Global Communications Newsletter

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Report on the IEEE Communications Society's Distinguished Lecture Program (DLP) Tour to Peru, Brazil, and Uruguay, 6–14 August, 2002

By Dr. Manu Malek, USA

This tour was initiated by the IEEE Peru Section and Federal University of Santa Catarina, in Florianopolis, Brazil. I was invited by the Organizing Committee of IX Congreso Internacional de Ingeniería Electrónica, Eléctrica y de Sistemas (INTERCON 2002), to be held at National University of Callao, Peru, in August 2000, to give a speech on network and service management. Also, I had a standing invitation from Prof. Carlos Becker Westphall of Federal University of Santa Catarina to visit the university and give a presentation on network management. Mr. Jorge Hedderwick, IEEE Communications Society Director for Latin America Region, informed me that the IEEE Bahia Section (Brazil) and the IEEE Uruguay Section were also interested in inviting me. Mr. Hedderwick was very supportive in communicating with the sections and helping to arrange this tour that involved 12 flight segments (including connections), visiting four locations, and presenting six talks. It was a great trip, and I enjoyed it. Following are the highlights.

In Peru, I was welcomed on my arrival on 6 August by Mr. José Peña, Technical Committee Chair of INTERCON 2002, and three other delegates from the Conference. The next morning I had a nice visit of the historic city of Lima hosted by Mr. Carlos Bisso, former president of the IEEE Peru Section. I presented my talk on "Network and Service Management" in the afternoon to an audience of about 80 students, faculty members, and industry representatives. Mr. James Arellano, a graduate of National University of Callao, did a nice job of translation where necessary. He also hosted me for the rest of the day and showed me around Lima.

My next stop was in Florianopolis, Brazil. I presented a talk entitled "Network Management — Opportunities and Challenges" to an audience of 105 on the morning of 9 August, and a talk on "E-Business Security and Information Assurance" to an audience of 90 in the afternoon at Federal University of Santa Catarina. The audience was mainly students and faculty members, IEEE members and nonmembers. Prof. Westphall was very gracious and gave me several tours of the beautiful city of Florianopolis.

The next stop was in Salvador, Brazil, where my host was Mr. Edson Leal, IEEE joint Computer/Communications Chapter Chair. My talks there were similar to those in Florianopolis. On the morning of 12 August, I presented a talk on "E-Business Security and Information Assurance" in a seminar session on security arranged by the Computer/Communications joint Chapter, which involved two other speakers. The audience of about 80 included IEEE members, managers, engineers, and communications/computers professionals. In a similar seminar that afternoon, I presented "Network Management — Opportunities and Challenges." The audience of about 80 included students and faculty members (IEEE members and nonmembers) at the University "Area 1."

I also met Mr. Marcelo Carvalho, the IEEE Bahia Section Chair. Both Mr. Carvalho and Mr. Leal were very gracious and gave me a nice tour of the great city of Salvador.

My host in Montevideo was Mr. Gustavo Giannattasio, Chair of the IEEE Communications Chapter in Uruguay. On 14 August, I presented "Network Management — Opportunities and Challenges" in a seminar session arranged by the Communications Chapter, which involved another speaker from Hewlett Packard who had traveled from Argentina. Here, the audience of about 80 included IEEE members, managers, engineers, and communications/computer professionals.

I also met Mr. Eduardo Lagos, the IEEE Uruguay Section Chair. Both Mr. Lagos and Mr. Giannattasio were very gracious and gave me a nice tour of the exotic city of Montevideo.

I had sent the files of my presentations to my respective hosts ahead of time, which were made available to members of the audience in each location. The audiences were very interactive and we had nice Q&A sessions. Some expressed interest in further references related to network management and security as well as in security education, which I either provided there or followed up with after my return via email.

I'd like to thank the IEEE Communications Society for sponsoring my trip, and the respective Section/Chapter Chairs for hosting me. I appreciate the hospitality of all my hosts, and thank them for a memorable trip. Also, I'd like to especially thank Mr. Jorge Hedderwick for his help and support in organizing this tour.

The Brazilian Telecommunication Market, Five Years after Deregulation

By Marcelo S. Alencar, Brazil

Introduction

In 1879, only three years after Bell invented the telephone, Emperor Dom Pedro I inaugurated the first telephone exchange in Brazil. Since then, most of the country's telecommunication infrastructure has been kept in private hands. In 1972, the government created a holding company, Telebrás, to build a completely new telecommunication network from the debris of a deteriorated privately owned system.

