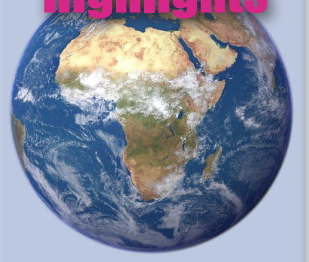
SATELLITE Markets & Research

May 2012

MARKET BRIEFS

Executive summaries of market trends and opportunities in key market segments and regions worldwide

Africa Report Highlights



- WACS and ACE cable systems start operation, boost Africa's bandwithd capacity.
- Digital television transition under way in compliance with an ITU deadline of June 2015
- Intelsat to launch two more satellites in 2012 that will provide incremental capacity to Africa and Asia Pacific.
- 3 factors predicted to shape the digital landscape in Africa — competition, ubiquitous capacity and deregulation

The African Satellite Market

by ***Peter I. Galace***

This month the West Africa Cable System (WACS) that will link Southern and Western Africa with Europe will start providing 15 African countries with 5.12Tbps submarine cable bandwidth capacity. In another month or so, the US $700 million Africa Coast to Europe (ACE) 5.12 Tbs submarine cable that will connect 23 countries will also start carrying broadband Internet traffic commercially.

The two cable systems will play a key role in reducing digital divides across the region and in connecting Africa with the rest of the world. The question is, will the sudden increase in fiber connectivity cause satellite's appeal to lose luster?

Africa: So Much Potential

Amid dramatic political problems and tumultuous regime changes last year, Africa continues its strong march towards economic recovery, defying the global trend. The United Nation's World Economic Situation and Prospects 2012 forecasts an increase in its overall growth from 2.7% in 2011 to 5.0% in 2012 and 5.1% in 2013, indicating a return to solid growth for the world's second largest continent. Thanks in part to improved economic policies, Africa is now one of the fastest growing developing regions in the world.

A big plus factor is the continued surge in commodity prices, promising great returns for Africa's oil producing nations. Africa's long-term growth is thus seemingly assured as reflected in interrelated social and demographic changes that create new domestic engines of growth. Key among these are increasing urbanization, an expanding labor force, and the rise of the middle-class African consumer, which all require improved infrastructure services from all fronts. No wonder, demand for better telecom services continues to rise rapidly.

Today, Africa, the second-largest and second most populous continent, after Asia, with as estimated 1.03 billion people in 2011, roughly 15% of the world's population, remains the least connected continent with the highest fees for the lowest speed connections. According to the International

(Continued on page 2)

A Lodge at a desert in Namibia now has satellite connections enabling customers to provide DTH and Internet connection. (Photo from Gilat FB by Roni Ivgi.)

