend. ComSoc members who are interested in giving a presentation at an AICT event are welcome to contact AICT President Michele Morganti (morganti@fondazionepolitecnico.it).

From time to time, AICT promotes studies in specific areas, the latest being the evolution of wireless. These studies are presented to the public and the Italian telecommunications authorities. Detailed information can be found at http://www.comsoc.org/sistersocieties/italy_aict/index.html

During 2007 AICT organized 13 events (http://www.associazioneaict.it/gds.asp?p=2). As usual, these events were held in different cities around Italy: Florence, Milan, Rome, and Turin. In one occasion, in Turin, the event was broadcast to people in Milan and Rome.

Events were sponsored, as is also the usual approach, by the main telecommunications operators and manufacturers active in Italy, and had participation of about 100 AICT members (on average) per event. As usual, event participation was not restricted to members; indeed, we had significant presence of nonmembers, mostly students.

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IEEE Communications Society Promotes History of Telecommunications

By Jacob Baal-Schem, Region 8 History Coordinator

IEEE Communications Society recently developed a major history activity: The ComSoc Board of Directors decided to form a Communications History Committee, chaired by Professor Mischa Schwartz, former President of ComSoc, and including Jean-Marie Dilhac (France), Jerry Hayes (United States), and Jacob Baal-Schem (Israel) as members, with Fred Andrews as advisor.

The first activity of the new Committee is the organization of a Special Session on History of Telecommunications, to be held at GLOBECOM 2008, New Orleans, Louisiana, on Tuesday, December 2. This session will feature a keynote lecture on the history of OFDM by Steve Weinstein and four historical papers on persons and systems that had impacts on the development of telecommunications during the last century.

As communication ttechnologies "come of age," it is important to preserve and disseminate the history of our profession. A panel discussion on "Who Invented Radio?" will be included in the GLOBECOM '08 Special Session on History of Telecommunications; its participants (from Italy, France, and the United States, as well as a presentation from Russia) will introduce the claims of Marconi, Popov, Tesla, Branly, and others on this important invention. There are already claims from England, as well as from South America, regarding the first steps of radio communication, and it will certainly be very interesting to listen to the discussion that will follow the panelists' presentations.

IEEE Communications Magazine has published a History Column in three recent issues, with Mischa Schwartz as its Editor. Several eminent members have been invited to contribute, and the first articles (on events that happened 25+ years ago) have already appeared.

IEEE Region 8 also has a vibrant history activity, mainly related to telecommunications:

"From Semaphore to Cellular Radio Telecommunications" was the theme of the IEEE History Conference (HISTELCON '08), held in Paris, France on 11–12 September 2008. This theme also describes the fabulous advance of our technologies in the last centuries: we use almost the same frequencies, but in a whole different way. The keynote lecture of HISTELCON '08, on Alec Reeves, the inventor of PCM, brought to life the story of a British scientist working in France during World War II, and this invention that laid the basis for actual digital communication.

This activity followed a special session on history at EUROCON '07 in Warsaw, Poland, and will be followed by a special session on history at EUROCON 2009 in St. Petersburg, Russia, in May 2009, to honor A. S.Popov on the occasion of his 125th birthday. These are the outcomes of a Region 8 Committee decision to form a history advisory committee and of the R8 Director to appoint a Regional History Coordinator.

From the inventions of the telephone and radio, through the development of television and digital means of transmission of information — all these subjects need historical coverage and merit professional discussion. IEEE provides the environment for these activities, and at Section Congress 2008 in Quebec, the IEEE History Committee unveiled a new Global History Network that will contribute to the preservation and dissemination of historical knowledge on the development of telecommunications.

HISTELCON 2008:
http://www.isep.fr/histelcon
GLOBECON 2008:
http://www.comsoc.org/confs/globecom/2008/special.htlm
EUROCON 2009:
http://www.ieee.org/go/eurocon2009/

Peru Chapter Activities in the First Half of 2008

By Fredy Campos, Peru Chapter Chair; Jose Luis Vazquez, CENTIA, Mexico

Last year ComSoc's Peru Chapter was recognized as Chapter of the Year for the Latin American region. Peruvian volunteers from this chapter share with us their chapter activities and agreements made during the first half of this year, and show us that these activities give value to the membership, and that thanks to them, membership renewal and growth are achieved.

In April, ComSoc Peru organized a technical conference on optical communications with an emphasis on gigabit passive pptical network (GPON) technology because our major telecommunictions and service providers are planning to use this technology in the first mile to provide voice, data, and video with high capacity. The principal subjects were: Introduction to Optical Communications; PON Definition and APON, GEPON, and GPON; International Standards; Network Topologies, GPON Components; and Measurements in GPON Networks.

