Regional Strategy for Developing Interconnection Infrastructure

IXP's, Regional Terrestrial Carriers and Carrier Neutral data center opportunities

Different Folks have different Interconnection Strategies!

- National incumbent Telco or PTO

- MNO or Pan African network as part of a larger group

- Independent MNO or Independent Entrepreneurial ISP

- International Global Carrier

- National Backbone Project or Power operator

- Liquid Telecom

National Incumbent Telco

- Often owns significant national copper and fibre network
- Sometimes but not always is dominant supplier of Internet nationally
- Has licence and permission to run most types of Telco service
- Almost certainly will have made significant investment in a sub sea consortium whether it is using that capacity or not
- May own and have exclusivity on landing station
- May have connection to borders where it interconnects to similar entity in neighbouring country
- But its network almost certainly stops at its own border
- Cross border connection may be used for voice, IPLC half circuit and OSS, maybe to sell Internet transit or buy Internet transit from its neighbour
- Problems with such connections are lack of SLA, different networks so probably no actual protection, you need to actually buy 2 links to have any guarantee of QoS

Pan African Networks

- MNO Group, Academic Network etc
- Group has sizeable bandwidth needs and national network in a number of countries
- Countries are not necessarily bordering
- Will have made substantial investment in subsea capacity at group level
- Will be leasing some backhaul but also may be building sections of fibre for their own use only
- Desire is to link up those networks to a Pan African network, aggregating and hubbing the purchased sub sea capacity at strategic landing points

Independent ISP or MNO

- Entrepreneurial
- Bandwidth needs below STM1
- Or unable to make commitments in jumps of STM1
- Needs resilience as its not possible to survive if single homed on one fibre system
- Buys IP transit but peers locally
- More focussed on last mile and customer acquisition than long distance infrastructure projects
- May have business customers needing international private VPNs

International Global Carrier or Global Content Provider

- May see Africa as the last frontier of opportunity or as a completely niche market

- But will likely have voice and enterprise customer connections somewhere in Africa

- Will most likely have thought about an Africa Strategy

- May not have decided what it is

- May decide to build out points of presence into the bigger and more deregulated countries

- Will probably prefer to work through partners to connect to the remainder of Africa

National Backbone Project or Power operator

- Will be a new project to build a national fibre network
- Will be licenced as an operator but maybe limited to certain services purely for backhaul
- Buried ducted fibre or OPGW Power line fibre
- Network will be a national one but they will build to borders and make interconnects and alliances with neighbouring countries
- But typically selling services only to border on a half circuit basis
- Varying degrees of success
- Maintenance and service portfolio often an afterthought

Liquid Telecom

- Building one Network across multiple bordering countries
- Licenced in those countries
- Crossing borders
- Open to JVs and partnerships
- A "Carrier's Carrier"
- Servicing the needs of all different types of operator
- Diverse products to support enterprise, home user, rural broadband
- Africa's Largest International Terrestrial Fibre Network

We Like Peering

- Present at more African IXPs than any other operator
- JINX and KIXP are the most important African ones to us
- And LINX which has members from more African countries than any other
- South Africa and Kenya we see as regional Hubs
- London is a hub for London as a lot of African Sub Sea cables end up there
- Also peering with other global carriers and content providers is possible in these locations
- We are also present at BINX, ZINX, ZIXP, UIXP, RINEX
- We support IXPs and participate in them actively

Remote Peering from Liquid Telecom - IXConnect

- Allow anyone with an AS number in countries where we have coverage to connect to the major IXPs in the world and in Africa
- One port in Africa to connect to one or multiple exchanges
- Simple pricing model – INX Port fees plus pay as you use Ethernet link
- Provided Ethernet Over MPLS so no painful upgrades
- But with QOS and SLA
- Really going to suit small to medium sized ISPs or large enterprise
- Control your traffic and develop your own peering relationships and strategy
- Liquid are LINX Connexions Partners and INXAnywhere, but other major and African IXPs available on request
- You don't have to commit to more (or less) bandwidth than you need
- You don't need to buy equipment and host it in foreign data centres