The African Satellite Market

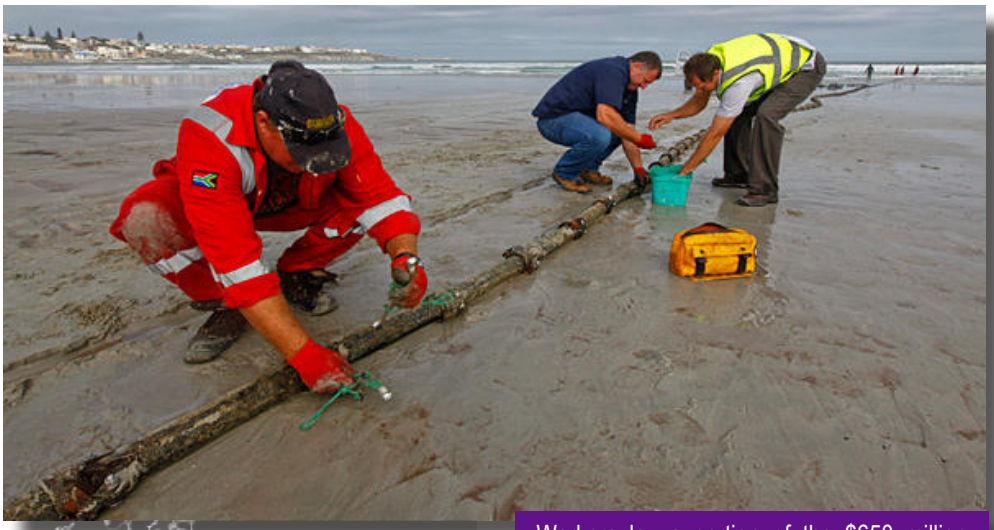
from page 1

Telecommunications Union, Africa has a density of only 1.4 telephone lines per 100 people, equivalent to less than 2% of the world's fixed lines compared to around 19% of the global average. In its 2011 Facts and Figures, ITU said disparities between regions in terms of available Internet bandwidth per Internet user remain, with on average almost 90 Kbit/s of bandwidth per user in Europe, compared with 2 Kbit/s per user in Africa. Over the past ten years, the number of mobile connections in Africa has grown an average of 30% per year and is forecast to reach 735 million by the end of this year. Internet World Stats says Africa only has only about 139.87 million Internet users as of December 31 last year, with a penetration rate of 13.5% of its total population, representing only 6.2% of the world's Internet users. Television ownership remains concentrated in the major urban centres and currently, there is only an estimated 44.2 million TV households.

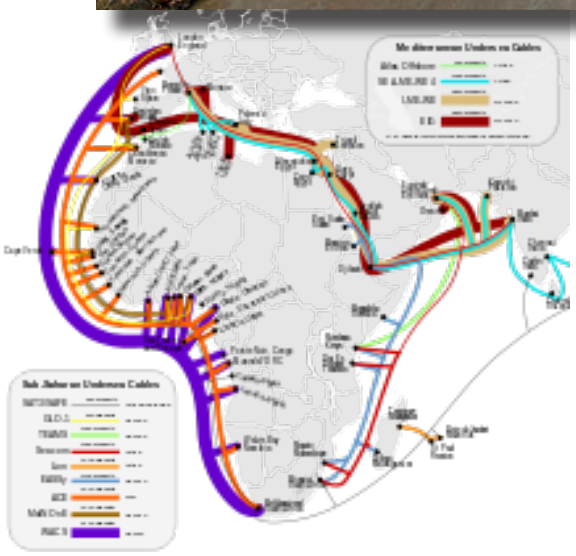
Africa's vast distances, the sometimes near impassable terrain, the spotty infrastructure, the resulting isolation and remoteness of many communities, make satellite an ideal answer to many of the continent's connectivity challenges. In a continent where terrestrial and fixed-line networks are limited if they exist at all, communication via satellite is an indispensable tool for the modern African economy. With so much room for growth, satellite-based services are supporting everything from pay TV and cellular phone services to robust broadband and niche VSAT markets throughout Africa. The large potential room for growth makes the satellite market growing at a meteoric rise.

WACS and ACE

But now comes the WACS and ACE submarine systems. Alcatel-Lucent won the contract in April 2009 to build the 14,000 km. US $650 million WACS and many other big operators like MTN, Telkom South Africa, Vodacom, Tata's Neotel, CWW and Gateway Communications are taking part in the project. WACS consists of four fibre pairs and is 14,000 km in length, linking Yzerfontein in the Western Cape of South Africa to London in the United Kingdom. The US$ 650 million WACS has 15 terminal stations along the western coast of Africa.



Workers lay a portion of the $650 million West Africa Cable System on the beach in Yzerfontein, on South Africa's west coast. **(Photo from Nic Bothma/EFE/News-com)**



The 17,000 km-long ACE submarine communications cable championed by France Telecom Orange and initiated on June 5, 2010 will be the first international submarine cable to land in coastal countries such as Equatorial Guinea, The Gambia, Guinea, Liberia, Mauritania, Sao Tome and Principe and Sierra Leone and indirectly through terrestrial links for landlocked countries like Mali and Niger.

Analysts predict that WACS will reduce bandwidth costs in Africa by 50% from current costs and an additional 50% drop with ACE's launch. The effect in Africa will be revolutionary. Recent deregulations in many west African countries have further encouraged many foreign telcos to invest, boosting the overall African telecom infrastructure.

And there's even more coming. In November last year, WASACE Cable Company Worldwide announced its ambitious plans to build a new submarine cable system connecting four continents – Africa, South America, North America, and Europe. It said it will be the first cable system designed to use 100-Gbps transmission technology from the outset.