Likewise, in collaboration with ComSoc, the Communication Chapter of the National University of Engineering (UNI) Peru Chapter organized Telecommunications Day on 23 May, where papers on VSAT by Wilfredo Fanola, GSM in bank applications by Andy Valer, WiMax by Fredy Campos, technologies in access networks by Victor Mas, and different sessions about wireless technologies were presented. This activity was very important because the diverse geography in Andean countries makes wireless technology a great alternative. As part of this activity, the Chairs of ComSoc Peru and ComSoc UNI signed an agreement of collaboration and support for development in technical and membership activities.

Fredy Campos (left) delivered a lecture at SECTEL 2008.

Also, in June a lecture, "Security in Wireless Networks" by Fredy Campos, was given at San Marcos National University. The principal attendees were professionals and students interested in this subject, and it was presented as part of a major conference, SECTEL 2008, a technical symposium held at this

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Status of the Telecommunication Market in Brazil

By Marcelo S. Alencar, Brazilian Telecommunication Society, Federal University of Campina Grande, Brazil

The Brazilian telecommunication market continues to grow strong. By the end of 2007, 173.3 million subscribers had access to telecommunication services in Brazil, an increase of 16.3 percent from the previous year. The main services, according to information from the Brazilian National Telecommunications Agency (Anatel), are divided as: 39.3 million subscribers to fixed line telephony service; 121.3 million subscribers to mobile communication service, of which GSM is the dominant technology with 94.9 million subscribers; 5.3 million subscribers to cable television; 7.7 million subscribers of wideband Internet; and 44.9 million Internet users. A total of 11.442 million television sets were sold in Brazil, including 801,000 LCD devices and 197,000 equipped with plasma screens. More than 94.6 percent of households had television sets by the end of 2007.

Regarding service availability in 2007, 90.4 percent of the population had access to mobile communication services. In addition, 47.9 percent were served by four telecom operators, 35.1 percent by three operators, 3.6 percent by two operators, and 3.7 percent by only one operator. In 2007 30 satellites owned by foreign companies and 10 owned by Brazilian companies were authorized to operate in the country. A total of 135 Earth stations were licensed, of which 97 were operated by foreign companies.

Regarding the number of localities, 59.5 percent of the cities could count on mobile communication services and 8.7 percent had cable television or multipoint multichannel distribution system (MMDS) services. The gross operational revenue of the telecom sector was US$ 94.85 billion, which represents an increase of 9.8 percent in relation to 2006, and corresponds approximately to 6.2 percent of the Brazilian gross national product.

Regarding the composition of the telecom market, the industry segment had US$10.48 billion, the fixed telephony companies had US$42.99 billion, the mobile companies had US$36.17 billion, the cable television companies had US$ .01 billion, and the trunking companies had US$1.20 billion.

In 2007 the sector employed 329,500 persons, an increase of 8.7 percent from 2006: 28,400 in industry, 50,600 in deployment services, and 108,200 in telecommunication services, which included 32,300 in fixed telephony service, 29,500 in mobile communication service, 12,200 in cable television, 34,100 in remaining services (broadcast and Internet service providers), and 142,300 in call centers.

By the end of 2007, 1007 companies were registered by Anatel as telecommunications service providers in Brazil, from 814 companies in 2006. Among the licensed companies, six operate fixed telephony service, 81 are authorized to operate in more than one concession area, 735 operate multimedia communication services, 154 operate cable or subscriber television services, and 31 operate mobile communication services.

One interesting point to note is the amount of taxes the companies paid in 2007. The fixed and mobile companies together paid US$22.34 billion in taxes, which represents 42.0 percent of the net operational revenue, and is the largest percentage in the world. On the other hand, the market value of the telecom service providers in Brazil in 2007 was US$105.33 billion.

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university.

Finally, ComSoc Peru, as part of its annual plan for technological upgrading and promoting the IEEE, carried out ithe following technical sessions: Digital Terrestrial Television, Challenges and Applications (31 July; NEC) and Carrier Ethernet Networks for Public Service Operators (19 August; Cisco Systems). A short course on optical communications technology and GPON was held on August 5 (Telmark).

ACTIVITIES OF AICT/*continued from page 2*

The topics addressed were selected (also common procedure) by the AICT Council based on interest from industry and academia. Each event has been steered by either one company or one university, and participation by a balanced mix in terms of speakers has always been sought and achieved. Contributions presented are available to all interested parties on the Website.

In 2008, AICT had already held five events between January and May (http://www.associazioneaict.it/gds.asp?p=1).