Barcelona Mobile World Congress 2016

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As everyone knows, the Mobile World Congress (MWC) is the world's biggest and most influential mobile event. This year the conference was held February 22–25 in Barcelona (Spain). This edition of MWC was the 10th time that it has been held in Barcelona. Until 2005 the Congress was held in Cannes (France) under the name of 3GSM World. In 2006 it was moved to Barcelona and since then it has become one of the biggest technology events. This relationship will continue until at least 2023, thanks to the agreement that was reached recently.

The event consists of three main blocks. The first block is the conferences, all related to mobile technologies; the second is the exhibition zone, where companies show their novelties; the third block consists of a dozen parallel events. The presence of up to 95,000 attendees and approximately 2,000 companies that have participated in the exhibition zone are both clear indicators of the success of MWC-16.

MWC is mainly focused on mobile devices. In past years, there have been huge announcements of devices at MWC. However, this year MWC was also focused on other issues, like vehicular technology, new mobile payment methods, new trends in ISP (Internet service providers) mobile products and services, and finally virtual reality, whose scale of presence was the biggest surprise. The most relevant companies in the cellular market showed their new mobile designs that incorporate a virtual reality (VR) headset. The image of conference attendees looking in all directions with their virtual reality headsets has become the snapshot that best summarizes MWC-16. Now it is time to see if the applications supporting this new technology actually attract consumers.

On the other hand, the new mobile payment services and related technologies presented at MWC-16 also attracted great attention. One of the most promising was the Paypal Here reader, based on NFC (near field communication) technology. This reader is able to understand any type of payment method. In the same business line, another important novelty was the mobile banking service called imaginBank, presented by La Caixa. With imaginBank, you can do what you usually do in a traditional bank, but also much more, thanks to the inherent benefits of IT technologies. In imaginBank, all the banking services are online; the users manage their own financial resources by themselves, with the help of a set mobile app and social networks. The final touch was led by MasterCard, who presented an authentication technology based on selfies called selfie-pay. This app enables consumers to validate their transactions with a simple selfie. It is clear that all these pieces must be put to work together in order to provide value added on-line banking and shopping services to the community.

Regarding mobile devices, the most relevant premiere was

The MWC-2016 was held in Barcelona, in one of the most beautiful exhibitions called Fira de Barcelona.

The image of conference attendees looking at all directions with their virtual reality headsets has become the snapshot that best summarizes MWC-16.

a modular phone design that lets you attach accessories directly to it. The device can be prepared in any way the consumer likes it. Another interesting issue was the internal water circuits to keep the processor cool, keeping it from overheating. However, it remains to be seen if consumers continue to opt for high-end devices, or as recently noted in data sales, these types of high-performance mobile devices are passed over in favor of an increasingly compelling midrange in features and prices.

The next generation of mobile communications (5G) was on many MWC-16 minds. The focus on 5G has been all about connecting things to the Internet, when in fact much of the world does not even have access to the basics. Facebook Chief Executive Mark Zuckerberg pointed out that while a small section of the connected world is racing to embrace next-generation technology, the majority of people, including large swaths of Europe and the USA, are still using 2G, a technology that is 25 years old. Zuckerberg cautioned that the gap between the small wealthy majority and everyone else is only going to widen if we keep going the way we are.

Finally, another remarkable event at MWC-16 was the Mobile Premier Awards (MPA). The MPA is an organization that was born in Barcelona, and it is completely independent of MWC. However, this year they presented the award at MWC-16. It is an acknowledgement of the best app developed by startup compa-

Telekom Romania: A New Beginning? An Interview with Miroslav Majoros, CEO, Telekom Romania

By Nicolae Oaca, Romania

Telekom Romania, the former Romtelecom and Cosmote Romania, is facing network challenges in one of the most competitive markets in the EU. In the fixed line business, the former Romtelecom is competing with RCS&RDS, UPC Romania, and telcos with larger optical fiber networks, while in the mobile business, the main competitors are Orange and Vodafone, celcos with better national coverage of LTE networks and providing higher speed access. In September 2014 Romtelecom and Cosmote were rebranded under the Telekom logo, while the merger process started in 2013. On January 1, 2016, Miroslav Majoros, an executive with a telecom engineering background and with an MBA from the prestigious Harvard Business School and Stanford Graduate School of Business, came from Slovakia to turn arround Telekom Romania.

