

SAMENA TRENDS

EXCLUSIVELY TO SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

A SAMENA Telecommunications Council Newsletter

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Exclusive Interview

Dr. Nasser Marafih

Chief Executive Officer

Qtel Group



3G vs 4G - Next Generation Broadband Access Technologies

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EDITORIAL



Balancing Act

Convergence to Doha is now behind us in the rearview mirror. It generated many interesting discussions and potential answers to industry questions. The meeting, sponsored by Qatar Telecom, was well-attended. SAMENA itself had a new term begin for its Board of Directors, which brought elections to bring in a new Chairman of the Board, Sheikh Mohamed bin Isa Al Khalifa, Group CEO of Batelco Group. The Vice Chairman of the SAMENA Board of Directors, Mr. Walid Irshaid, CEO & President of PTCL, was elected afterwards.

Convergence to Doha was only another point on the road to building a greater confluence for all stakeholders and the consumers to enjoy a world-class broadband environment. SAMENA held its fourth annual Awards ceremony, bringing a new experience to all those who attended. A wrinkle in the Awards dinner that evening on November 1st may remain with some for a long time. For me, the power of the long-range 777—300 ERs, shrieking into the sky over our heads, added to the power of the ambience that night, as if lending a thunderous applause to the winners. Congratulations to the winners and to all of the short-listed nominees. May success be with all.

What else amazed me that day was the extent to which we were able to delve into Broadband and related issues, including ICT policy, the application of shared infrastructure, spectrum allotment, Net neutrality, and a collage of other issues.

Broadband is one medium the value of which cannot ever be taken for granted. There is a tendency to take the need for speed out of context, for in some cases, broadband requirements are minima; yet in other highly important applications, such as M-Health, the requirement may escalate exponentially. However, there is no doubt in my mind that the society and the network operators deserve a true effort from all stakeholders to build broadband programs that are sustainable, fair, and provide incentives for investment as well as socio-economic growth. This is where all interested stakeholders, including SAMENA, are focused now.

Issues are appearing all over the globe that are of interest to all stakeholders. Interesting new angles such as potential "tax on Copper Broadband" have been presented by the EU Commission under auspices to incentivize investment in fiber infrastructure, even when copper is still present and popular in many areas of Europe. Although productive thought-bearing ideas suggesting new business models and concepts are critical, some may extend too far into the confrontational space.

This past week, at a hotel here in Dubai, I spoke with a visitor, who had trouble connecting to his e-mail due to the Wi-Fi not working properly in his hotel room. I must say, the level of his stress was mind boggling. Not so long ago, the powerful elixir of high-speed internet was not so much expected or even thought of. Presently, however, we find ourselves grounded to a halt and stressed out should we not have connectivity.

Broadband is an essential tool with extremely high socio-economic return for all involved. The application layer that lies on top of all things broadband is so dependent upon investment. The high-speed networks of today and tomorrow require large CAPEX investments to be made, prior to any practical ROI to be earned. The policy environment requires an environment that fosters growth, aggressive markets, and powerful socio-economic levers for investment.

EDITORIAL

SAMENA is charged with bringing focus to such an environment with a very pro-active platform that induces productive and positive elements of dialogue and discussion with all the stakeholders in the ecosystem. A succinct message emanating from the SAMENA membership and the industry has repeatedly stressed that Broadband Infrastructure and related elements relative to the same are highly important to the growth of the industry, yet the business case needs to sustain value with regard to the said investment.

A careful balance must be obtained that reaches to the benefit of all involved, consumers, investors and society itself. The timing is critical in creating this environment, for those in the vast digital divide, which continues to exist, are robbed of having what we in urban domains take for granted. A balancing act needs to weigh all the criteria and must look forward for today's needs and issues. There are multiple measures that may be taken to address this need; however, it must be taken in a market that is open, transparent, investment friendly as well as accountable for its actions.

This issue of SAMENA Trends outlines a bit of the happenings at Doha, what prevailed, and where SAMENA is going from here. SAMENA is still growing rapidly, with a new Board of Directors bringing on four new members along with a new Chairman and a Vice Chairman. There are new committees (Subsea Cable) and soon, a few new working groups will come into being, to take a very focused look at some very important issues. We will be in Muscat, Oman, in April, but also in a few other locations prior to that. If you are in Dubai or ever visit here, please do drop by and see us. We really would like to talk Broadband with you.

Truly Yours,

Thomas Wilson
CEO & Managing Director
SAMENA Telecommunications Council



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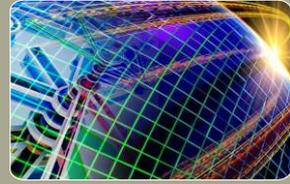
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TOP REGIONAL & MEMBER NEWS

ZTE Ranks Fourth in Handset Sales Ranking

According to new global handset market figures released by market research firm IDC, Chinese telecom equipment and terminal manufacturer ZTE had Q3 2011 shipments of 19.1 million handsets, surpassing Apple to gain a firm fourth-place position with 4.9% of the global market. Nokia and Samsung maintained the first- and second-place positions; LG, in third place, had a 5.4% share of the market. ZTE said that it plans to become one of the world's top three handset makers by shipments over the next three to five years. ZTE-branded products now account for 60% of the company's shipments. ZTE's domestic and international sales break down to a roughly 4:6 ratio, respectively, with domestic sales conducted through commercial retail channels or package deals with operators, and virtually all overseas sales conducted through operators.

Mobily Launches Mobily Maktabi Package for Business Sector

Mobily has launched special (Mobily Maktabi) package which is dedicated to small and mid-sized business sector, in a move that would meet all the needs of their telecommunications and information technology services. The package is offered at very competitive prices in order to help in controlling budgets of this wide business sector. Mobily said that it was very keen to provide all telecommunications and information technology services in (Mobily Maktabi) package in order to create a distinctive and proper work environment within the establishment, and said that (mobily Maktabi) package consists of desktop Phone equipped with a business SIM card, managed laptop, high speed internet access, mobile handset, and Microsoft Messaging and Collaboration suite for companies e-mails and communication solutions. Mobily is the first mobile phone operator in Saudi Arabia to offer such innovative package which contains all of these services and products in one package.

Fujitsu Launches First Dual 2D and 3D Display

Fujitsu has introduced its first 2-in-1 display designed for both 2D and 3D usage, making the use of professional-quality 3D displays more practical and affordable. Fujitsu, with its first dual display, is targeting graphics professionals who use demanding graphics applications such as CAD/CAE, simulation software and geo/satellite data processing systems. The new Fujitsu display model P23T-6 FPR 3D provides bright, flicker- and fatigue-free pictures without crosstalk, by incorporating the latest 3D Filmtype Patterned Retarder (FPR) technology. Further special features of the Superior-line display include the DICOM-compatible adjustable gamma, allowing use with grayscale-oriented graphics and clinical review applications, while a wide range of output interfaces maximize compatibility with PCs, workstations and mobile workstations. The new dual display is available from the end of November.

Alcatel Lucent Introduces New 4G Consumer Communications Solution

Alcatel Lucent has introduced a new 4G consumer communications solution that helps to switch between voice and video-calling, instant messaging and group calling and across a variety of devices including smartphone, tablet or PC, at the touch of a button. The new solution eliminates the need to find out what device, service provider or application they might be available on at the time of getting in contact. Advanced Communications Solutions creates a new conversation experience that makes every contact as easy and reliable as a voice call, said President Alcatel Lucent. The solution also supports Alcatel-Lucent's vision of Application Enablement, helping mobile operators work with application developers and content providers to create new services.

Qtel Launches Mobile Money Services

The Qatar Telecom (Qtel) Group has launched its new Mobile Money service, which enables customers to transfer funds to overseas destinations through a mobile wallet. With the mWallet, Qtel customers will be able to use their mobile phone accounts to save and send money, top up credit, make payments and transfer airtime to friends, relatives, employees and partners. The platform is provided by Sybase, EastNets and BICS. Following the launch in Qatar, the group will roll out integrated mobile money services across other key markets it serves. The Qtel Group's operations cover regions with a high number of foreign workers who regularly transfer a portion of their salaries overseas to their home countries.

PTCL Introduces Variety of New Packages

Pakistan Telecommunication Company Limited (PTCL) has introduced a variety of value-added packages for its landline services at unbeatable new rates. PTCL is offering unlimited on-net calls on Sundays, zero line rent budget packages, Double Play Packages and International Packages along with revision in On-net tariffs to Rs 1.10 for PSTN to PSTN and Vfone, both for Local and Long Distance Calls. PTCL is improving its widespread landline network across Pakistan by introducing next generation network switches, multi services access gateways and optical network units. PTCL's landline service comprises GPON Services (FTTH Solution for Triple Play Services), VDSL 2 Bonding technology services, and Video Phone services. PTCL is determined to cater to all of its customer's growingly sophisticated communications needs.

PCCW Global and Cyta Enhance Ethernet Services

PCCW Global and Cyprus Telecommunications Authority (CYTA) have jointly enhanced their Ethernet services for improved international network connectivity coverage and service availability to more than 70 countries. According to a press release, through the collaboration PCCW Global and CYTA can provide a suite of Ethernet solutions riding on their MPLS network platforms to meet customers' demands for high quality and cost-effective international connectivity. Yiannis Koulias, CYTA's director of wholesale markets, said: 'The enhancement of our international MPLS services through the introduction of global Ethernet services enables CYTA to provide new, state-of-the-art solutions to its customers'. PCCW Global serves the voice and data needs of multinational enterprises and service providers over a network covering more than 1,500 cities and 110 countries.

Smartworld Inks Desktop Services Deal With Mobily

UAE, ICT provider Smartworld has inked an exclusive multi-million-dollar deal with Saudi Arabia operator Mobily to provide desktop services to customers. Smartworld is wholly-owned by Mobily parent Etisalat and Dubai Aviation City Corp. Its new services to Saudi customers include cloud offerings and desktop features as part of the Smart Desktop program. CEO of Smartworld said that the deal was sealed in mid-September. Smart Desktop was launched at GITEX 2010. The new deal is aimed specifically at smaller companies which don't necessarily have the immense budgets needed to build large internal technical structures. The new deal is aim to specifically help smaller companies as opposed to corporate giants, smaller enterprises that don't necessarily have the immense budgets needed to build large internal technical structures.



Operator Leader's Vision



Dr. Nasser Marafih
Chief Executive Officer
Qtel Group

Q. Please tell us about The Qtel Group's position regionally. Would you like to give brief account of The Qtel Group's operations in each country?

A. The Qtel Group has enjoyed a tremendously successful year, both within the core markets of Qatar and Kuwait and in growth markets such as Algeria, Iraq and Indonesia. As of September 2011, our consolidated

customer base stood at 82.4 million, up from 69.1 million for the same period in 2010. We have a presence in 17 markets in total, from North Africa and the Middle East through to Southeast Asia.

Among the key achievements, we have seen sustained revenue in Qatar, driven by increased voice usage and a significant rise in Broadband subscribers. In Iraq, we have grown customer numbers to 8.5 million through ongoing, targeted promotional campaigns, while we have seen strong subscriber growth for Wataniya in Kuwait and Nedjma in Algeria.

Q. How would you rate the telecom sector of Qatar? Do you face the tough competition in the market?

A. Qtel remains the market leader and we benefit from a superior network in terms of coverage and capacity. We believe competition is good for the market with prices and services continuing to benefit all customers.

Competition has a positive impact, because it pushes all companies to make sure that they are offering value across the product offering. However, more important than what our competitors are doing is what our customers are asking for, and for us to make sure that we are delivering on that.

Q. Are you planning to enter any other new markets in near future?

A. Qtel will continue to leverage opportunities for growth as they emerge across our target territory of the Middle East, North Africa, Southeast Asia and the Asian Subcontinent, as well as focusing on our three defined business areas of consumer mobile, consumer broadband and corporate managed services.

Where possible, we will also continue to look to consolidate our shareholdings in existing operations. At the end of 2010, we agreed to increase our Wataniya Group stake in Tunisia to 75%, which has proven to be a worthwhile investment.

Q. The Qtel Group has recently received two awards for "Best M&A of the Year" and "Best FTTx (GPON/Active Ethernet) Operator of the Year" at "Convergence to Doha 2011", how The Qtel Group has maintained its significance in these areas?

A. The Qtel Group has demonstrated its capacity to prudently manage risk in relation to our acquisition and growth strategy, and will continue to look at opportunities that emerge as the industry moves towards consolidation.

In the field of fibre, Qtel Qatar's investment in a nationwide fibre network is the biggest infrastructure investment in our company's history, and has already resulted in a major impact on customer service and provision. With approximately QAR650 million worth of investment, Qtel Fibre will revolutionise telecommunications and entertainment at home and at work.

Our investment in fibre is being complimented by our investment in Wi-MAX and LTE innovations, so that there is a balanced network serving the whole country both wired and wirelessly. The Qtel Group is preparing for LTE, with completed trials in Kuwait and Qatar, and ongoing trials in Indonesia and Oman. Our Wi-Max infrastructure has the potential to evolve into LTE solutions. We are working to improve standards by building more base stations, and are looking at issues like changing Internet frequency, to enable better indoor coverage.

Qtel has launched HSPA networks in most of its operators. This year, Indosat launched the first HSPA+ network in Indonesia with downlink speeds of 42 Mbps. We have implemented fair usage solutions in its operators in Indonesia, Qatar, Kuwait and Oman, to ensure quality of service for all our customers.

Q. The Qtel Group is recognized for having a wide portfolio of new and innovative services. How The Qtel Group has managed to build and retain that image?

A. One of the ongoing drivers of success in the Qtel Group has been group-wide innovation, where we have leveraged the increased scale and scope of our operations to deliver new services for our customers.

This has included the introduction of innovative mobile products such as Backstage, an interactive music experience which allows unlimited downloads and privileged access to industry stars and celebrities, enabling users to get closer to the music. We also launched TAP!, a social networking service that introduces the most popular social networking communities to each other allowing users to socialise across 6 communities within a single client.

We have recently launched a Mobile Money service in Qatar. This service enables our customers to use their mobile phones as a 'wallet' to transfer money between friends and family, remit money overseas, and to pay for their utility bills.

With these services and our exclusive partnerships with many of the leading companies within the ICT sector we are able to create new services and products for our customers. Qtel has worked with industry heavyweights including Universal Music Group, Skype, Google, Hungama and Microsoft on product innovation and the development of new services. Frame agreements with the likes of Ericsson, NSA and Huawei support the network infrastructure to ensure they will be fully capable for future innovations.

Q. The Qtel Group has recently launched the mobile money service "mobile wallet", what is reason for choosing international remittance destinations as Pakistan and the Philippines?

A. Our first two international remittance destinations of Pakistan and the Philippines, is in response to local demand from our customers. For expatriate workers, remittances provide a vital link to ensure the stability of families back home, and there is significant demand for those markets.

We have plans in place to extend across international markets in the near-future, enabling customers to access secure international mobile remittance, mobile payment and mobile recharge facilities around the world.

Q. Please tell us about your latest developments in apps industry, especially your most recent collaborations?

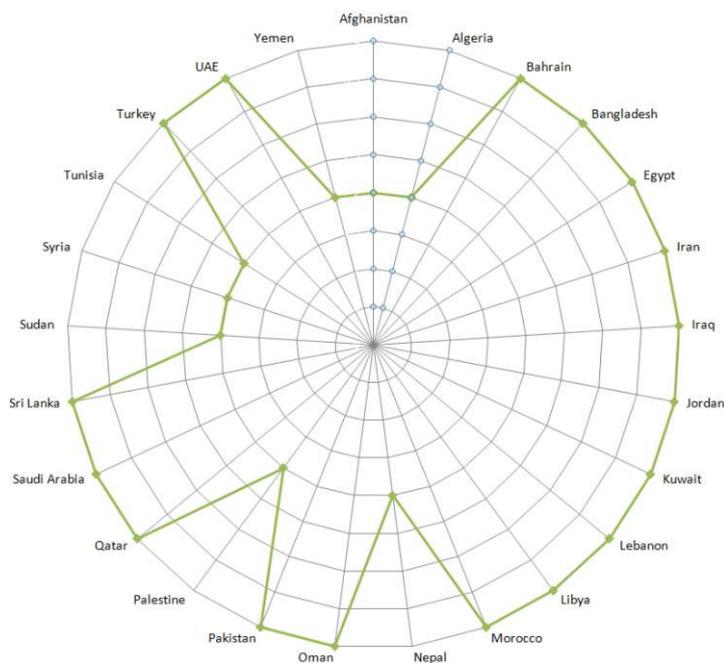
A. In July 2011, The MEF Middle East Content and Commerce Survey, launched by the MEF Qatar office, co-founded by the Qtel Group was the first of its kind to provide a dedicated focus on the how the mobile industry felt that the region would develop. The top five confidence areas were a mix of established and new categories: Mobile Social Networking and Mobile Applications achieved the highest confidence ratings, followed closely by Games and Coupons / Vouchers and then infotainment. A significant proportion of revenues, 45.8%, are still expected to come from the more traditional areas of subscription or single-content purchases. However, 76% of all respondents showed either very or slightly optimistic levels of confidence in the growth of end user generated revenues coming from app stores and 87% of respondents felt the same about mobile social networks.

From the MEF Report, we can see that in Qatar, 22% of respondents purchased content using an App store but more interestingly, 28% made an in-app purchase. In terms of payments, mobile operator billing is still the most commonly used way of paying for purchases - 38% of respondents had used this method. Our role is not just to ensure that our customers can access relevant content but that they can pay for it easily.

A recent example of App collaboration, Qtel Group had partnered with Qatar University Wireless Innovation Centre (QUWIC) to launch a new mobile application that will enable sports fans to follow the progress of every event and every athlete during the games. The application, which will work on BlackBerry, Apple and other smartphones, will be made available for free downloading. This is yet another example for delivering value to our customers via Apps with localized contents through partnerships.



Availability of Mobile TV in SAMENA Region



Research Note: Mobile VAS such as Mobile TV, music, movies, news and images is becoming the key driver behind operators' revenues. 17 out of 25 SAMENA countries have some form of Mobile TV available with operators in more countries planning to launch this service. Countries in the SAMENA region where Mobile TV is still not available include Afghanistan, Algeria, Nepal, Palestine, Sudan, Syria, Tunisia and Yemen.

Image Source: SAMENA Telecommunications Council

Data Source: Industry updates, industry news, operators and regulator's websites.



