Building an Interconnected Nigeria

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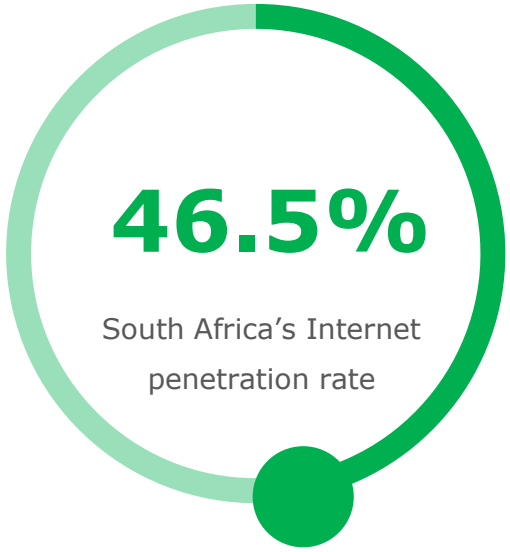
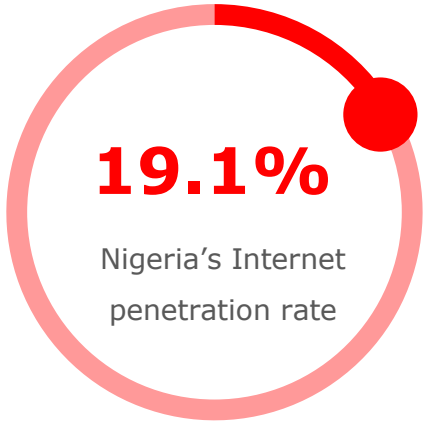
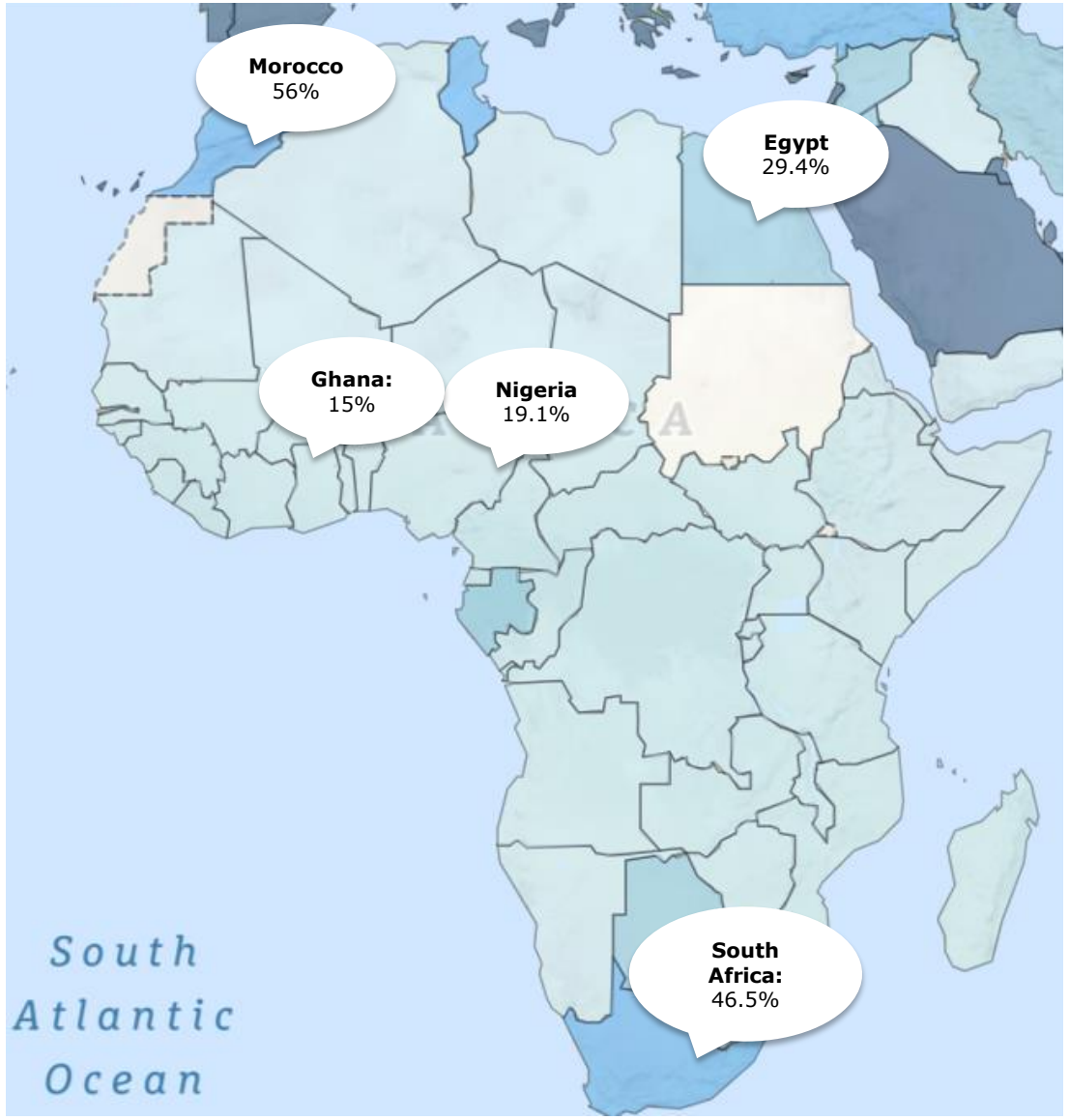
Looking back – Nigeria a decade ago

