The Growing Interconnect Ecosystem in Africa

Oluwasayo Oshadami
Head, Technical Solutions and Managed Networks

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Looking back – Africa a decade ago

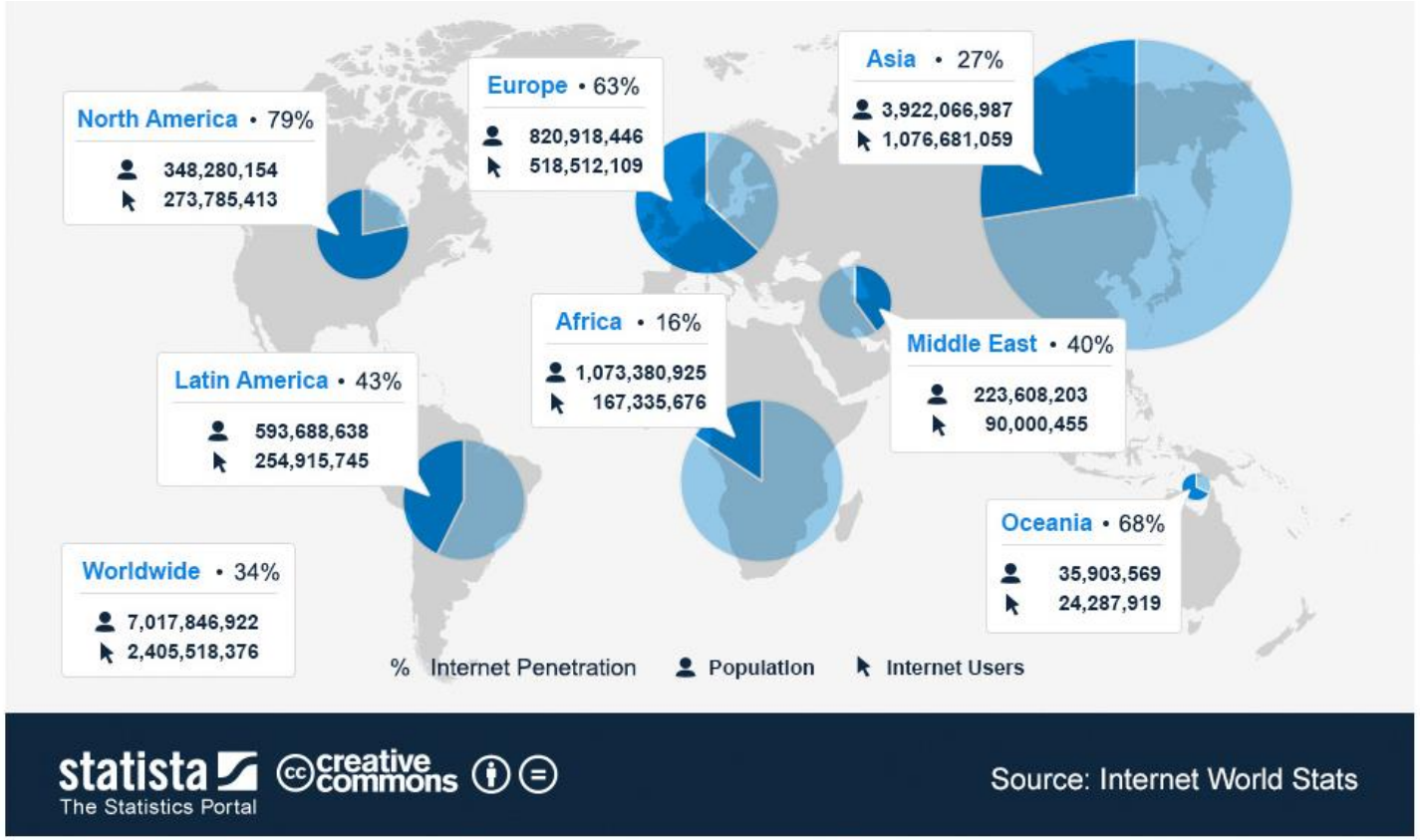
In 2013, over 2.7 billion people were using the Internet, which corresponds to 39% of the world's population at the time