REGULATORY NEWS

NTA Reports Strong Fixed and Mobile Growth

The Nepal Telecommunications Authority (NTA) has published its latest market development report. According to the report the total number of fixed and mobile lines in service exceeded 13.762 million, up from 13.513 a month earlier and a penetration rate of 48.14% of the Nepalese population (47.27%). Of the total, mobile accounted for the lion's share of lines, at 12.153 million, including 11.296 million GSM and 856,669 CDMA connections, up from a total of 11.919 million in August (broken down as 11.061 million GSM and 858,273 CDMA connections). On top of this the country's fixed service providers accounted for 842,352 lines, up from 840,000, including wireless in the local loop (WiLL), broken down as 612,563 and 229,789 users. Furthermore, the NTA reported a total of 765,135 land mobile service (LMS), 1,742 global mobile personal communications by satellite (GMPCS) connections, 74,102 ADSL connections, 15,943 cable modem broadband lines, and 24,817 wireless or fiber broadband connections.

FCC Creates US\$4.5 Billion Broadband Fund in Major Telecom Overhaul

FCC has approved a US\$ 4.5 billion broadband internet fund for private companies to bring access to more than seven million U.S rural households. The agency also has moved to create a mobility fund that will expand mobile broadband access to tens of thousands of road miles and include dedicated support in tribal areas where telephone and Internet coverage remains scant. FCC Chairman said that within decade 18 million Americans would be connected by landline connections or mobile services at 3G or 4G speeds. He also promised that the creation of broadband fund would further the agency's goal of extending broadband internet what he describes as "infrastructure" for the economy and over the next three years the FCC will provide US\$ 1 billion annually for mobility.

Afghan MOT: 3G Will Be Coming in 6 Months

Afghanistan Telecommunication Ministry has announced that they are working hard to bring 3G system in Afghanistan within next 6 months. According to the MOT officials six US and Europe based companies have expressed their intention in investing in Afghanistan for provision of 3G service. He also said that 1.7 billion dollars have been invested in this sector. Afghan government wants to implement this system in Afghanistan big cities in next six months, but many Afghans emphasize that the government should control the quality and price for this system. Meanwhile, many people have concerns that this system will be expensive for people with low economy level and will only be for the use of rich people.

Iraq's 4th Mobile Auction Seen Early Next Year

Iraq's communications minister has said that the fourth mobile telecoms licence is set to be auctioned in early 2012. The new carrier will be join other telecoms operators in the country including Zain Iraq, a unit of Kuwait's Zain, Qtel affiliate Asiacell and Korek Telecom, which is based in the Kurdish north and is part-owned by France Telecom and Kuwaiti logistics firm Agility. Telecom Minister said that Iraq would have laid 20,000 kilometers of fiber optic cable by next year. Iraq has 1.2 million landlines, of which only 800,000 are in working order, while Internet penetration is just 3 per cent. He also added that 18 companies are installing 100,000 fiber lines to homes and till 2012 there will be 1.8 million lines this will increase the internet penetration rate.

UN Panel Sets Target to Connect Broadband to Half of the Developing World

A United Nations panel has given governments a target of connecting half the world's poor citizens to broadband Internet by 2015. The U.N.'s Broadband Commission for Digital Development also says at least 40 percent of households in developing countries should be hooked up to broadband within four years. The panel representing industry, academia and governments issued the challenge. It said broadband access needs to be affordable even in the most impoverished nations. The head of the U.N.'s International Telecommunications Union in Geneva, Hamadoun Toure, says the targets are "ambitious but achievable" if governments work together with the private sector. In addition, the commission urged governments not to hamper market entry or to tax ICT services unnecessarily. It also highlighted the importance of international standards for interoperability and the availability of adequate radio spectrum.

Mobile Operators Required to Publish Quality of Service Info

Moldovan telecoms regulator the National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI) has approved a decision obliging mobile operators to publish information on the quality of services they provide to end-users, the watchdog has announced on its website. The decision establishes a number of quality parameters, including network availability, service accessibility, integrity, continuity, reliability, billing complaints and users' satisfaction with services, as well as methods of measuring the indicators and the recommended parameters specified by ANRCETI. Mobile operators are expected to publish the quality of service information on a quarterly and annual basis in a standard form approved by the watchdog. The decision became effective on 21 October 2011, amending Board Decision No.278 of 17.10.2009 establishing quality parameters for public electronic communications services.

Azercell, Bakcell Awarded 3G Licences

Azerbaijan's Ministry of Communications and Information Technology (MCIT) has awarded licences to provide third-generation services to the country's two largest mobile operators by subscribers, Azercell and Bakcell. The two cellcos have already rolled out the relevant infrastructure, and are likely to introduce 3G services within the next few months. Until now, Azerfon was the only cellco in the country to hold a concession to provide third-generation services. The company was awarded its licence in December 2009 for the official fee of AZN11, 000 (USD13, 900), launching its 3G network in Baku and other main cities the same month. Meanwhile, the ministry has also recommended the three mobile operators submit proposals for the introduction of Long Term Evolution (LTE) mobile broadband services.

Macedonia Announces 4G Frequency Tender

Macedonia's Agency for Electronic Communications (AEK) announced a public call for allocation of 4G frequencies in the 790-862 MHz band. Interested parties can now submit an application to use a radio frequency block of 2 x 10 MHz (FDD). According to local daily 'Nova Makedonija', foreign companies such as Vodafone and Telenor as well as other large operators who are not present in Macedonia, are expected to apply for the tender. AEK's tender is in line with the process of introducing full digital broadcasting in Macedonia, which is expected to be completed by 01 June 2013.



NET NEUTRALITY TOWARDS A WIN-WIN DEAL

With the massive increase of bandwidth hungry applications, the need of creating a new sustainable internet model comes into a sharper focus. The market dynamics of the telecom sector are not anymore the same like 5 years ago, new players are joining, while others are quitting. Therefore, it is crucial for operators to take a step forward, think ahead, and adapt rapidly with these new market changes in a way that insures their economic sustainability. The debate of Net Neutrality rises in many countries with different perceptions depending on the telecom market structure, telecom laws, and ICT policies. It is very important to understand that there is no right and wrong when coming to the Net Neutrality debate, each player is trying to maintain his role in the game.

From end users' perspective, full access to an open internet is a basic human right, without any sort of content management or packet discrimination. "How would you like if you went to gas up your Ford Escape and the pump would deliver only a quart per minute? You'd inquire, only to discover that your brand of gas had struck a deal with

General Motors to pump gas at the full rate only into GM cars. But if you wanted to pay extra, you could have it at the full flow rate. At the station across the street, BMWs and Audis were getting full flow, but Fords would still have to wait. Preventing a similar situation is what "Net neutrality" is all about." – Bill Machrone, PC Magazine.

It is crucial for operators to take a step forward, think ahead, and adapt rapidly with these new market changes

On the other side, and from the operators' standpoint, massive usage of their networks should be compensated in a way or another by content providers and over the top providers, for Telco's; "they are taking free ride". Over usage of network by accessing media content and hugely bandwidth consuming applications are affecting to a great

extent the network performance and hence requires major investments to upgrade infrastructure and meet the exponential growth of demand. Bandwidth is not free and as subscribers begin to use more of it and have higher expectations, there will come a time where the networks will not be able to provide adequate bandwidth for all customers.

Fortunately, broadband access providers and Internet companies have a common desire: to make money from the same subscribers

Fortunately, broadband access providers and Internet companies have a common desire: to make money from the same subscribers. That's why neither can be really successful without the other. The Internet wouldn't be much of a business opportunity without Amazon, Google or iTunes to get consumers in the mood to pony up for DSL or cable. After all, why would people want to pay broadband prices just to get their email faster? Judging by the current war of words over Net neutrality, it's clear that few Internet companies and broadband providers recognize that a symbiotic relationship is possible. Both want to own the subscriber because, at the end of the day, it's the subscriber who provides revenue to both of them. Therefore the need of creating a new business model where all stakeholders will be on equal footing becomes mandatory. Net Neutrality debate can be on the contrary a golden opportunity for operators to think out of the box, have come ground, and create wealth of chances out of this. Operators and content providers need to establish symbiotic relationships because these provide both parties with the ability to generate significant revenues. At the same time, subscribers will benefit from a consistent integrated customer experience regardless of device, network or type of content, with rich service options that can be enabled automatically or on demand. By working together, offering compelling services, and accepting that the customer will be a customer of both companies, they will both be able to thrive.

Another crucial aspect that must be taken into consideration on the Net Neutrality debate is the role played by regulators and policy makers in shaping the market development strategies. Given the fact that today the Telecom industry is one of the crucial pillars of nation's economy, it is very important to note that policies and regulations should be formulated in a way that is aligned with the benefit of all stakeholders. Currently, in the SAMENA region, Net Neutrality policies are formulated in a very narrow scope, that is based on the "Blocking" methodology. For example, traditions and customs in the SAMENA region push regulators to set content management policies focusing on blocking and filtering inappropriate content. Another clear example is the blockage of VoIP applications especially over mobile networks. In conclusion, it is time for policy makers and regulators in the SAMENA region to start an open dialogue on Net Neutrality with all stakeholders in order to set regulations in a transparent manner and reach a Win-Win state.

Net Neutrality debate can be on the contrary a golden opportunity for operators to think out of the box

George Victor Salama

Senior Manager

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SAMENA Telecommunications Council



A SNAPSHOT OF REGULATORY ACTIVITIES

IN SAMENA REGION

3G vs 4G Network Technologies

Driving the evolution of wireless broadband technology is end users increasing expectations for speed, bandwidth and global access. Customers want more information, such as business and consumer applications, and entertainment available through their mobile devices, but with greater speeds. For wireless carriers to achieve greater speeds and pervasive connectedness, their networks need to start behaving more like landline IP-based networks. This line of thinking represents a fundamental shift in perspective from mobile services to broadband connections for customers and service providers alike. In the evolution of the mobile telephony the standards made for 3G and 4G network has revolutionized the next generation mobile capabilities of the subscribers. Unlike earlier wireless standards, 4G technology is based on TCP/IP, the core protocol of the Internet. TCP/IP enables wireless networks to deliver higher-level services, such as video and multimedia, while supporting the devices and applications of the future.

Service providers are giving preferring to LTE over WiMAX as the technological foundation for its 4G wireless broadband network. They believe that LTE offers a number

of significant technological and business advantages over WiMAX that make it a superior networking standard. End users want the freedom to communicate in new and novel ways whenever and wherever they choose around the globe.

There is not a slightest skepticism that one major capability of a future wireless Radio Access Technology (RAT) is that it should provide truly mobile broadband, i.e. the combination of high capacity and close to full mobility and coverage. The development in the recent year has shown that data traffic in cellular 3G and 4G systems.

The development of the future mobile eco-system, with the introduction of higher data rate RATs can be approached in two distinct ways: Both an evolutionary as well as a revolutionary approaches are visualized. In the revolutionary scenario, the new high data rate RAT (e.g. 4G) is foreseen to replace all existing standards, enhancing the mobile data rate and satisfying the set of requirements of the mobile user as well as of wirelessly interaction machine to machine systems. In the evolutionary case, any new high data rate RAT is seen as one new component enriching the mobile/wireless environment, thus complementing all

other existing technologies. In the latter case the key challenges are in facilitating dependable and seamless interoperation and interoperability between standards. The aim of the 3G technology is to allow a high data rate for various applications that can be used on smart phones. These include such applications as video calling, downloading streaming audio and video, and video conferencing. There are two collaborations in 3G technology – 3GPP and 3GPP2. 3GPP2 is creating the standards based on the technology of CDMA. The International Telecommunications Union (ITU) sets out the guidelines that must be in place before any network can be called a 3G network. These are:

- ❑ The minimum data transfer rate for downlinks has to be at least 144Kbps for handsets being used in cars or on trains and 384Kbps for those who are walking or standing in one spot.
- ❑ Downlink for indoor conditions must be at least 2Mbps.
- ❑ The 3GPP specifies on demand bandwidth and broadband Internet access at 2Mbps.

Variations of the CDMA are the main multiple access techniques that 3G networks use. Existing CDMA networks will keep using wide band CDMA, which is a 5MHz channel capable of providing at least 2Mbps. In other parts of the world different CDMA technologies are used such as CDMA 2000 and CDMA2000 1x Ev-Do.

The 4G wireless communication technology is still in the development stages and is the next generation of mobile networks. There are two technologies being considered for this fourth generation – WiMAX and LTE. This is because of the high speed data transfer rates that will be possible with 4G, such as 100Mbps when moving and 1Gbps when in one location.

In order for a wireless network to be classified as 4G, there are certain conditions that must be met. These are:

- ❑ Data transfer rates of 100Mbps when mobile and 1Gbps when stationary.
- ❑ Network must operate completely on IP
- ❑ Channel allocation is dynamic with varying channel bandwidth. This bandwidth varies from 5 to 20MHz depending on the requirements of the application.
- ❑ Capability for soft hand over

Summarizing 3G versus 4G the major attributes are: In 3G the downlink data rate should be at least 2Mbps when not moving and 384Kbps when mobile. In 4G, the downlink data rate should be at least 1Gbps when stationary and in very highly mobile environment 100Mbps. 3G uses CDMA technology for multiple access technique and its variations. In 4G both the technologies (LTE and WiMAX) using OFDMA (Orthogonal Frequency Division Multiple Access) in downlink. In the uplink LTE uses Single Carrier FDMA and WiMAX continue to use OFDMA whilst 3G networks use CDMA variations.

Country-wise Regulatory Activities

Afghanistan

The Afghan Telecom Regulator is working hard to bring 3G system in Afghanistan and implement this system in Afghanistan big cities in next six months; but the quality and price for this system is a major concern for the users. According to the regulator six US and Europe based companies have expressed their intention in investing in Afghanistan for provision of 3G service. Minister of Telecommunication told media that the 3G enables users to share pictures and videos beside conversation. The most important feature of this system is the high speed internet service. This system will be activated within next 6 months in big cities of Afghanistan. Afghanistan had a considerable growth in telecommunication sector after the fall of Taliban regime. According to Afghanistan telecommunication ministry, 1.7 billion US dollars have been invested in this sector till now.

Algeria

The Algerian Regulator has refused a request presented by Telecom Egypt (TE) to LAKOM for fixed-line services, a company that is owned by TE in partnership with Orascom Telecom (OT). Telecom Egypt Chairman told that the Egyptian consortium failed to have LAKOM start its

operations given its current tensions with the Algerian government. He added that the Algerian authorities do not have any legal explanation for the refusal of the liquidation. It is pertinent to note that the Algerian government and Orascom Telecom have been involved in a stand-off for 18 months following OT's announcement of its intentions to sell mobile operator Djezzy. The Algerian government decree should Djezzy be sold, it would be nationalized via a deal between Wind Telecom, Orascom Telecom's parent company and Vimpelcom, the second largest mobile operator in Russia. The deal estimated at US\$6 billion gives the Russian firm 51.7% of Orascom Telecom, operating in Africa, Asia and Canada, and 100% of Wind Telecomunicazioni, in Italy. The transaction didn't solve however the dispute between OT and the Algerian government over Djezzy. Algerian Finance Minister said that his country is sticking to its plan to nationalize Orascom Telecom's local mobile phone unit after he met executives from would-be buyer Vimpelcom. Before the Vimpelcom deal, Orascom Telecom was forced to agree to talks on Djezzy's nationalization after it was hit with millions of dollars in back-tax demands from Algeria and prevented from moving its cash abroad. Talks about the nationalization are stalled because of a dispute between the Algerian government and Djezzy's owners about how the unit is to be valued.

Bahrain

The Telecom Regulator is developing the third National Telecommunications Plan for the country's telecommunications industry. The plan which is reviewed every three years, sets out the government's policy and strategic direction for the telecommunications sector that has a direct impact on the uptake of technology and the propagation of advanced information and communications services throughout the country. "The new plan is going to be forward-looking and is intended to put Bahrain at the forefront of information and communications technology development, Kamal Bin Ahmad, the Minister of Cabinet Affairs, said. He explained that this will enable "relevant sectors to continue to contribute to the Bahrain economy and society in a way that enables Bahrain's competitive position in the region to be maintained and enhanced". According to Mohammad Ahmad Al Amer, Chairman of TRA, "policy and strategy development for the upcoming plan will be evidence-based, and developed using the most recent market information and trends, which requires strong coordination with key stakeholders. "The new plan will be shaped in line with Bahrain's Economic Vision 2030 and the accompanying National Economic Strategy, which further emphasizes the importance of a coordinated approach in developing the plan," he said in a statement. The regulator has recently signed an agreement with Intercai Mondiale to assist with the development of the new plan, expected to be completed by mid-December. In a bid to encourage more competition between telecom firms in the kingdom the Regulator had expanded telephone number portability to fixed landline services. The announcement by regulator comes less than three months after portability was introduced to mobile phones. Commenting on the launch, Director General said that this service follows the introduction of mobile number portability service back in July and is completely consistent with it, whereas consumers with fixed telecoms services are entitled now to port their numbers and all associated services when changing their service provider. He added that the move enhanced the strategic plans towards empowering the consumer and minimizing the barriers for the fair competition. The Regulator after receiving comments from the stakeholders issued a position paper on 'Development, implementation and use of bottom-up fixed and mobile network cost models in the Kingdom of Bahrain.' The purpose of the position paper is to identify and discuss the key features and principles to support the development, implementation and use of bottom-up cost models of fixed and mobile networks in Bahrain to determine the cost of supplying retail and wholesale telecommunications services.

