A New Interconnection Hub in East Africa

Why are LINX entering the African market and how does this benefit interconnection in Kenya?

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Agenda (1)

- LINX: Global Interconnection Hub
- Connectivity Around Kenya
- What Can LINX Bring to Kenya?
Agenda (2)

- Project Partner: IXAfrica
- Technical Solution and Services
- Network Design
- Work With Us!
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LINX: Global Interconnection Hub
London Internet Exchange (LINX)

• Established 1994
• 950+ strong non-profit membership community
• Members from all major cloud, data communications, telecoms, financial, and enterprise networks
• Members located in more than 80 countries worldwide.
LINX Statistics
August 2022

1769
Connected Member Ports

6.271Tbps
Peak Traffic

979
Member ASNs

49.457Tb
Connected Capacity

1074
Member-facing 10GE Ports

887
LINX Members

376
Member-facing 100GE Ports

82
LINX Member Countries

2
Member-facing 400GE Ports

8
LINX LANs

www.linx.net
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LINX Strategy:
Why Africa? Why Now?
LINX Strategy

• LINX is committed to exploring global partnerships and expansions into new markets in a manner that benefits the LINX members as well as the local Internet community

• LINX’s commitment to “keep local traffic local”
  • The current status of Internet routes to Europe is not sustainable and does not enrich the local ecosystem
  • LINX is committed to supporting local interconnection on the continent
  • Supporting resilience, improved speeds, saved costs, and local content
LINX Strategy: Why Africa? Why Now?

• We understand that Africa is a rapidly developing market and we believe that by working together we can accelerate growth still further.

• LINX has built strong relationships over the years, and have been supportive African events and local Internet initiatives.

• LINX’s African partners include…
This is just the Start!
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Connectivity Into and Around Kenya
Connectivity In and Around Africa

Intra-African Routes 2021

- According to the Telegeography’s presentation on cross-border connectivity in Africa, most fibre routes in Africa go between Kenya and South Africa.
- Other fibre routes between Kenya, Uganda, Rwanda, and Djibouti.
  - Uganda and Rwanda: Small, but functional IXPs in place
  - Djibouti: Four submarine cables landing in the Djibouti data centre (EASSy, EIG, and SeaMeWe-5)
Connectivity In and Around Africa

Map Sources: Telegeography
Kenya
Internet Statistics

• Fast growing Internet
  • 47M Internet users
  • 89.7% of population connected
  • Ranked 3rd in Africa on Internet quality
  • 151 unique ASNs in Kenya

• Huge infrastructure investments

• Several submarine cables landing on East coast in Mombasa
Kenya Country Profile

• Kenya has identified technological innovation as one of the key pillars in its 2030 plan
  • Nairobi is sometimes referred to as the ‘Silicon Savannah’ and is home to a large number of technological incubators and start-ups
  • Companies such as IBM, Microsoft, and Google have set up AI research labs in Kenya
  • Google also announced in April 2022 that they are investing in its first-ever Africa product development hub in Nairobi as part of the tech firm’s Sh115.5 billion investment on the continent over the next five years
Kenya Internet Ecosystem

• There is a maturing market and ecosystem in Kenya with huge potential for growth.

• With IXAfrica, there will be three large data centres in Nairobi.

• Several international players, cloud providers and hyperscalers have already established PoPs in Kenya, most of them in Nairobi, including:
  • Microsoft, Amazon, Meta, Google, China Mobile, HUAWEI CLOUDS, Netflix, Cloudflare, PCCW, Hurricane Electric, China Telecom.
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What Can LINX Bring to Kenya?
What Can LINX Bring to Kenya?

• Over 25 years of running state-of-the-art IXPs
  • Fully automated, secure
  • Portal that allows networks to order ports by the click of a button
  • IX-API

• Top class product and service portfolio
  • Peering
  • Private Interconnect
  • Cloud Connect
  • Closed User Group
  • Private VLAN

• LINX is well placed to serve the entire interconnection ecosystem in the region with a multi site IXP
IXP Ecosystem

Diversity at the IXP is key

- IXPs create value to its members by offering a broad variety of networks present
- Create competitive edge by offering international hyper-scalers unique, national access networks (and vice versa)
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Project Partner: IXAfrica invited LINX to partner with them to help build an IXP in Kenya
Launched Q1 2022, IXAfrica has built a large hyperscale data centre in Nairobi.

Claimed to be the largest and technologically advanced digital habitat for cloud, colocation, and connectivity in East Africa:
- The facility is designed to assemble hypercloud and Internet customers.

From day one the campus featured 2 x 11 KV electrical feeders delivering 2 x 4 MVA:
- A 66 KV substation planned to deliver 2X40MVA.
IXAfrica

- The IXAfrica ambition is to become the largest data centre in East Africa, offering power and space beyond any other in Kenya, and the wider region.
  - Target customers are large, international and Chinese hypercloud companies.
  - Large international players into Nairobi and grow the market significantly in Kenya and beyond.
  - Executive team’s experience with IXPs in past ventures, means they are well placed to attract, as well as retain customers, at their data centre.
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Technical Solution and Services
Technical Solution

• LINX will be providing a modern IXP solution, based on the LON2 design in London
  • Fully redundant, well-tested
• A multi-site IXP enabling high performance interconnection in Nairobi
• A Nokia solution currently in proof-of-concept final tests for Nairobi
  • Nokia has been a strong partner in LINX’s 400GE roll-out
    • https://www.linx.net/news/the-road-to-400ge/
Services & Products Provided

• LINX are looking to offer its full range of peering and interconnection services from launch including:
  • Reseller programme targeting customers who want to peer in Kenya building and expanding on LINX’s existing ConneXions programme

• Creating an East African hub
  • LINX will serve the entire Kenyan ecosystem, and build an East African hub
  • Building on LINX’s well developed ConneXions partner programme
  • Supporting interconnection in the entire East Africa
  • Work with partner IXPs in the East Africa

• A state-of-the-art, modern, high capacity multi-site IXP
  • Interconnecting data centres in Nairobi
  • Full range of interconnection services
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Network Design
Network Design

• The proposed design will be based on a Leaf and Spine architecture
• In this architecture the customers connect to the leaf switches with the spine switches providing the interconnect between the leaf switches
  • The advantage with this architecture over a traditional ring based or mesh architecture is that it scales better and at a lower cost
  • The architecture also makes the cost of adding additional datacentres in the future lower
Network Design

- Customer switches are split into two classes, one for 100GE customers and one for 1/10GE customers

Example Leaf and Spine Architecture

Ability to Offer Diverse Customer Connections
Network Design

• The proposed architecture also includes an option for providing redundant connections to the IXP which protects against switch failures and maintenances
  • This is often a requirement for larger networks and content providers to connect to an IXP

• The 1/10GE customer speeds enabled on 100GE capable switches
  • Future-proofing and flexibility
  • 100GE ports broken out to 4 x 10 GE
  • Rate limited ports to enable 1 – 5 GE connections on each 10GE
  • The switches will not support 100Mbps connections
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Work With Us!
Work With Us

LINX has a range of interconnection partner initiatives

- ConneXions Reseller Partner Programme
- Network Build Model
  - LINX Nairobi, NoVA
- Managed IXP Service
  - JEDIX (Riyadh-IX & Dammam-IX) and ManxIX
- IXP Reseller Programme
  - NYIX, JPIX and Namex

“Please talk to us! Let’s ways to cooperate!”
Thank You

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