75%
Europe's Internet penetration rate

61%
America's Internet penetration rate

16%
Africa's Internet penetration rate

Half the penetration rate of Asia and the Pacific

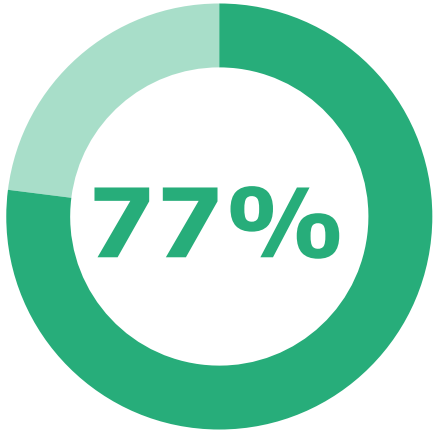


Source: Mobile economy sub-Saharan Africa 2023, statista, ITU world

Looking back – Africa a decade ago

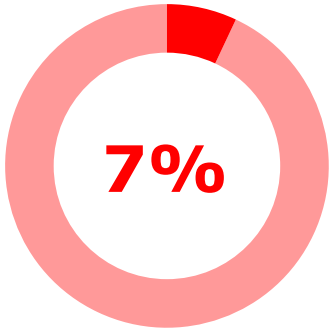
41%

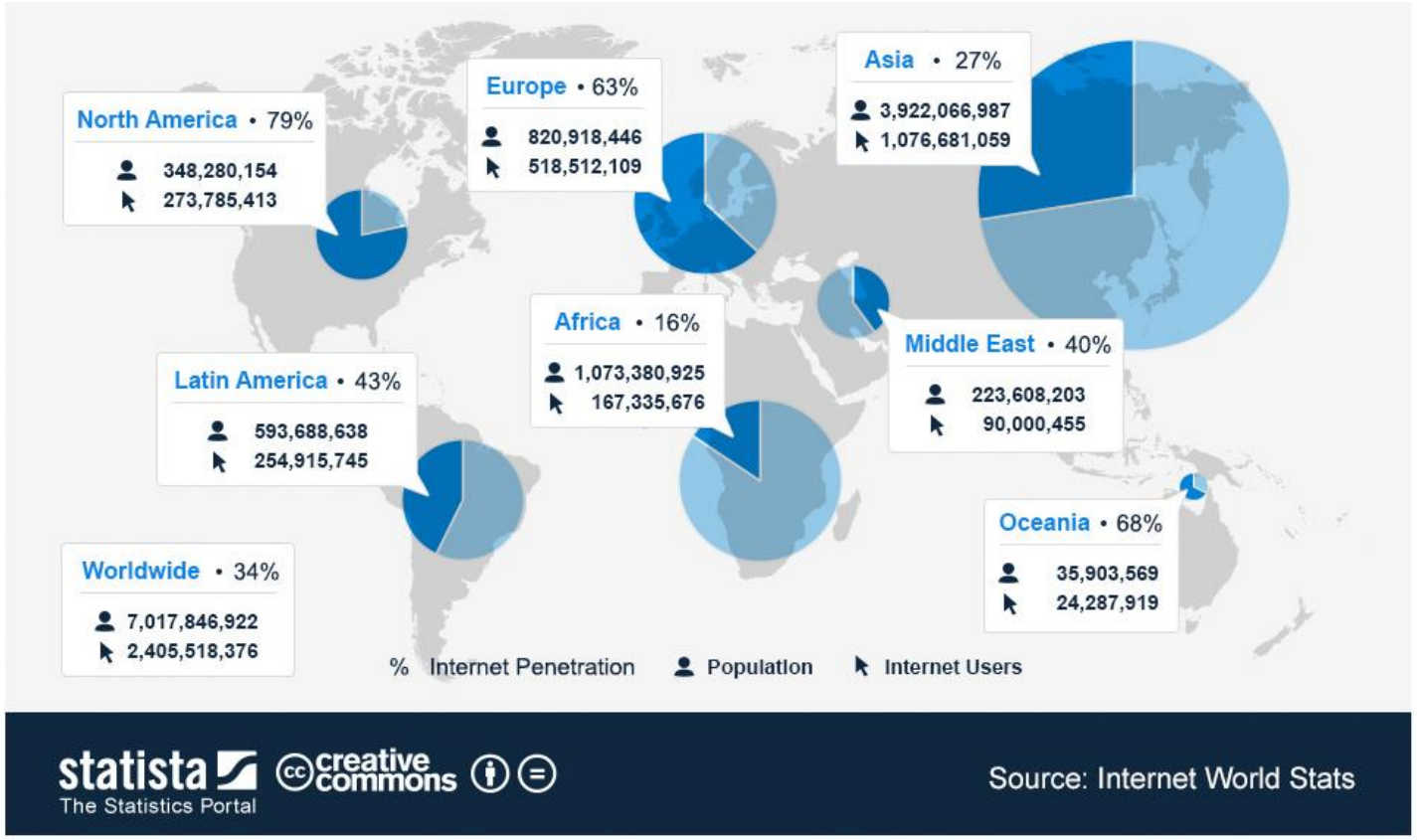
of the world's households were connected to the Internet



Level of household internet penetration in Europe (2013)

Level of household internet penetration in Africa (2013)





Source: Mobile economy sub-Saharan Africa 2023, statista, ITU world

Growth in Africa from a decade ago

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Number of Assigned ASNs

RIPE

2013 **19,814**

2023 **38,457**

94% ↑

Afrinic

2013 **799**

2023 **2,304**

188% ↑

Increase in number of network operators exchanging traffic with other networks

1,392,588,547
Population in 2022 (est.)

43.2%
Internet penetration %

Africa's total inbound international Internet bandwidth (2022)

26.9 Tbps

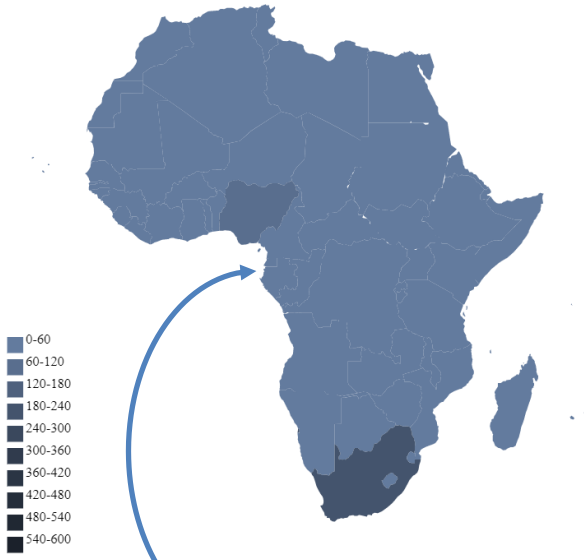
Source: stats.afrinic.net, internetworldstats, NAPAfrica, Regional Internet Registries Statistics

Growth in Africa from a decade ago

2013

Total ASN Allocated

799

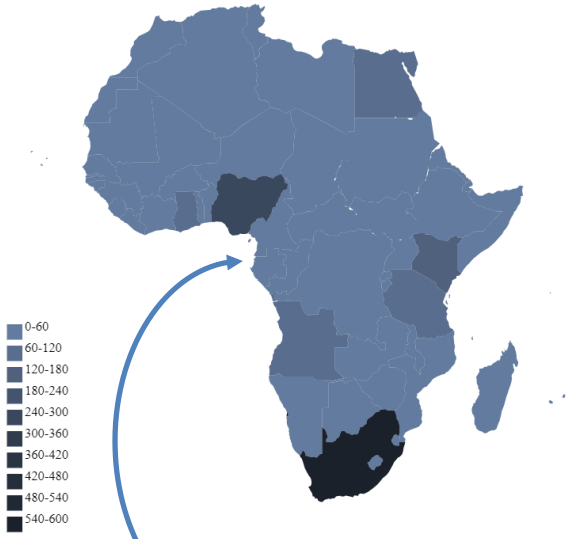


Central: 32
Eastern: 126
Indian Ocean: 38
Northern: 91
Southern: 329
Western: 183

2023

Total ASN Allocated

2,303



Central: 110
Eastern: 383
Indian Ocean: 80
Northern: 214
Southern: 975
Western: 542

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

Growth in Africa from a decade ago

Submarine Cable Connections - 2010

Before 2010, only 16 African countries were connected to a submarine cable system

