Global
Communications
Newsletter

February 2006

Spanish Telco Strategies Facing New Integrated Digital Transmission Advances

By Juan Carlos Sanchez-Aarnoutse, Pilar Manzanares-Lopez, and Josemaria Malgosa-Sanahuja

Throughout last year, there were three important changes related to the audio-visual world in Spain. The first one is the beginning of commercial TV over IP (TVoIP) service. The second one is the new Digital Terrestrial Television (DTT) technical plan approved in July by the Spanish government. Finally, there has been the merger of two of the most important Spanish cable operators, ONO and Auna. All these events reveal the importance the audio-visual sector has in terms of business.

Telefonica, one of the most remarkable Spanish telecommunications companies, was the first to launch the TVoIP service to its asymmetric digital subscriber line (ADSL) residential clients. This service is called Imagenio, and can be seen as a new way to provide Internet at home, extending the traditional Internet connection to the triple-play concept: Internet, telephone, and video all together with only one access. The service includes one wireless 802.11g ADSL router with plug-and-play network access terminal (NAT) software built in which enables to share the Internet connection among all home users. It also includes a set of TV and audio channels (45 and 15, respectively), a virtual video club (i.e., video on demand), and pay-per-view channels, mainly reserved for movies and sport events. In addition, Imagenio easily supports interactivity since it is completely based on traditional IP network.

Imagenio is offered through Alejandra, the new IP network specially designed to work fine for this service. Alejandra is based on the ADSL2+ standard, which provides up to 24 Mb/s in the downlink and up to 1 Mb/s in the uplink. In order to minimize the bandwidth consumption, Alejandra uses PIM-Sparse Mode multicast routing protocol to replicate and route TVoIP packets. Besides Telefonica, other Spanish telecommunication operators like Jazztel, Wanadoo, and Ya.com are also building their own ADSL2+ network infrastructures. Although all of them are also interested in offering triple-play service, it will not be available until next year. For the time being, they are offering double-play service: very high-speed Internet access (up to 20 Mb/s) and telephone.

On the other hand, although Spain has had a DTT technical plan since October 1998, the plan has not proved itself to be adequate to support real DTT development. In fact, the main Spanish TV broadcasters claimed that the law was insufficient to establish a real business framework. For this reason, the current Spanish government recently approved a completely new DTT technical plan called RD-944. The plan begins saying "This new law not only modifies the current one, but completely revokes it," which clearly shows the wish to speed up DDT development.

First of all, RD-944 brings forward the analog switchoff date from December 2012 to April 2010. Until that moment, the current TV broadcasters must transmit their programming in analog and digital formats (simulcast). There is one multiplex reserved for this purpose. Furthermore, the new law not only maintains the existing two digital-only broadcaster licenses (NeoTV and NetTV), but also increases the number of digital-only channels to four (they have not been assigned yet). Finally, a new national analog channel has been created, with coverage of around 70 percent of the Spanish territory. Just after April 2010, the analog spare bandwidth will be reallocated to provide one multiplex to each of the national broadcasters. With the aim of promoting regional diversity and culture, RD-944 also considers regional and local broadcasters, giving them a handful of digital channels (intelligently shared among regions and local areas to avoid interference).

The TV cable operators also play a role in this telecommunications jigsaw puzzle. Their business model has been offering triple-play services since its origins. This was the reason a lot of people changed their traditional telco into only one integrated cable operator. Now, with the appearance of TVoIP and DTT, they have had to innovate in order to maintain their market quota. For example, all cable operators are changing their analog transmission technology to digital, increasing the quality of service and number of TV channels. In this digital scenario, interactivity can easily be implemented. Therefore, some also offer video-on-demand services. Another aspect closely related to this telecommunication business war is the merger of cable operators, which took place last summer. ONO, one of the most important Spanish cable operators, bought Auna, one of its main competitors, enlarging its commercial area up to 40 percent of the national territory.

However, the question now is, who wins? The answer is not easy since, in all cases, the prices are very competitive (although momentarily, a company may sell its telecommunications products at special prices to take advantage of some market opportunities). In our opinion, TVoIP and cable networks have the major advantages since they both offer real integrated service (triple-play), and in both cases interactivity can easily be obtained. Cable operators have an additional advantage: they are not limited by bandwidth since their physical infrastructure in Spain is relatively new. However, although DTT seems to offer the most technically limited service, it has the advantage of being completely free. Therefore, it is likely that they will keep their market quota.