One of the main problems behind the Telekom evolution in the last few years was financing. How do you intend to raise funds to develop the business, mobile mainly, to reduce the gap?

The overall investment plans for 2016 amount to over €180 million. Most of the investments will be directed toward optical fiber networks and mobile networks, based on 3G and 4G technologies. The increase in the investments planned, by more than 35 percent compared to the previous year, was more than necessary, given that the local market is extremely competitive, and without putting money in the infrastructure it is impossible to succeed in the long term.

Telekom Mobile lags behind its main competitors from the

Miroslav Majoros

point of view of LTE networks. What is your strategy to rapidly reduce the gap (with Orange, Vodafone)?

We will continue to develop our LTE infrastructure, as it is one of our strategic objectives. The agreement with Orange represents an immediate support for our plans, but in the medium and long term it is natural to continue developing our own infrastructure.

Telekom Mobile aquired only one 2x5 MHz bloc in the 800 MHz band, while Orange and Vodafone aquired two blocks. What are your intentions to keep pace with your competitors?

Depending on the evolution of the 4G mobile telecommunications market and on the future development of our own network, we might consider acquiring a supplementary block for this bandwidth.

Recently, Deutsche Telekom's top managers declared that the fiber network is a top priority for Telekom Romania. Why not the LTE network, having in mind that mobile business accounts for two thirds of Romanian telecommunications revenues?

It is not a fixed versus mobile business strategy. We started to operate having in mind an integrated approach, therefore both segments are equally relevant. We will focus on expanding both the fiber and LTE networks, on re-launching the portfolio of fixed-mobile services, and on improving the quality of services for customers.

Telekom–Orange wholesale and national roaming agreements respectively mean giving access to the Telekom fixed network, a strategic asset Orange never could have, and to the Orange LTE network, an asset Telekom already has. How do you comment?

This agreement is a good opportunity for us to provide improved services to our customers. Our main focus is represented by the fixed-mobile convergent packages, under the MagentaONE proposition. Extended coverage for both fixed and mobile networks will help us significantly increase the areas where we can offer our services to customers. Therefore, the national roam-

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IEEE ComSoc Student Members Visit AT&T Data Center in Tlalnepantla, Mexico

By Jose-Ignacio Castillo-Velazquez, UACM, Mexico

On February 25, 2016, AT&T for the first time in México opened its data center during the AT&T High Tech Day, when ComSoc student members and student branch members from Universidad Autonoma de la Ciudad de México, with students from other universities, visited the center. AT&T opened some of

its data centers that same day. Students had the chance to communicate using video conferencing with students in other cities where AT&T has data centers, such as San Juan, Puerto Rico; Texas, New Jersey and Florida in the U.S.; and Tlalnepantla in Mexico State, near Mexico City.

Until December 2014, the mobile market in México had the following distribution: TELCEL-AMERICA MOBILE (from Mexico) was the largest with 70.4 million users; second was MOVISTAR-TELEFONICA (from Spain) with 20.5 million users; IUSACELL-was third with 8.5 million users; and NEXTEL was fourth with 2.8 million users. In January 2015 AT&T (from the U.S.) re-entered the market in México, buying IUSACELL and NEXTEL. Now AT&T is the third largest competitor measured by number of users, 11.4 millions, but second in revenues and coverage with 90 percent, behind TELCEL, which covers 94 percent, and ahead of MOVISTAR, which covers 80 percent of Mexico. Students had the chance to visit the AT&T data center and its NOC (network operations center).

In the U.S., the purpose of AT&T High Tech Day was to get high school students excited about careers in the fields of science, technology, engineering, and mathematics (STEM). This event has occurred since 1998;

In a picture at AT&T facilities are Fabricio Astorga Martínez, Luis Carlos Revilla Melo, Daniel Javier Serrano Martinez, Fernando Trueba, Adrian Martinez, Alonso Delgado, and Violeta Perez from UACM, with students from other universities in Mexico City.