The project will be divided into four sections: WASACE North connecting Europe to North America, WASACE South connecting South America to Africa, WASACE America connecting South America to North America, and WASACE Africa connecting Nigeria, Angola, and South Africa.

The project is headed by WASACE Cable Company Worldwide Holding, a multinational development company represented by CEO Ramon Gil-Roldan

The Newtec M6100 Broadcast Satellite Modulator is Newtec's next generation broadcast platform

Newtec took their best engineers, 25 years of expertise and our greatest innovations to create the best broadcasting experience over satellite, keeping these three goals in mind:

1. delivering uptime and reliable contribution and distribution of your high value content;
2. increasing your performance through a higher bandwidth efficiency at a lower operational cost;
3. supporting your business today AND tomorrow

Newtec Sales Director Anver Anderson says Newtec's M6100 Satellite Broadcast Modulator provides the most flexible of platforms for the future. "We launched this at NAB this year and already demand is very high. Coupling this newest product with Newtec's Clean Channel Technology and Bandwidth Cancellation (combining the forward and return transmissions in the same satellite bandwidth extra capacity can be made available), as well as FlexACM, means that Newtec can meet all the needs of our customers, maximising use of their expensive resources, increasing their data throughput and allowing them to increase their own market impact and revenue." He added Newtec's M6100 modulator also provides for carrier ID – an important feature customers suggested for the prevention of interference.

Newtec received some great customer feedback after the launch of the M6100 at NAB 2012:

"The combination with the new set of redundancy switches is essential in our business"

"Support of the Transport Stream over ASI and IP interfaces and its robustness against input jitter gives us the right tools when switching towards an all IP based environment."

of Spain. Project development will be managed by the David Ross Group, represented by CEO David Ross of the US.

But despite the significant upswing in cable connectivity, analysts continue to believe there is plenty of room for both fiber and satellites to co-exist. With recent studies showing that more than 50% of the African population will continue to have no fiber connection, despite the onset of WACS and ACE, the African satellite opportunity will not go away very soon. And with the economies of today largely driven by internet and other ICT connections, which are enablers of faster global connectivity, the demand for bandwidth will ever be increasing.

Cable and Satellite's Role in Africa's Digital Migration

The digital television transition is under way in compliance with an ITU deadline of June 2015 agreed by most African countries. Ironically, the transition process, which took from 3 to 14 years in richer countries, seems to have a shorter gestation period in Africa from the time the "Digital Broadcasting Roadmap in Africa project" was initiated in Doha in 2006. Observers say only a minority of African countries have started the policy work needed to create the transition, and most of the discussion is focused on technical questions.

Knowing the difficulties of rolling out terrestrial digital (DTT) broadcast equipment, satellite companies are enjoying an edge in putting forward DTH satellite as an alternative. Christoph Limmer, senior director market development of SES, said requests for information on satellite TV are flooding in. "Quite often we get asked if satellite can really reach more homes than other infrastructures like cable or terrestrial. The answer simply, is yes. Unlike DTT or cable which are ground based infrastructures and normally roll-out in certain areas only; satellite has no limitations in achieving 100% population reach," said Limmer. Digging cable is costly and time consuming and rolling out DTT network infrastructure is facing similar challenges.

While increased cable connectivity is welcomed by all, the bottom line is that digital terrestrial television (DTT) cannot provide the required reach and bandwidth on its own. Satellite can feed and complement DTT roll-out if network architecture is aligned, and digital terrestrial coverage in combination with satellite can notably reduce infrastructure investments and costs, making hybrid technology a logical next step.

Satellite has the opportunity to reach an unlimited number of end-users quickly, independent of existing infrastructure, terrestrial challenges and borders. It also complements innovation and can handle all formats including digital, HDTV, 3DTV and IP.

"Right now, SES has satellites over Africa providing broadband and broadcast connectivity – but the demand is great and more reach and services are required," said Norbert Hölzle, who now leads the European sales team of SES. "Today only one out of three homes in Africa has a TV set, but this number is expected to grow significantly in the coming years. The digital

migration in Africa is already being driven by satellite, and the markets are ready and eager for assistance which SES is ready and able to provide," he added.