Although Nigeria had one of the highest growth rates, internet penetration was still much lower than other regions





Population of 174.7 million, more than double the population of South Africa

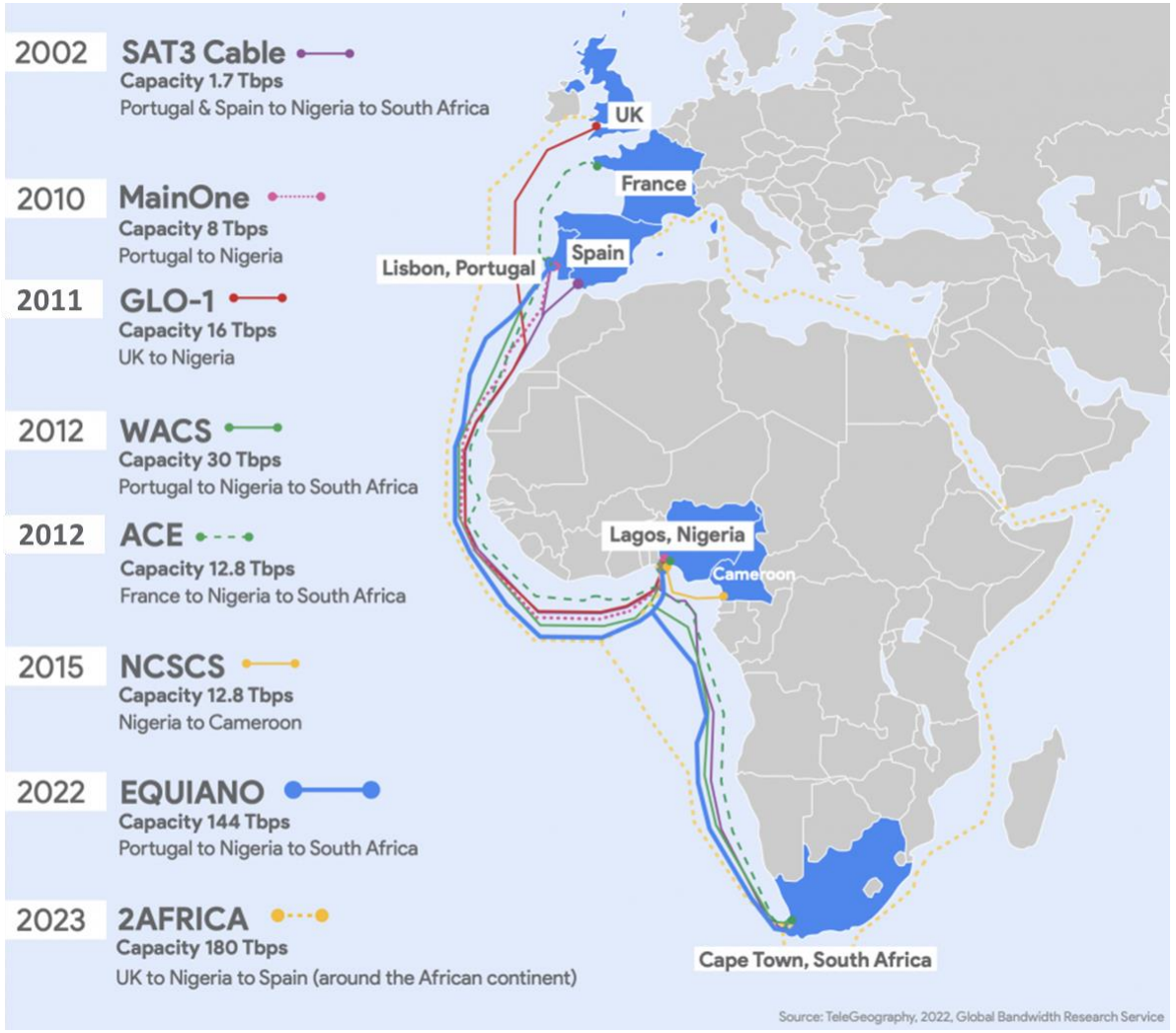


Source: The World Bank, statista,

Growth in Nigeria from a decade ago

Submarine Cable Connections

Before 2010, there was only one submarine cable landed and operational in Nigeria - South Atlantic Telecommunications cable no.3 (SAT-3)



Submarine Cable Connectivity – Nigeria today

Among the 54 African countries recognized by United Nations, there are 38 countries that have seashore, of which **37 countries** have at least one submarine cable landing.

In Nigeria, there are now **eight international submarine cables**; SAT3 cable, MainOne cable, Glo1 cable, ACE cable, WACS cable, 2Africa, Equiano and NCSCS

Source: stats.afrinic.net, internetworldstats, NAPAfrica, Regional Internet Registries Statistics