20 EB

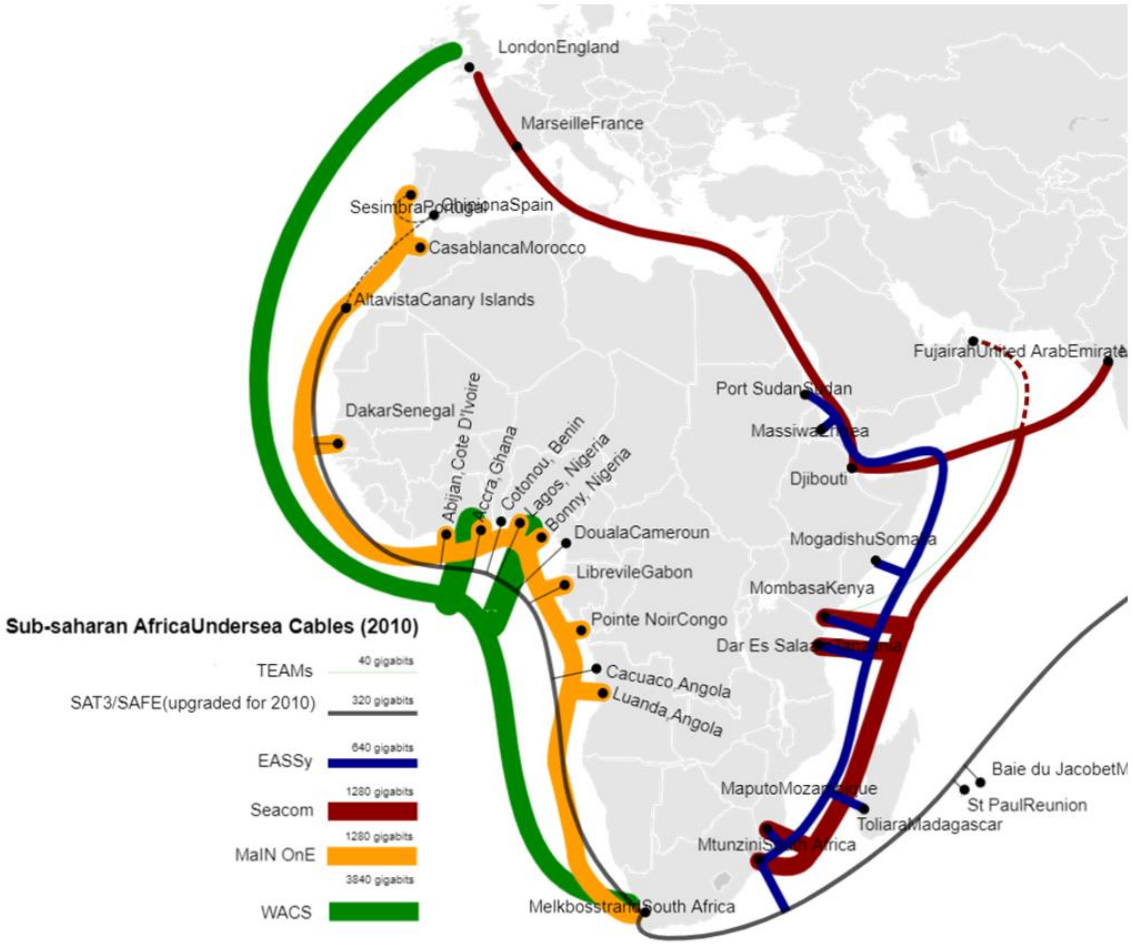
per month

Global Internet Traffic (2010)

<1TB

per month

Internet traffic in Africa (2010)



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

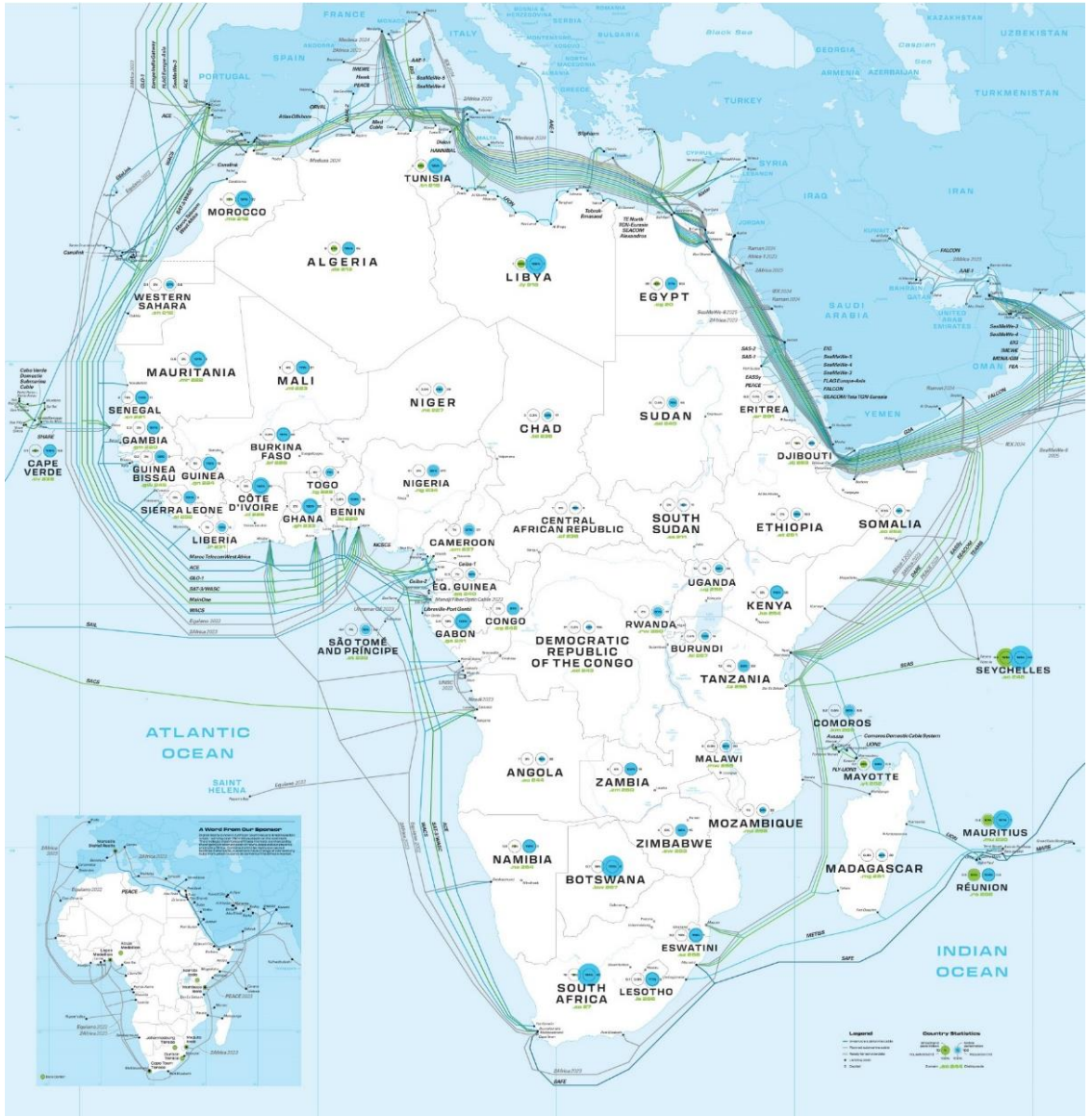
Growth in Africa from a decade ago

Submarine Cable Connectivity – Africa today

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

Africa's total inbound international Internet bandwidth (2022)