In July 1997 the Brazilian government adopted the General Telecommunications Law, which established a new regulatory framework and initiated the process of deregulation of Telebrás. An independent regulatory body called Agência Nacional de Telecomunicaçoes (Anatel) was created to implement the changes outlined in the General Law.

On 22 May, 1998 the 28 subsidiaries of the monopoly-holding Telebrás System were restructured into 12 companies. This created eight regional cellular operators, three fixed line companies, plus a long-distance and international operator, Embratel. On 29 July, 1998 the government's shareholdings in the 12 companies were auctioned off, raising a total of US$ 19 billion.

Following the sale, Anatel announced that it would be issuing four mirror concessions to act as competitors to the four fixed line operators. The first two mirror licenses went to competitive tender in 1998, and a third was awarded in April 1999. The final mirror failed to attract bids in earlier auctions. In July 1999, Embratel and its mirror, Bonari, were authorized to provide intraregional long-distance services in competition with the local operators and their mirrors. The local operators, however, will not be allowed to offer interregional or international services until 2002 at the earliest. At that date it is anticipated that the fixed line telephony market will be opened to full competition with the licensing of a number of new operators.

This article discusses the impact of globalization on the Brazilian telecommunication market, the regulatory framework that has been built to deal with this impact, and the role of the principal players, taking into account the economic issues involved.

Telephony Market Overview

In the last decade the developing countries were hit by the urgent "need" to restructure their telecommunications sector. This wave of changes was a consequence of the fierce market competition already in place in the developed countries, driving the capitalists to explore new markets with high profit margins and zero competition: the telecommunications monopolies in emerging countries.

Absorbed by the worldwide movement of openings and deregulations, Brazil started its restructuring process in July 1997 when the government adopted the new telecommunications law Lei Geral das Telecomunicações no. 9472/97. Under the new regimen the regulator body Agência Nacional de Telecomunicações (Anatel) was created, and the rules that would guide the privatization of the nationwide state-owned Telebrás and the opening process to market competition were defined.

Trying to legitimate the whole idea of privatization and deregulation, the government committed to investing the accumulated resources earned from the telecommunications sector sale on education, health care, and welfare, and also to implementing the concept of telecommunications services available to everyone everywhere, internationally known as Universal Telecommunications Service.

Checking the recent news, one realizes that the monopoly is over; Telebrás and its group of 28 subsidiary companies were completely sold, and the mirror companies are already in operation. So far, the only things missing are the social benefits announced and granted by the privatization supporters. It is time to question "Where did the money from the privatization go?" In order to figure out how much money is at stake, one can recall the whole deregulation and privatization process in Brazil.

Telebrás spinoff happened in May 1998. The 28 subsidiaries were reorganized into 12 companies: eight cellular operators (Band-A), three fixed access companies (local/regional incumbent telcos), and a long-distance and international operator (formerly Embratel). Each company faces competition from its respective mirror company. The government has gotten money from auctioning both incumbent telcos (operation license, equipment plant, office facilities, etc.) and mirror licenses (operation). Due to the obvious advantage of the incumbents over the mirrors, the government imposed some market protection in order to increase the market value of the mirror licenses. Regarding "protection," one may say that Brazil kept some restrictions on new competition that favors the companies already in place. By the end of 2001 they were to consolidate their businesses into duopoly or oligopoly environments. The licenses expire in 2005, but can be renewed for the following 20 years. Fixed access operators will not have to pay a license fee until 2005. After that, every two years they will pay a license fee that is 2 percent of their annual revenues.

Financial Analysis of the Auctioning Process in Brazil

The privatization of the telecom sector in Brazil was definitely another hard learning process for the Brazilian people. Guided by international interests, the government was a catalyst to the process of economic control by the dominant economies.

Despite any globalization process, the government has to protect its economy, which does not have the same growth rate, does not have the same investment recovery profile, and is not protected by internationally favorable trade agreements, as is the case for the developed countries.

Unlike the telecom sector buyers, the balance of the Brazilian treasury was badly managed. The economic crisis that hit the country at the beginning of 1999 forced the devaluation of the local currency, causing a terrible loss for the federal government, because the companies were auctioned in reais, not in dollars, as informed by the press (R$3.10 = US$1.00, August 2002).