Growth and International Capacity

Internet Penetration and Traffic destination

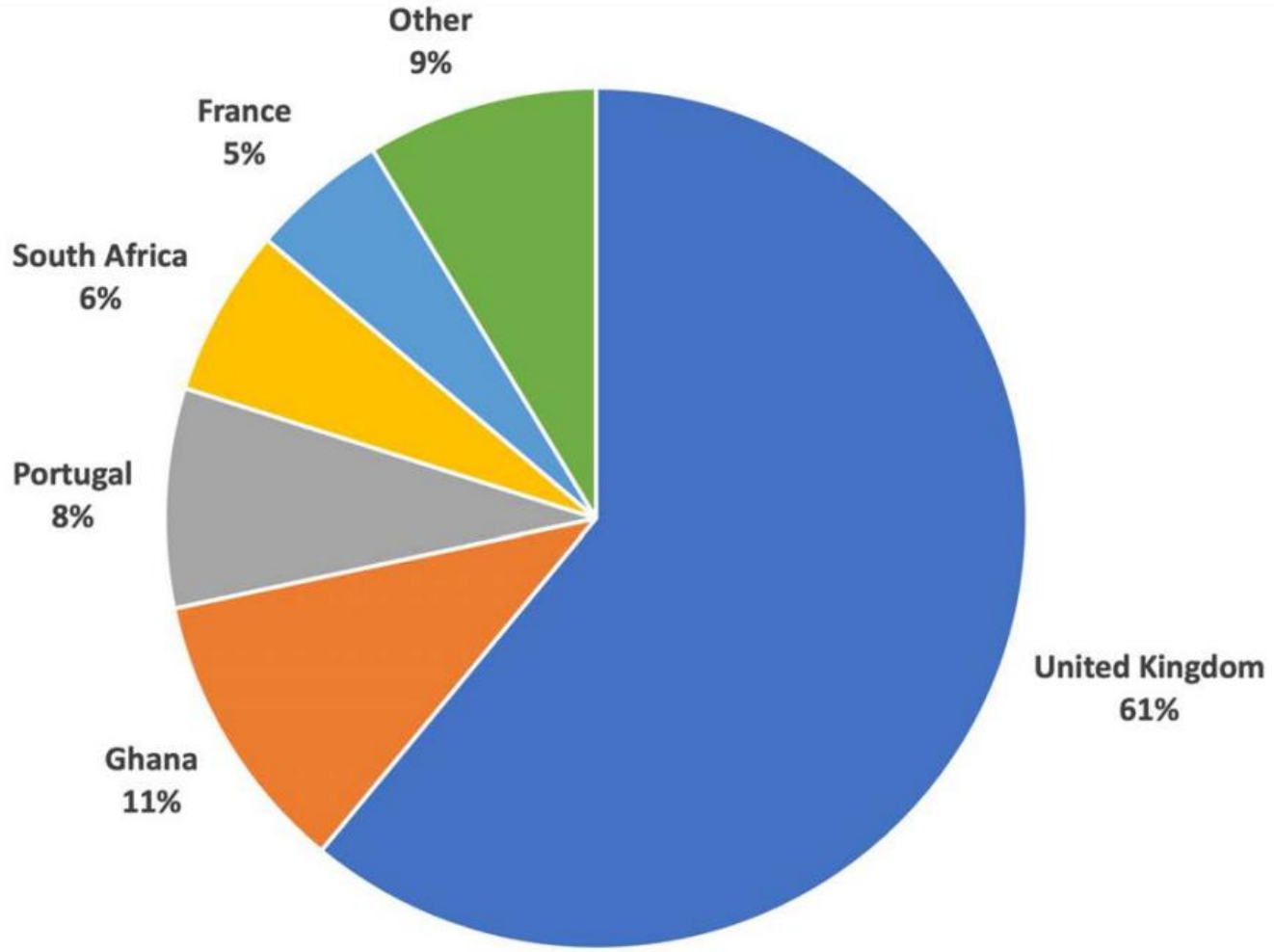
Internet Penetration in Nigeria (2023)

55.4%

Total capacity from Nigeria to Europe **75.0%**

Other than Ghana and South Africa, Nigeria has no large routes to other African countries.

Although internet penetration has increased, large amount of content is still destined for Europe.



Why?