26.9 Tbps



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

Interconnection and Terrestrial Reach

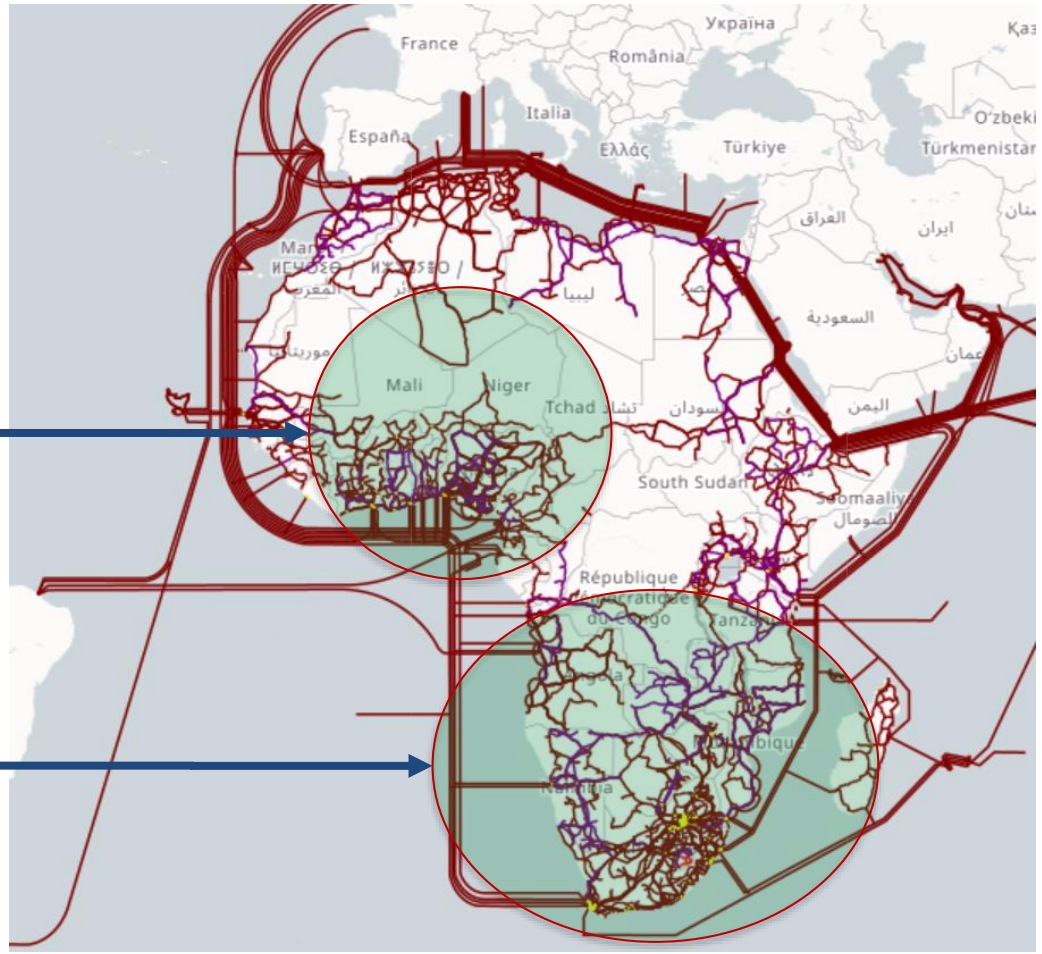
Southern Africa, including countries like South Africa, Botswana, Namibia, Zimbabwe, and Mozambique, have better terrestrial fiber coverage, due to historical investments and infrastructure development in the region. As a result, Southern Africa has experienced higher levels of internet penetration compared to Western Africa.

Southern African Development Community (SADC) passed its Declaration on Information and Communication Technologies in 2001, which sets out the broad policy for the region on cultivating the ICT & Telecommunications field.

Western Africa, including countries such as Nigeria, Ghana, Senegal, and Côte d'Ivoire, face challenges in terms of terrestrial fiber coverage, and as a result have lower internet penetration.

