

# CONNECTED

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Tackling the issues that matter - brought to you by WIOCC

## AUGUST PANELLISTS:

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Senior Analyst, TeleGeography

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VP European Sales, Cogent Communications

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Regional Director, Carrier Business MEA, Epsilon

**Guy Mathews**  
Writer, specialising in telecoms and IT issues for Capacity and European Communications

**Bradley Shaw**  
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Great advances have been made in Africa's telecoms and ICT infrastructure over the past five years. However, the industry still faces challenges in bringing the internet closer to African customers. Some international ISPs are offering local IP Transit services in Africa – but others aren't. So what impacts on their decision to invest in this area? Is it the expansion of internet exchanges in Africa and the growth of carrier-grade Data Centre facilities? How important are the demands for improved pan-African, intra-company communications via VPN services? And what about the debate around local versus international content?

## This month we ask our panelists "What are the current strategic considerations for those delivering internet services to Africa and how might these change going forward?"

**International submarine and terrestrial network connectivity in Africa has expanded greatly in the past few years, but the industry still faces challenges providing high-quality affordable IP transit in African countries.**

Local IP transit markets in African countries have limited competition and most African ISPs continue to purchase international private lines to Europe where they purchase IP transit and peer at major internet exchanges. As a result, local internet prices in Africa are among the most expensive globally.

Several global IP transit providers, including Tata Communications, Telecom Italia Sparkle, and Level 3 have expanded their IP backbones into select African markets such as Djibouti

and Johannesburg. African ISPs, however, are not always inclined to purchase IP transit from a global player that sets up a PoP locally. In many cases, these ISPs have invested directly in submarine cable systems such as SEACOM, WACS, or TEAMS, via IRU or consortium ownership, and seek to leverage this investment in submarine systems by buying cheaper IP transit in Europe than what is available from global IP transit providers in Africa.

Even if IP transit is purchased locally, that does not change the fact that most traffic from Africa is international, as the vast majority of content is not hosted locally, but instead drawn from Europe. This situation is beginning to change through the use of caches hosted within operator's networks.

Google and Akamai, which account for a large amount of traffic, are leading the way in this area.

Relocating content from Europe to Africa is one challenge. Another challenge lies in ensuring that local and regional traffic is exchanged within Africa, not in Europe. The development of national and pan-African fiber-optic networks provides only part of the solution. Development of internet exchange facilities in the region is required as well. Internet exchanges help cultivate a more vibrant local market for IP transit and local content hosting. Ultimately, ISPs must continue to optimise their networks for lower costs and improve quality to provide the robust, reliable solution that end-users expect.



**Paul Brodsky**  
Senior Analyst, TeleGeography



**Francois Lemaigre**  
VP European Sales,  
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**The rate of internet adoption in emerging countries is continuously increasing, as barriers to entry are getting lower and the benefits in terms of efficiency increasingly justify investment in internet infrastructure, both for end user access (in particular wireless broadband technology) and in the backbone, as fiber optic networks, over submarine cables or terrestrial links replace bandwidth-constrained satellite links.**

The internet is a network of networks, meaning traffic flows as a result of the interconnection of over 40,000 independent networks. Networks that provide access to end users and those that host online content and applications usually interconnect via transit carriers such as Cogent. As one of the world's largest Tier-1 carriers, we operate a worldwide fiber optic network with thousands of interconnections to other networks, and provide a technologically and

economically efficient traffic routing platform, reachable via the recent submarine cable investments around Africa.

In addition to connections to fibre optic backbone networks, local access networks generally use local interconnection to handle their reciprocal traffic, instead of using traditional intercontinental transit routes, thus forming continental or even regional hubs. This traffic-routing efficiency trend is now reaching emerging regions, contributing to 'localised' internet traffic flow. Africa faces an industrial challenge here, as cross-border infrastructure and Internet Exchange Points (ie well connected, state-of-the-art data center space) need to be built to enable such local traffic exchange.

These investments also play an important role in striving for local content in emerging countries: today,

the most popular online content and applications are still physically hosted in North America, Europe or Asia, leading to an asymmetry of internet traffic exchange with Africa. In that respect, emerging countries face another challenge: to develop intra-regional content, such as social networks. While this may be encouraged by linguistic singularities, or more generally cultural habits, the availability of adequate networking and data centre infrastructure in Africa will play an important role.

Delivering internet services is key to Africa's growth in a globalised economy, as experienced on other continents over the last decade. It will take multiple forms, from local investments in networks and housing facilities, to fast-growing intercontinental traffic flow.