TV to reach 50 million homes in Sub-Saharan Africa by 2017

Highlighting the continued role of satellites is the soaring digital TV penetration, especially in South Africa in the next five years. A new report from Digital TV Research said Sub-Saharan Africa will have 50 million TV households by 2017 – or 30% of total homes.

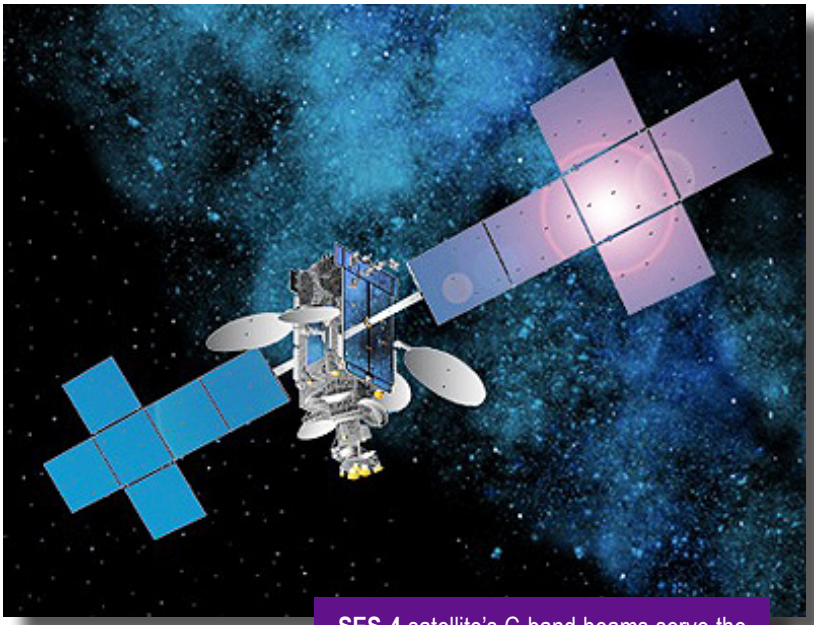
According to the Digital TV Sub-Saharan Africa report, Nigeria will account for about a quarter of the region's TV households in 2017, with South Africa contributing a further 15%. Three-quarters of the region's TV households still received analog terrestrial signals at the end-2011, though this proportion will drop to 46% (23 million TV households) in 2017.

About a quarter of TV homes (9.2 million) received digital signals at end-2011, and this digital TV penetration will rocket to 54% by 2017 – with household numbers tripling to 27.3 million. South Africa, the market leader by far, will have achieved 100% digital migration by 2017 (or 7.9 million homes). Proportions in the other countries will be much lower, though Nigeria will have 7.0 million digital homes by 2017 (up from 1.9 million in 2011).

According to the study, pay TV penetration of TV households will grow from 19% in 2011 to 28% in 2017. Of the 7.2 million pay TV subscribers at end-2011, 6.1 million were pay DTH. The pay TV total will double to 14.1 million by 2017, with DTH contributing 8.2 million and pay DTT chiming in with 5.2 million. South Africa supplied 4.0 million of the 2011 total, and will grow to 5.1 million in 2017. Nigeria will climb from 1.2 million in 2011 to 3.1 million in 2017.

A third of homes will take DTT (pay and FTA combined) in 2017, up from only 4% at end-2011. Sub-Saharan Africa will have 16.4 million DTT homes by 2017 – 11.2 million FTA and 5.2 million pay – up tenfold from 2011. Nigeria will be the largest DTT nation in 2017, both for FTA (3.2 million) and for pay (1.7 million).

Digital pay DTH penetration will remain at just over 16% of TV households. However, this is distorted by South Africa where pentration is nudging 60%. The next highest penetration will be 12% in 2017 — in Tanzania and Uganda.



SES-4 satellite's C-band beams serve the eastern hemisphere of Europe and Africa and provides full coverage of the Americas, plus a global C-band beam to support mobile and maritime customers. Four high-power, regional Ku-band beams provide service to Europe, the Middle East, and West Africa, as well as North and South America, with extensive channel switching capability between C- and Ku-band transponders for enhanced connectivity.

Intelsat's Investments in Africa

The world's largest satellite operator, Intelsat, which was the first to launch a satellite covering Africa way back in 1969, continues to invest heavily in the region.