Bangladesh

The regulator directed the largest cellco GrameenPhone to pay 'overdue' fees and taxes of BDT30.34 billion (US\$395 million) following an independent audit. The amount demanded by the regulator includes BDT21.46 billion of regulatory fees and BDT8.87 billion payable to the National Board of Revenues (NBR). Regulator also told that the audit had found that GSM operator had 'left the amount unpaid', and asked the firm to pay the regulatory fees portion of the total within 21 days of the notice, plus the NBR revenues segment 'in due time'. GrameenPhone stated that it would dispute the claim, and indicated that the independent auditor had not been in full possession of the facts needed to carry out the audit. Telenor which has 55.8% share of GrameenPhone dominates the telecom industry in Bangladesh and boasts off 32 million mobile phone subscribers, nearly 43% total mobile phone users, with an annual income of US\$1 billion annually has refused to pay the regulator US\$400 million in penalties for tax evasion and revenue sharing costs. Telenor CEO met Bangladesh Prime Minister over the weekend to apprise her of the standoff between Telenor's venture partner GrameenPhone (GP) and the regulator. GrameenPhone threatened to take the regulator to court to achieve a settlement of the purported audit findings. Executives of the Norwegian phone company initially responded that the audit findings did not follow international standards, but maintain there is still room for settling the dispute through dialogue. GP was asked to pay the dues by October 23 otherwise the regulator might take legal action. Regulator described GP's attitude as arrogant. The Bangladesh High Court (HC) issued a ruling upon the telecom regulator and the government and stayed the imposition of the market competition factor (MCF) on the spectrum obtained by Grameenphone (GP) in 2008 following a writ petition filed by the telecom operator recently. The bench gave the order relating to the issue. The court directed the parties to follow NBR (National Board of Revenue) SRO (Statutory Regulatory Order) on VAT (value added tax) deduction from the payable fees and directed regulator to proceed with the renewal process unhindered by these two issues, said a GP statement. Earlier, regulator asked the leading telecom operator to pay Tk 3.84 billion as spectrum fee for 2008 along with its 2G license renewal fee. As per figures issued by the regulator Bangladeshi mobile operators ended September with a combined total of 80.911 million subscribers, up from 79.677 million in August. Mobile operator GrameenPhone led the market with 35.245 million customers, compared with 34.979 million a month earlier. Banglalink's (Orascom Telecom Bangladesh) customer base rose to 22.139 million from 21.621 million, while Robi (Axiata Bangladesh) ended the month with 15.273 million, up from 14.971 million customers in August. Airtel Bangladesh grew its customer base to 5.291 million from 5.164 million while Citycell's (PBTCL) subscriber base slipped to 1.762 million from 1.778 million a month earlier. Teletalk's subscriber base stood at 1.199 million, up from 1.161 million subscribers a month earlier.

Egypt

The telecom regulator announced that the mobile operators managed successfully to implement and activate the new plan to increase the length of the current mobile numbers from 10 to 11 digits. The mobile services were slightly affected due to technical modifications implemented by the mobile operators for the new scheme activation and this impact took place for just 2 hours, after which the mobile services were back to normal despite the huge technical difficulties that encountered the operators to execute the new scheme successfully over all the telecom network throughout Egypt at the same time and without causing the services to be badly affected. Etisalat Misr has delayed plans for a stock market listing on the Cairo bourse until the economic and political turmoil in the country calms down. "The significant impact (of the uprising) on the capital markets reduces the feasibility of the share listing, especially in light of the reduced liquidity circulating in the market. The mobile network had planned to list 15-20% of its shares on the local stock market this year. Egypt is poised to emerge as a major player in the information economy, according to UNCTAD's first Information Communications and Technology (ICT) Policy Review of the country. At Geneva the Minister of Communications and Information Technology of Egypt, Mohammed Salem, welcomed the UNCTAD recommendations, stating that he sees "2011 as the dawn of a new era for ICT in Egypt, with even more Egyptians joining and embracing the information society as we continue to work to forge a knowledge economy". The Review evaluates the main achievements and remaining challenges in the areas of ICT infrastructure, skills developments for the ICT sector, ICT use in the educational system, e-content development in Arabic and the promotion of an export-oriented ICT sector. UNCTAD underlined the importance of building a more inclusive information economy, seizing the full economic potential of new ICTs and making the new national ICT strategy more demand-driven by assessing priority needs of Egyptian consumers and businesses. To extend the reach and benefits of ICTs, Egypt is urged to enhance infrastructure coverage in underserved areas, promote greater use of ICTs among enterprises that are located outside the technology parks and find ways to reach Arabic-speaking users. Adequate attention should also be paid to the provision of services and content development using mobile platforms, as mobile phones are the most widespread ICT tool. The contributions of small and medium-sized enterprises (SMEs) should be better harnessed in the next strategy. SMEs should play a greater role as producers as well as users of ICT goods and services. They represent an untapped potential for the ICT sector of Egypt to expand, produce local content and boost export revenues. The Review points to the success of Egypt in establishing itself as a recognized location for outsourcing business processes and services. Egypt has surged from twelfth position in 2007 to fourth in 2011 in A.T. Kearney's Global Services Location Index, and exports of ICT-enabled

services have expanded greatly. UNCTAD proposes ways to move towards exports of higher value-added services, such as knowledge process outsourcing, information technology outsourcing, business application development, remote infrastructure management and the Arabization of software. In order to expand the pool of ICT skills, UNCTAD urges Egypt to develop strategies that engage Egyptian experts and scholars from the diasporas and to create incentives to attract other international knowledge workers by removing barriers to migration inflows. The Government also should leverage new opportunities emerging as a result of technological change. In the area of education, it should explore innovative solutions, such as to reduce the cost of connecting schools using virtualization technologies and cloud-based services.

Iraq

Iraqi government still expects to award a fourth mobile phone operator license by the end of the year and 40% of the shares in the license would be allocated to a private operator, 35% to the public and 25% to Ministry of Communications (MoC). The MoC also revealed that Iraq's new communications law was 'in the final stages' and now they are negotiating with the parliament and most probably within a period of one month they may approve it. The plans for the license tender received final cabinet approval in May 2010, by which time 15 firms had expressed an interest in entering bids, including US-based Verizon Communications, South Africa's MTN, Turkcell of Turkey and the UAE's Etisalat. The winner will join three other national wireless operators in Iraq; Zain Iraq, Asiacell and Korek. The trio was each awarded one of three new 15-year national mobile concessions in August 2007 for US\$1.25 billion, while a fourth was retained by the MoC. In March 2011 Minister said that Iraq hopes to raise around US\$2billion from the auction of the fourth wireless license. The regulator said that Iraq's three mobile operators are unlikely to conduct initial public offerings until the middle of next year and will not be penalized for missing an August 2011 deadline. Under the terms of their licenses, Iraq's three operators Korek Telecom, Zain Iraq and Asiacell, were meant to launch IPOs by the end of August. But all three of them had missed the deadline saying the fledgling Iraqi bourse was ill prepared for these listings. Iraq is one of the few regional markets offering double-digit subscriber growth. Iraq's bourse has a market capitalization of around US\$4bn, and average daily trading in May was less than US\$2m, prompting analysts to question whether the market is ready for the telecoms IPOs. The three operators must first change from private companies to shareholding companies, a process that takes at least a month. With a number of infrastructure contracts worth millions of US dollars the Iraqi telecommunications market is experiencing massive growth, making Iraq a pivotal geographical link for telecommunications in the Middle East. Iraq will become an important communications bridge joining the region with Europe and Asia. According the regulator there are now approximately 23 million mobile phone subscribers in the

country. The Iraqi government is aiming to boost fixed-line phone penetration and internet reach to 25% within the five years, through a US\$3 billion development project and has allocated US\$500 million to spend on the telecoms industry this year. The Iraq government will auction a fourth mobile license at the beginning of 2012 pending government approval expected next month. Communications Minister told Reuters he has submitted all the papers to the council of ministers for approval. The new carrier will be up against Zain Iraq, Asiacell and Korek Telecom, which is based in the Kurdish north and is part-owned by France Telecom and Kuwaiti logistics firm Agility. In early October, Minister reiterated the fourth license would likely be allocated so that a 40% share would go to the winning bidder, 35% to the public and 25% to the Communications Ministry. The minister said he expects to get a response definitely in November. Minister said in a conference speech in Istanbul the auction would likely happen in early 2012. Minister also said he expects parliament to vote on a long-awaited communications law, a crucial step in the development of the telecommunications sector, before the end of the year. The sector currently relies on pre-2003 legislation.

Jordan

FRIENDi GROUP, the leading MVNO/MVNE provider in the region has won the prestigious Best MVNO award at the 5th Annual Telecoms World Middle East Awards ceremony. This is the second consecutive year FRIENDi GROUP has been awarded the honor. FRIENDi GROUP was the first to introduce the MVNO (Mobile Virtual Network Operator) concept in the Middle East, and has now firmly positioned itself as the market leader in the region. With low prices translating into sustained growth in subscriber numbers, Jordan's highly competitive mobile phone market now has a penetration rate of over 108%. To keep that number increasing, industry players are calling for a sales tax on smart phones to be rescinded, while also launching new mobile phone-based services, Global Arab Network reports. Jordan's liberalized and well-developed telecoms sector is thus going through some exciting times. Indeed, with the return to normality after political unrest earlier this year, Jordan's telecoms players are seen to be actively engaging with investors to restore confidence and attract funds to upgrade and expand the kingdom's network. The country's telecoms market is already the region's most liberalized, with competition among operators intense. Furthermore, subscriptions to higher-value telecoms services will likely be spurred on by expansions in the country's 3G and 3G+ networks. Operating as Orange Jordan and majority controlled by France Telecom, the Jordan Telecom Group (JTG) launched the kingdom's first 3G+ capable network in March 2010. In February 2011, the company introduced its ADSL2+ and 3G+ package, which offer broadband speeds of up to 20 Mbps and 21 Mbps, respectively. Other operators include Zain Jordan, which introduced GSM mobile services to the country in 1994 and launched its 3G network last March, and Bahrain Telecom's Umniah, which was granted a GSM license in 2004. The expansion of 3G+ services is expected to spark greater

interest in smart phones and make it easier for consumers to buy them. To encourage use of the new network, experts called for taxes on these devices to be reduced, saying that the elimination of the 16% sales tax could help significantly increase internet use by Smartphone owners, as of the end of July, smart phones accounted for 41.6% of the total number of mobile handsets in Jordan and now more people are now using smart phones than PCs to connect to the internet. According to some predictions, mobile penetration is expected to reach 133% by 2015. With more than half of Internet users in Jordan also using social networking sites, the ICT Association of Jordan said. Websites like Facebook and Twitter can be used to extend public services to young people, who represent a large majority of social networking users. "Social networking sites can also be used to raise awareness among the younger generation on several issues," int@j CEO Abed Shamlawi said, referring to figures from www.insightsmena.com, a website recently launched by Google. The figures indicate that 51% of Internet users in Jordan use social networking, compared to 64% in Saudi Arabia and about 82% in the UAE. Meanwhile, 48% of Internet users in Jordan use instant messaging, compared to 71% in Morocco, 68% in Saudi Arabia and 83% in the UAE, according to the website, which provides key trends on online behavior. Of those who use social networking sites in Jordan, 47% are women, who account for 44% of instant messaging users in the Kingdom, according to the website. "Social networking sites are very popular in Jordan and a majority of the users are young people. The government can use such sites to provide public services to the young in the fields of health and education," Shamlawi told The Jordan Times. The number of Internet users in Jordan is currently estimated at 2.8 million, and the figure is expected to reach three million by the end of 2011, he said. Shamlawi estimated the number of Twitter users in Jordan at 15,000, while according to www.checkfacebook.com there are 1.855 million Facebook users in the country. "Applications for university admission for example can be done through social networking sites, especially Facebook. Nowadays, there are many teachers who have pages on Facebook where they interact with students and discuss educational issues," he noted. "The number of Internet users is on the rise as well as the use of social networking. This provides an effective platform to reach out to a broad segment of the society," Shamlawi pointed out. The information and communication technology association of Jordan - int@j arranged a cloud computing conference. The conference is considered to be the first local premier event about Cloud Computing in Jordan, focusing on introducing practical knowledge, experiences, and demonstrating number of real case success stories and specialists' recommendations, in addition to presenting an overview of the 'Cloud Computing' concept and its Applications, models, challenges and implementation guidelines applicable to the regional climate and will highlight related opportunities and areas of focus. The event featured a rich content and an enlightening agenda that encompasses vital current and future issues related to Cloud Computing

models, challenges, and opportunities. Cloud Computing is highly relevant to the local and regional climate, thus providing the ICT and business community, and stakeholders with a holistic overview of the cloud computing current position, opportunities at hand, and recommended approaches to capitalize on those. Rich content were presented by experts from leader companies in the field of cloud computing, such as Oracle, Cisco, Microsoft and EMC in addition to MenaITech, Zain and Umniah.

Kuwait

The problem of illegal international calls in Kuwait has aggravated and nearly 40% of all international calls are made illegally. Sources said there are about 20 illegal overseas call centers in the country where the service providers offer international calls at low prices using Internet. Such services cause losses worth KD 10 million to the treasury annually. Sources said the dens are run by gangs in collaboration with state officials and employees of Internet companies. The Ministry of Communications will study this file again to get to the root of the problem, they added.

Lebanon

The Telecom Regulator signed a contract providing Quality of Service Management System Architecture. The 2009-initiated international tender had resulted in the awarding of Wicom, an IT company based in the UAE, with a US\$1.2 million contract. In a statement, regulator announced that the contract would allow measurement and analysis of all telecommunications services including Internet and aims at improving the quality of telecommunication services. Furthermore, the system will be able to gather raw technical data from various telecom networks and analyze them through an XPLORE technical channel. The equipment required for the projects will be provided through funding from the Telecommunications Ministry and will be installed at regulator offices. With the aim of informing telecom consumers and stakeholders and maintaining transparency, the regulator published a detailed study about the New Prepaid Offers prepared by the Market and Competition Unit. The study relates the history of mobile tariff changes and gives an overview and a comparison of available prepaid offers. It also presents the outcome of a detailed test report that has been conducted to validate and check the terms and conditions, tariffs and user friendliness of the new prepaid offers. The study concludes with recommendations for an increase in mobile penetration stating that operators should review the new prepaid offers, the old services, the communication plan and distribution channels and fix some technical implementation issues to ensure that new offers become attractive and simple to use. Lebanon's telecoms minister Nicolas Sehnaoui announced details of the official launch of 3G services in the country on November 1 by the two state-owned cellcos Alfa and MTC Touch, which are expanding their trial W-CDMA/HSPA

services into commercial offerings. The minister revealed that the first available packages on both networks will cost US\$19 per month including 500MB of mobile data consumption, and a 100MB package for US\$10. Additional data usage will be charged at US\$0.04 per 1MB. Pre- and post-paid users will be able to sign up for 3G coverage in the Beirut and Mount Lebanon regions from the beginning of the month, when Alfa and MTC are expected to announce further packages. Sahnaoui also claimed that 4G mobile services will be made available in Lebanon 'in summer 2012', enabling speeds of up to 100Mbps, supported by the country's ongoing rollout of high speed fiber-optic backbone network infrastructure.

Morocco

A study released by Morocco's Competition Council (Conseil de Concurrence) suggested that the telecom regulator had not succeeded in promoting enough competition in the sector. It also charged that access to telecoms infrastructure was uneven, with some operators benefitting from lower access costs. According to the report, Moroccan mobile charges are, together with those in Lebanon, the highest in the Arab world. However, the Competition Council's statements come amidst an absence of claims of unfair treatment by Moroccan telecoms companies according to the regulator. Furthermore, the regulator said, there are signs that competition has recently been driving prices down. According to the regulator, the average charge for Moroccan mobile phone calls has halved over the course of the last five years, from Dh1.63 (€0.14) in 2006 to Dh0.86 (€0.08) currently. This has been accompanied by a 50% increase in average usage, with Moroccans spending 45 minutes talking on the phone per month at the start of 2011, compared to half an hour in 2006. The increase in usage and drop in prices are in large part due to the increasing maturity of the country's telecoms market, which is forcing companies to come up with ever-more innovative ways of maintaining growth. The intensifying competition has already had a noticeable impact on balance sheets. Maroc Telecom registered a group-wide turnover of Dh15.32bn (€1.35bn) in the first half of 2011, down slightly the same period last year; although it also saw a significant 16.5% increase in its customer numbers to 27.5m. Profits fell by 10.3% year-on-year, however, to Dh3.99bn (€352m). The firm says it expects revenues for 2011 as a whole to also fall due to its decision to cut prices in the second quarter in the face of rising competition. Average per minute mobile call prices charged by the firm in Morocco fell by 24% in first-quarter 2011 compared to those of first-quarter 2010, to Dh0.99 (€0.09), though outbound usage per customer rose by 22% to 60 minutes per month. However, the increased competition in the firm's domestic market has been partly offset by a 4.8% increase in turnover in its other neighboring markets, namely Benin, Gabon, Mali and Mauritania, where customer numbers grew much faster on end-June 2010, by 47% to 8.7m. Faced with a maturing Moroccan market, the company is seeking to expand the contribution of its foreign subsidiaries to its turnover from

17.7% in 2010 to 30%. As the market becomes more competitive, other Moroccan providers are also expanding their networks and offering more innovative packages that offer post-paid contract-style incentives of free minutes and other benefits to prepaid, no-contract customers, who continue to overwhelmingly dominate the market. Morocco's second-largest communications provider, Méditel, announced in mid-May that it had expanded its 3G coverage to 27 new municipalities and rural areas in the course of recent months. In June the firm launched a new prepaid service, Méditel Jahiz MIX, aimed at young people that includes free minutes, free SMS messages and unlimited 3G access. Inwi, the mobile phone service of Wana, in May similarly launched a contract-free phone plan called Zen that, for a prepaid fee of Dh100 (€8.80) a month, will provide customers with 90 free minutes of free calls and another 90 minutes of free off-peak calls, as well as free internet access up to 300MB. The package also charges overseas calls at the same rate as national ones. Wana (formerly Maroc Connect), controlled by investment fund ONA/SNI, is the most recent entrant to the mobile phone market and still the smallest of the three players in the segment, though it has been growing rapidly and significantly expanding its market share in recent months and years, further underlining the increasing level of competition. Increased competition will make the regulators happy, while the resulting fall in prices and rise in services will be good for consumers. The innovative packages operators are offering should help them maintain their bottom lines as they adjust to the changes in what is becoming a more challenging market – but one with enhanced opportunities. Morocco's government plans to have companies contribute to a new social solidarity fund but aims to exempt banking, telecom, cement and insurance firms in its budget bill for 2012, Finance and Economy Minister told Reuters. It is the first time a government minister has acknowledged that such contributions were included in the budget for 2012, a first draft of which the government withdrew in late September just before submitting it to parliament. Investors are keen to see how the final version of next year's budget looks because the government must find the cash to cover increased spending plans. As per regulator, mobile subscribers in the country reached a total of 36.15 million at the end of September 2011, up by 3.4% quarter-on-quarter and 18.5% in twelve months. In terms of market share, at that date the watchdog reported that Maroc Telecom accounted for 46.9% of subscribers, Meditel 32.8% and Wana nearly 20.3%. Also at September 30, the regulator said that Moroccan 3G mobile internet services had 2.33 million subscribers, up from 1.82 million the previous quarter and 1.16 million a year earlier. At the end of the third quarter Maroc Telecom claimed 39.9% of the 3G broadband market, giving it 929,500 subscribers, followed by Meditel with 829,000 (35.6%) and Wana with 24.5%, or 570,000 3G mobile internet accounts. The figures include combined 3G voice and data mobile package users (handsets, computers and other devices). Subscriptions to data-only 3G mobile broadband services (e.g. via USB

dongle modem) at end-September amounted to 1.403 million (60.2% of the 3G internet total), up by 9.5% quarter-on-quarter, while combined voice-plus-data package users reportedly reached 926,000 (39.8% of the 3G total), a growth rate of 73.1% from the end of June 2011. Fixed ADSL broadband lines in Morocco (nearly all operated by Maroc Telecom) saw a quarterly increase in 3Q11 of 4.5% to reach a total of 550,500.