**With the rapidly changing landscape in social, mobile and cloud; strong, robust and resilient access to internet is a critical part of a future landscape. It always starts in the same way and follows a distinct path. Firstly building sufficient access to the international markets to gain connectivity, then creating an environment to house local content, then the development of peering and finally rolling out neutral platforms to optimise the experience and reduce cost. I see that Africa is still in the first stage of development with several concurrent initiatives in place to connect bandwidth to the international markets, alongside the adoption of local content storage and peering yet to surface on the continent itself.**

Advancements in technology are moving so rapidly that it forces operators to migrate to IP technologies of all kinds for voice interconnects (IPX), applications, cloud for enterprise, commerce etc. The internet expansion in Africa creates many opportunities for all kinds of initiatives and projects to take shape. Strategic opportunities such as creating a robust local infrastructure, a cost effective landscape and a safe investor environment with transparent governance are what the local operators can look into to make Africa a viable local hub.

Currently, one of the largest considerations that we can observe from in the African market for internet delivery is - its content. Exactly how much of the African content is staying in Africa? The largest amount of traffic we see being terminated back into Africa is still coming from the UK and US regions. Despite this, IP Transit still plays a major role, unlike in the other markets where we observe the adoption of a direct peering approach. Surely, direct peering points/hubs are started in Africa but the key here is in the Content Delivery Networks (CDN). Are they willing to take on the financial commitment to host content in Africa, and if so where would they deploy so as to complete the full coverage?

Multiple POPs would be required, along with a larger appetite for content, to offset the financial contribution that these carriers would have to invest. At this point of time it is easier for them to host the content in Europe and the US as the local African carriers are taking on the challenge of 'chasing down' the content to deliver it back to their customer bases.

The roll of the regulator is instrumental in establishing a sustainable framework to govern the usage of the internet and also to introduce the right control measures. There is an increasing global effort to house content closer to the users,

and until regulators do fully overhaul this part of the communication legislature, operators will choose to peer and interconnect in the international markets where neutrality, large choice of partners and low cost of interconnection are still a compelling advantage point.

At one point in time, someone will need to pay to improve the internet experience that is being directly attributed to the end user - all mobile networks currently have direct interconnections back to Europe. The Middle East peering points are simply too costly for African carriers to take advantage of the lower latency to reach some of the CDN carriers hosted in the area.

While most of the current cables egressing from Africa are linear, a provider also has to take into consideration the ability to protect the content and ensure robust technical delivery i.e. latency and circuit availability. Nevertheless, establishing the right partner in Europe is also imperative, African carriers need a solid and reactive delivery partner to ensure that not only is the international portion of the network protected but the last mile is also being taken care of. BGP sessions do fall, so to put all your eggs in one basket (ISP) is suicide. Multiple connections between various operators are required to ensure that no service will be lost at any point of time.



**Clint Collins**

*Regional Director,  
Carrier Business MEA, Epsilon*



**Guy Mathews**

*Writer, specialising in telecoms  
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**Those seeking to profit from delivering internet services in Africa must first grasp the distinctive characteristics of the African market. The most obvious of these is the poor penetration of internet services relative to most of the rest of the world. There are nearly a billion Africans between Cairo and Cape Town, and yet between them all they account for only 7% of the world's internet users, according to Internet World Stats.**

There is, at a more granular level, a digital divide not only between Africa and everywhere else, but between African countries with a reasonably competitive internet economy and those without. Clearly out in front are Morocco and Egypt in the north, and South Africa at the other end. Kenya and Uganda are catching up fast, and there are other pockets of good news here and there, such as Rwanda.

Most of Africa though is a story of a poor quality of internet connectivity at a shockingly high price.

How can this be, after so much money has been invested in terrestrial backbones and in subsea cable connectivity between Africa and the rest of the globe? What is missing?

ISPs need to examine the continent country by country to identify the constraints that are holding back internet adoption despite all this investment. In many cases they will note inadequate connectivity between submarine cable heads and internet exchange points (IXPs), and again between IXPs and access networks.

They will see that some governments and regulators have instituted remedies for these gaps. But in a majority of African countries there are regulatory barriers controlling access

to international gateways, maintained for the benefit of a state-owned incumbent. This will always tend to keep up prices of services and depress the quality of those services.

It is hard in any case to speak of an 'African internet market' where there is so much disparity in what Africans use the internet for. A report commissioned by mobile software developer Opera has revealed that Facebook and Google are the two most popular applications in Africa, far outstripping locally generated content. Wikipedia, Yahoo and YouTube also made the top ten. Opera identifies Libya and Botswana as countries with a healthy base of local content. ISPs can play their part in fostering a distinctively African internet, but only when there is widespread political will to create affordable services of decent quality for Africans to use.

**There certainly have been phenomenal advances in technology and access is certainly improving across the continent. However, and there is a big caveat to this, the advancement for the most part is still firmly focused on urban Africa. For the most part Africa is still looking for an affordable and cost-effective rural solution that will give mass coverage and access to those that are most isolated.**

What will this solution be? This is the question that I believe needs to be answered. This, in my opinion, is more critical than those of the IP or VPN services that ISPs are looking at. Critically there is a large portion of

the African continent with very little or no internet connectivity.