On March 25 this year, Intelsat successfully launched Intelsat 22 satellite. When it enters service in a couple of months, Intelsat 22 will deliver enhanced satellite capacity for telecommunications leaders in Asia, the Middle East, Africa and Europe, such as the UAE's Etisalat and Ethio Telecom of Ethiopia.

Before the end of the year, Intelsat plans to launch two more satellites — Intelsat 20 and Intelsat 23 — that will both provide incremental capacity to Africa and the Asia Pacific region. With the launch of Intelsat New Dawn in April last year, Intelsat's African fleet has grown to 23 satel-

lites, representing a multi-billion dollar investment in the region.

Intelsat's African infrastructure also includes five DVB platforms on four satellites, and the flexibility to set up customized IntelsatONESM Network Broadband VSAT services. These broadband platforms provide direct access to Intelsat's Internet backbone and global IntelsatONESM fiber network. Intelsat's partnership with BT, announced last year, expands the reach of the IntelsatONE terrestrial network to new locations across the globe, including Nigeria and South Africa.

On February 29, service provider Globecast in cooperation with Intelsat announced the launch of a Multi-Channel Per Carrier (MCPC) media platform for Africa. As part of the IntelsatONESM network, the platform provides a cost-effective solution for both regional and international programmers wishing to expand their distribution to cable and Direct-to-Home (DTH) services across sub-Saharan Africa.

SES Satellite Launches

Last February 15, SES successfully launched SES-4 satellite into orbit. The company's largest and most powerful satellite to date, SES-4 will provide service to Europe, the Middle East, West Africa, as well as North and South America. SES-4, a 20-kilowatt satellite based on Space Systems/Loral 1300 platform, has 52 C-band and 72 Ku-band transponders. Its C-band beams will serve the eastern hemisphere of Europe and Africa, full coverage of the Americas, and a global beam to support mobile and maritime customers. Four high-power, regional Ku-band beams will provide service to Europe, the Middle East, West Africa, as well as North and South America with extensive channel switching capability between C- and Ku-band transponders for enhanced connectivity.

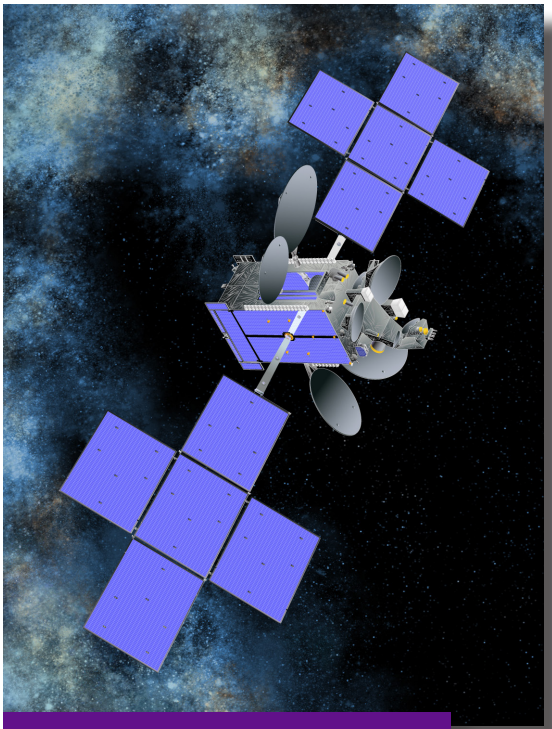
SES-4 is the 50th satellite in the global SES fleet, six of which currently serve the African continent. It is set to replace the NSS-7 satellite at 338 degrees East longitude and provide replacement as well as incremental capacity at this orbital slot over the Atlantic Ocean.

More than a year ago, SES announced its plans to launch at least five additional satellites with capacity dedicated to providing services to customers in Africa in the next three years.

In March this year, SES partnered with Samsung to drive digital broadcasting via satellite in sub-Saharan Africa. Samsung will introduce an LED television with an integrated free-to-air satellite receiver, the Samsung LED TV Free Satellite that will be distributed in Nigeria, Ghana, Cote D'Ivoire, Senegal, Democratic Republic of Congo and Cameroon in August 2012.