The exchange rate was not the only drawback of the privatization process. In order to catch the attention of investors, the government invested US$26 billion in four years, preparing the system for privatization. Considering that the total amount raised from the auction was US$22 billion, there was an evident deficit in the government account.

The total federal debt to international creditors is predicted to be US$370 billion by the end of 2002, and the national revenue was only US$110 billion in 2001. Increasing taxation was the solution for the government to finance its activities. Currently, Brazilian citizens pay approximately 40 percent of their salary in taxes, although the federal debt continues to grow without limit.

Sérgio Motta, former Minister of Communications and mentor of the Brazilian telecom sector reform, devised two

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The Brazilian Telecommunication Market, Five Years after Deregulation

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special-purpose funds that would be supported by a special tax collected from the operating companies. The Universal Service Fund (Fust) would be used to finance social investments, such as telecommunications service provision in low profit areas. The Telecommunications Technological Development Fund (Funttel) would be used to boost national technology development. The two funds together raise resources on the order of US$350 million, but the new Minister, Pimeta da Veiga, had already announced that he will not pulverize that money in schools and libraries.

So far, since the privatization took off, the main effect sensed by Brazilian users was an increase in the phone bill. Before the reform a telephone connection was US$0.50; now it is US$8.40. The average monthly phone bill is around US$22.00, just for local calls. In the United States, where income is at least five times higher than in Brazil, the average bill is 60 percent of that value, with a much better quality of service. The bottom line is: Brazilians are paying more for the same service.

The penetration rate increased after privatization. In 1994 there were 8.4 telephones/100 inhabitants and 5 cellular phones/100 inhabitants. Currently, there are 16 telephones/100 inhabitants and 7.2 cellular phones/100 inhabitants, and network digitalization increased from 67 percent in 1998 to 81.6 percent in 1999. This positive result must also be credited to the investment made by the government right before telecom market deregulation.

Conclusions

The regulatory agency Anatel is responsible for supervising the quality of telecommunication service, but it still has not shown enough strength in punishing operators that provide substandard services or disobey the rules for service provisioning. Anatel was created in 1997 as a result of the new Telecommunications Law. It is similar to the U.S. Federal Communications Commission (FCC), and is now facing the same problem of manipulation by politicians and powerful companies faced by the FCC in the past.

Following the General Telecommunications Law, Anatel's current employees should hold their positions for only two years, and then a new selection through a national contest should be done. The new selection has not taken place yet, and the President is complaining about a shortage of human resources to perform regulatory duties. As a consequence, Brazil is still far from having communications services compatible with international standards.

As of now, there is a net increase in unemployment in the telecommunications market, caused by a downturn of the American market. Embratel is facing a devaluation of its stock options due to the bankruptcy of its parent company WorldCom. Telecom Italia's holding company, Pirelli, is threatening to pull out of Brazil if it cannot reach an agreement with Opportunity Bank owner Daniel Dantas. Ericsson is laying off because Telecom Italia is its biggest client. Telemar is also facing problems, but it will survive because it has no ties to foreign companies. Telefonica is doing well in São Paulo, although a recent devaluation of the Brazilian currency has caused the shares of its parent company in Spain to plummet. Portugal Telecom is holding its market value, and its operation is not threatened in São Paulo. BCP is having problems, as well as Vesper. Certainly, the market is quite different from that of just two years ago.

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UMTS and Public WLAN in France: Did the Competition Start?

By Hossam Afifi, Guy Pujolle and Djamal Zeghlache, France

The French Telecommunications Regulator (ART) issued a new official statement in June 2002 on wireless local area network (WLAN) radio frequencies usage. An easing of so-called "hot spot" usage conditions was to happen before the end of 2002.

ART is presenting at the next meeting of the Advisory Radio Communications Commission a draft authorizing the free deployment of wireless LAN access points in public locations.

Today, according to ART, it is important to point out the possible uses of Wi-Fi-like technologies according to the current regulations:

- Companies, authorities, or private individuals can use them to deploy a network intended for their private use indoors.
- On the other hand, it is not possible to provide with these technologies the same telecommunications services to the public, nor, in general, to use them outdoors.

Further negotiations are also being led with the French Defense Ministry to enable the public usage of more frequencies in the 2.4 GHz band, and with certain restrictions the usage of these frequencies in outdoor locations.