Source: datareportal.com, telegeography

Interconnection Landscape in Nigeria today

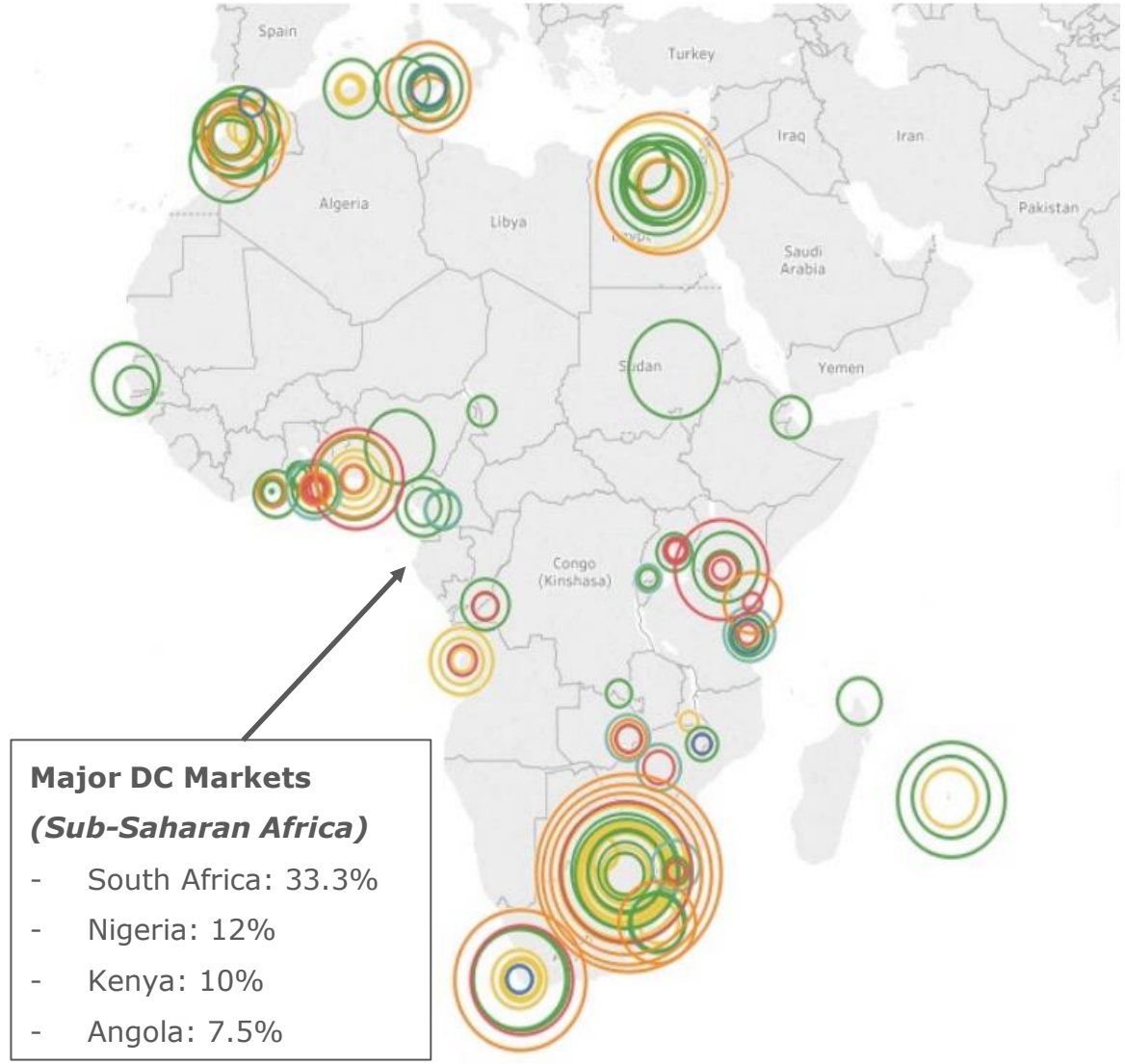
The **Nigerian** colocation market is one of the leaders in terms of investment in Africa.

11 Approximately **eleven** colocation data centers in Nigeria today, with Lagos as the major hotspot in the country.

264 ISPs in Nigeria as of June 2023.

Internet Service Providers (ISPs), separate from the mobile network operators (MNOs) are expected to help the country achieve the target of over **70%** broadband penetration by **2025**; by taking the bandwidth capacity on the shores of the country to the last mile and end users.

Major Internet Exchange points in Nigeria



Major DC Markets
(Sub-Saharan Africa)

- South Africa: 33.3%
- Nigeria: 12%
- Kenya: 10%
- Angola: 7.5%

Source: stats.afrinic.net, internetworldstats, NAPAfrica, xalamanalytics.com, datacentermap.com

Case Study: South Africa VS West Africa

South Africa Region

Use Case: South Africa

Population **60** million

NAPAfrica (JB, CT & DB)

500+	1,540+	3000 Gbps
ASN		
Connected networks	Connected Ports	Peak traffic

West Africa Region

Use Case: Nigeria

Population **221** million

Internet Exchange Point of Nigeria

122+	188	500 Gbps
ASN		
Connected networks	Connected Ports	Peak traffic

Source: TeleGeography, www.africabandwidthmaps.com, ixpn.net.ng, napafrica.net

Interconnection and Terrestrial Coverage

Other Factors Influencing Interconnection and Reach

Connectivity Infrastructure Challenges: Remote and underserved areas face difficulties in accessing connectivity services.