The integrated satellite receiver will allow consumers to receive free-to-air television channels without the need for an additional set top box as the LED TV will be directly connected with the satellite dish. In preparation for the launch, SES and Samsung will jointly arrange training sessions with distribution partners and installers to ensure the proper connection of the TV device to the satellite dish. Both partners will also run a joint marketing campaign in June 2012.

SES already delivers more than 60 free-to-air channels in more than 40 African countries. The launch of the new Samsung LED TV Free Satellite coincides with more channels becoming available in Africa. Samsung said it hopes to bring more channels to more African regions in 2013, with a new satellite launch plan from SES, a major satellite operator in a number of African regions. For now, its agreement with SES will allow Samsung to provide around 30 English channels, and more than 30 French channels, to the six launch nations.



When launched next year, ABS-2 will be one of the most powerful commercial satellites launched for service in the Eastern Hemisphere bringing increased capacity and transmission power to the Middle East, Africa, Asia Pacific, and CIS/Russia.

Ubiquitous Capacity, Competition

Penny Hill, marketing director of Asia Broadcast Satellite (ABS), believes there are three factors that will continue to form the digital landscape in Africa — competition, ubiquitous capacity and deregulation. She said, today's satellites can easily address two of these -- ubiquitous capacity and competition. But with over 15 well established satellite operators providing services into the continent, the satellite market within Africa will remain to be highly competitive.

"The breadth and depth of the reach of satellite services is bringing connectivity to support all types of applications to the whole of Africa," Says Hill. "While fiber is bringing a massive amount of capacity to the coastal areas and to some of the major cities, it is satel-

lite that is truly providing ubiquitous coverage of Africa. Another aspect is reliability of service. Again, this is an area where satellite capacity shines." She adds that the availability of satellite-based capacity still far exceeds that of terrestrial/undersea fiber especially in Africa.

ABS currently provides solutions to its business partners and customers in the African market. Its ABS-3 at 3° West, an inclined orbit satellite over the Middle East and Africa, offers an affordable cost solution for companies for IP Transit. This service gives ISPs a reliable internet backbone via satellite at extremely cost effective rates and with higher availability compared to traditional Ku or Ka Band services. As part of this service, ABS also provides tracking antennas as part of the bundle solution and 24/7 customer support from their teleport in Nairobi.

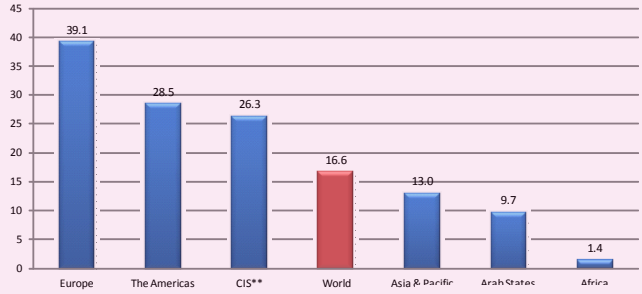
With the launch of ABS-2 satellite in the first half of next year and the tentative plan to relocate ABS-1 to 3° West, Hill says ABS will have Ku- and C-band capacity in the continent to meet the growing demands. She adds that ABS is fully committed to Africa and will continue to invest in the region. "Access to affordable and reliable capacity is key for the overall development of the African countries, benefiting businesses and consumers," said Hill.

ABS sees the changing market dynamics in Africa presenting both opportunities and challenges. Hill says the legacy intercontinental point-to-point circuits have been replaced by fiber and from a historical perspective these, circuits had represented a significant portion of what satellite customers were using satellite bandwidth to support.

