

‘Cordless’ video-on-demand leaps in Sub-Saharan Africa

Deloitte predicts that in 2014 the number of video-on-demand (VOD) users in Sub-Saharan Africa (SSA) will grow by about one million – despite the lack of broadband infrastructure in the region. Users will select movies, TV programs and short clips from a catalogue of hundreds of titles, which will then play on-demand, typically to television sets. This user behavior will be equivalent to that taking place in millions of broadband-equipped homes around the world. However in the SSA region, VOD content will play back from digital video recorders (DVRs) and the files will have been distributed principally via satellite links, and for a few households via digital terrestrial transmission.

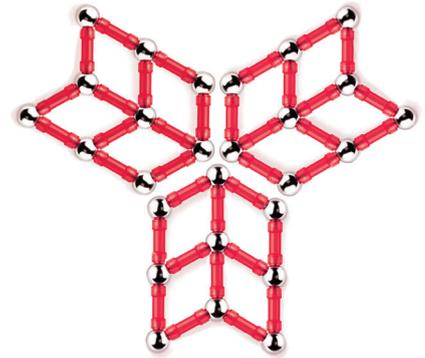
VOD is a service that has reached maturity in the hundreds of millions of homes around the world that have sufficiently fast broadband speeds¹⁵⁷. Delivering high-definition programming is expected to require about two megabits per second of dedicated capacity in 2014¹⁵⁸. However Sub-Saharan Africa has not participated in the wave of VOD adoption, in most part due to the lack of fixed broadband infrastructure. Just one percent of people have access to fixed broadband in the region¹⁵⁹. At their peak in the 1970s and 80s, copper networks were never extensive; and following the liberalization of most markets in the 90s, capital poured into mobile infrastructure, leaving fixed infrastructure on the sidelines. While mobile broadband is more commonplace, with 13 percent penetration, its price (on average about fifty times prices in the EU) and limited reach make this technology unsuitable for bandwidth-hungry services like VOD¹⁶⁰.



Yet VOD is a desired service among higher-income households, especially in South Africa and Nigeria, whose citizens account for over 50 percent of consumer spending in SSA¹⁶¹. In these countries, and in a growing number of wealthier capital cities across the continent, there is considerable buzz about the availability of VOD services in developed countries. Satellite and DVRs can provide a solution that replicates a video-on-demand experience¹⁶².

The key advantages of satellite in the SSA region are coverage (several dozen satellites are already launched and in orbit¹⁶³, and many cover 100 percent of the territory) and capacity (hundreds of channels are possible). Satellite transmission is not flawless, and quality can be compromised by factors such as adverse climatic conditions¹⁶⁴. But once a satellite is in orbit and functioning, any home with a satellite dish can receive hundreds of channels. This compares to the challenge of deploying mobile broadband networks, and the near impossibility of extensive fixed network roll-outs in the near term.

Satellite transmission is used throughout the world to relay television signals, and DVRs are typically used by viewers to record linearly-distributed scheduled programs, to be watched later. When DVRs were first launched at the turn of the millennium, the size of hard drives, at about 80 GB, meant that it was best to let the user select what to record. Now that the price of hard drives has fallen such that DVRs are available with several terabytes (TBs) capacity and multiple tuners, the machines can also serve as a repository for hundreds of titles. A two-TB drive can hold about 1,600 hours of standard definition video¹⁶⁵. Complemented by five tuners, this should be enough to allow users to record the specific programs they want to save, and leave sufficient tuners and hard disk capacity for a substantial local VOD cache, filled with what are expected to be the most-demanded movies, programs or even short video clips.



157 As of May 2013, VOD consumption was up 30 percent year-on-year. Comcast, a US cable channel, delivers about 400,000 hours of on-demand viewing a month. See: Viewers Start to Embrace Television on Demand, The New York Times, 20 May 2013: http://www.nytimes.com/2013/05/21/business/media/video-on-demand-viewing-is-gaining-popularity.html?_r=0

158 Over time, improvements in compression reduce the bandwidth required for video-on-demand streams. Though this should improve quality of service for the minority who already use it, and may encourage others to adopt VOD, it will likely have only a marginal impact on its own. Growth in the VOD market is more challenged by lack of network reach and capacity, both mobile and fixed, low smartphone penetration, negligible PC penetration and marginal television set penetration. These issues, compounded by a continent-wide shortage of electrical power, will likely serve to mute the impact of improvements in video compression in the short to medium term.