Nepal

The regulator published its latest market development report Management Information System for the month ended August 14, 2011. At that date the total number of fixed and mobile lines in service exceeded 13.513 million, a penetration rate of 47.27% of the Nepalese population. Of the total, mobile accounted for the lion's share of lines, at 11.919 million – including 11.061 million GSM and 858,273 CDMA connections. On top of this the country's fixed service providers accounted for 840,000 lines, including wireless in the local loop (WiLL), broken down as 610,840 and 229,988 users. Furthermore, the NTA reported a total of 751,471 land mobile service (LMS) and 1,742 global mobile personal communications by satellite (GMPCS) connections. As at August 14 Nepal Telecom was the biggest player in the domestic mobile market with 6.073 million registered SIMs (including 5.214 million for GSM), just ahead of Ncell with 5.846 million. NT also leads the fixed line segment with a total of 761,838 main lines in service (including 156,690 WiLL users), putting it far in front of UTL with 70,832 WiLL lines, STM with 5,094 PSTN connections, NSTPL (2,466, WiLL) and Smart (598, PSTN). Nepal's data services market continues to be dominated by mobile internet (GPRS and CDMA2000 1x) sub-broadband speed connections, which accounted for 3.144 million of the total 3.276 million lines registered by NTA at the end of the period under review. Ncell leads NT here however, with a total of 1.957 million people accessing the internet via its GPRS service, while NT had 1.131 million GPRS/CDMA users and UTL counted 54,175 (CDMA) lines. By contrast, broadband ADSL, cable and wireless modem/fiber-optic connections make up a small proportion of the total. State-owned NT had 71,664 ADSL lines and licensed ISPs collectively controlled 24,555 wireless/fiber-optic and 16,039 cable modem lines, respectively. Dial-up accounted for a further 20,039 connections at the same date. A total of 293 licenses had been issued by the regulator as at August 14, 2011, including three basic telecommunications concessions, two for cellular mobile, nine network service provider, and 100 VSAT user licenses. On top of this the regulator had issued permits for internet (48), GMPCS (three), rural telecom (two), limited mobility (108), international trunk telephone (three), rural VSAT (nine) and rural ISP (six) services. The regulator formed a five-member committee to develop merger and acquisition policy. The committee will study the contemporary trend of merger and acquisition throughout the world and suggest the government the most suitable. The mergers and acquisitions in telecom sector are regarded as horizontal mergers simply because of the reason that the entities

going for merger or acquisition are operating in the same industry. The regulator is planning to monitor billing system of telecom service providers Nepal Telecom, Ncell and UTL and Internet Service Providers (ISPs) to check whether they are implementing approved tariffs for their different services or not. The authority has started monitoring the billing system after receiving formal and informal complaints from the consumers. Right to Information campaigner Taranath Dahal also lodged a complaint at the authority seeking detailed of billing system of internet services of the telecom service providers. In the complaint, he has also asked the authority to provide information whether telecom service providers have been connecting their different schemes in the internet service devices without informing consumers or not. Dahal also demanded to publish the latest monitoring report of the regulator on billing system and detailed report on actions taken against them, if the authority discovered any irregularities. The regulator formed a working committee on National Numbering Plan to formulate a policy for distribution and management of telecommunication numbers. In the absence of guiding policy, regulator so far has been allocating telecommunication numbers. The board meeting of telecom sector regulator held recently formed the working committee. Regulator's Spokesperson said the committee will have to submit report within six months. He further said the report would work as a guideline in organizing the distribution of telecommunication number. Currently, regulator has assigned 10-digit numbers for mobile telephony and 7-digit numbers for fixed lines in Kathmandu Valley. Fixed lines outside the valley have been assigned six-digit numbers. Similarly, regulator has assigned three-digit numbers for emergency lines and four-digit numbers for companies operating SMS-based services. A member of the working committee told that the committee would also propose tariff structure for three-digit and four-digit numbers. Regulator's nod is must for telecom operators before assigning such numbers. Once the policy comes into effect, the regulator will charge the subscribers through the operator.

Oman

The planned merger of Oman Telecommunications Company (Omantel) with the company's wireless unit Oman Mobile has been approved at an extraordinary general meeting. The move forms the last step in the merger initiative that was first launched three years ago, when the operational activities of both companies were integrated into one unified operating model. 'Enhancing the internal efficiency was one of the main objectives of the integration of the operational activities and we are glad that we have successfully implemented this through the synergy that was created between both company's operations in functions like finance, human resources, procurements and network,' commented Omantel's CEO Dr. Amer bin Awadh Al-Rawas, adding: 'The merger reaffirms our commitment to enhancing our customers' experience which we will continue on through the

introduction of more innovative products and expanding our network reach to cover different areas of the Sultanate.' He said the merger is expected to be fully completed in the next few months.

Pakistan

The Telecom Regulator has updated the maximum tariffs that fixed line incumbent Pakistan Telecommunication Company Ltd (PTCL) can charge for its wire line voice services. The regulator has set down a cap of PKR500 (US\$5.69) and PKR750 (US\$8.55) respectively for new connection charges in rural and urban areas respectively, with monthly line rental set at a maximum of PKR199. The regulator has also capped calling rates, with calls to on-net and off-net fixed line numbers to be set at PKR1 per minute and PKR2 per three minutes respectively. Long-distance calls meanwhile will be charged at no more than PKR1 per minute (on-net) or PKR2 per minute (off-net). Rounding out the watchdog's new charge limits, fixed to mobile calls are to be set at no more than PKR2.50 for both local and long-distance calls. In August 2004 regulator made its first set of determinations regarding operators with significant market power (SMP, Determination No. 15-46/01), which it classified as those companies with more than a 25% share of any market. PTCL was designated as having SMP in the local, domestic and international long-distance (DLD and ILD), and leased line markets nationwide, as well as in national interconnection. Subsequently, regulator issued a consultation paper on the identification of relevant markets and SMP operators in July 2009, and having received feedback from interested parties, a year on it revealed its updated recommendations. Since July 2010 PTCL has been declared as having SMP in the FLL, LDI, retail broadband, domestic leased line, IP bandwidth, call transit services and wholesale broadband access markets in Pakistan. The Regulator placed obligations on PTCL to prohibit it from abusing its dominant position, including tariff regulations, mandatory provision of cost-based interconnect rates, the publication of a reference interconnect offer (RIO) and the provision of wholesale services, including carrier selection. Pakistan Government hasn't decided anything regarding the auction of 3G licenses, as it appears that IT Ministry is yet to finalize 3G policy, its proposals, procedures and modalities for auction of 3G licensees in the country. In a follow up of an earlier meeting on the up-gradation of telecom sector of the country, President directed a committee that another meeting be held after the IT Ministry had finalized its proposals in consultation with other relevant ministries and departments. Officials close to the development told that government is confused over 3G auction. On one hand it wants to generate money by auctioning licenses while on other hands it's cuffed by Etisalat and reluctant cellular operators who don't want invest into 3G. Sources say that government is likely to take a definitive decision in next few weeks. Though they were unclear on what that decision would be. Government's seriousness about 3G auction first surfaced in July this year, shortly after annual budget, when it was sensed that government is desperate to auction 3G licenses to make at

least Rs. 75 billion to fill current year's budget deficit. Things then got delayed due to incomplete deliberation on 3G policy. However, it appeared that government was in the direction of auctioning 3G license, in fact, a government official told press that Pakistan is set to auction 3G licenses by October 2011 at most. Meanwhile contradicting statements from government officials have consistently confused the industry and press alike. Few said that Etisalat is the main hurdle in 3G license auction as government of Pakistan had agreed with Etisalat (when it sold 26 percent shares of PTCL) to not to auction any telecom license for any spectrum for seven years, which would end in March 2013; while others said that Etisalat is not a hurdle and 3G licenses will be auctioned later this year. During the while, government has reportedly prepared a backup plan for generating money by taking control of Rs. 60 billion lying in USF and R&D fund accounts, just in case if 3G license auction gets impossible. Regulatory head Dr. Yaseen said that authority has completed a thought-provoking exercise in collaboration with renowned industry players for drafting "ICT Security Guidelines" for Telecoms, GoP and End-users. The documents have been shared with respective stakeholders to assist them, while building Information Security practices. This he said while addressing as Chief Guest to 7th International Information Security Conference "Info-Sec 2011". Dr. Yaseen said that Information Security is emerging as one of the most critical factors behind effective IT implementation, but it is also promising that public awareness about the information security has risen with the passage of time and Asia now reports higher maturity levels across more capabilities than any other world region and has more vigorous focus on strategic issues such as alignment of security with the business and the crucial need to protect data. Later in a talk with media men Dr. Yaseen said there is a good progress in respect of policy formation regarding 3G and we have road map and potential to launch the product and showed the hope that we will be able to come up with 3G by the mid of forthcoming year. He said that there stands a continuous increase in the threats faced by information and communication systems and to cope up with these, information security experts try to foresee the unforeseeable like How much malware will there be next year? What kind of new spamming techniques can come over? How many application vulnerabilities will arise in the new financial system? How many patches or solutions will come out for the software products we use? He emphasizes that individuals and organizations should practice standardized information security procedures and techniques due to their enormous reliability and stability. They must also initiate information security awareness campaigns in order to educate their staff about information. Deputy Governor State Bank of Pakistan and others also address the conference. The Regulator launched "SMS based consumer perception survey system 8899" aiming to sought consumers perception about performance of their respective cellular mobile operator. Regulator has made special arrangements to make it free

of cost service to encourage maximum participation from the general public. It is a flexible system which sends SMS to mobile phone users inviting them to participate in the survey by sending response through SMS ranging from 1 (lowest) to 10 (highest) as per his/her perception. Mobile phone users can also participate directly by sending SMS to short code '8899' about his/her perception for the quality of service of their respective mobile phone service provider. Regulator will consolidate the results to know the consumer's perception about their service providers to further enhance the quality of mobile phone service in the country. This survey is in addition to regular technical quality of service surveys conducted by regulator to ensure the enhancement in the quality of telecom services in Pakistan. Regulator has always been proactive to launch services that can be extremely helpful in further improving the quality of mobile services in Pakistan; Launch of 8899 is another fruitful initiative in this regard. Pakistani internet users have been on the rise at an accelerated pace, crossing the 20 million benchmark as a greater percentage accessing the internet via mobile phones, said Freedom on the Net in its 2011 annual report. The report cited International Telecommunications Union (ITU) and said that estimated users have been surging significantly on a monthly basis however; the Internet Service Providers Association of Pakistan (ISPAK) estimated a far lower number of internet users at only 10 million. On the other hand, some of the local think tanks said that the internet users have crossed 24 million benchmark at present, with a surging number of broadband and mobile internet users. The report stated that the internet is available in all the major cities of the country, as well as in many remote areas. The majority of people use dial-up connections whereas broadband internet is growing speedily in big cities. With the explosion of mobile-phone use and the gradual spread of broadband internet in Pakistan, access to information and communication technologies (ICTs) has increased, as have citizen journalism and online activism, the report said. Pakistan does not yet have a third generation (3G) network, which is also a hindrance for the spread of broadband internet and other wireless services in the country. Remote areas of the country have no access to broadband, and are left with only a slow, intermittent dial-up connection, rendering any meaningful online activities very difficult. The number of broadband users reached almost the 1.5 million mark. Pakistan is recently ranked as one of the top countries that registered a high growth rate in broadband Internet penetration, Point Topic, a global broadband tracker said in a report it published a few months back. The country, which has seen a boom in its telecom sector and information technology services in recent years, recorded around 46.2% growth of subscribers and is placed fourth on the ranking list. There more than 50 internet service providers including 10 broadband companies operating in different parts of the country under their license at various charges. These service providers have brought advanced technology to deploy their network including Wimax, DSL, FTTH and HFC. The number of operators with a variety of technology has been expanding base of technology users with competition,

showing the falling rates of services by every passing month. The different service providers include PTCL, Wateen, Wi-Tribe, Qubee, Link Dot Net, Infinity and Comsats. The broadband packages are the lowest in the world ranging from Rs250 – 3,000 per month depending on the speed and utility of data by the subscribers. However, the stiff competition among the operators has resulted in a constant decline in the quality of service. Pakistan has already developed and expanded its technology highways with international undersea cable for its future demands. Presently, there are four undersea cables connecting Pakistan to the rest of the world including PTCL's owned SMW3, SMW4 and IMEWE and one with TWA. The domestic internet highways or domestic fiber backbones providers are PTCL, Wateen, Mobilink and Multinet. The internet has been evolving in its different technological modes through high-speed broadband and has become a basic need of the people for the purpose of information, education, entertainment and business. Hence, it is an indispensable source that plays a vital role in different aspects of a masses' life. Pakistan's digital growth prospects have begun to look brighter lately.

Qatar

Qatar has shown dramatic progress in ICT effectiveness in two major new global studies, confirming the important strides the country is taking towards a world-class communications infrastructure. The first, by the UN Agency International Telecommunication Union, based in Geneva, "Measuring the Information Society," which captures the level of ICT developments in 152 economies worldwide and compares progress made during the past two years. Qatar has risen to number 44 in the ICT Development Index (IDI), and is named as one of the most dynamic countries in terms of the change in the overall value of ICT development. A second major study, "The Global Information Technology Report", also shows the ongoing development of Internet and communications infrastructure in Qatar, and its rapid progress compared to international averages. Developed by global management research group INSEAD, the report offers a comprehensive assessment of the present state of networked readiness in the world. The report places Qatar up five places to the 25th place in the international ranking, with improvements across the board, particularly in the readiness (4th, up eight places) and usage (34th, up six places) components. Ongoing investment in network technology, along with increased deployment of Broadband, has propelled the nation up the international rankings in recent years. In particular, Qtel's ongoing investment in building one of the most advanced networks in the region has made an important difference in the overall scoring. The company has invested more than QR3b in network infrastructure to provide the best possible resources for the people of Qatar, and has plans to make further investments. The telecom regulator is enhancing its consumer affairs function by creating a Consumer Protection Department within the Regulatory Authority. The department is tasked with

ensuring that telecoms consumers are heard and made aware of their rights, as well as service provider obligations in respect of telecommunications products and services. The Consumer Protection Department will establish a dedicated call center to handle telecoms customer inquiries and complaints. The department will also conduct programs to increase the awareness of consumer rights.

Saudi Arabia

STC planned a major acquisition in the Middle East next year to take advantage of a buyer's market to expand its regional presence, the chief executive of its international operations said. "I see 2012 as a year of potential acquisitions. We are now in more acquisitions mode than before," Ghassan Hasbani, chief executive of STC's international division, told Reuters on the sidelines of a World Economic Forum conference. STC was late to expand abroad compared with regional rivals such as the UAE's Etisalat and Qatar Telecom, but now owns 80% of Indonesia's Axis, 35% of Turkey's Oger Telecom and a one-quarter stake in Malaysia's Maxis Bhd. "The market value of those assets is remarkably higher than the value that was paid for it three and a-half years ago. We have created a lot of value in the operations and assets through synergies," Hasbani said. STC also has mobile licenses in Kuwait and Bahrain. The foreign push comes amid stiffening competition at home from rivals Mobily and Zain Saudi. STC said on Wednesday that third-quarter net profit more than halved, falling well short of forecasts as it made unexpected foreign exchange losses and took provisions following an adverse government ruling. "We are not doing due diligence but we are analyzing potential opportunities. Given market conditions and the global economic situation, it is a buyer's market, no doubt," he said. "We are looking at opportunities that complement our current footprint and strengthens our investment portfolio and we are looking to focus on the Middle East region in markets where there is a good opportunity and a reasonable outlook on stability," he said. Financing would not pose a problem for the group. "We have a lot of access to cheap funding and capital that would not be an impediment as long as we maintain a good level of rating and we maintain a good level of dividend payout," Hasbani said. "We look at debt financing usually and that is available for a company like us at good rates." Hasbani said broadband and data services were driving double-digit demand in the Saudi market. "We see the group expanding into the area of broadband. This is where the growth is coming from, mobile and fixed broadband on all fronts," Hasbani added. "In general in the telecom market in Saudi Arabia, we are seeing double-digit demand on data and capacity and in terms of utilization of internet. This is going to be the main area of growth in the future," he said. Saudi Arabia's mobile penetration ranks third in the world at 188%, according to the International Telecommunication Union, with the Kingdom's conservative rules restricting mixing of the sexes and spurring demand for alternative ways to communicate. Finnish handset maker Nokia says Saudi Arabia is in the top five countries globally for

downloads, accounting for nearly one-in-four of these on its platforms in the Middle East and Africa. The three Saudi operators are betting on data demand to offset slumping voice margins, analysts say. The "mobile market is still experiencing some growth, sometimes it stops, it shrinks, but it is leveling off from a voice basic telephony perspective, but we are seeing growth coming from broadband and data internet usage which is phenomenal," he said.

Sri Lanka

The Telecom Regulator conducted a workshop on National Backbone Network (NBN), IPv6, Policy and Regulatory Environment. HSBC in Sri Lanka, which has channeled about two billion dollars to infrastructure building in the island, sees more potential in the telecom sector. The mobile telecom sector is moving from the mainly narrow band GSM technology to broadband third generation (3G), Nick A Nicolaou, chief executive officer of HSBC for Sri Lanka said. "There was a strong demand from telecom companies as they expanded, with the move over from fixed line to GSM and now to 3G," he said. "Sri Lanka's telecom penetration is now in par with most countries in Asia. We see further growth for the Telcos as they move in to broadband." Telecom firms have also been expanding into former war-torn areas. HSBC has helped bring over two billion dollars in the last three years to build infrastructure such as roads, bridges, power, water supply, fishery harbors and Telecom network expansion, working with export credit agencies (ECAs) of several countries.