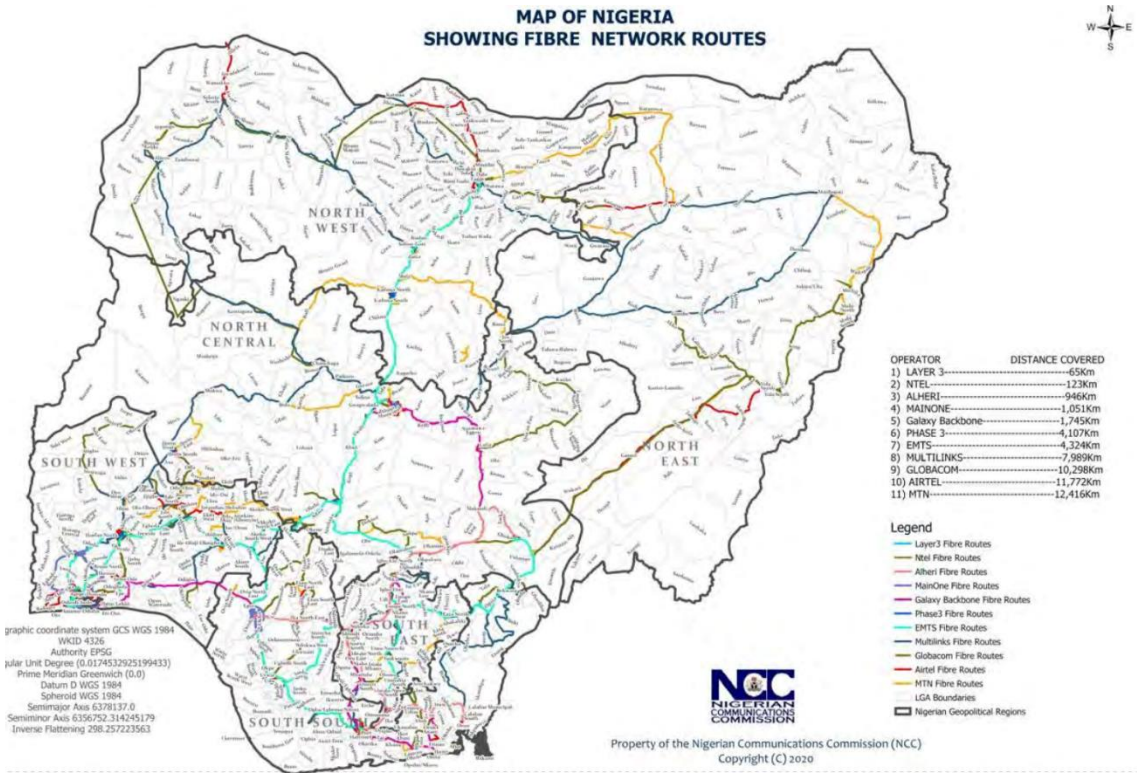
Political & Regulatory Environment: Government policy and regulation significantly impact the development of a country's Internet ecosystem.

Mobile Internet Dominance: Mobile internet usage has been a major driver of internet penetration, although it is limited in connecting the underserved.

Security Climate: A stable and secure environment is crucial for fostering the growth of internet infrastructure, encouraging investment, and promoting the use of digital technologies

Supporting Infrastructure: Inadequate electricity infrastructure and unreliable power supply in certain regions pose challenges for internet access

Language Barrier: Nigeria's linguistic diversity, poses language barriers. services need to be available in multiple languages to cater to different linguistic communities.



Source: www.sadc.int, www.africabandwidthmaps.com, techcabal.com, GSMA report

Issues to be Addressed

The Digital Divide

It's a global issue that casts a shadow over equal access to the digital ecosystem, and in Nigeria, it assumes a unique and pressing form. This issue include Rural-urban Disparity, Infrastructure Gaps, Affordability and Digital Literacy

Open Access Facilities

Availability of open access facilities is a principle that underpins fair and open access. This is crucial as it fosters innovation, encourages competition & digital inclusion, safeguards against discrimination, supports economic growth and protects consumer rights

Local Content Providers

Local content providers are still hosting their content abroad with large companies.