VITEL 2015: 31st Workshop on Telecommunications Critical Infrastructure and ICT

By Tomi Mlinar and Marko Jagodic, Slovenian Electronic Communications Society, Slovenia

Round table with Nikolaj Simic, chairman (left) and other members (B. Tavcar, M. Mrzel-Ljubic, F. Dolenc, M. Turk, B. Ivanc, and V. Podlogar).

VITEL 2015, the 31st workshop on telecommunications, took place at the Congress Centre Brdo pri Kranju in Slovenia 11–12 May 2015. A Program Committee, chaired by Bostjan Tavcar, selected 'Critical Infrastructure and ICT' as a theme for the workshop. An event was organized by the Slovenian Electronic Communications Society, a member of the Electrotechnical Association of Slovenia, and sister society of the IEEE Communications Society. A group of 35 authors and co-authors prepared 22 papers, and more than 130 participants attended the workshop. A round table, chaired by Nikolaj Simic, president of the organizing committee, was dedicated to security threats in critical infrastructure and their consequences on state security. Members of the round table discussed facilities and services crucial for the country.

At the VITEL 2015 workshop, several lecturers pointed out a significant impact of discontinuity of ICT activities and operation on national security, the economy, and critical societal functions, including health, safety, personal security, and social welfare.

The European Union Council Directive on the identification and designation of European Critical Infrastructures (ECI) and the assessment of the need to improve their protection 114/2008/EC requires implementation of relevant legal measures from the member states. Regarding the action priorities or direct impact on other sectors of critical infrastructure in the EU, critical infrastructure was classified according to priority order, where information and communication support was listed as the second priority.

Thus, the VITEL 2015 workshop focused on ICT systems as important tools for the protection of critical infrastructure. Bostjan Tavcar, who in addition to serving as president of the workshop program committee also is the head of the Administration of the Republic of Slovenia for civil protection and disaster relief, opened the workshop with his introductory speech. Then the attendees were honored with the remarkable opening speech of academic professor Tadej Bajd, president of the Slovenian Academy of Sciences and Arts.

In the two days of the VITEL 2015 workshop lecturers from public institutions, research institutes, universities, and private companies, the following topics were addressed:

•A critical infrastructure for providing IT and telecommunications services and relevant solutions.
•Determination of cyber threats and vulnerabilities of critical infrastructure.
•Provision of telecommunications and information services in natural disasters and other emergency situations. An audience heard about actual experiences from infrastructure operators, e.g. telecoms, broadcasters, the electric power industry, and a National protection and rescue directorate from Croatia in major natural and other disasters. Cases included sleet (freezing rain) in Slovenia in February 2014 and floods in the Northern Balkans in May and June 2014.
•The role of the State and civil protection service in providing minimal functions of public telecommunications networks in natural and other disasters. Lecturers and the audience

Academic Prof. Tadej Bajd, President of the Slovenian Academy of Aciences and Arts.

had a fruitful discussion on the question of how the Administration for Civil Protection and Disaster Relief of the Republic of Slovenia and local civil protection organizations could assist in providing telecommunications and information services in such accidents.

•Levels of reliability, availability, and security provided by new technologies.
•Functioning of the emergency call service (112) and critical infrastructure in major natural and other disasters.
•The choice of LTE as the telecommunications platform for professional radio communications.
•Development of radio networks (e.g. DMR) for the critical communications.
•The role of the national regulator in assuring non-disturbed provision of ICT services in the event of natural and other disasters. A lecturer from the Agency for Communication Networks and Services from the Republic of Slovenia focused on the question whether the Electronic Communications Act needs to be reworded or changed in relation to critical infrastructure.
•DNS as critical infrastructure. A lecturer from the Academic and Research Network of Slovenia showed how DNS (domain name server) has been involved in national critical infrastructure and what approach and measures should be taken for risk management of DNS at the national ccTLD Registry.