Internet Penetration (%)
68.2%
58.1%
55.4%
34.0%
22.4%

Internet Penetration (%)
81.6%
73.5%
72.3%
67.6%
53.0%



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

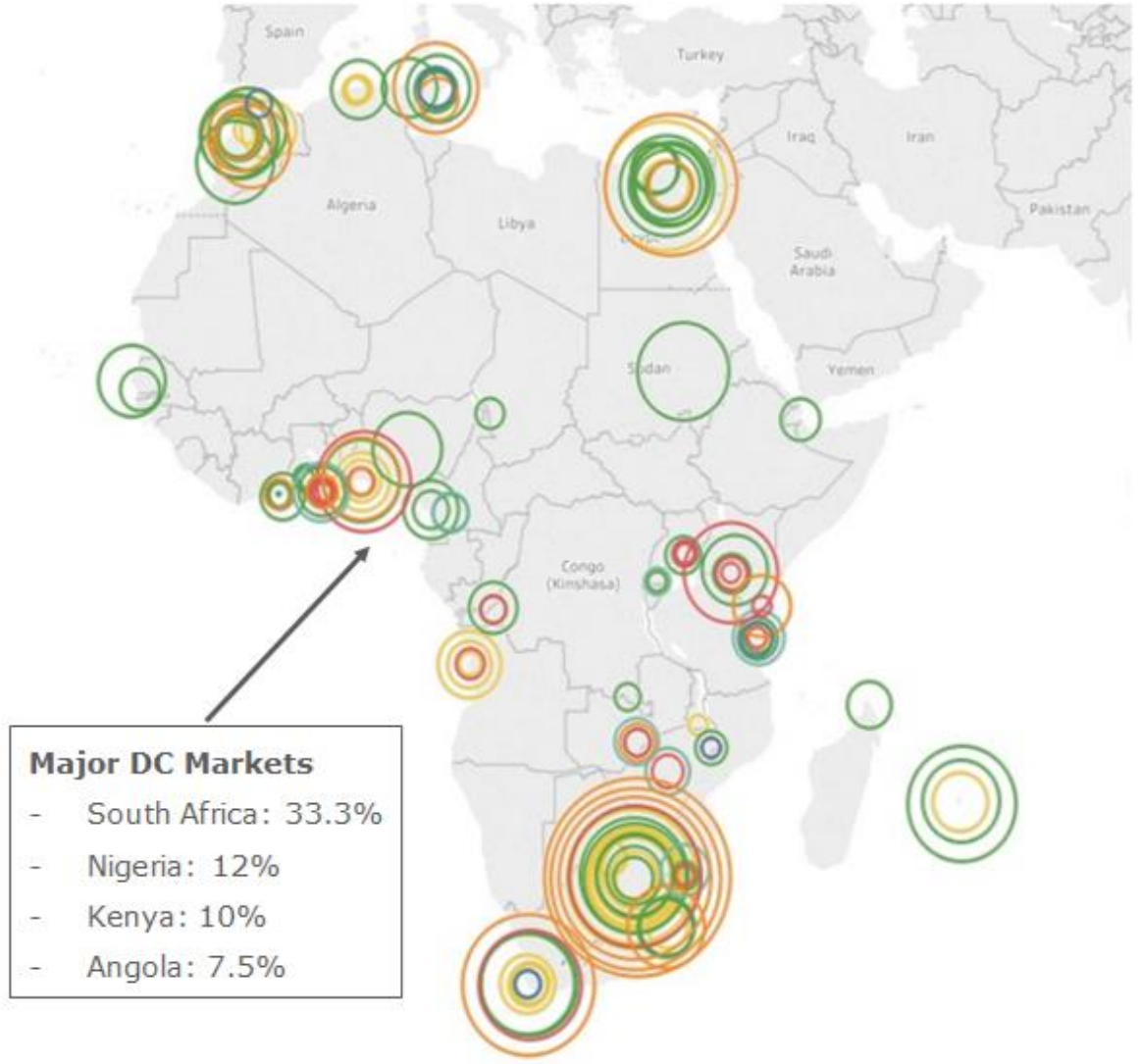
Interconnection and Terrestrial Reach

	No. of Data Centers	DC Size (MW)	Average MW per DC
South Africa	25	196	7.8
Rest of South Africa	31	15	0.5
North Africa	36	48	1.3
East Africa	32	21	0.7
West Africa	34	70	2.1

In **South Africa**, the average data centre size (as of the end of 2022) was 7.8 Megawatts.
This is more than three-times (3x) the size of the next largest region – **West Africa.**

There is a substantial difference in scale between South Africa and the other regions based on current installed base.

The gap in scale is projected to narrow within the next decade as more wholesale capacity is being planned across all regions.



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

Interconnection and Terrestrial Reach

Factors Influencing Interconnection and Reach

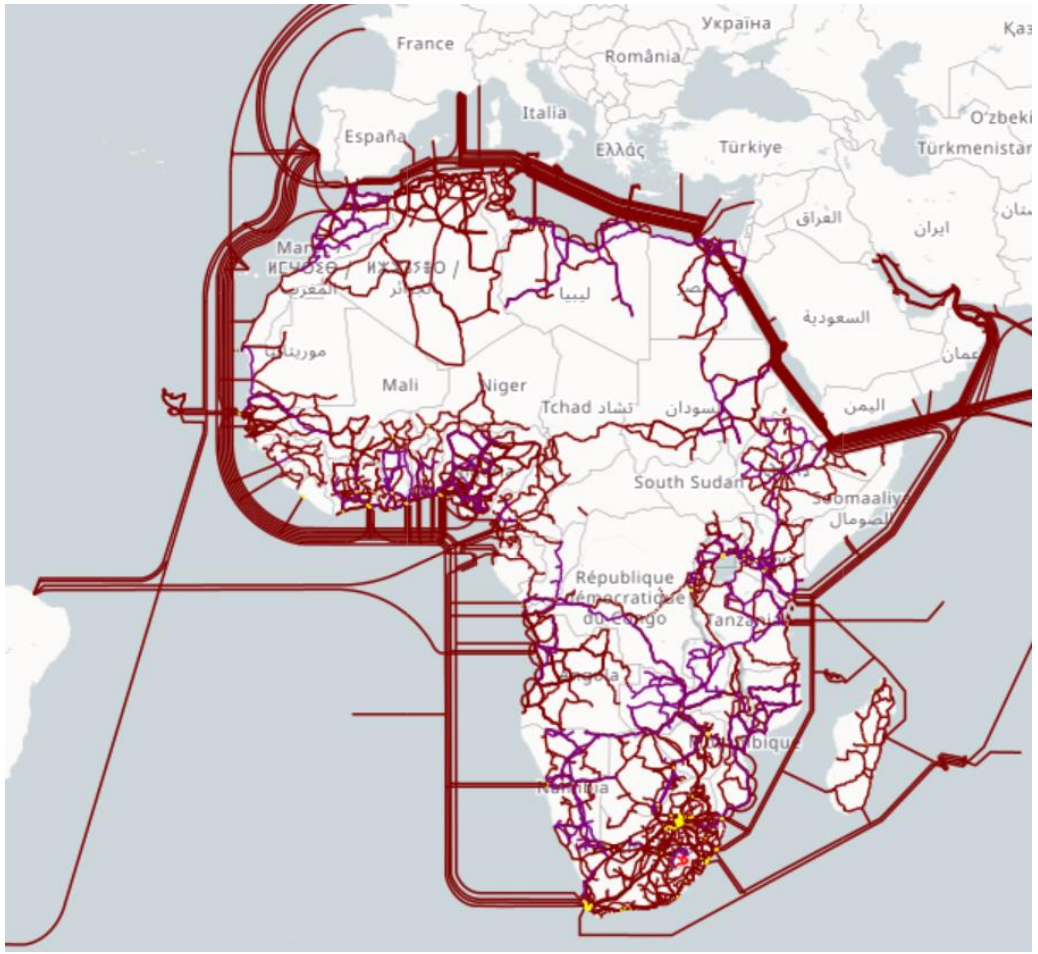
Connectivity Infrastructure Challenges: Remote and underserved areas (landlocked countries) face difficulties in accessing connectivity services.

Political & Regulatory Environment: Policies in the Southern region promote open-access interaction between member states; which directly correlates with the level of interaction and internet penetration.