The issue is that local data centers tend to be more expensive to operate than ones in Europe or North America. This is not just because of scale, but because of the cost of electrical power from the grid; and in Nigeria, because of the cost of continuously operating the backup power given the poor reliability of the grid

Small ISPs

Small ISPs would benefit significantly from directly connecting to an IXP to access content and traffic, reducing their transit purchase. Unfortunately, small ISPs may not have the capacity or the resources to take advantage of an IXP.

As a result, most small ISPs still purchase their upstream access from a large ISP, even though they indirectly benefit from peering in the case that large, upstream ISP uses the IXP to peer.

Source: www.sadc.int, www.africabandwidthmaps.com, techcabal.com

Building an Interconnected Nigeria

Recommendations towards building an interconnected Nigeria

Leverage Relationship between IXPs and Carrier-Neutral Data Centers

IXPs tend to come before data centers, and can help facilitate their development. From there, a data center may host the IXP along with the network PoPs, including ISPs, CDNs, and enterprises. This, in turn, enables the networks to peer publicly using the IXP and privately using PNIs within the data center. As the IXP expands to data centers in the same and other cities, its nodes may grow in importance such that they enable networks in one data center to peer with networks in other data centers.

Ensure sound governance of the IXP

Prioritize keeping costs affordable, upgrading equipment when necessary, innovating and improving on existing services, and keeping the IXP running smoothly. Also provide capacity building, so peers, and the local technical community are aware of the benefits of peering at the IXP.

Create economies of scale to lower costs

Large international content providers have the scale to extend their networks into multiple countries, a significant benefit for the ISPs and their subscribers in those countries. IXPs are important enablers for these transitions.

Increase awareness among small ISPs and local content providers.

Local content providers and smaller ISPs frequently lack the awareness to take advantage of the benefits of an IXP and the scale to do so efficiently. Smaller ISPs lack both the traffic for volume discounts in buying capacity and the means to build their own. Likewise, small content providers have insufficient scale to lower the cost of local hosting.

Source: CBRA Africa Market Report 2022

Equinix IBX Colocation & Interconnection

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EQUINIX

10,000	240+	71	32	>99.9999%
Customers	Data Centers	Metros	Countries	Uptime Record