159 Measuring the Information Society, International Telecommunication Union, 2013: http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf

160 Measured as a percentage of GNI per capita, mobile broadband services in Europe are the lowest in the world, at less than two percent of GNI per capita; in sub-Saharan Africa, they represent closer to 60 percent of GNI per capita on average, and indeed in some countries such as the Democratic Republic of Congo, Niger, Sierra Leone and Zimbabwe, the cost of a gigabyte of data is more than 150 percent of GNI per capita. See: Measuring the Information Society, International Telecommunication Union, 2013: http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf. The cost of one GB of mobile broadband data in Sub-Saharan Africa ranges from around \$20 in Kenya to over \$100 in Namibia, Mozambique, Zambia, Botswana and even South Africa. See: Lifting barriers to internet development in Africa, Internet Society, 8 May 2013: <http://www.internetsociety.org/sites/default/files/Average-price-per-GB-of-traffic-in-Africa--rev12.pdf>. The average cost of one GB of mobile broadband data in Europe is less than \$2.50. See: European LTE operators look to new pricing strategies to boost mobile broadband revenues, GSMA Intelligence, 9 August 2012: <https://gsmaintelligence.com/analysis/2012/08/european-lte-operators-look-to-new-pricing-strategies-to-boost-mobile-broadband-revenues/345/>

161 The dynamic African consumer market: Exploring growth opportunities in Sub-Saharan Africa, Accenture, 2013: http://www.accenture.com/SiteCollectionDocuments/Local_South_Africa/PDF/Accenture-The-Dynamic-African-Consumer-Market-Exploring-Growth-Opportunities-in-Sub-Saharan-Africa.pdf

162 In some contexts digital video broadcasting, a terrestrial transmission standard, can be used to broadcast content; but this approach is generally more expensive than using satellite. Digital terrestrial television requires the use of masts to provide nationwide coverage, and in the majority of Sub-Saharan African countries, they are generally too few to provide service (legacy analogue television masts are comparatively scarce on the continent). See: Case study of digital tv switchover in Tanzania, Analysys Mason, 29 July 2013: <http://www.analysismason.com/About-US/News/insight/Case-study-of-digital-TV-switchover-in-Tanzania/>. In most cases, therefore, African nations have yet to make the transition from analogue to digital television, because of the cost associated with transitioning infrastructure. However, this year 47 African nations signed an accord that should see countries undertake migration by 2015 for UHF frequencies, and by 2020 for VHF. The motivation for this agreement was to free up 'digital dividend' spectrum for mobile operators, so as to create more mobile broadband capacity. For more information, see: 47 African countries agree on 2015 digital switchover, freeing 700MHz, 800MHz mobile spectrum, TeleGeography, 10 September 2013: <http://www.telegeography.com/products/commsupdate/articles/2013/09/10/47-african-countries-agree-on-2015-digital-switchover-freeing-700mhz-800mhz-mobile-spectrum/>

A broadband-delivered VOD service offers infinite choice in theory, but the range of content could over-serve the market, as actual demand for on-demand content tends to be narrow and predictable – usually for the programs with the highest live ratings, or movies with the greatest box office success¹⁶⁶. It should be a relatively simple matter to predict and distribute content sufficient to meet 95 percent of requests¹⁶⁷.

We have predicted a million additional users of this service in 2014, which is equivalent to about 250,000 homes. This may sound a modest target for a region with over 900 million people¹⁶⁸. But the SSA region has just 40 million television households¹⁶⁹. For the rest of the region, television sets are too expensive, or are difficult to power due to a paucity of homes connected to the electrical grid and unreliable mains supply^{170 171}.

In the long-term broadband in SSA should roll-out, and when that has happened, more traditional VOD services should flourish; but even then VOD is likely to remain focused only on mainstream content and a narrow selection of the continent's several thousand languages.

But in 2014 VOD needs to work within existing parameters; and in the region, a credible, appealing and economically viable VOD service is achievable by blending two traditional, proven technologies – satellite transmission and hard disk storage.

Bottom line

In 2014, the majority of the addressable market for VOD and similar services is likely to manifest in a few dozen cities, as opposed to countries. Urban centers are where wealth and, critically, reliable electrical power are concentrated. It will likely be more sustainable and effective to focus marketing, sales and support activities on those locations, in spite of the continent-wide coverage provided by satellites. Demand for satellite-based VOD is likely to be concentrated in South Africa and Nigeria, which are home to a fifth of the region's population, the majority of its television homes and the lion's share of electricity-generating capacity. By contrast nations such as Chad, Ethiopia, Liberia, Rwanda and Burundi may continue to have TV and mains electricity penetration at below five percent¹⁷². Satellite VOD providers may find greater opportunity in the short to medium term in other parts of the developing world, especially India, where even though fixed broadband penetration is at a similar level to SSA, the reach of the electrical grid is substantially greater¹⁷³, as is the number of television households¹⁷⁴.