Mobile Internet Dominance: In Western Africa, mobile internet usage has been a major driver of internet penetration. Mobile internet can only do so much in connection 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



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

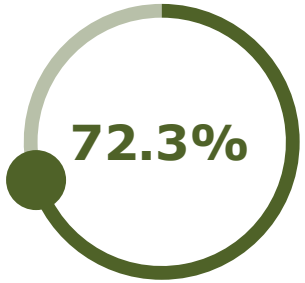
Interconnection and Terrestrial Reach

South Africa Region

Use Case: South Africa

Population **60** million

43.48
Internet Users (million)



Average internet connection speed

36.7 Mbps
Cellular networks

40.12 Mbps
Fixed connections

West Africa Region

Use Case: Nigeria

Population **221** million

122.5
Internet Users (million)

Average internet connection speed

22.2 Mbps
Cellular networks

16.18 Mbps
Fixed connections

Source: TeleGeography, www.africabandwidthmaps.com, techcabal.com, speedtest.net

Interconnection and Terrestrial Reach

South Africa Region

Use Case: South Africa

NAPAfrica (JB, CT & DB)

500+
ASN
Connected networks

1,540+
Connected Ports

3000
Gbps
Peak traffic

West Africa Region

Use Case: Nigeria

Internet Exchange Point of Nigeria

122+
ASN
Connected networks

188
Connected Ports

+500
Gbps
Peak traffic

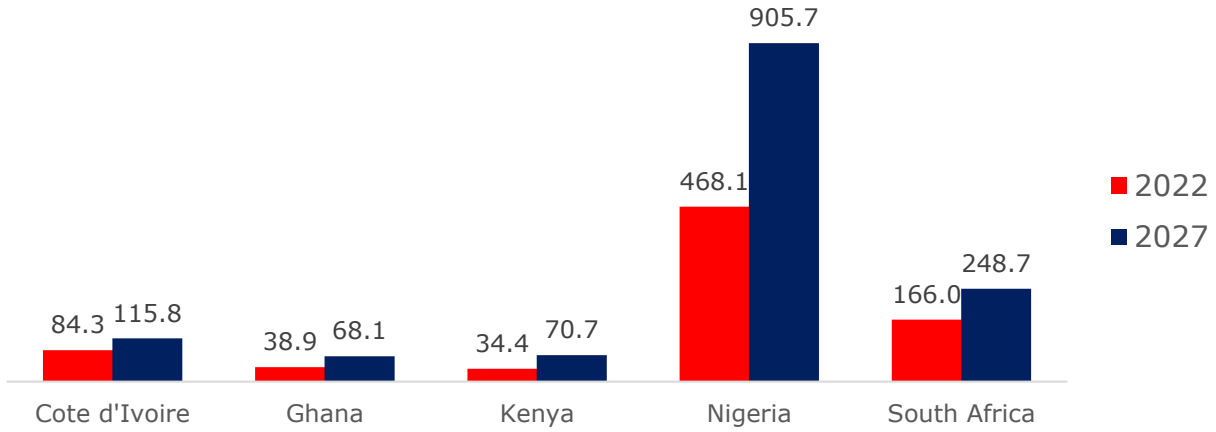
Source: TeleGeography, www.africabandwidthmaps.com, techcabal.com, speedtest.net

Why Africa? Interconnection Drivers

Content Demand

- Public peering capacity has grown at a CAGR of 67% since 2017 across major markets in Africa.
- Top CDNs and content origins (Akamai, Netflix, Fastly, Edge, etc) will also increasingly roll out in new regions or scale up existing deployments to meet demand for content.
- Emergence of new local African content producers and distributors (Iroko TV, Filmhouse, Nollywood etc.)

Forecasted Video Streaming Market (2022 - 2027), $m



Source: Statista, Africa News, Peering DB, World Bank, GSMA

Cloud Entry

- AWS, Google and Microsoft have announced or rolled out regions in African markets
- Multiple cloud players have begun peering and leasing small amounts of space in select African markets
- As the African market continues to evolve, deployment size and peering capacities would increase

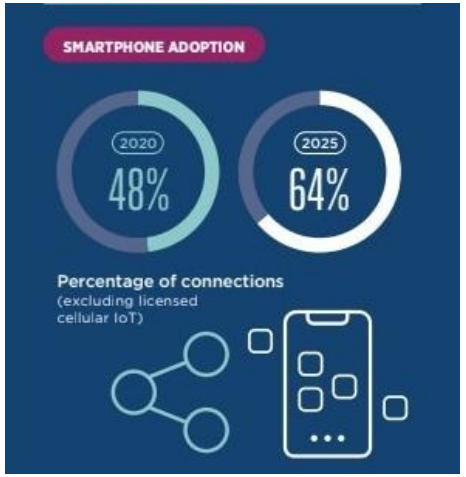
	Public Peering (Tbps)	Peering Growth (`17 – '22)	Cloud players (Azs)	Cloud On-Ramps
Accra	0.16	177%	0	1
Nairobi	0.68	77%	1	0
Lagos	1.17	72%	2	0
Cape Town	6.64	71%	3	2
Johannesburg	17.57	64%	2	3
Cairo	0.14	82%	0	0