On the other hand, the same regulators issued a second call for candidates for the deployment and usage of mobile third-generation networks in metropolitan France. In the first call, only two UMTS licenses were delivered.

As we know, third-generation mobile networks are designed to offer more and better services than GSM, especially Internet/data. Moreover, UMTS operates in a band not very far from that used by WLANs, but there is no conflict with military frequencies.

To better understand the political issues, we can enumerate two problems. The first deals with current frequency bands usage for both public and military purposes. As we can see, WLANs are today still in conflict with French military usage. The second is the possible usage of the two technologies to offer the same data service. Let us focus on the second issue. From a technical point of view, we can very easily deploy a WLAN with very dense coverage in public places and offer high-quality transactional Internet access. It could be completely secure, and any kind of authentication, authorization, and accounting procedures could be widely deployed. The advantage of such a technology is its simplicity, low cost, and ease of use.

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The European Commission Creates Radio Spectrum Policy Group and European Regulators Group

By Paulo de Sousa, EU

A Radio Spectrum Policy Group and a European Regulators Group were set up by the European Commission on 29 July, 2002. The two advisory groups will play a crucial role in assisting the Commission to further develop the internal market for the information society. Information Society Commissioner Erkki Liikanen said "...with the founding of the Radio Spectrum Policy Group, the European Union finally has a platform on which the Member States, the Commission and stakeholders can coordinate the use of radio spectrum. This is necessary to implement agreed EU policies and will support the completion of the Internal Market in this area. With the European Regulators Group, we will have a means of ensuring consistent application of the recently adopted rules for electronic communications services throughout the EU."

The Radio Spectrum Policy Group will assist and advise the Commission on radio spectrum policy issues, coordination of policy approaches, and, where appropriate, harmonization regarding availability and efficient use of radio spectrum necessary for the establishment and functioning of the internal market. This is an increasingly important issue as demand for use of radio spectrum increases. It is thus necessary to carefully consider and balance the availability of radio spectrum for services that ensure the promotion of important sectors such as information or transport.

The group will comprise high-level representatives from Member States and the Commission as well as observers, including European Parliament members, European Economic Area members, accession countries, European Conference of Postal and Telecommunications Administrations, and European Telecommunications Standards Institute. It will also consult extensively with stakeholders, both commercial and noncommercial, as well as any other interested parties, in full transparency.

The work of the group, whose first meeting took place in the second half of 2002, will be complemented by that of the Radio Spectrum Committee established under the Radio Spectrum Decision. The group will provide opinions on high-level policy matters to assist the Commission in taking policy, regulatory, or legislative action, while the committee will mainly concentrate on the adoption of technical implementation measures designed to ensure harmonized availability and efficient use of radio spectrum.

The European Regulators Group will act as an advisory group of independent national regulatory authorities to assist and advise the Commission in consolidating the internal market for electronic communications networks and services. In so doing it will act in a fully transparent way so that market participants, consumers, and end users will be able to provide input to its activities. It will allow cooperation between national regulatory authorities and the Commission to ensure the consistent application of the regulatory framework in all Member States. The Commission will also keep the European Parliament informed of the group's activities on an annual basis.

The group will comprise the head of each national regulatory authority responsible for overseeing the day-to-day interpretation and application of the provisions of the Directives related to electronic communications networks and services. The Commission will be represented. EEA members and accession countries may participate as observers.

The Radio Spectrum Policy and European Regulators Groups complement the European Parliament and Council Decision on Radio Spectrum Policy and the Directives for electronic communications, which are applicable since 24 April, 2002. Creation of these two groups demonstrates the Commission's determination to move rapidly forward in implementing the new regulatory framework.

For further information on the new Regulatory Framework for Europe see:

http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/index_en.htm

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On the other hand, it can be noticed that second-/third-generation networks offering similar data services as WLANs have much more expensive deployment, operation, and management. They may usually offer better services than WLANs with quality of service guarantees, but it must still be proved that a common individual user will prefer such a service over more open and probably cheaper WLAN hot spot access.

To conclude, we can say that UMTS for public data services is currently protected by the French regulations and cannot concur with WLAN technology. But is this situation going to last for a long time?

Note: This analysis reflects only the authors' ideas and do not reflect those of any official regulator.