1,000
On-net customers

7,000 KM
Subsea Cable

+1,200 KM
Metro Fibre Network

Peering
AMS-IX, Lagos

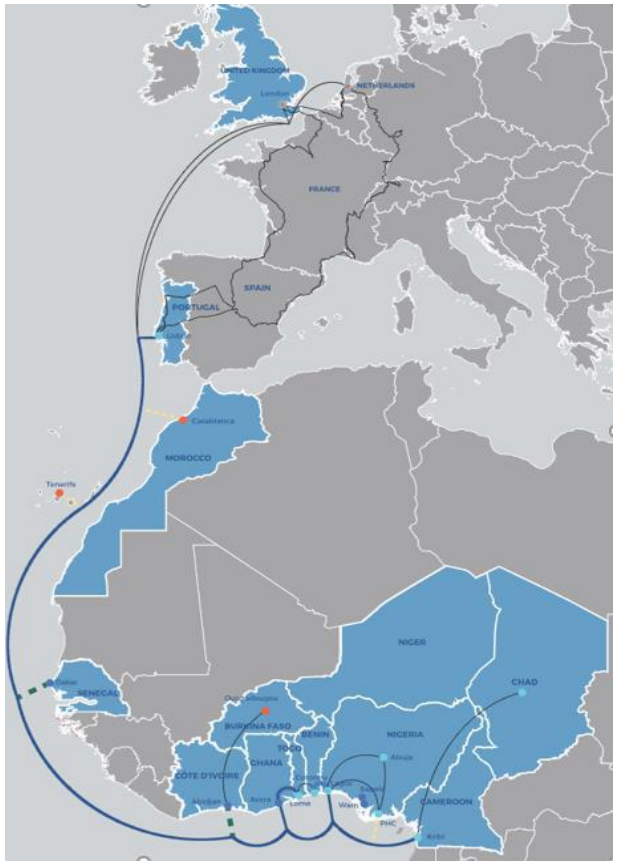
Peering
IXPN, Lagos

Peering
LINX, London

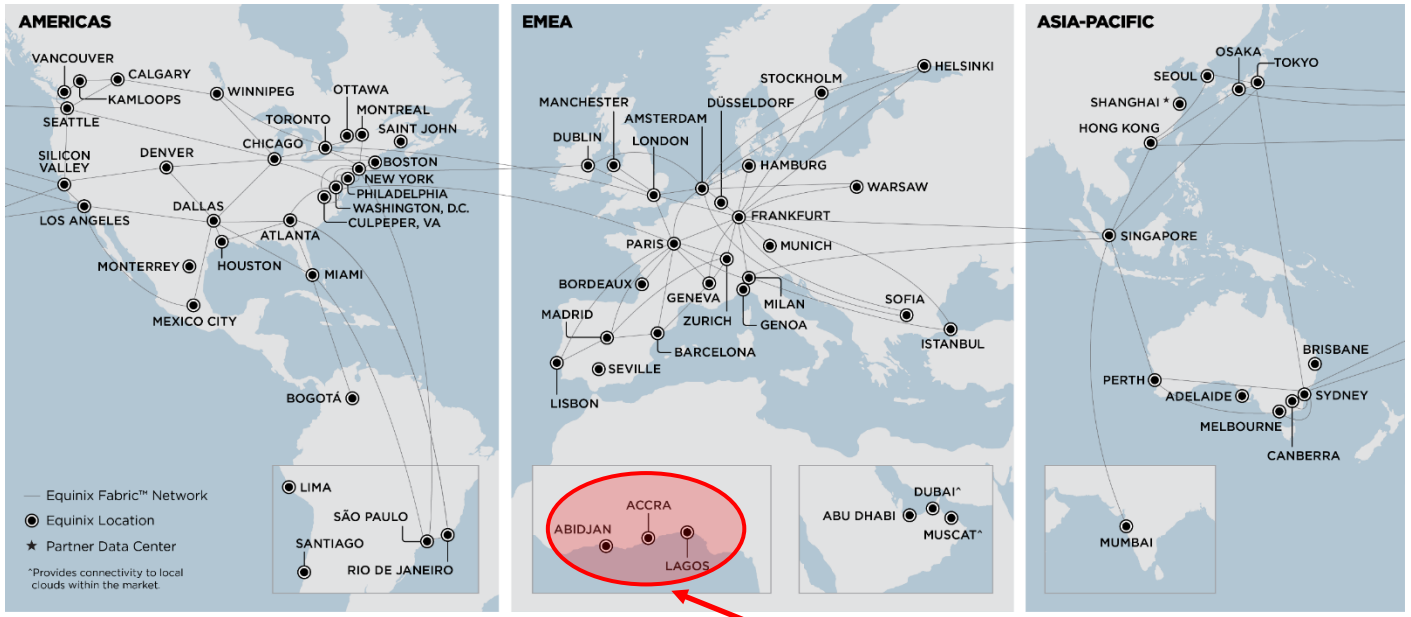
Peering
AMS-IX, Amsterdam

Peering
DE-CIX, Lisbon

Peering
GIX Ghana and CIVIX, CIV



MainOne Terrestrial & Subsea Network



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LG1, LG2, LG3, AP1, AC1

59+	9+	2+	25+	20+	2	EQ Fabric
Network Services	Content & Media	Cloud Services	Financial Services	Enterprises	Internet Exchanges	Extension

MDXi Platform and Ecosystem

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MDXi has all the infrastructure required to build your digital solution, a one-stop-shop with a vibrant ecosystem.

What do you want to build?

Cloud & Multi-cloud
- Private IaaS
- Hybrid Cloud
- Edge compute

Network as a Service
- Last mile
- Metro Ethernet
- SDWAN
- Internet Access

Financial services
- Payment Processing
- Payment Gateway Services
- Mobile Payment Solutions
- Integration Services

Security
- DDoS Protection
- Backup & Disaster Recovery
- Firewall Services

Infrastructure services
- Submarine lease
- Leased storage

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Thank you

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