Keep Local Traffic Local

- We need IXPs
- We need national fibre backbones
- We need more local content
- We need ways to pay for services online
- We need more access Network Coverage
- We need more access Network Coverage
- We need more access Network Coverage
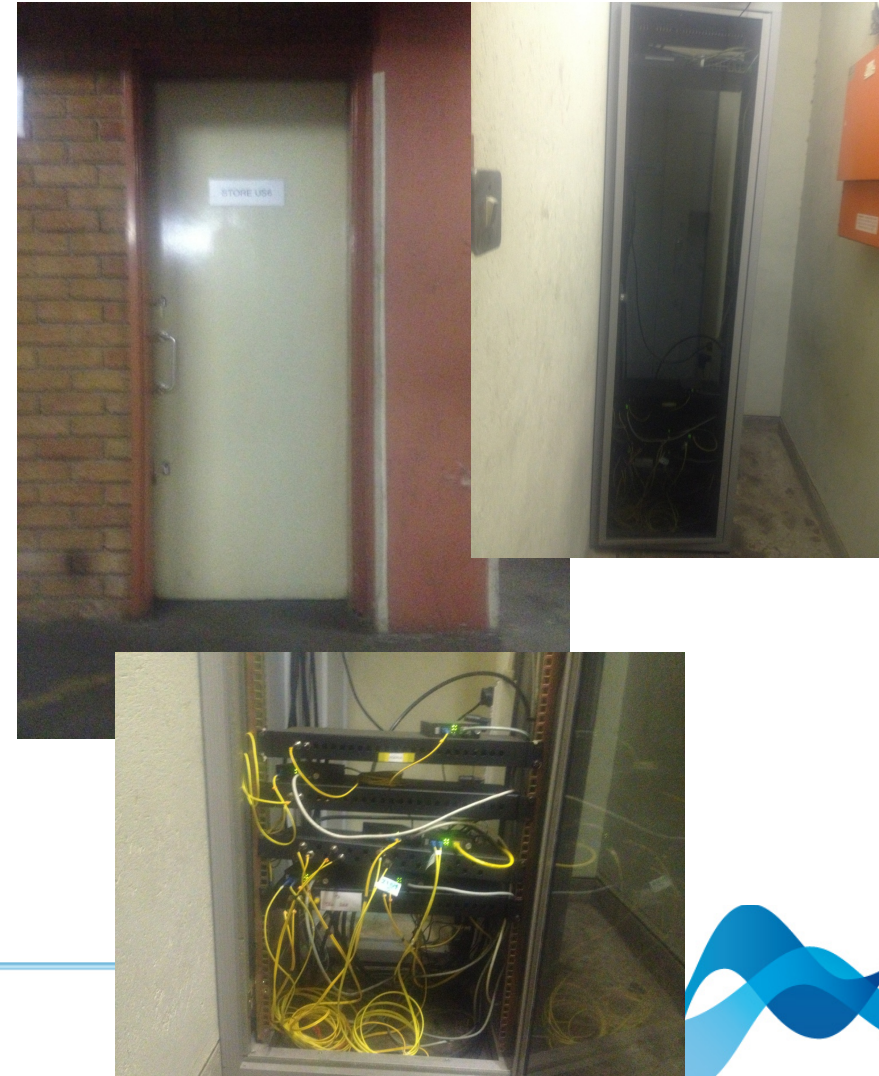- And this needs a variety of technologies to achieve
- We need data centres

All this Networking Equipment and Data Storage Equipment needs somewhere to go

- Increasing trend of site sharing (towers and repeater sites) making significant potential to lower the opex of running backbone networks

- There are data centre opportunities in every country (and in multiple cities)

- Though the market size is different in every country

- And the data centre business is a different one to the Telco business

- Build it (the right size) and they will come

- Carrier Neutrality is important

- Carriers will take a few racks, international and local enterprise will fill the spaces

- But they need choice of communications providers

All these IXPs need somewhere to go

- The Location needs to be 'fair'
- Carrier Neutral data centre not always an option
- Sometimes the quality of the location ends up being compromised to meet the consensus
- Other times the location prejudices the small members who need to lease connectivity to get there
- Both Neutrality and reliability are necessary

What does a data centre need

- Reliable power
- HVAC – Sufficient cooling capacity
- Physical security
- Connectivity
- To be maintainable without risk
- To adhere to standards of tidiness
- Support
- Fire prevention
- Security of Tenure

East Africa Data Centre

- **Tier 3 Data centre**
- With Dual Input Power and sufficient
- cooling distribution paths (CRAC).
- **Total reliability**
- Operating only one path active, with
- ample redundancy systems to mitigate
- any problems.
- **Security**
- **Disaster Recovery**
- **Carrier Neutrality**

BUILDING AFRICA'S NEXT GENERATION NETWORK

Questions?