



AFNOG PRESENTATION

# PEERING IN KENYA

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# Agenda



- Introduction
- Members at KIXP
- Services at KIXP
- Peering Policies at KIXP
- Achievements of KIXP
- Migration
- Challenges
- Future Plans
- Questions and Comments

# Introduction



- Established in the year 2000
- Initially had only 4 members
- Currently has 37 peering members
- Based in 3 locations, 2 in Nairobi the capital and 1 in Mombasa coastal town.

# Members

- 22 Internet Service Providers
- 3 Mobile and Local Loop Service Operators (GSM & CDMA)
- 1 Non-ICT Business Organization (Bank)
- 1 Government body – Revenue Authority
- 1 Education & Research Network (KENET)
- ccTLD Root Server - .KE
- F, J , L .Com & .Net Root Servers mirror Instances
- CDN and in talks with another one

# Requirements

- Be a service provider e.g. ISP, Banks, etc or
- Be a content provider e.g. KRA, KENIC, KENET,

# Services

- Route servers offering multilateral peering
- peering switches at each location both layer 2 and 3
- Access to Google cache currently offline  
reason explained later on slides
- iCSIRT program run in house
- NTP Server

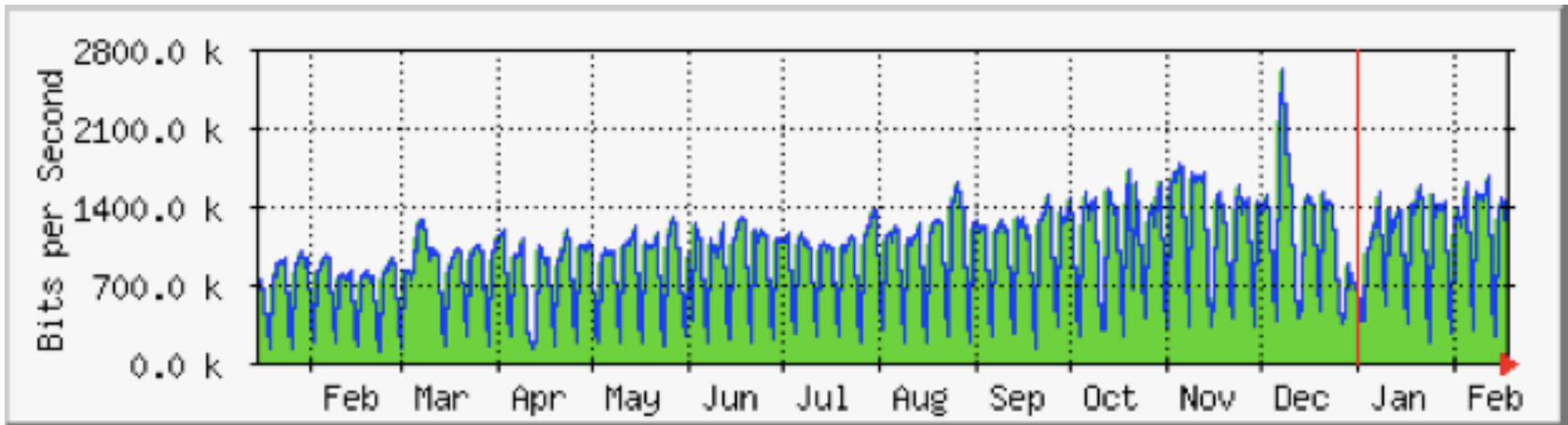
# Peering Policies

- we currently do both software routing and Hardware routing
- software routing is running on BIRD
- Hardware routing is running from a Cisco router
- we decided to use two different equipment just incase we have a bug on 1 it does not affect the IXP at all
- we did test on quagga and Bird and Bird proved to be the better one
- ref :<http://www.kdump.cn/forums/viewtopic.php?id=1272>