This is understandably the case as these regions are going to deliver lower ARPUs than urban ones for operators and ISPs alike - however these consumers will use the connectivity if it is offered to them. International Telecommunication Union (ITU) Secretary General Hamadoun Touré told Forbes in 2011 that: "The right to communicate is a basic human right, and I believe that putting that on every national agenda is very important, ... You will not be able to meet the Millennium Development goals in health without e-health, in education without e-

education, and government services will not be able to be provided without e-government services."

So the question is, if this was the view in 2011 from the ITU and we are still asking the same questions now how much progress has there been?

Furthermore this should be a call to governments and regulators across the continent to start using their Universal Service, or Access Funds to do what they should be doing - connecting more people in Africa. This surely does not need to be solely funded by them, as Public Private Partnerships will certainly be undertaken should these funds be allocated.



**Bradley Shaw**  
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**Ryan Sher**

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**For this issue, we ask our panelists to look at current and future strategic considerations for delivering internet services to Africa and to individual African consumers.**

None of our panelists dispute that Africa presents challenges to the telecoms industry. Journalist Guy Matthews sums this up by saying those seeking to profit from delivering internet services to the continent first have to grasp the distinctive characteristics within the African market, and then appreciate there is also a digital divide between rural and urban Africa.

Those new to the continent and looking to invest in Africa may find these 'distinct characteristics', which are multi-faceted and multi-layered, challenging to recognise and overcome. If you can't treat Africa as an entity, how can you tackle issues such as diverse regulatory access and the barrier controls that Clint Collins of Epsilon and Bradley Shaw highlight, as well as the local content hosting question analyst Paul Brodsky discusses?

One strategic challenge for ISPs is to ensure they have sufficient bandwidth capacity and flexibility within their own networks to meet customers' burgeoning growth in demand for

high-capacity international connectivity, now and moving forward. One way to achieve this is to work in partnership with an Africa-based capacity wholesaler such as WIOCC, which has not only been scaling up its inventory on the 40,000km of international submarine cables it owns around sub-Saharan Africa, but which also continues to improve and extend its own unique terrestrial fibre-optic network - currently 55,000km long, spanning 30 African countries and linking the networks of its partners and 14 local shareholders.

The ability to deliver and upgrade backbone infrastructure rapidly is fundamental to furthering internet penetration into the continent and expanding its uptake, and that's why WIOCC continues to invest in keeping its core network carrier-grade and carrier-scale.

As Clint Collins and Paul Brodsky point out, most of the content accessed in Africa continues to be sourced overseas. There is a trend towards caching international content at key hubs on the African continent, but before we see real development in that area, more well-connected data centres are imperative.

The pressure is on for carriers to be able to deliver to their customers in

Africa. The world is moving rapidly to cloud-based services such as Microsoft 365, Google Apps, Amazon web services, etc., but these are only really useful if customers have sufficiently fast access to allow them to move away from hosting their own services.

Africa is still challenged in certain areas by local loop access - in some ways the most critical link in the service delivery chain. More focus needs to be directed here before many of the benefits and opportunities discussed in this issue can be realised. However, significant investment continues to be made in expanding the reach, capacity and reliability of terrestrial networks. Indeed, the amount of operational fibre in Africa rose by 24 per cent in the 12 months up to the end of March 2014, from 438,838km in Q1 2013 to 546,006km in Q1 2014. With a further 87,035km currently under construction, 102,619km planned and an additional 47,570km proposed, terrestrial connectivity within Africa is set to continue to improve significantly. And all this is essential because, as François Lemaigre from Cogent Communications concludes: "Delivering internet services is key to Africa's growth in a globalised economy."

**Chris Wood, WIOCC's CEO, is one of only two executives in Africa (the other is Paul Taylor of BTC) to have been nominated for the World Communications Award 2014 CEO of the Year, with the winner being decided by public vote.**

Since joining WIOCC as CEO in 2008, Chris has grown it into the leading supplier of international bandwidth for Africa, masterminding impressive year-on-year growth. He has been a key influencer in the successful implementation and recent extension of the EASSy cable and has driven the integration and ongoing development of WIOCC's unique, pan-African network. Chris continues to grow WIOCC to support its expanding customer base. The realisation of Chris' vision of making an enduring contribution to Africa's communications is helping transform how individuals go about their daily lives and revolutionising how local businesses operate in many countries across Africa.

**If you would like to raise the profile of African telecommunications by voting for Chris and/or Paul, then please visit: [www.surveymonkey.com/s/Q7FVJ56](http://www.surveymonkey.com/s/Q7FVJ56) Your votes must be cast by Friday 19th September 2014.**