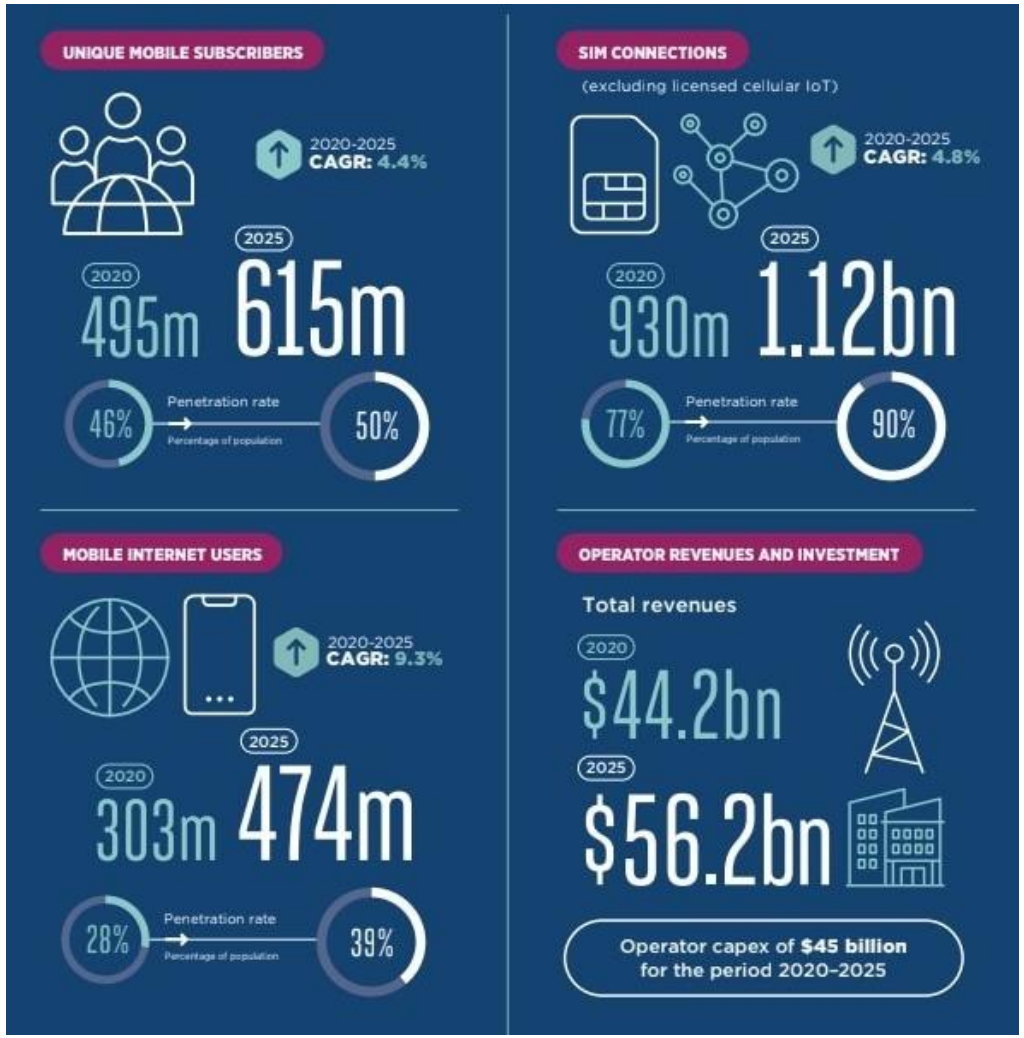
Why Africa? Interconnection Drivers

Mobile Broadband Adoption

Mobile broadband adoption and speeds are increasing with Africa's investment in telecom infrastructure.

Mobile broadband speeds across the continent still lag than more technologically developed markets like the US and China, but are catching up to other developing nations





Source: Statista, Africa News, Peering DB, World Bank, GSMA

Why Africa? Interconnection Drivers

Data Center Growth

- About 58% of Enterprises are forecasted to leverage on-premises private clouds as part of their deployment strategies.
- Data centre growth has doubled in the last three years in Africa, with major markets in South Africa, Nigeria and Kenya.
- Major cloud service providers are now providing offers in the market, from Microsoft to AWS to Huawei. Forecasts predict that with the growth of data centre capacity, African cloud revenues could grow by 80 per cent by 2025

Private Peering (PNI) Growth

- Private peering is typically utilized when traffic exchanged with a particular peer is large
- Peers are able to scale to very high bandwidths at much lower costs than IX peering.
- Private peering capacity has grown at a CAGR of 50%+ since 2017 across major markets in Africa.

Growth 2017-2022 **50%+**

Source: Statista, Africa News, Peering DB, World Bank, GSMA

Growth Forecast – West Africa

West Africa has been earmarked as the next promising region for internet investment in Africa.

Growing Population

West Africa has a rapidly growing population of young and digital savvy individuals. This demographic trend presents a significant market potential for internet services and related investments.

Mobile Internet Penetration

The affordability and accessibility of mobile devices have led to widespread adoption of mobile internet services. This mobile-centric environment presents opportunities in mobile applications, content platforms, and mobile-based solutions.

Start-up Ecosystem

West Africa has a thriving start-up ecosystem with hubs and incubators supporting innovation and entrepreneurship, which in turn fosters the development of digital solutions, fintech and e-commerce ventures.

Digital Transformation Initiatives

Governments and regional bodies in West Africa are actively promoting digital transformation and connectivity as a key driver of economic development.

Growing Population

Significant growth and diversification in recent years, with countries like Nigeria, Ghana, Cote d'Ivoire experiencing positive economic indicators and attracting foreign direct investments

Enabling growth in the region requires:

- Investments in terrestrial fiber infrastructure
- Policies that foster intra-regional interconnections
- Data Center and Regional IXP investments

Source: CBRA Africa Market Report 2022

Growth Forecast – West Africa

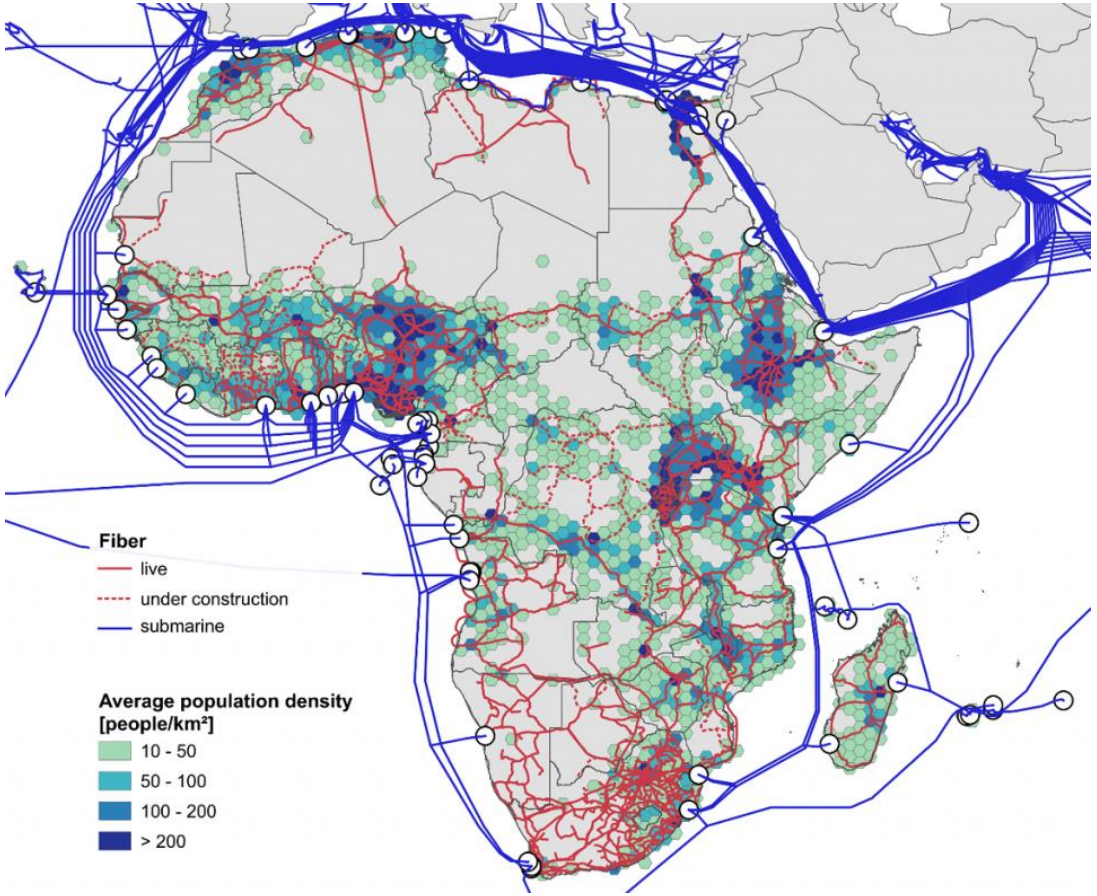
The African fiber market has witnessed significant infrastructure build over the past decade.