"While some see this transformation as the death toll for satellite operators in Africa, we at ABS see it as an opportunity," says Hill. "As cost effective fiber delivers vast amounts of bandwidth to the edges of the continent, the "unconnected" portions of Africa are in need of capacity to support a variety of applications. What used to be intercontinental bandwidth demands has morphed into intra-continental requirements. GSM, IP backhaul, enterprise VSAT

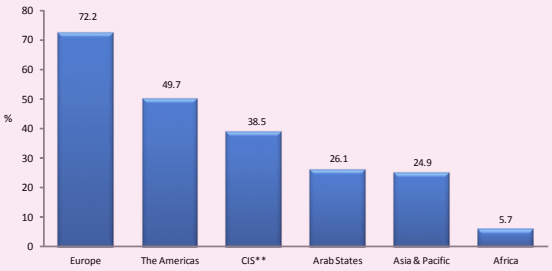
Vital ICT Indicators in Africa

Fixed telephone lines per 100 inhabitants 2011*



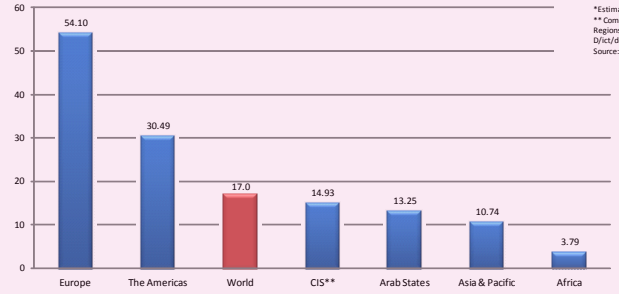
*Estimate
** Commonwealth of Independent States
Regions are based on the ITU BDT Regions, see: http://www.itu.int/ITU-D/ict/definitions/regions/inc
Source: ITU World Telecommunication /ICT Indicators database

Proportion of households with Internet access, by region, 2011*



*Estimate
** Commonwealth of Independent States
Regions are based on the ITU BDT Regions, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html
Source: ITU World Telecommunication/ICT Indicators database

Active mobile-broadband subscriptions per 100 inhabitants, 2011*

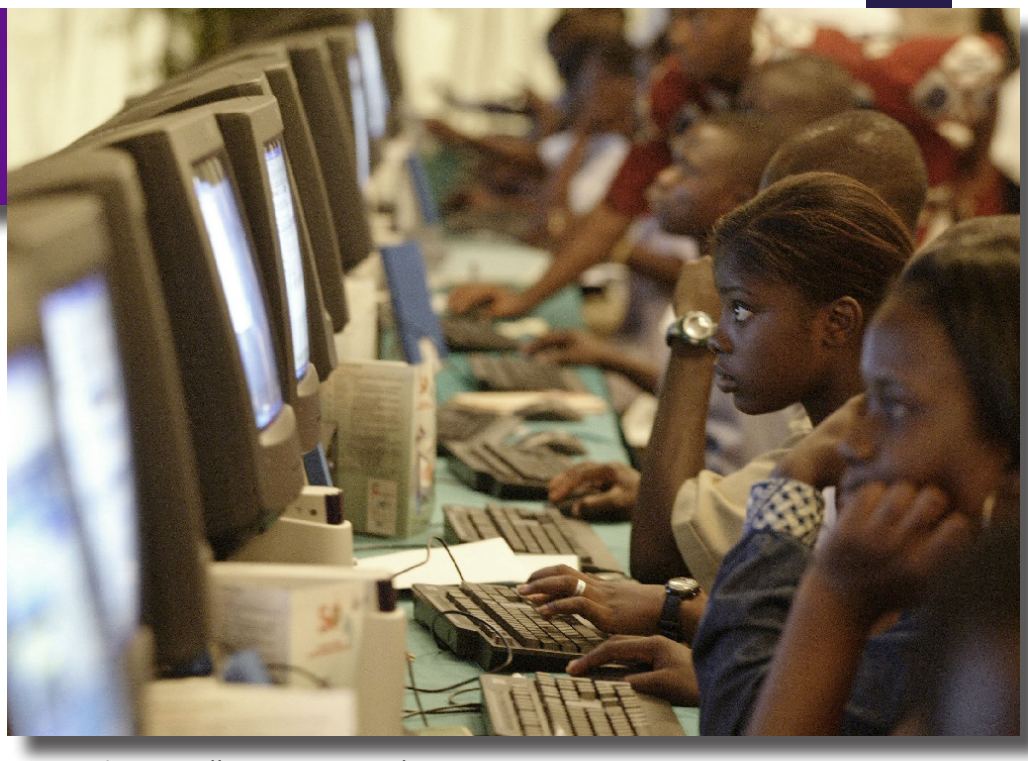


*Estimate.
**Commonwealth of Independent States
Regions are based on the ITU BDT Regions, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html
Source: ITU World Telecommunication /ICT Indicators database