(Continued on next page)

ConTEL 2005: The 8th International Conference on Telecommunications

Zagreb, Croatia, 15–17 June 2005

The 8th International Conference on Telecommunications, ConTEL 2005, took place on 15–17 June 2005 at the Sheraton Zagreb Hotel, Zagreb, Croatia. Traditionally, ConTEL covers a broad range of topics in the area of information and communication technology (ICT) referring to modern telecommunications. The special topic of this year's conference was IPv6 Deployment and Applications. Other topics included "classical" telecom topics, such as network modeling, design, and simulation; quality of service (QoS); optical networks; and traffic engineering, as well as novel topics such as sensor networks and new-generation networks. More ICT-oriented topics, such as mobile applications, location- and context-aware services, and mobile agents, were also represented, as well as telecom market oriented topics. The Conference was organized by the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia; the IEEE Croatia Section, and the IEEE Communications Society Croatia Chapter; and was technically co-sponsored by the IEEE Region 8 and the IEEE Communications Society (endorsed by the Technical Committees on Communications Software and Multimedia Communications). The General Chair of the conference was Ignac Lovrek, and the Program Chair was Maja Matijasevic, both from the University of Zagreb.

The technical program ran for three days, and included three plenary sessions, 21 technical paper sessions (of which two were special sessions), and tutorials. On each day of the conference one keynote talk was presented in the plenary session. The first keynote speaker was Klaus-D. Kohrt of the UMTS Forum and Siemens Communication Mobile Networks. His visionary talk, entitled "3G and Beyond — The Future of Mobile Communication," provided a nice introduction to the conference. The second keynote talk was presented by Kimon P. Valavanis of the University of South Florida, who presented a multidisciplinary approach to "Heterogeneous System Challenges in Control, Coordination, and Communication" using unmanned ground–aerial vehicles as a case study. Finally, in the third talk Magdy A. Bayoumi of the University of Louisiana at Lafayette addressed the hot topic of wireless sensor networks in his talk entitled "Wireless Sensor Networks: The Product of a Marriage Made in Heaven." All keynote talks were very well attended and well received by the audience. The 21 technical paper sessions ran in three parallel tracks, with a total of nine sessions on each of the first and second days, and three sessions on the last day of the conference. The final technical program included a total of 96 papers accepted from 141 submissions (68 percent). The two special sessions were on Formal Verification of Telecommunications Systems, organized by Tatjana Kapus from the University of Maribor, Slovenia, and Gordan Jevic from the University of Zagreb; and Project Management in ICT, organized by Jeljka Car from the University of Zagreb and Sinija Krajnovic of Ericsson Nikola Tesla and PMI Chapter Zagreb.

The tutorials were held the day before the conference. There were seven tutorials, covering interactive multimedia networking, IP-oriented QoS in next-generation networks, artificial immune systems (unfortunately cancelled due to the speaker's illness), Internet topology measurement, data stream management systems, service management in wireless networks, and reliability issues in network planning. The tutorial speakers came from France, Israel, Italy, New Zealand, Norway, the United Kingdom, and the United States. About 50 attendees registered for one or more tutorials, mainly students (thanks to local companies, which covered student participation). A participants' survey was conducted at the end to collect feedback on organization, quality of visual material, and speakers. The overall results were good, but they also showed that there is room for improvement.

The conference had strong international participation, with a total of 240 participants from over 30 countries all over the world. The highlight of the Conference was the gala dinner, and announcing the winners of the Best Student Paper contest.

The ConTEL 2005 conference proceedings have been indexed in the INSPEC bibliographic database, and the content of the proceedings are available through IEEE Xplore®.

The ConTEL conference Web site is http://www.contel.hr

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SPANISH TELCO/*(continued from page 1)*

Considering the above scenario, maybe the relevant question is not who has the most perfect technology, but rather who has the most appreciated contents. The new emerging technologies provide many digital containers, but, needless to say, they must be filled with digital contents. In our opinion this is a key aspect of the success of a digital broadcasting company.

Global Communications Newsletter

www.comsoc.org/pubs/gcn

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A publication of the
IEEE Communications Society