Providers of these VOD services should consider what other content could be distributed using this combination of technologies. As well as movies and television programs, the most popular clips watched on YouTube and other online video sites could be delivered to DVRs. Games – both platform based and social – could also be broadcast to DVRs and the content then relayed to smartphones and tablets via internal Wi-Fi networks or Bluetooth.

There is a role for telecoms operators in this model, although not the triple-play bundle of TV, telephony and broadband offered by many carriers in developed countries. In SSA, carriers could provide mobile payment solutions for VOD services. For the most part, there is insufficient capacity for video content to be streamed to a large number of homes or devices over mobile infrastructure at affordable prices.

Device makers could examine the potential for TV equipment that runs on batteries. Solutions exist, but have mostly been marketed as portable supplements to full-sized television subscriptions, and have gained little traction¹⁷⁵. But there are hundreds of millions of African citizens who are deprived of access to television. The company that solves this problem might well find itself as the preferred supplier when African households reach a level of disposable income that allows them to buy a full-sized TV set. A solution that works for Sub-Saharan Africa may also appeal to consumers in many other emerging markets with similar combinations of low fixed infrastructure but wide satellite coverage.

- 163 Prospects in the African Satellite Market, Satellite Markets & Research, 1 May 2012: <http://www.satellitemarkets.com/europe-middle-east-and-africa/news-analysis/prospects-african-satellite-market>
- 164 Both Ku band and Ka band systems suffer from the "rain fade" effect, which is more of an issue in equatorial areas where rain is heavy and frequent. See: http://www.bsatellite.com/Bsatellite_Rainfade.pdf
- 165 A 2TB drive with 1.5 TB available for programs has space for 1,180 hours of standard definition programming. A 2TB drive can hold 470 hours of HD. See: 2TB Sky+HD box review – massive PVR storage capacity, now with built-in Wi-Fi, TechAdvisor, 2013: <http://www.pcadvisor.co.uk/reviews/digital-home/3421676/2tb-sky-hd-box-review/>
- 166 The most commonly-watched programs on the BBC's on-demand service, iPlayer, are also typically among those attracting the highest live audiences. See: BBC iPlayer: More than 2.3 billion programme requests in 2012, Digital Spy, 24 January 2013: <http://www.digitalspy.co.uk/media/news/a453427/bbc-iplayer-more-than-23-billion-programme-requests-in-2012.html>
- 167 Though there are over 2,000 indigenous languages in SSA, the vast majority of the educated, wealthy population speaks some combination of English, French, Swahili and Arabic. Amongst the consumers likely to watch VOD, these languages would satisfy the majority
- 168 Data – Sub-Saharan Africa (developing only), The World Bank, 2013: <http://data.worldbank.org/region/SSA>
- 169 For information on television set penetration, see: Digital TV penetration accelerates in Sub-Saharan Africa, Rapid TV News, 9 January 2013: <http://www.rapidtvnews.com/index.php/2013/01/09/25734/digital-tv-penetration-accelerates-in-sub-saharan-africa.html>
- 170 Approaching 50 percent of Africans earn less than \$1.25 per day. See: Where the World's Poorest People Live, Wall Street Journal, 17 April 2013: <http://blogs.wsj.com/economics/2013/04/17/where-the-worlds-poorest-people-live/>. 70 percent of Africans lack access to mains power: Energy Access Report, World Energy, November 2012: http://www.worldenergy.org/documents/monaco_consultation_energy_access_electrification_1.pdf. The total installed generating capacity for Sub-Saharan Africa's 48 nations is 68 gigawatts: Africa must look at renewable energy, Standard Bank, 30 October 2013. See: <http://www.blog.standardbank.com/blog/2013/10/africa-must-look-renewable-energy>. This is roughly equivalent to the generating capacity of Spain, whose population is just five percent of Sub-Saharan Africa's 910 million. Mains is not a prerequisite to powering a television – television sets and other electrical devices are also run from diesel generators and car batteries – but a lack of mains would make satellite-delivered VOD unreliable.
- 171 Measuring the Information Society, International Telecommunication Union, 2013: http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf (Page 162)
- 172 Ensure that all of the world's population have access to television and radio services, International Telecommunication Union, 2010: http://www.itu.int/ITU-D/ict/publications/wtdr_10/material/WTD2010_Target8_e.pdf
- 173 Electricity crisis in India, Electricity in India, 23 March 2011: <http://www.electricityinindia.com/2011/03/coal-shortage-to-hit-electricity.html>
- 174 Media & Entertainment in India, Deloitte Touche Tohmatsu India Pvt Ltd, September 2011: <http://www.deloitte.com/assets/dcom-india/local%20assets/documents/me%20-%20whitepaper%20for%20assocam.pdf>
- 175 For example, Walka 7 Portable TV, Dstv Mobile, 2013: <http://selfservice.dstv.com/self-service/decoders/walka-7-mobile-tv/>

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