South Sudan

The world's newest country, South Sudan, has joined the International Telecommunication Union (ITU) to become the Union's 193rd Member State. The country, which gained its independence on July 9, 2011 has already been allocated the international dialing code +211 by the ITU, following the country's recognition by the UN General Assembly. The dialing code became active on September 28. "We are delighted to be able to welcome South Sudan as an ITU member state so soon after attaining full nationhood. The government of South Sudan clearly recognizes the importance of information and communication technology (ICT) as an engine of social and economic development. We will work alongside the national authorities to leverage the power of technology, to help lift the country to new levels and fulfill the national motto of 'Justice, Liberty, Prosperity'," said ITU Secretary-General Dr Hamadou Touré. The accession of South Sudan as an ITU Member State implies its adhesion to the Radio Regulations, the international treaty which governs the use of radiocommunications among the world's nations, giving it full access rights to the frequency spectrum and satellite orbit resources managed by ITU. A high-level ITU delegation led by Director of ITU's Telecommunication Development Bureau, recently met with government ministers in South Sudan with the aim of acquiring first-hand information on the country's needs

and challenges in the area of ICT development. The first such visit by ITU, the mission paves the way for the delivery of focused assistance to the country as it embarks on its development path.

Turkey

Turkish telecoms regulator declared that fiber-to-the-home (FTTH)/fiber-to-the-building (FTTB) broadband services will be excluded from 'market analysis' for a period of five years or until FTTx represents 25% of the country's broadband subscriptions to allow fiber-optic broadband services in Turkey to develop unimpeded. The telecoms watchdog hopes that the move will encourage 'new investments, the development of new fiber internet services and infrastructure development-oriented competition'. As a result of the decision, a number of minor amendments have been made to Electronic Communications Act No. 5809. At end-June 2011 fiber-optic solutions represented just 1.8% of the country's broadband connections, with Turkcell-owned ISP Superonline the sole provider of FTTH technology. In May 2011 Superonline announced the launch of its ultra fast 1Gbps internet service, making Turkey one of only five countries to offer the advanced transmission speed at that date. Superonline currently has a presence in 73 cities, with over 25,000km of fiber infrastructure, which passes around 700,000 homes. By the end of 2011 the company's fiber backbone is expected to reach 28,000km, with at least one million homes passed. Regulatory changes in Turkey are laying the groundwork for growth in mobile broadband and pay-TV as data cards/modems reach US\$1.2bn and IPTV expands 18-fold to US\$72m in 2016, according to a new report from Pyramid Research. "Turkish demand for mobile services has been positively affected by regulations aimed at reducing subscribers' costs," says Ronda Zelezny-Green, Associate Research Analyst at Pyramid Research. Mobile data will gain importance, as growth will be bolstered by increased consumption of 3G and mobile broadband services. Fixed broadband growth, which will increase by an estimated US\$800m to reach US\$3.0bn in 2016, will be limited due to the rapid expansion of mobile broadband usage. Pyramid expects robust growth for IPTV services, which will have a CAGR of 78% from 2011-2016. "Aided by the satellite operators' exclusive rights to live football broadcast, the pay-TV segment will grow at a CAGR of 10%," she adds.

United Arab Emirates

The Telecom Regulator ordered an investigation into du's claims surrounding its plans to run a fourth-generation (4G) network. Regulator said that it has instructed du "to suspend and modify its declaration to run the 4G network" has requested information from du so it could "study its compatibility with the regulatory framework of the regulator, the approvals of services delivery and the granted license", without elaborating. The announcement comes as Etisalat reportedly filed a complaint to regulator urging it to take action after du released a statement claiming its commercial service, HSPA+ falls under 4G services. Du said

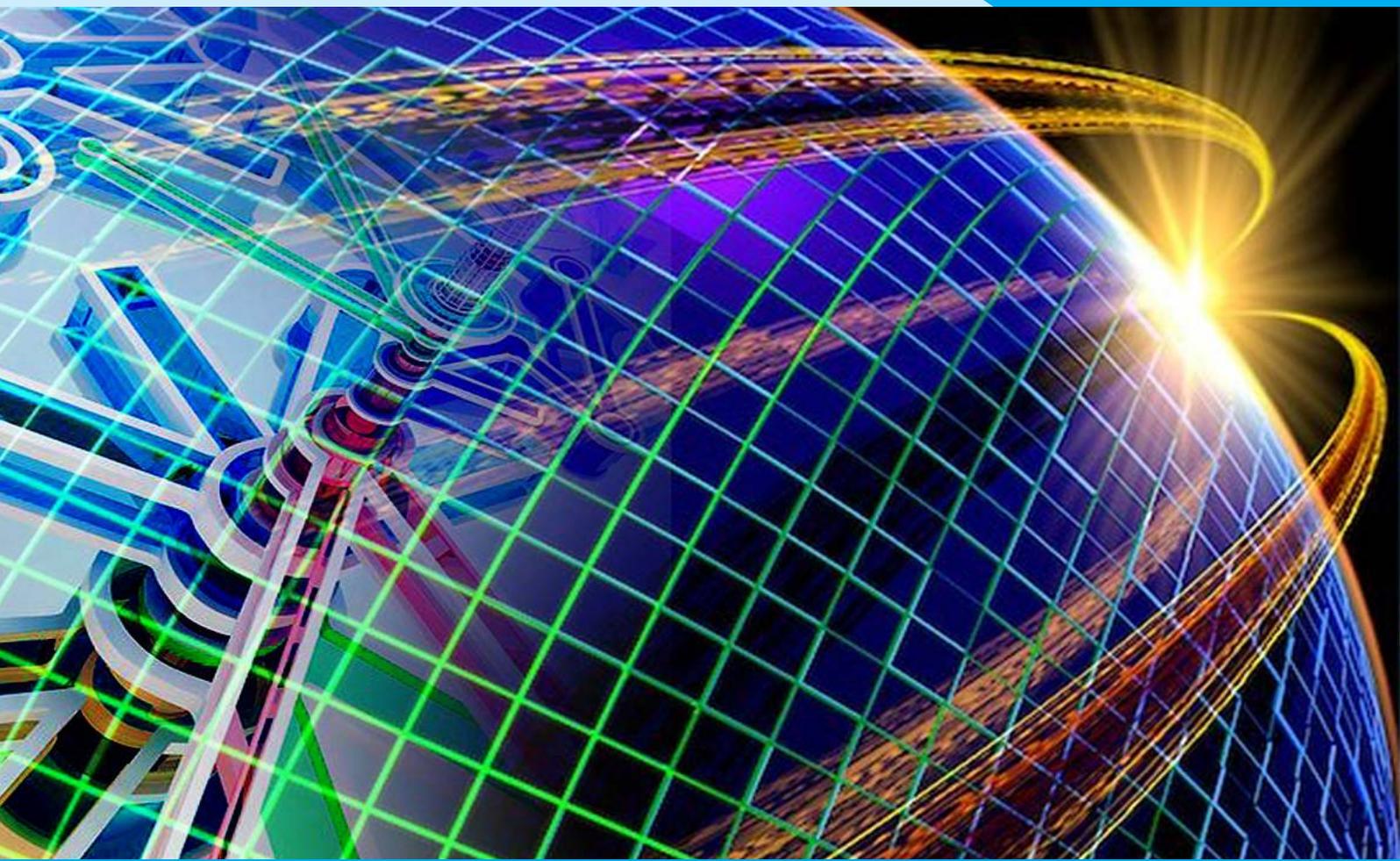
in a statement: "As a part of a series of announcements and public communication on the eve of GITEX 2011, du released an advertisement of its Fastest Nationwide 4G Mobile Data Network." The reference to 4G in that advertisement is to our HSPA+ network. This is based on the International Telecommunications Union's 2010 determination, issued via their official press release. Other international operators in highly regulated markets also refer to their HSPA+ networks as 4G." It added: "We have received a communication from regulator stating that it would like to consider what is implied by the reference to 4G in the du advertisement and whether the advertisement implies that du has deployed technology that would require additional licensing. The regulator instructed du to suspend the above advertisement until such time that regulator and du have discussed the matter further and agreed whether or not additional licensing is required." Du said it would comply with the instructions of regulator and looked forward to discussing the matter further with them. Du in August said its second quarter profits had increased 52% while net income grew from AED207.2m (US\$56.4m) from AED137.4m a year earlier. Etisalat, who last week said it planned to roll out 4G services by the end of the year, has previously claimed to be the first to offer a fourth generation service. A new Arab Advisors Group's survey of cellular users in the UAE reveals insightful details on the Smartphones adoption and usage patterns in the UAE. The survey also probed general cellular usage habits, Smartphones awareness in addition to tablets availability among cellular users in the UAE. This survey comes on the heels of a similar survey in Jordan. Full results of a similar Saudi survey will be out in October 2011. The Arab Advisors Group concluded a ground breaking survey of cellular users in the UAE probing Smartphones adoption and usage. The survey revealed that Blackberry leads with 51% share of Smartphones operating systems (calculated based on handsets' brands). iOS (iPhone) ranked second while Symbian came in third. Smartphone users prefer the English language for their applications. Over 300 delegates will discuss and deliberate the ongoing trends in the regional Smartphone ecosystem at Arab Advisors' Smart Handheld Summit which will be held on December 5 & 6, 2011 in Dubai. Saudi Telecom Company (STC) is the Strategic Summit Partner. Qualcomm is sponsoring the summit which is also supported by AppsArabia, Microsoft, nPario, Teletimes, DVV, ITP CommsMea, MediaME and Telecom Watch. A new major cellular phone survey of cellular users in the UAE was concluded by the Arab Advisors Group in October 2011. The survey report, "UAE Smartphone Survey 2011" was released on October 12, 2011 and provides the results of a major comprehensive survey of cellular users in the UAE. The survey covered general cellular usage habits; Smartphone adoption and usage habits; Smartphone awareness, cellular handsets' brands and models in addition to tablets availability among respondents. Respondents were randomly called through a randomly generated table of cellular phone numbers for each of the two cellular operators in the UAE, Etisalat and du. The survey results encompass answers

from 750 cellular users that passed rigorous quality control checks. Quality control was conducted by Arab Advisors Group's team. The survey yields a confidence level of 99% with a margin of error of less than 5%. "The survey revealed that 60% and 50% of iPhone and Blackberry users, respectively, use applications through their Smartphones, while only 37% of Symbian Smartphone users use applications. 90% of those who use applications prefer the applications in the English language, where only 8.2% of the respondents prefer the Arabic language." Arab Advisors Senior Research Analyst commented that the survey also probed the tablets available among the cellular users. The survey revealed amongst houses that have tablets, Apple's iPad leads by a wide margin. Mobile networks in the United Arab Emirates have been instructed to start blocking mobile phones that carry invalid serial numbers (IMEI) in a move aimed at curbing the use of counterfeit phones. The regulator instructed Etisalat and Du that they should start implementing the blocking system from November 13, but will be given until December 10 to fully implement it. The users of such handsets would receive text messages from the networks warning them that their handsets were targeted for being cut-off. The Counterfeit handsets are generally cheap Chinese copies and either lacks an IMEI serial number entirely, or use fake numbers that don't fit the pattern accepted for that handset model being identified to the network. This could severely hit the market share of Chinese mobile phones in the UAE at a time when that share has sharply increased over the past three years, a mobile phone dealer in Abu Dhabi told. At the dawn of the mobile payments era, major telecom operator Etisalat is launching the most advanced mobile commerce technology - NFC (Near-Field Communication). NFC has been increasing in focus for mobile operators, banks and device manufacturers for quite a long time now, but defining and delivering the right approach is easier said than done. For the past 10 years different stakeholders around the world have been trying to launch and adopt various m-Commerce practices. The challenge is to merge card, mobile device and SIM card together to provide customers with a new efficient and safe way of making payments and money transfers. Another issue has been to find a smart platform that consumers would accept. This autumn Etisalat, in partnership with MasterCard Worldwide and Network International is launching the new technology initially available on Blackberry 9900 phone. Around 600 outlets in the UAE are already able to process such mobile payment transactions. With only one tap of a Smartphone against the reader, a customer can make purchases of up to US\$50 using a secure PIN number.

Javaid Akhtar Malik

Director Regulatory Affairs

SAMENA Telecommunications Council



TOP TECHNOLOGY UPDATES

DTAC's 3G Upgrade Approved

The Office of the Attorney-General (OAG) has approved Total Access Communication's (DTAC) request for the upgrading its cellular network for offering 3G services under its concession with CAT Telecom. As per sources, CAT Telecom had first approached the OAG in April to confirm whether the network upgrade for 3G services was permissible under its concession, to which the legal office declined to comment. DTAC launched its commercial 3G services in Bangkok in August, prior to receiving permission from the office, saying that the launch was in compliance with the concession. DTAC further said that it could launch 3G services under the permit secured from the National Telecommunications Commission (NTC) to install and use a 3G-HSPA network. DTAC wanted to launch the 3G services at the earliest so as to compete with Real Move and Advanced Info service (AIS), which have already begun 3G services. Further, DTAC is expected to complete the installation of the 1,200 3G base stations across Bangkok and 20 other provinces by February 2012, of which 800 bases are already in place.

Optus Has Completed First LTE Data Connection

Optus has announced that it has completed its first successful data connection using Long Term Evolution (LTE) technology operating over the 700MHz band. This follows Optus announcing in September that the ACMA had granted it access to the spectrum for trials and that it had partnered with technology supplier, Huawei, to undertake the trials, in Bendigo where the analogue TV service that previously used the spectrum has already been closed down. The 700MHz band is already being used for LTE services in North America and is favored as a complement to higher frequencies, including the 1800MHz band in which Telstra's commercial LTE service operates, because of its greater range and greater ability to penetrate buildings. Optus said it was using the trial to measure how 700MHz LTE technology performs in terms of speed and coverage when compared to other LTE technologies. "Another key component of the trial will be the ability to test a variety of current Optus services and applications including smartphone apps, mobile TV services, IPTV, low-latency gaming and HD video conferencing within an LTE environment."

GSA: 48 Manufacturers Build 197 LTE Devices

Global mobile Suppliers Association (GSA) has published an update to the Status of the LTE Ecosystem report which confirms that 48 manufacturers have announced 197 LTE-enabled user devices. This total is over three times the number of products. The number of LTE-enabled smartphones, including operator and frequency variants, has over tripled more than the past three months. Over 118 LTE devices also support HSPA technologies and about 248 operators in 87 countries currently investing in LTE. About 185 operators are committed to deploy commercial LTE systems in 66 countries, with a further 63 'pre-commitment' technology trials or pilot networks under evaluation in an additional 21 countries. Nearly 35 operators have commercially launched LTE networks in 21 countries.

Open Mobile to Launch 4G LTE Services in Latin America

Open Mobile is planning to launch 4G LTE mobile broadband services in Latin America along with Sweden based Ericsson, a world-leading provider of telecommunications equipment and related services to mobile and fixed network operators globally. President, Open Mobile said that being at the forefront of broadband evolution means that the customers in Puerto Rico will be the first in Latin America to benefit from this groundbreaking technology. He added that having an experienced partner in LTE deployment like Ericsson is a key step towards bringing their customers the fastest mobile broadband network. Industry sources reveal that of the many networks aiming to launch LTE services in Latin America, US-based AT&T and Mexican-based Claro have been targeting Puerto Rico for the launch of their services by early 2012.

T-Mobile USA Offers Voice, Data Plans at HSPA Speeds

T-Mobile USA has added a Monthly4G plan to its line-up of no annual contract service offerings. For US\$ 60 per month customers will receive unlimited talk, text and web, with first 2GB of data at up to HSPA speeds. T-Mobile is also offering three Pay by the Day plans, which allow customers to pay only for the days the plans are used. These Pay by the Day plan options include US\$ 3 per day for unlimited talk, text and web, with first 200MB of data; US\$ 2 per day for unlimited talk, text and web at 2G speeds; and US\$ 1 per day for unlimited text and US\$ 0.1 per minute for talk. The plans are currently available at T-Mobile retail locations nationwide and online at T-Mobile.com. Also available exclusively at Walmart and T-Mobile.com beginning is the no annual contract plan, offering unlimited web with first 5GB at up to HSPA speeds, unlimited text and 100 minutes of talk for US\$ 30 per month.

Apple Expected to Launch 4G LTE iPhone Next Year

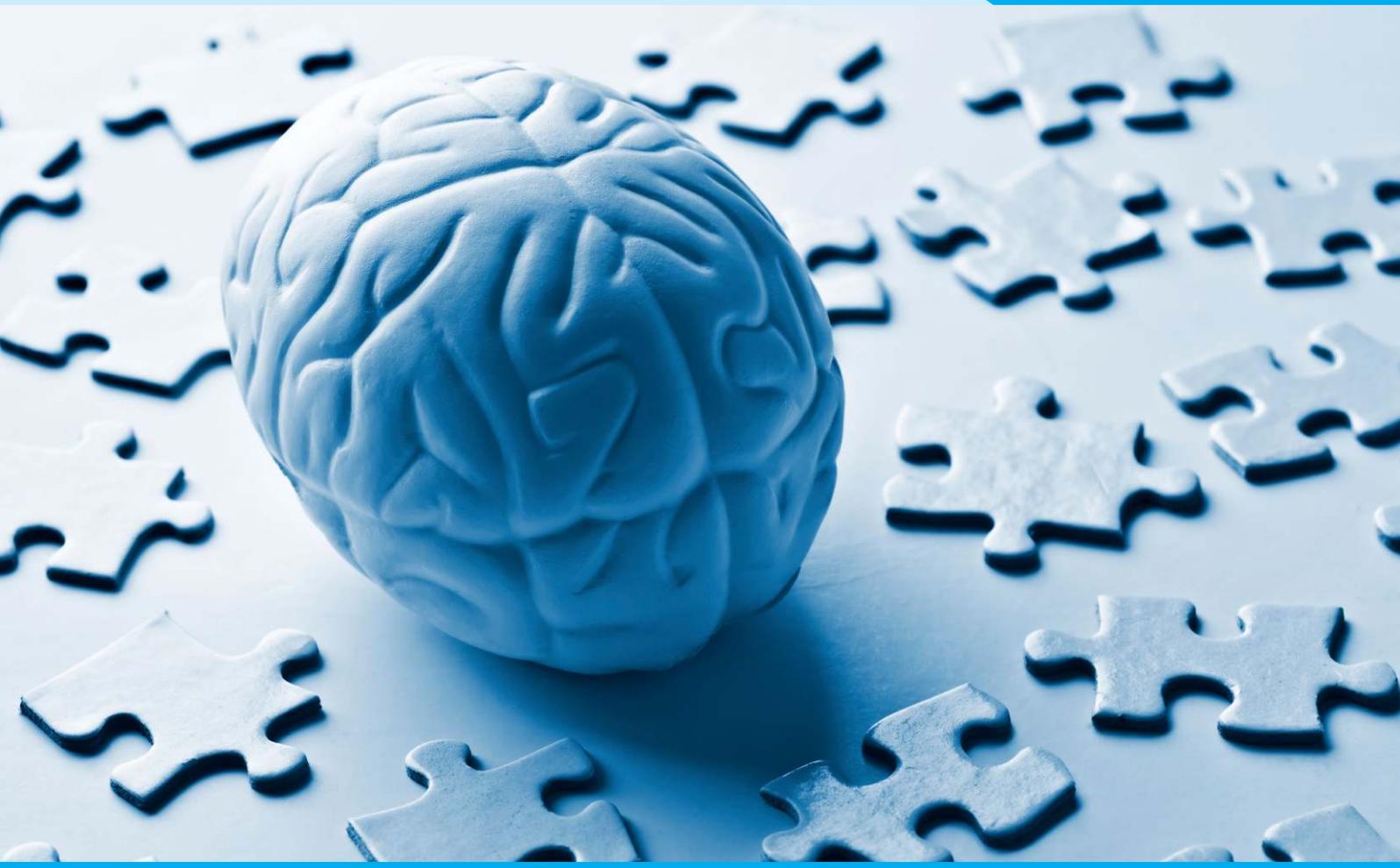
Apple is expected to launch a new version of its popular iPhone handset next year that will include an embedded 4G LTE radio. In line with numerous rumors to the same effect, DigiTimes reported that Apple is prepping a 4G LTE-compatible iPhone that is expected by its anonymous industry sources to launch in 2012. The report also claimed that Nokia, RIM and Sony Ericsson will launch LTE phones next year, joining popular LTE-enabled smartphone vendors Samsung, HTC, Motorola and LG. Citing the GSMA, DigiTimes notes that there are currently 35 live LTE networks around the world and that number is expected to surpass 100 by the end of 2012. Market research firm In-Stat expects shipments of 4G LTE handsets to surpass 154 million units in 2015.