25

Africa-focused Submarine cables

since 2010

More than **500 Tbps** of potential international capacity brought in



Much has been achieved - and yet, so much remains to be done

Only a fraction of available international bandwidth to West Africa is currently in use

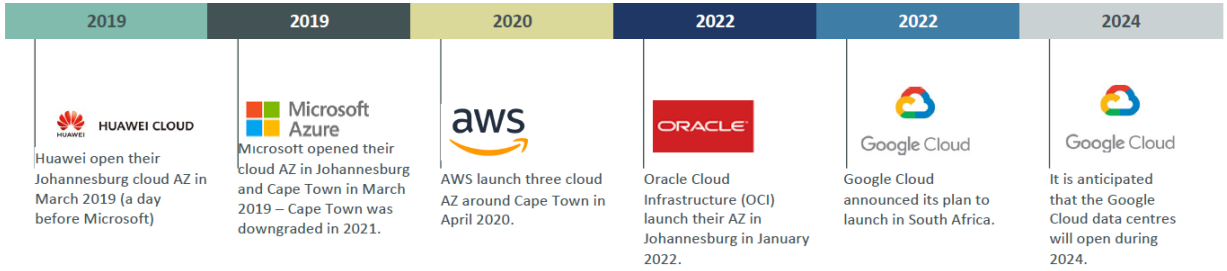
The region remains highly fragmented with low intra-regional interaction

Source: CBRA Africa Market Report 2022

Growth Forecast – West Africa

There is a substantial difference between South Africa and other regions based on current infrastructure.
Between 2022 – 2027, there is a forecasted increase in wholesale capacity across other regions

The introduction of new wholesale data centers in **West Africa** are substantially responsible for the forecasted increase in capacity, growing to over 1GW.
The regions have advertised powers ranging from **25MW** to **64MW** or more per wholesale data center.



Hyperscale Demand

It is only a matter of time before the large hyperscale users invest in new cloud regions outside South Africa – West and East Africa.

Regulation and data sovereignty

Government interventions will spur the use of domestic cloud in the larger data center markets in West Africa.

Acceptance of Latency

Cloud regions would be set up in regions with better latency for connections between Africa and Europe.

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

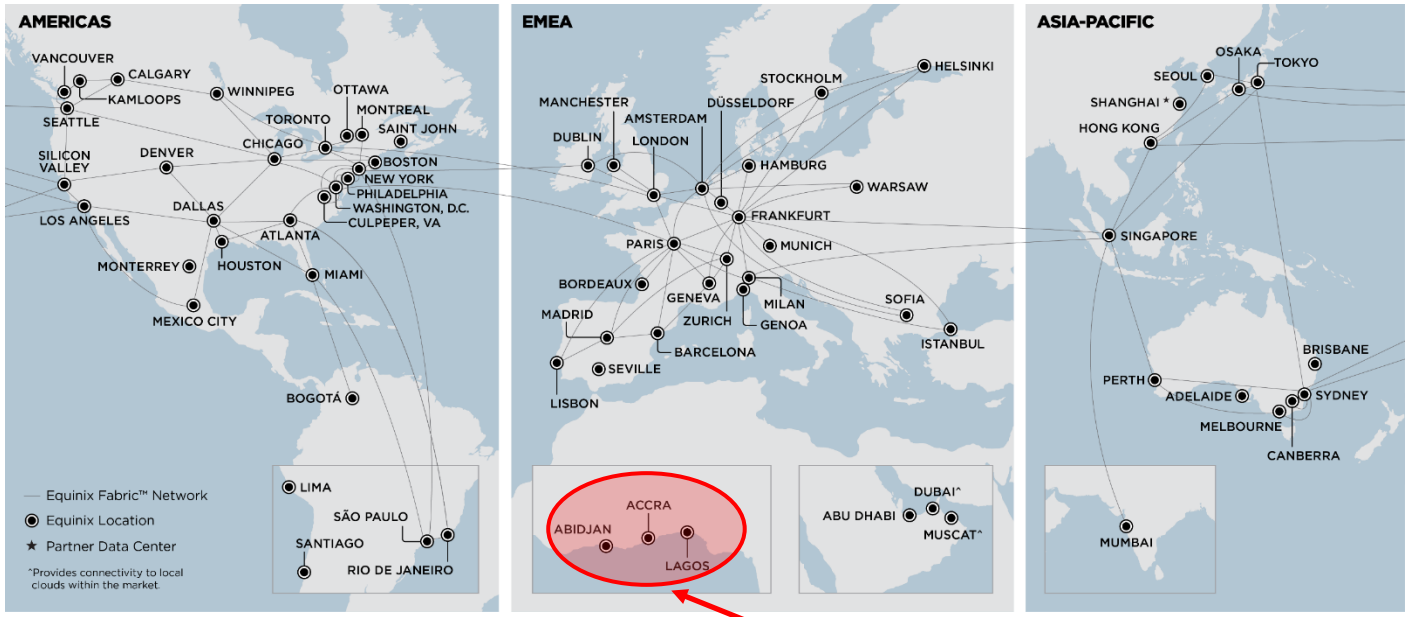
Peering
LINX, London

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

49+	9+	2+	25+	20+
Network Services	Content & Media	Cloud Services	Financial Services	Enterprises

Thank you

Oluwasayo Oshadami

Email: Oluwasayo.oshadami@mainone.net

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