In addition to the aforementioned topics attendees heard several lectures related to the private software and hardware solutions used for critical infrastructure management.

Attendees finished the two days of very interesting and fruitful discussions with the conclusion that a proper functioning of the ICT in case of critical situations is the basis for all other industries, and should be given more value in the future.

After the great success of the 31st workshop on telecommunications, we are looking forward to the 32nd workshop, which will be held from 16–17 May, 2016 at the Brdo Congress Centre, Brdo pri Kranju, Slovenia. The title of the next workshop is 'Smart Networks of the Information Society'. You are kindly invited!

The 31st VITEL workshop participants in front of the Brdo Congress Centre, Slovenia.

ing agreement with Orange for access to its 4G and 4G+ networks will enable us to also win new customers who will thus benefit from extended 4G coverage and higher quality of 4G and 4G+ services, in addition to the fixed broadband and best-in-class TV services within Telekom's integrated bundles. We estimate that we will be able to launch the first commercial packages based on this agreement in May 2016.

How about repositioning Telekom in the Romanian market?

This is a process that started almost two years ago with the rebranding, when Telekom announced a new vision and strategy to further differentiate in a market mainly driven by price. The launch of the integrated fixed-mobile packages was the first step in this process, bringing customers an integrated communications proposition in the market and a new customer experience, with simple, transparent services and convenience — one invoice, one call center, one MyAccount.

We will continue to build on this strategy. We have a strong integrated fixed-mobile proposition, a complete service portfolio for B2B, and a very good TV offer. It is now time to focus more on the next steps of the process and our strategy for how to do this is very clear: by delivering an excellent customer experience and great value for the money to our customers. In the coming period we will therefore focus on expanding our networks, for both fixed and mobile technologies, as the base for innovative, interactive, and converged services, on consolidating our convergent service portfolio, and on improving the customer experience.

The essence of our strategy is to offer great value for our customers through bringing more benefits and competitive, simplified, and innovative services, along with providing a great customer experience through all touchpoints. The lowest price and the cheapest services are not the vision we share for a sustainable industry and for creating value to customers.

Is it part of the strategy to merge DT operations in Romania?

We are heading in this direction. The two companies are aligned operationally and are working in sync to offer an integrated customer experience and to ensure commercial consistency. However, a complete merger is a more subtle process that goes beyond procedures, functions, and structures, up to mentalities and organization culture. At this point there is still work to do in terms of harmonizing the two cultures. This is a process that takes time, no matter what actions you take and how much effort you put in.

Last but not least, the legal merger is a very complex process and is subject to different regulations and various approvals, and not only from the shareholders.

Could RomTelekom have an IPO this year?

It is a shareholders' matter to decide on what is the best solution for privatization and the proper timing. What I can tell you regarding the status of this process is that for the moment we are waiting for a decision from the Ministry upon the solution that the State will opt for, direct negotiation or IPO. In the meantime, we can only reiterate that Telekom Romania is part of the OTE and DT Groups, which are fully committed to their presence in Romania and the country's prospects. The recent rebranding and our continuous investments in the local market are evidence of this commitment.

nies around the world. There were 16 apps competing for the award (http://mobilepremierawards.com/finalists-2016), which in the end was won by Jordi Llonch, CEO and founder of Sharing Academy, S.L. The application puts in students in contact with senior students, who act as teachers. The app was born out of Jordi's personal experience, and it receives approximately 6,000 visits every day.

It can be concluded that the most recent edition of Barcelona MWC did not strictly follow the tradition of focusing on mobile devices. On the contrary, it expanded to other very prominent fields of the mobile world. In this way, Barcelona MWC has definitely become the principal reference of the mobile technology.

this year was the first time it occurred in Mexico due to the recent AT&T acquisition. Because of confidentiality reasons, students could not take pictures inside the data center and NOC facilities. Students received snacks and flash memories from AT&T as souvenirs.

At the end of the visit, the students had the chance to talk with the AT&T data center's CTO (Chief Technology Officer). Now those students have a better idea how a real data center and NOC work, and they have also expanded their career opportunities to consider when they will graduate.

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