Samsung Launches Advanced 4G LTE Technologies

Samsung Electronics recently hosted a series of demonstrations of its advanced 4G LTE line-ups, including various types of network systems, chipsets and mobile devices, at the annual communication conference and exhibition, Africa Com 2011. The demonstrations underscore Samsung's commitment to the development of next-generation communications in Africa. Samsung also demonstrated its high-capacity LTE FDD and TD-LTE base stations, supporting a wide range of frequency bands, which offer more flexibility to service providers and simplify the introduction of new technologies. COO of Samsung Electronics SA said that Samsung is ready to contribute to this growth with customised LTE solutions for the African market by providing enhanced customer value through credibility and accumulated expertise in telecommunications.

Verizon 4G LTE Activated in 22 New Markets

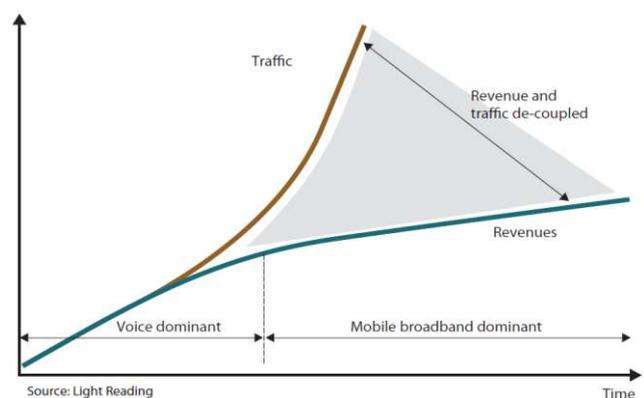
Verizon Wireless announced that it has activated its 4G LTE network in 22 new markets. The service is now live in Birmingham, Alabama; Modesto and Stockton, California; Fort Myers, Florida; South Bend, Mishawaka, Granger, Elkhart and Goshen, Indiana; Sioux City, Iowa; Hagerstown, Maryland; Tupelo, Mississippi; Albuquerque and Santa Fe, New Mexico; Buffalo, New York; Asheville, North Carolina; Bartlesville, Oklahoma; Jackson and Martin, Tennessee; Greater Hampton Roads and Richmond, Virginia and Green Bay, Wisconsin. In addition, Verizon is expanding the existing 4G LTE footprints in Los Angeles, San Francisco, Washington, D.C. and Erie, Pennsylvania, and the carrier will launch 4G in additional markets on November 17th. Verizon offers 13 4G LTE devices and most recently announced the Motorola DROID RAZR. It will also soon offer the Samsung Galaxy Nexus, the first Android 4.0 Ice Cream Sandwich phone.



OPEN THE DOORS, CLOSE THE REVENUE GAP

At Convergence to Doha 2011, a panel will be convened to discuss “sustainable” business models in mobile broadband. The term *sustainable* bluntly addresses the much debated “scissor effect,” where, like the blades of an open scissor, network operators face a growing gap between the explosive consumption of data and the flattening revenues that can be derived from subscribers who circumvent operators to consume content by way of the over-the-top (OTT) marketplace. A business model where costs would outpace revenues is certainly unsustainable. At the same time, mobile network operators are not building infrastructure with the intention of losing money. To maintain a sustainable business, network operators will need to demonstrate more *adaptability* in light of the current market forces.

The concept of sustainability is certainly not limited to telecoms. Several government bodies are currently struggling to achieve the sustainability of their national economies. And progressive manufacturing companies are adopting sustainability practices in an effort to deliver more eco-friendly products that build customer loyalty. When we think about what is sustainable, we think about



the long-term viability of an ecosystem through diversity and the ability to adapt to change. An American ecologist, Dr. Frank Edwin Egler (1911-1996) was reported to have coined the axiom: “Ecosystems are not only more complex than we know, they are more complex than we can know.”

That understanding of complex ecosystems should not be lost when it comes to mobile broadband economics. One of the most conspicuous strategic reactions to the above-mentioned scissor effect was the decision by several leading service providers to redress the traffic demands

created by unlimited usage pricing plans. The “unlimited” concept that was widely used to entice users to try mobile data services in the first place had quickly fallen out of favor when viewed as an incentive to drive congestion-laced consumer behavior—especially the handful of “bandwidth hogs” that by all accounts looked to be streaming video 24 hours a day. Instead, if we want consumers to pay their fair share, we push them to tiered pricing plans, typically based on the number of gigabytes of data they consume each month. But just what is a gigabyte of consumption? How much do I need per month? How do I know how much I've just consumed by streaming that news broadcast? One seemingly straightforward change to the ecosystem sent waves of impact across the market.

In fact, it now appears by some accounts that tiered pricing plans may actually be driving customers to WiFi rather than an optimized 3G bundle that the MNOs had in mind. WiFi-only tablet devices are reported outselling 3G devices, in part because the consumer can control their total cost of ownership. And once in the hands of a Wi-Fi device, new messaging applications such as Apple's recently introduced iMessage would allow users to send text messages for free between Apple users, as data, threatening SMS revenues (the actual data usage charges would be a fraction of the charge users pay for an SMS plan today). Clearly network operators must adapt at a faster rate in this rapidly-evolving ecosystem.

So where can we adapt to close the revenue gap exposed by the scissor effect? On the traffic curve, we can adapt our systems and processes such that increasing traffic doesn't drive a lock-step increase in cost. Certainly the technology to deliver mobile broadband will evolve in such a way as to reduce the cost per gigabyte to the network operator over time. Increases in volume drive innovation and efficiencies for most technology. As Telcordia has written previously in SAMENA Trends, we can better align capacity and demand through more dynamic configuration and pricing. And service delivery platforms and service management systems can engage the customer in a more interactive, personalized experience. But how do we change the consumer mindset that mobile broadband connections are not adding value to their experience in such a way as they are willing pay for them (beyond a nominal subscription)? How do we adapt the MNO–Customer relationship from one where services are pushed out from the network operator, to one where customers pull what they want, when they want it, and in the way they wish to consume it?

“With the availability of a number of access technologies in the SAMENA region, the state of broadband appears to be evolving.”

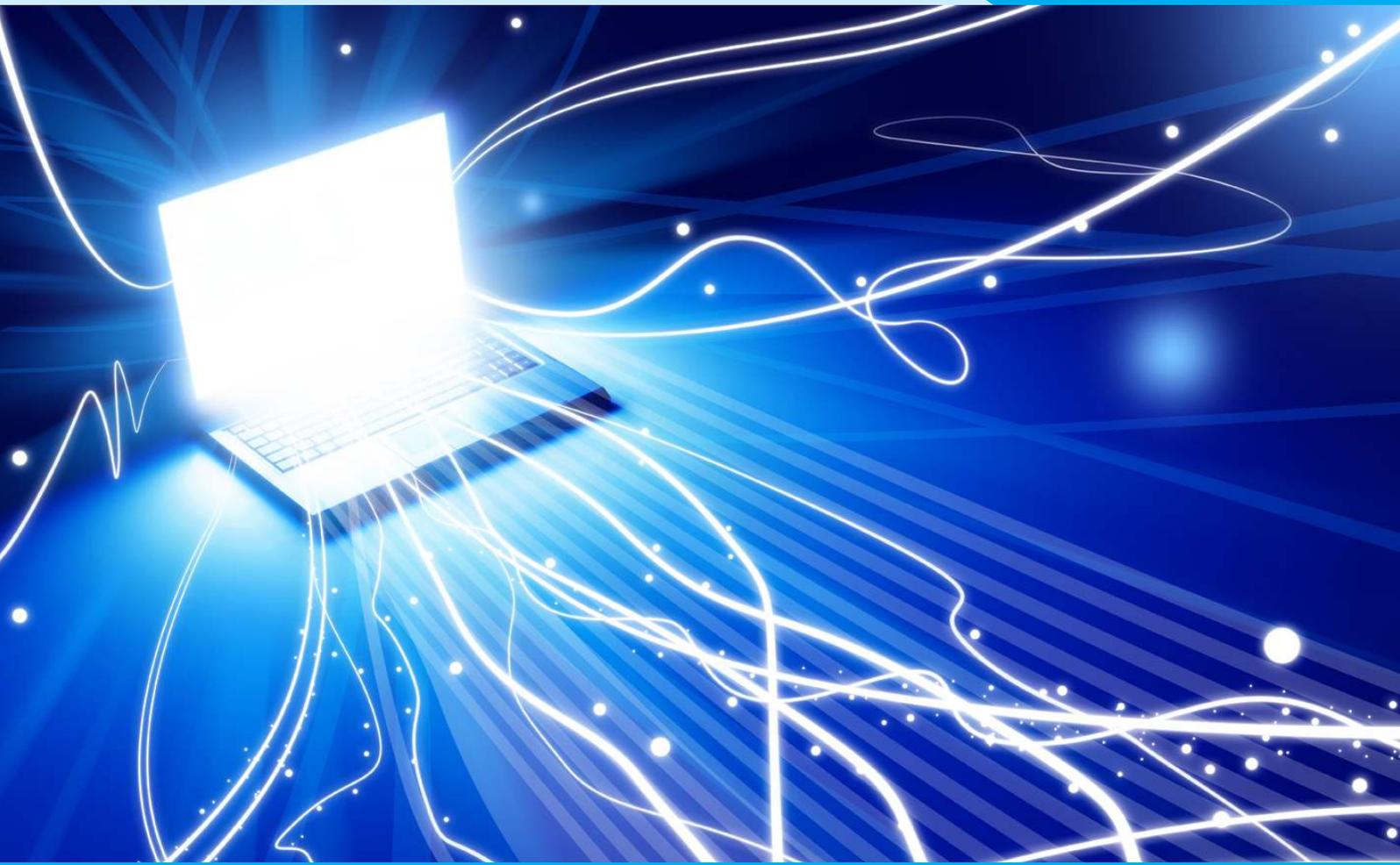
Customer relationships are no longer linear. As the Facebook phenomenon demonstrates, walled gardens have a limited shelf life. Consumers want to mash up their own services. Across content, applications and communications services providers. Across prepaid, postpaid, advertising-subsidized. Network operators need to embrace these overlaps, rethink the supply chain, and develop a more open, collaborative business model.

Could openness become a competitive differentiator? Service providers pursuing non-traditional growth and revenue streams have come to learn that innovation does not grow on trees. Their transformation now includes the principle that they must enable other partners in the supply chain to better utilize their networks and capabilities in an open and effective manner. Driving innovation and differentiation is now a more genetically engineered process—a hybrid of a richer and dynamic developer experience, with an inviting end-to-end customer experience.

“The significance of adaptation can only be understood in relation to the total biology of the species.” —Sir Julian Sorell Huxley (1887–1975)

The Giant Panda bear, native to western China, survives solely on a diet of bamboo found in its high altitude habitat. The animal requires a sedentary lifestyle that supports its low metabolic rate—a specialization the species has honed after millions of years of existing on a low-value, high volume diet. Now the common Brown bear, on the other hand, are omnivores that feed on a variety of food sources—plants, fish, insects and small animals—across a large territory. That diversity allows them to adapt to changes in their habitat. Just as openness will enable a communications service provider to extract value, and add value, up and down the supply chain. Adapting to changing customer demands and channel competition, and creating a new, sustainable habitat for telecom, may become essential to the survival of the species.

Dr. Francis Haysom
Executive Director, Strategy Office
Telcordia



TELECOM SECTOR IN JORDAN: REGIONAL CENTER OF INNOVATION

In a region described by international economists as a major emerging market and a hotbed for ICT growth, Jordan is proving itself to be a key player in one of the most competitive telecom markets in the world. As the first country to liberalize its telecom sector in the MENA region, Jordan has witnessed an impressive surge in telecom activity, pushing its mobile penetration from 38% in 2005 to 116% in 2011, and Internet penetration from 13% in 2005 to 42% in 2011.

Today, telecom is among Jordan's fastest-growing sectors and is an important economic contributor, generating an annual revenue of USD 1.2 billion in 2010 alone, which accounts for almost 60% of the ICT sector's total revenue that same year. It has also helped create a solid infrastructure that bolsters the operations and efficiencies of all other industries, having directly contributed 9.5% to GDP in 2010, and 4.6% indirectly through other sectors.

Moreover, the telecom sector is a major enabler for the Kingdom's ambition to become a regional business and ICT hub. Harnessing the talents of its young and educated population, as well as leveraging its strategic geographic location in the heart of the Middle East, Jordan aims to position itself as a driver of innovation in the region. Accordingly, and in line with the global market shift

towards telecom convergence, Jordan is taking the lead in supplying mobile applications and content to the rest of the Arab World, building on its current position as the biggest supplier of Arabic content on the Web where it contributes 75% of all online Arabic content.

Empowering Jordan to make this step is the increasing popularity of mobile broadband, which is taking its center stage due to more affordable connectivity services, increased smart phone penetration and the improved availability of mobile content. International industry forecasts predict that by the end of 2011, over 85% of new handsets will be able to access the mobile Web. 2009 statistics reveal that half a billion people accessed mobile Internet worldwide, and usage is expected to double within five years as mobiles overtake the PC as the most popular way to connect to the Internet. By 2016, the global smart phone market is expected to double in size and record shipments in excess of 653 million. Unquestionably, there is huge potential in the mobile broadband and content field, and this is particularly true in Jordan, which to date enjoys a 41.6% smart phone penetration rate with a rapidly growing appetite for mobile applications and mobile broadband services.

“International industry forecasts predict that by the end of 2011, over 85% of new handsets will be able to access the mobile Web”

As a leader in the mobile content and application arena, Umniah was among the first telecom companies to offer related services to the Jordanian market. In the first half of 2011, we launched our own Apps Store and established mobile application development initiatives and partnerships to support young local application and game developers. We were also the first to bring WiMAX to the Kingdom in 2007, and currently provide coverage to 80% of the local population. With plans in place for Umniah to build a state-of-the-art HSPA+ network in early 2012, we aim to continue our tradition of pioneering the introduction of nationally unprecedented services, fully adopting the new generation platform and making it our own. This will boost our ability to support the Kingdom in becoming a center for telecom and ICT services, particularly in the area of mobile applications and content.

The telecom world is facing an exciting new era as emergent technologies offer a wealth of opportunity in the MENA region, reshaping the ICT landscape and allowing new players to take the lead. Jordan is one such promising candidate, and we at Umniah look forward to playing a pivotal role in helping it achieve its full potential.

“The telecom world is facing an exciting new era as emergent technologies offer a wealth of opportunity in the MENA region”

Ihab Hinnawi

Chief Executive Officer

Umniah



MARKET PULL VS TECHNOLOGY PUSH: CAN THE NEXT GENERATION BROADBAND TECHNOLOGIES STRIKE THE BALANCE?

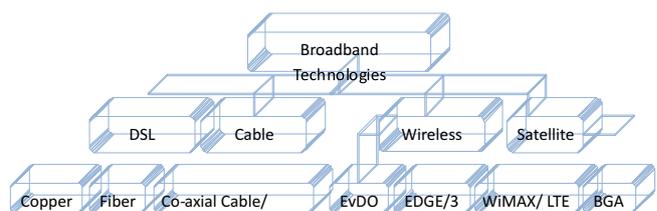
From the onset of the human civilization man relied on communication. The beginning of technology and evolutionary progression gave humans a new vision beyond ordinary human limitations. The mobile communication systems using a number of wireless technologies have empowered masses around the world providing sense of security, infotainment, entertainment and other benefits and at the same time staying in touch with family and friends. Volume of cell phones around the world has been increasing exponentially as more and more countries are embracing the convenience of next generation technologies in bringing people together.

Technology push through next generation broadband access technologies and market pull via consumer demands, pervasive adoption of ICTs, and the need for ubiquitous broadband service have paved the way for a number of innovative services.

Flow of content and information is essentially the backbone of communications and interconnectivity. If there were no content there would be no need to communicate. The reason man created language was because he had something to say, something to communicate, that is, content to deliver. This verbalizes the significance of

connectivity. The technological push of all sorts, satellite broadband to 3G to 4G and fiber optic technologies all essentially are deployed to serve as the key driver of broadband. This envisages the need for broadband service providers and other stake holders of the industry to effectively tap into and create more value that will ultimately help in striking the balance.

With the current information revolution and the ongoing convergence, the ICTs sector is evolving at a remarkable pace. This dynamism of the sector is resulting in ensuring decisive change in all aspects of our lives, including knowledge creation and its widespread distribution, social networking, economic activities, media and entertainment.