ITU ICT Development Index (IDI): 2010 top five per region

Regional IDI Rank	Europe	IDI Rank	Asia & Pacific	IDI Rank	Americas	IDI Rank	Arab States	IDI Rank	CIS	IDI Rank	Africa	IDI Rank
1	Sweden	2	Korea (Rep.)	1	United States	17	UAE	32	Russia	47	Mauritius	69
2	Iceland	3	Hong Kong, China	6	Canada	26	Qatar	44	Belarus	52	Seychelles	71
3	Denmark	4	New Zealand	12	Barbados	41	Bahrain	45	Moldova	57	South Africa	97
4	Finland	5	Japan	13	Uruguay	54	Saudi Arabia	46	Ukraine	62	Cape Verde	104
5	Luxembourg	7	Australia	14	Chile	55	Oman	60	Kazakhstan	68	Botswana	109

Note: Regions are based on the ITU BDT Regions, see: http://www.itu.int/ITU-D/ict/definitions/regions/index.html
Source: ITU Measuring the Information Society 2011.



Africa's new cable links and new satellite connections could bring economic boom and expected to double the capacity of Africa's mobile phone and Internet networks. (**Photo from http://internet.cytalk.com**)

networks and video distribution applications are driving demand for satellite capacity across all parts of Africa."

Regional Operators Make Headway

Not to be ignored in all these developments is the Regional African Satellite Communication Organization (RASCOM), representing the interests of 44 African telecommunications operators. RASCOM currently operates the second Pan African telecommunication satellite, Rascom-QAF1R, which offers telecommunication services, direct TV broadcast services and Internet access in rural areas of Africa. Under an agreement with RASCOM, RascomStar-QAF (a private company registered in Mauritius) now implements RASCOM satellite project.

In March 2012, RascomStar-QAF entered into an agreement with IPX Extenso to jointly provide telephony services in low ARPI communities in Congo. Under the contract, RASCOM contracted IPX to deploy GSM mobile and fixed telephony access in 50 remote and rural areas of Congo through RascomStar-QAF VSAT terminals.

RascomStar-QAF offers end-to-end solutions which include rural terminals (phone boxes or stand-alone BTS/MSC) connected to the operator's core network by satellite backhaul through a gateway installed in the capital. These innovative solutions, which have been developed in partnership with ViaSat and ip.access, allow operators to minimize investment costs but also recurring costs.

Following the successful launch of Nigeria's NigComSat-1R into space on December 19 last year, the communications satellite commenced full commercial service in March this year. The Nigerian Communications Satellite Limited (NigComSat) replaced the failed NigcomSat-1, which was sent into orbit in 2008. The new satellite operates in four different bands (C, Ku, Ka and L), has a minimum life-span of 15 years with payloads of seven antennae and 28 transponders, with additional 12 transponders to address redundancy.

Timasaniyu Ahmed-Rufai, managing director of NigComSat, said the satellite is only the first step in the country's satellite program. "We plan to double the capacity by providing telecommunication services by commencing the development of two additional communication satellites in the next two years," he said. Nigeria's broadband access currently stands at a paltry 5% with only 28% of the population connected to the Internet. He told a forum in Lagos last month NigComSat is aiming for 40% of Nigerian households to be connected to broadband by 2015.

Several other operators are active in the African market. Last September Arabsat launched its Arabsat-5C satellite which added much needed Ka-Band capacity for the Middle East and Africa as well as C-band capacity for DTH and other applications. In December 2011, Israel-based Amos Spacom launched its Amos-5 satellite offering pan-African coverage featuring a high-powered C-Band beam and three regional Ku-Band beams for the African market.

Conclusion

All the indicators are pointing towards a vibrant market for satellite services the next few years for Africa. The only caveat is the danger of overcapcity and over regulation. However, if we leave the African region to the normal market forces it should be a good market to be in. MB

***Peter I. Galace** is contributing editor for Satellite Markets and Research. He writes extensively on telecommunications and satellite developments in Asia and other regions for numerous publications and research firms. He can be reached at* peter@satellitemarkets.com.