With the introduction of innovative value added services and other useful application broadband has evolved into

necessity today. Enterprises, governments, military and residential users alike continue to demand for high-speed internet in areas where traditional broadband services (DSL, Cable, FTTX, etc) are not offered. This is where broadband technologies mainly driven by 3G and 4G models wireless, comes into action. These mobile broadband technologies, no doubt, are one of the cost effective means of providing broadband access in areas where traditional approaches such as fiber and copper cable are not available. Within the SAMENA region majority of the markets which covers large geographic footprint, wireless broadband including satellite based communication services appears to be part of the quick and cost effective network rollouts. Additionally, growing demand of services such as video-on-demand, Internet TV, data, VoIP and cellular backhaul is also accelerating the need for broadband access.

With the availability of a number of access technologies in the SAMENA region, the state of broadband appears to be evolving. The Middle East mobile broadband market is expected to reach 50 million subscribers by 2013 from seven million in 2008 as technologies such as 3.5G gain popularity this year. With just around seven million mobile broadband subscribers in the region in 2008, and after experiencing an industry project CAGR rate of over 45%, 50 million subscribers are expected after three years (2013). General predictions can be made that over the next two years, there could be at least 1 billion users of the broadband; by 2013, this may easily reach to about 2.5 billion broadband users. Mobile broadband revenue will increase manifold in the SAMENA region by 2014.

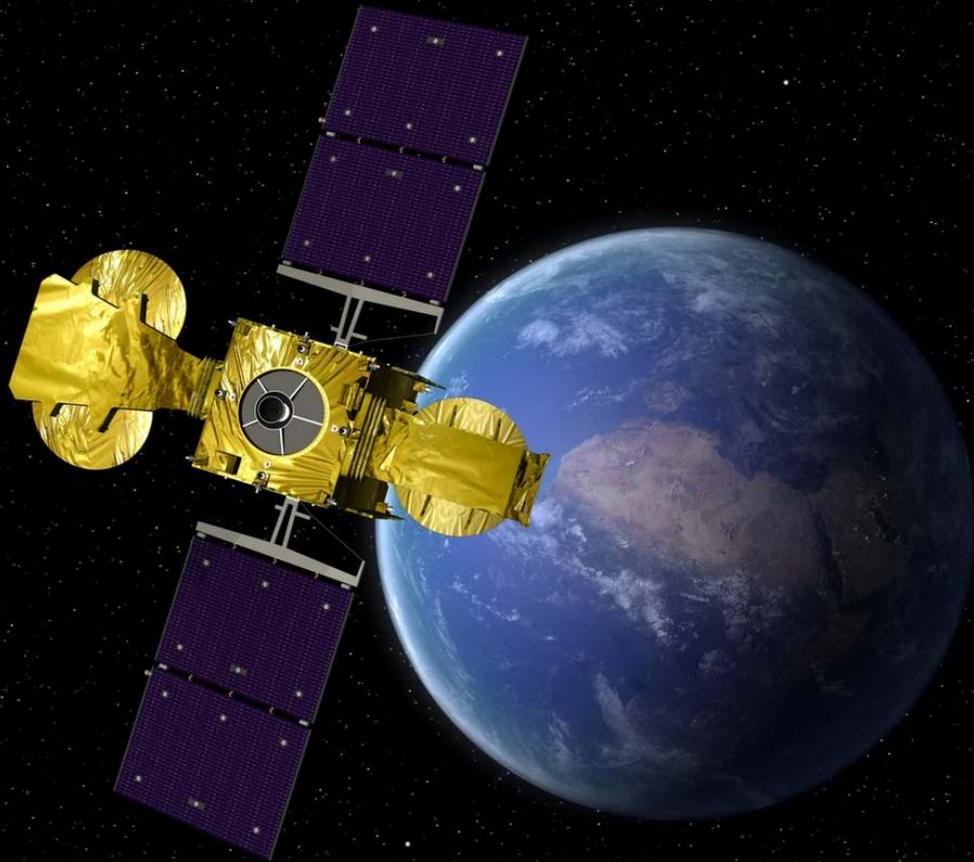
The quickly growing broadband markets in the region call for even more congenial ICT policies and effective regulations to help bridge the digital divide by providing connectivity to communities in remote areas. At the same time, this connote the growth potential that continues to exist in its emerging markets that drive the need to focus on next generation access technologies. The need for regulatory policies and broadband progress thus need to highlight potential for industry's development. Regulatory bodies, however, have to take into account emerging trends and ensure a competitive business environment among industry stake holders to ensure effective development of technology.

Apparently, different broadband access technologies will have their share of the broadband pie, with some of these capable of providing high throughput, innovative services, enhanced QoS, and best value supported by competitive tariffs. End users often have their first choice but much of that will depend on how and when the carriers roll out the service, the tariff and packages, not so much end consumers decide that they like 3G, WiMAX or EvDO more than LTE. But still either of these technologies may offer better network than the other, but if the pricing and service from the service provider isn't right, than the user will still choose the alternative.

Market Pull vs Technology Push



Zakir Syed
Research Analyst (Telecoms & ICT)
SAMENA Telecommunications Council



SATELLITE NEWS

Ultisat to Provide Satellite Communication Services to Danish Government Agencies and NGOs

UltiSat Europe has announced that it has received a sole-source contract from the Danish National Procurement Ltd. UltiSat and its Danish subsidiary deliver satellite-based communication solutions encompassing light handheld satellite phones and highly customized VSAT solutions through its VIPnet managed network service to teleport services. It serves customer networks that vary from a few sites to hundreds of locations optimally. According to company sources this contract will allow Danish federal and local government agencies and entities and certain nongovernmental organizations (NGOs) to buy satellite communication services easily. The services which can be procured cost effectively also include satellite telephony, data services, equipment, and technical assistance. This new contract also covers other Danish municipal departments and agencies in Denmark, Greenland, and the Faroe Islands. The agreement will be valid for a period of two years with options for two additional twelve-month extensions.

Gilat Enters Strategic Alliance with RTComm and NIIR for Ka-Band Network

Gilat Satellite Networks announced that it has signed agreements with Russian based service provider RTComm and with NIIR FSUE. As part of these agreements, Gilat will supply network equipment and Ka-band end-user terminals for RTComm's future constellation of multi spot-beam satellites. The cooperation between the parties includes transfer of technology required for local manufacture in Russia, and R&D cooperation. As part of a frame MOU, the parties signed two specific agreements which will go into implementation this year. Gilat will provide NIIR with manufacturing rights, know-how and marketing rights for the Ka-band gateways which NIIR will adapt to Russian market requirements. Gilat's RVP Eurasia said that it is an honor for us to be part of this prestigious initiative which aims to bring high speed connectivity throughout the Russian Federation, and NIIR is a prominent design house with high technical expertise. We view this partnership as a clear vote of confidence in our technology and in Gilat in general.

Satellite Phone Communications taking off

Iridium has established itself as a solid business. The network has grown more than 508,000 subscribers for the third quarter of this year, up from 478,000 sequentially and up from 413,000 one year ago. Revenue was US\$146.1 million, up 25% year-over-year, which enabled the company to post a net income of US\$11.3 million. It appears that Iridium is growing at a fast pace, which prompted the company to raise the 2011 outlook from 20% to 25% of subscriber growth. Revenue growth is estimated to be between 10 to 13%. According to the company, its commercial users spend, on average, about US\$50 per month on Iridium voice services, while government users spend about US\$140. Commercial and government data services are about US\$19 per month. It is an impressive achievement of the Iridium that was launched in 1998 under the guidance of Motorola.

Pakistani Satellite to Provide Extended Communication Services

The country's first communications satellite PAKSAT-1R, which is a part of Pakistan's Space Programme-2040, was launched in August on board China's Satellite Launch Vehicle from the Xichang Satellite Launch Centre. The satellite has a design life of 15 years and will provide TV broadcasting, Internet and data communication services across South and Central Asia, Eastern Europe, East Africa and the Far East. This satellite now enables extending of communication services to all areas of Pakistan. Pakistani engineers have worked closely with their Chinese counterparts during all stages of development of the satellite in China. The Prime Minister of Pakistan said that application of space technologies is contributing significantly to socio-economic development and these technologies have also greatly changed the concept of national security of countries.

SENTEL Develops Enhancements to Satellite Communication

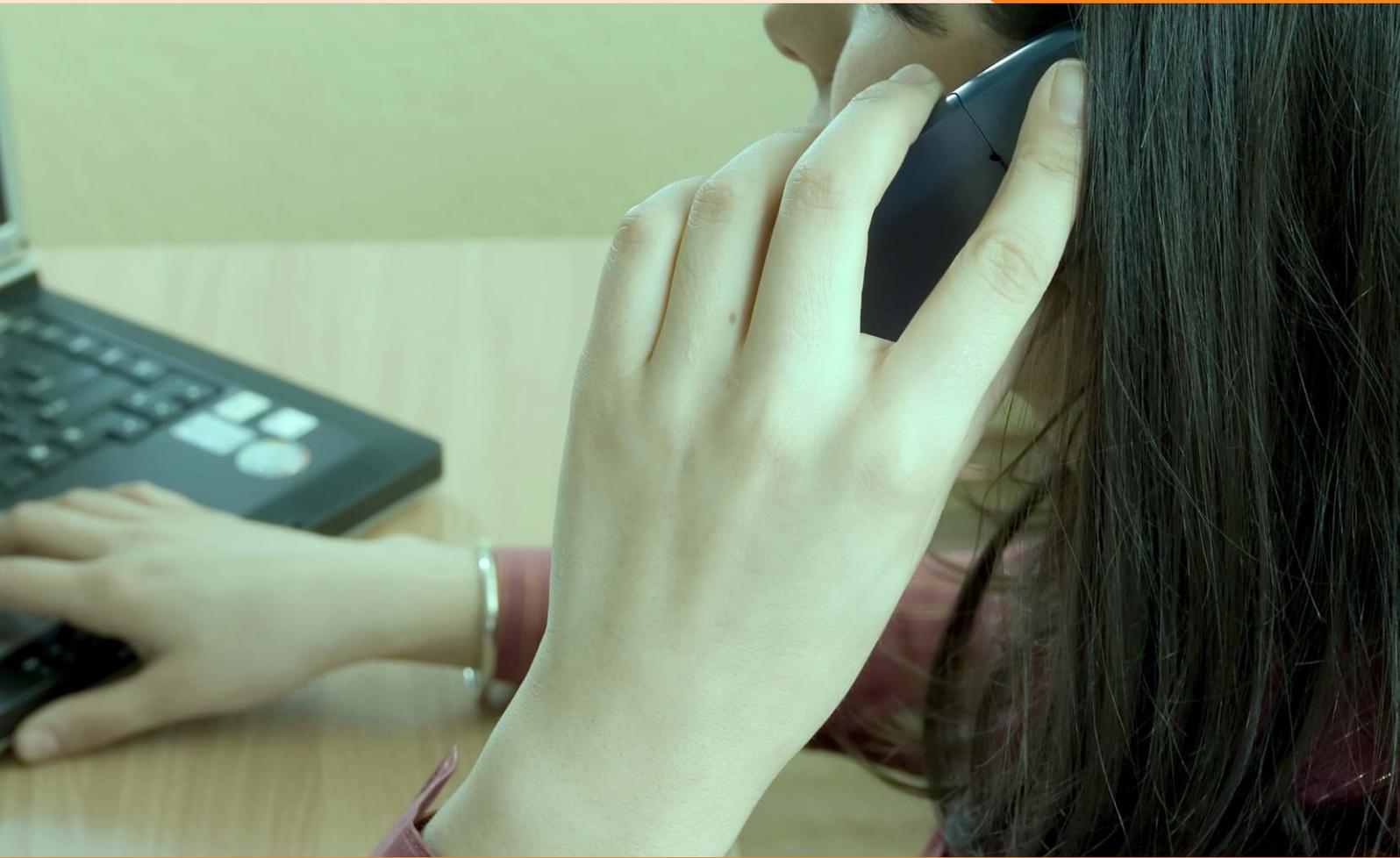
SENTEL Corp has received patents on technology that can improve satellite communication capacity by up to 38 percent. SENTEL's most recent innovation enhances the currently accepted state-of-the-art technology for controlling the noise that corrupts wireless data transmission by making the receiver more sensitive to its intended signal and less sensitive to noise and interference. Such interference commonly occurs where multiple satellites are co-located, as are those onboard naval vessels. SENTEL's President and CEO said that Wireless data transmission today requires the use of robust networks and technologies to power the timely throughput of increasingly larger files and data formats. He added, engineers continue to find ways to help clients by developing and adapting technologies and by finding ways to help optimize the use of existing systems.

New Inmarsat and Telemetry Services Available on Thrane & Thrane SAILOR Fleetbroadband

Thrane & Thrane has showed its commitment to the growth of its SAILOR FleetBroadband offering at Inmarsat's annual partner conference in Barcelona. According to a press release, Inmarsat new service enhancements, Multi-Voice Service and Dynamic Telemetry Service, will be available on SAILOR FleetBroadband terminals when the services go live in Q1 and Q2 2012. The new Inmarsat FleetBroadband Multi-Voice Service offers facility for up to nine simultaneous voice lines on a SAILOR 500 and SAILOR 250 FleetBroadband while a SAILOR 150 FleetBroadband can provide up to four concurrent calls all with their own FleetBroadband number (+870). Inmarsat's new FleetBroadband Dynamic Telemetry Service (DTS) offers support for low throughput applications of any type, such as Data Reporting, Polling and Telemetry.

GPS Satellite Helps Track Grazing Livestock in China Pastures

China's satellite technology has started to be applied to help herdsmen monitor their grazing livestock in Erdos. The satellite grazing system uses the 3S (global positioning system, geographic information system and remote sensing technology) developed by the bureau along with experts from Huadong Normal University and Inner Mongolia Normal University. Besides relieving manpower for grazing, the system can also send early warning signals to prevent over-grazing and epidemics spreading among livestock. The cost of each of transmitter is between 200 yuan US\$31.5 and 400 yuan, based on the number of functions installed on the transmitter. Batteries used in the transmitters have a life of three years. Chao Lu, head of the animal husbandry bureau said that Herdsmen can see where the herds move through the village's website or receive short message reports of the movements on their cell phones.



ROAMING NEWS

Globe, PLDT Launches Interconnection Services in Zamboanga

Globe Telecom and the Philippine Long Distance Telephone Co. (PLDT) have formally launched their network interconnection in Zamboanga City in Mindanao. Castelo, Globe Head Corporate and Legal Services disclosed that the successful activation of the local interconnection services between Globe and PLDT is expected to boost the growing Information and Communications Technology (ICT) industry in the city. Castelo also said it was the National Telecommunications Commission (NTC) that paved the way for the interconnection of Globe and PLDT not only in Zamboanga City but also Davao, Bulacan and Pampanga with four more areas up for full activation this year. Amante de Guzman, PLDT Head Customer Zone said that this is the first step towards achieving the desire of the public for Globe and PLDT to be interconnected within Zamboanga City. He also said PLDT supports the local government in attaining a better telecommunication services in the city.

TeliaSonera Lowers Data Roaming Prices

TeliaSonera expects lower operator bills for users surfing the web through smartphones, tablets and laptops outside their home countries. TeliaSonera had cut its data roaming prices by 90 percent this year for users travelling within the Nordic and Baltic countries and aims to extend this to almost 30 countries. Customers were able to access 20 megabytes of data at a charge of only \$7.6 each day, significantly lower than the proposed ceiling of \$1.24 per megabyte by the European Commission. Further, users are also sent a text message if they are required to top up their account. President and CEO, TeliaSonera, has said that the industry has been shooting itself in the foot for years with the kind of prices they have had and that it has been a major mistake. He added that people turn off their roaming at the airport and don't like to use their phones due to sky high prices. He also believes that lowering the data roaming prices would help improve the company's overall profitability by encouraging more users to access data at affordable rates.

China Mobile Launches New Daily Data Roaming Package

China mobile has launched a new daily data roaming tariff packages for its users. The company had early introduced a package offering reduced international roaming tariffs for voice, text messages and mobile data across 23 countries and regions. The new tariff plan has been launched in Hong Kong, Macao, Taiwan, Singapore, Malaysia, Korea and Thailand, and is largely aimed at international travelers using their mobile handset to surf the internet. Customers subscribing to the daily data tariff package can access unlimited roaming data in specific operator networks for a daily fixed charge while roaming in any of the aforesaid places. The per day charge for the service will be around US\$14 in Hong Kong as compared to US\$15.3 payable at the other places.

UCC Set to Review Interconnection Rates

The Uganda Communications Commission (UCC) is set to review interconnection rates. The commission has hired PWC-London to carry out research in the market and come up with data on which to base the new rates. The research started on 9 November and will take three months. The current interconnection rate for voice stands at UGX 131 per minute and was reduced from UGX 181 in 2008. At a workshop on interconnection in Kampala, Geoffrey Mutabazi, the executive director of the commission, said the current market changes are a major factor for the review of interconnection rates. David Ogong, the director for competition and corporate affairs at UCC, said the regulator wants to ensure that subscribers are not cheated during this time of economic hardship.

AIS, Thailand to Offer Its Customers 3G Roaming

Advanced Info Service (AIS) is expected to start letting its customers roam for broadband service on TOT's 3G network by the end of November. AIS chief executive officer expressed that the number of AIS subscribers who would be able to roam on TOT's network would be based on TOT's 3G network capacity. AIS is reportedly expected to initially roam 500,000 customers on TOT's network during the initial stage, with a maximum of 2 million customers, against the recently agreed 60,000 during the initial stage and 1 million maximum. AIS has already allowed TOT, which owns its concession, to roll out TOT's nationwide 3G network at some of its cellular base station locations in Greater Bangkok on co-site basis. TOT is confident it will achieve its goal of setting up 3,500 base stations in 18 provinces, including Greater Bangkok, by next month, and a total of 4,772 base stations nationwide by May.

Telekom Austria Group welcomes EC Roaming Proposals

Telekom Austria Group welcomes the EC's proposal for a mid-term structural solution for the roaming market. The EC's proposal (Roaming III) introduces a structural solution contrary to the current regime of price cap regulation. It foresees a separation of roaming from national services beginning in 2014 and an obligation for EU mobile operators to provide for wholesale access for MVNOs and resellers. Zuser, the group's Head of Group Regulatory & Roaming, said that in future, customers would be decide which tariff and which operator is the best to meet their individual roaming needs and would no longer be bound to their domestic home provider. To get an economic assessment of the draft Regulation, Telekom Austria Group commissioned Plum Consulting to analyze the potential impact on voice and data services in particular. The report identifies a number of elements which raise concern, and potentially undermine the development of competitive retail roaming markets in Europe.

NTC Philippines Reduces Interconnection Charges for Text Messages

The National Telecommunications Commission (NTC) has cut down the interconnection charges for short messaging service (SMS). The regulatory authority has ordered that the interconnection charge for SMS between two separate telecommunications networks should not exceed 15 centavos per SMS through its Memorandum Circular No. 02-10-2011. Consequently, the new rates will come down by \$0.005 (20 centavos) from \$0.008 (35 centavos). NTC Commissioner has said that the enactment of the new SMS interconnection rates was in line with the provisions of the Public Telecommunications Policy Act of the Philippines. He further said that the reduced SMS interconnection rate would translate to lower retail price of text messaging services and make the popular telecommunication services more accessible and affordable to a greater number of people throughout the country. Network operators were also ordered to ensure that they have the adequate facilities required to guarantee that 99 percent of the text messages reach their destination within 30 seconds of being sent.



Convergence to Doha 2011

1st & 2nd November 2011
Sharq Village & SPA by Ritz Carlton Hotel
Doha, Qatar

“Role of ICT in Driving Economic Growth”

SAMENA's annual conference was held at Doha, drawing industry focus on the “Role of ICT in driving Economic Growth”. The 2 days event "Convergence to Doha" was held on November 1st - 2nd in Doha and discussed the importance of 'Convergence' of the industry stake holders



to discuss major issues of the telecoms & ICT industry and their impact on the economic growth. The event also highlighted SAMENA's sensitivity to the importance of collaboration and knowledge sharing.

Convergence to Doha was organized with support from Qtel, GBI, Teralight, Turk Telecom, Inmarsat, Xtera, Devoteam, STC, Telcordia, and Integral among others.

Keynote speakers from around the region shared business insights, market experiences, growth prospects, and discussed the role of ICT in driving economic growth. The event discussed the significance of collaboration and knowledge sharing, and innovation in driving economic growth through ICT. SAMENA successfully managed to cover a variety of issues over the course of two days and encouraged stake holders to join forces towards collaboration and consensus building. More than 120 participants coming from a number of organizations in the SAMENA region and other parts of the world witnessed the event. CEOs and other telecommunications leaders and experts from leading telecoms & ICT organizations were also present at the occasion.



Mr. Bocar A. Ba, President of Samena Telecommunications Council at the opening of the Conference emphasized the need for convergence within the telecommunications industry and said "in order to create a knowledge-based sector that can develop and implement an informed and innovative roadmap for progression, has never been more important." Mr. Bocar added that "SAMENA's 'Convergence to Doha 2011' will provide regional telecommunications professionals with the opportunity to identify collaborative approaches and growth prospects to not only meet consumer demand but also increase revenues for Telecom Operators and hence sustain growth in the countries."

The technological innovations have given rise to the need for a more transparent ICT policy platform for the stakeholders, It is therefore imperative that that the policy



makers, regulatory bodies, OTTs vendors, operators and other stakeholders corroborate the need for an innovative and modern business model. This is because, today, ICTs have an impact on all sorts of life, including education, healthcare, agriculture, energy and public safety while creating prospects in the regional and well as global development.

These trends are important for the context of digital dividend and issues of network neutrality. The innovation in the future is supported by the transparent policy changes.

Eng. Saud Al Daweesh, Chairman of SAMENA Telecommunications Council said, "with the progress in the broadband sector, ICT in the SAMENA region is evolving! The Middle East mobile broadband market is expected to reach 50 million subscribers by 2013 from seven million in 2008 as advanced technologies such as 3.5G gain popularity this year. With just around seven million mobile broadband subscribers in the region in 2008, and after experiencing an industry project CAGR rate of over 45%, 50 million subscribers are expected after three years (2013). Mobile broadband revenue will increase manifold in the region by 2014. Only Egypt, Morocco, Saudi Arabia, and UAE are expected to generate 60% of MENA region's mobile broadband revenue by 2014."

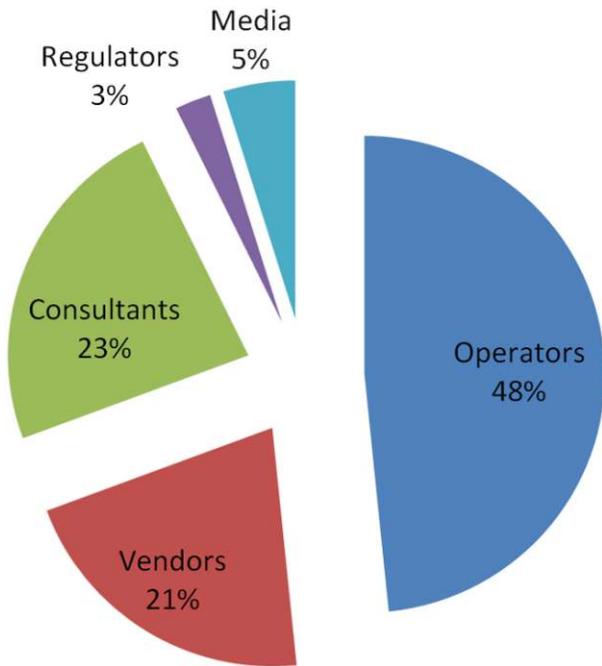
The Chairman added that "Policy makers should ensure that emerging business models are financially sustainable in order to avoid over-consolidation and return to a monopolistic environment which serves neither economies nor consumers." Talking about the broadband market in the region he said "our broadband performance is still below the global average, in terms of speed, availability and take-up rates. While a few of our markets can match advanced markets of Europe, North America or some Asian markets, we have much to do still to ensure our region's deployment rates improve quickly."

During the 2 days conference, SAMENA announced the expansion of its Board of Directors. The addition of the newly elected board members - Turk Telekom Group, Viva Kuwait, Qtel Group, and Bravo has brought the aggregate number of regional telecom operators on the SAMENA Board to 11 seats. SAMENA's Board of Directors also unanimously elected Sheikh Mohamed Bin Isa Al Khalifa, CEO of Batelco Group, as the new Chairman of SAMENA Council. Upon being elected as Chairman, Sheikh Al Khalifa addressed the Board, expressing his appreciation for his appointment and for the efforts of each member of the board.



CEO & Executive Managing Director of SAMENA Council, Tom Wilson, stated that "Sheikh Al Khalifa's leadership comes at a critical junction in SAMENA's success and evolution, which was greatly enabled by Eng. Saud Al Daweesh during his tenure as the chairman. Under Sheikh Al Khalifa's guidance, we foresee making strong strides on the lobbying front to support and better project the needs of the network operators, and in developing stronger relationships with the ICT policy-makers."

Convergence to Doha 2011 Participants



Panel speakers of Convergence to Casablanca included:

- Samia Bahsoun, Vice President, David Ross Group
- Gary O'Neal, CTA, SAMENA Telecommunications Council
- Ann LaFrance, Partner, SSD
- Jayant Bhargava, Principal, Booz & Co.
- Eric Walker, Senior Manager, KPMG
- Karim Taga, Managing Director, AD Little
- Noel Kirkaldy, Head of Wireless Broadband, NSN
- Olaf Acker, Partner, Booz & Co.
- Ann LaFrance, Partner, SSD
- Asad Khan, VP, Customer Sales & Operations Teralight
- Ramazan Demir, VP of Strategy & Business Development, Turk Telekom
- Sebatien Marteau, VP Mobile Services, Intigral
- Imran Hussain, Managing Consultant, BT Teleconsult
- Jeremy Foster, Head of Marketing, Government & Industry Relations, Ericsson

- Karim Daoud, CEO, Intigral
- Ahmed Bin Ali, Senior Group Vice President, Corp. Communications, Etisalat
- Samih Kawar, Chief Technical Officer, GBI
- Francis Haysom, VP of Architecture, Strategy Office, Telcordia
- Malek Rashid, Consulting Manager, Devoteam
- Ross Cormack, CEO, Nawras
- Walid Irshaid, CEO, PTCL
- Andre Popov, Partner, Peppers & Rogers
- Amr Eid, VP – MENA, PCCW Global
- Ismael Makdissi, VP General Counsel, Integral
- Francis Haysom, VP of Architecture, Strategy Office, Telcordia
- Nayla Khawam, CEO, Orange Jordan Telecom
- Herve Fevrier, Executive VP & COO, Xtera
- Homoud Kussayer, Vice President, VP Wholesales, STC
- Andrew Hanna, CCO, Viva Bahrain
- Ahmed Abd El Hamid Soliman, Business Development Director, Accenture
- James Smith, Partner, Davis Wright Tremaine
- Ali Amiri, Executive VP, Wholesales, Etisalat
- George Salamah, Senior Manager, Public Policy, SAMENA Telecommunications Council
- Thomas W. Wilson, CEO, & Executive Managing Director, SAMENA Telecommunications Council- SAMENA Telecommunications Council
- Bocar A. BA, President, SAMENA Telecommunications Council
- Munawwar Hussain, CTO Middle East, Huawei
- Ihab Ghattas, Assistant President ME, Huawei
- Mohamed Elmandjra, CEO, Meditel
- Wilson Varghese, CEO, Kalimat Iraq
- Abdel Hamid, STC

During the "Convergence to Doha" SAMENA Council's fourth annual awards ceremony was held that recognized industry's leadership and excellence within the SAMENA region.

The award winners included:

- Best Green Technology of the Year: NSN
- Best Innovative Technology Provider of the Year: Ericsson
- Best M&A of the Year: Qtel
- Best Local Content Provider of the Year: du
- Best Wireless Broadband Service Provider of the Year: Mobily
- Best Innovative VAS for Low ARPU of the Tier: Mobinil
- Best Operator in South Asia: PTCL
- Best Operator in the Middle East: STC
- Best Operator in North Africa: Meditel
- Best FTTx (GPON/Active Ethernet) Operator of the Year: Qtel
- Best Satellite Mobile Service Provider of the Year: Yahsat
- Best Satellite Broadband Provider of the Year: Inmarsat
- Best Innovative Telecom Regulator 2011: TRA Bahrain
- Best Technical Leader of the Year: Mr. Ahmad Abdul karim Julfar (Etisalat)
- Best Business Leader of the Year: Mr. Khaled Al Kaf – Mobily (Mobily)
- Best Pioneer Leader of the Year: Mr. Osman Sultan (du)
- Best Telecom Regulatory Leader of the Year: Mr. Mohammed Nasser Al Ghanim (TRA UAE)



SAMENA successfully managed to cover a variety of issues over the course of the Two days and encouraged stake holders to join forces towards collaboration and consensus building. More than 120 participants coming from a number of organizations in the SAMENA region and other parts of the world witnessed the event. CEOs and telecommunications experts from leading telecommunication organizations were also present at the occasion.

Highlighting the regional industry's growing desire and the impending need to differentiate with respect to the provision of broadband to a large regional subscriber base, Convergence to Doha's provided a platform for knowledge-sharing on the issues, needs, requirements, and the assessment of business models surrounding the design, creation, aggregation, and the provision of mobile content. Speakers from Qtel, STC, Booz & Co, David Ross Group, PTCL, du, STC, Mobily, Batelco, and other valued participants led a comprehensive discussion, covering subject matter concerning Increasing Revenue Streams, Subsea, Content, Infrastructure sharing, Broadband infrastructure policy, and LTE development among other hot issues.

Mr. Ali Amiri, EVP Carrier and Wholesale Service at Etisalat said that "the submarine cable routes face Tsunami, faster and greater than national networks. The wholesale must continuously develop connectivity options to meet consumer demands for richer entertainment and business requirements for greater productivity or efficiency." He also said that "Etisalat's year on year growth in capacity utilization exceeds 85%. The growth in data is so vast and existing cable routes may not be able to cope. Submarine is not the only option, hence, new terrestrial cables will help share the load."

The event also discussed the need for building a sustainable internet business model shared that with the ubiquitous access to digital services there is a growing demand for bandwidth. Telecom markets in the Middle East are approaching saturation level and the revenue growth is sluggish. In comparison and despite high spend growth the

Middle East ICT sector revenues do not yet sufficiently contribute to GDP. For example, non telecom ICT spend in the region remains low compared to the international benchmarks. It was discussed that applications and service



platforms will drive regional ICT growth stimulated by next generation national broadband networks, mobile broadband and eservices. STC has and will continue to significantly develop its infrastructure to enhance ICT development. To support the growth of ICT in the region, STC wholesale has invested in significant cable infrastructure and benefits from fully diversified landing stations for its international cables with no single point of failure. STC wholesale supports significant international capacity to cater for all regional traffic. Fixed network performance has been transformed increasing speed by



200 times and capacity by 13 times between 2007-2010. STC are planning significant digitization initiatives across KSA in collaboration with both the public and private sectors. Looking forward, demand stimulation policies and regulations will be required to enable the next wave of Middle East growth."

Samia Bahsoun, Vice President at David Ross Group said "the subsea working group is one of several working groups comprising members of SAMENA Telecommunications Council. SSWG purpose is to provide SAMENA members with a forum of support on

educational and leadership matters concerning subsea cable industry's inter-regional connectivity as well as domestic and international infrastructure convergence, raise awareness about the subsea industry's roles and in educating the SAMENA members on technology, business, marine cable system trends, regulatory/permitting matters and system integration challenges, promote the growth of the subsea industry and to promote cooperation among marine cable operators and terrestrial operators especially SAMENA member operators."



Also explained that SSWG workgroups includes "SSWG Technology Workgroup, SSWG Commercial Workgroup, SSWG Legal and Regulatory Workgroup and SSWG Training Workgroup. Francis Hayson, Executive Director at Strategic Architecture said "The global digital media consumption behavior is shifting driven by key underlying drivers of change. The key underlying drivers of change includes faster and cheaper access network, newer screens, rich multimedia content, cloud computing, newer (OTT) players and new means of monetization. The new consumer behaviors includes newer formats, multitasking, UGC, place shifting, free content, interactivity and social networking, move away from horizontal portals and consumerization of enterprise IT.



HerveFevrier, Executive Vice President and Chief Operating Officer at Xtera said” The current status for terrestrial interface card technology includes 2nd generation 100 G coherent interface cards, PM-QPSK modulation format + coherent/ADCDSPP detection, soft decision FEC (1.5 –db gain), 40-nm CMOS technology, high equipment density, low power consumption/ dissipation”. He concluded that “100 G coherent technologies has applicability to both terrestrial and submarine networks, advances in technology and modular designs enable high performance, cost effective terrestrial and submarine systems using a common platform. The need to move high capacities globally is likely to drive same high capacity interfaces for both submarine and terrestrial systems. Xtera is thrilled to be part of SAMENA’s subsea working group to share ideas and work on new system architecture and new equipment.”

Ann LaFrance, Coordinating Partner EMEA Communications Law at Squire Sanders talked about the promotion and adoption of national laws in order to implement UN law of the Sea convention submarine cable protection. LaFrance saidthat “submarine cables are critical infrastructure and a most of international communications is carried submarine cables. United Nations Convention on the Law of the Sea (UNCLOS) treaty requires signatory governments to enact legislation to protect submarine cables.” She also mentioned that most of the states in the SAMENA region are parties or signatories to UNCLOS and therefore “SAMENA can help improve the ability of cable owners to respond by developing model law or draft code of conduct that can be used across the SAMENA region following best practices globally (Singapore, Australia etc.), developing advocacy campaign to work with the GCC and key government ministries in SAMENA regions.”



Neil Oxford, Director Operations at Gulf Bridge International said” SSWG charter is to share the knowledge among member countries for market forecasting, technology training on varied subject matter, environmental , legal and commercial matters, marine industry highlights , subsea market trends, up-to-date information o latest technological advances and subject matter expertise for members interested in developing system integration capability. The introduction of new technologies and support infrastructure convergence includes new system architectures, interface requirements and standardization, new equipment, new regulatory environments and creation and launch of new products to serve new industry sectors such as finance.



Following the world-wide technological development and its continuously increasing contribution to the telecoms & ICT landscape of SAMENA region, SAMENA is committed to focuses on digitization and broadband investment policies, and aims to promote beneficial regulation and governance that further industry evolution, as well as cooperation among key ICT industry stakeholders. In our efforts to continue facilitating collaboration and knowledge sharing in the region, our upcoming events are:

Mobile Broadband Workshop 2012

4th week of January
Serena Hotel, Islamabad, Pakistan

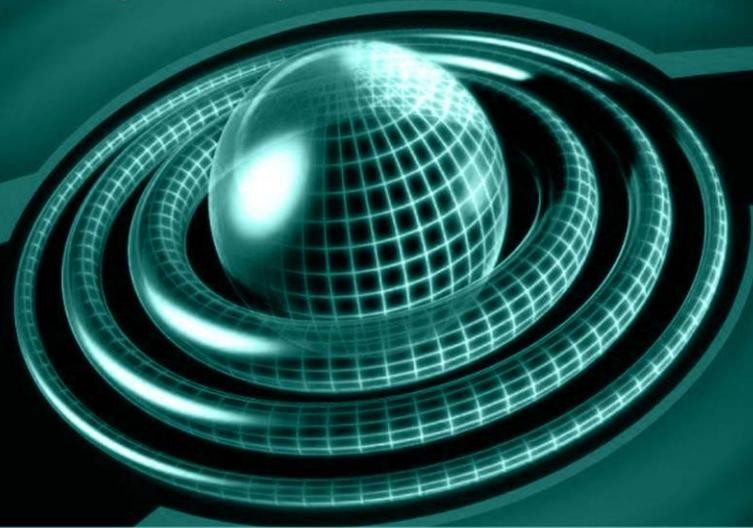
Zakir Syed
Research Analyst (Telecoms & ICT)
SAMENA Telecommunications Council

Saira Ahmed
Research Analyst
SAMENA Telecommunications Council

“ Role of ICT in Driving Economic Growth”

Convergence to Doha 2011

1st & 2nd November 2011, Sharq Village & SPA by Ritz Carlton Hotel, Doha, Qatar



SAMENA AWARDS 2011

1st November 2011



Request for Data

Please fill out an online nominations form at following link:
http://www.samenacouncil.org/event/convergence_doha_2011/nominations.php

Please contact for any other details at: awards@samencouncil.org

SAMENA Council's Board of Directors Election 2011

1st November 2011, Convergence to Doha, Qatar



Please contact for more details: election@samencouncil.org

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 Visit: www.samenacouncil.org | E-Mail: ctd2011@samencouncil.org





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