# Achievements

- Growth in Traffic

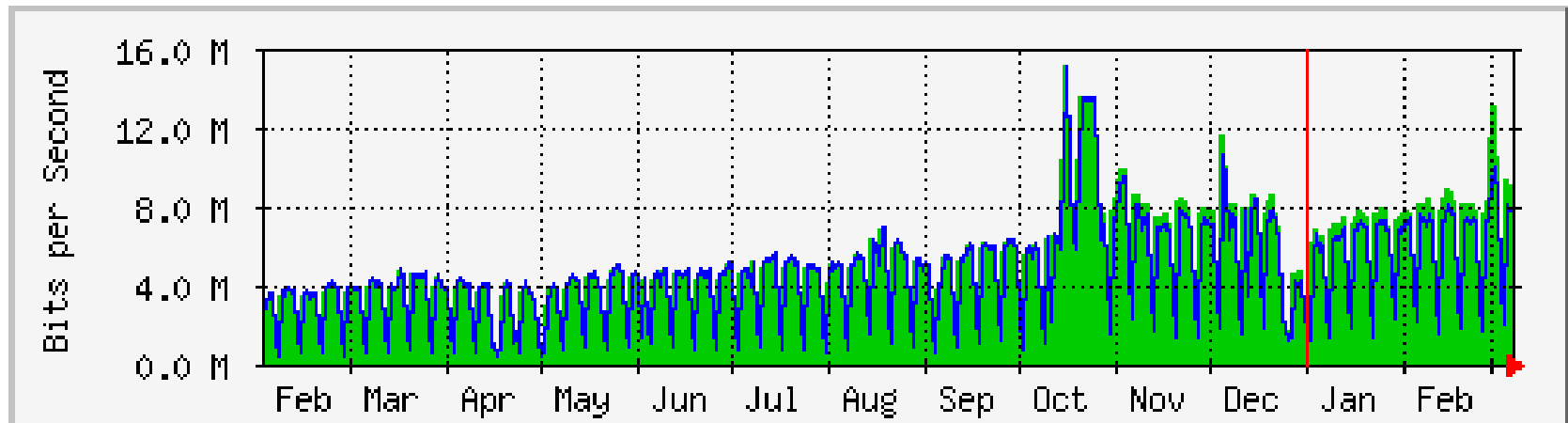
2004 – 2005



- Feb 2004: 900 Kb
- Feb 2005: 1,600 Kb
- Growth rate: 77.8%



2006 - 2007

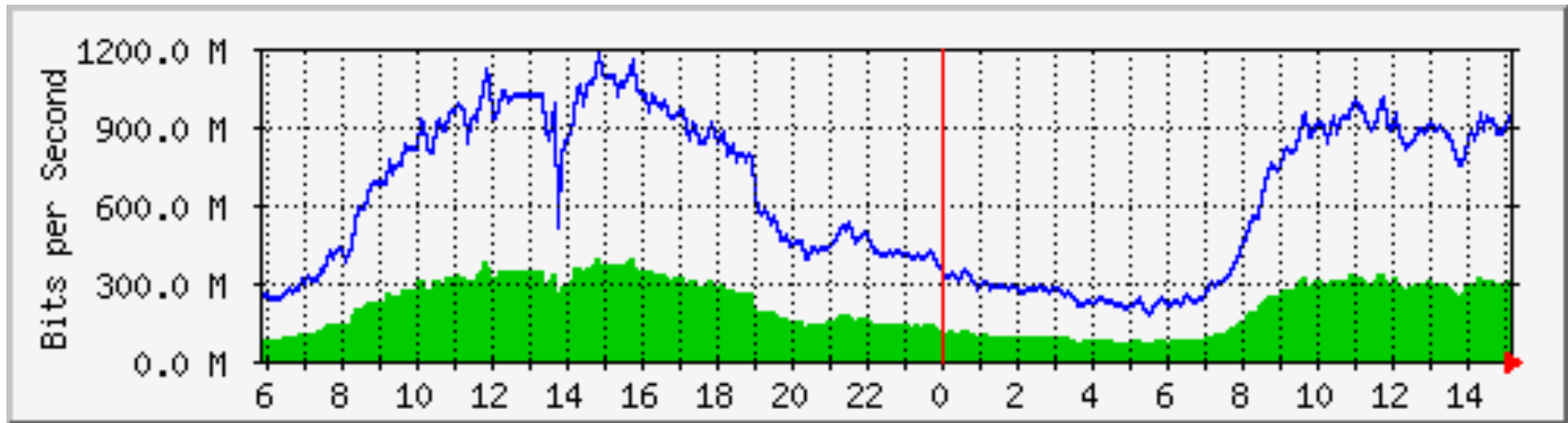


Feb 2006: 3,800 kbps

Feb 2007: 12,035 Kbps

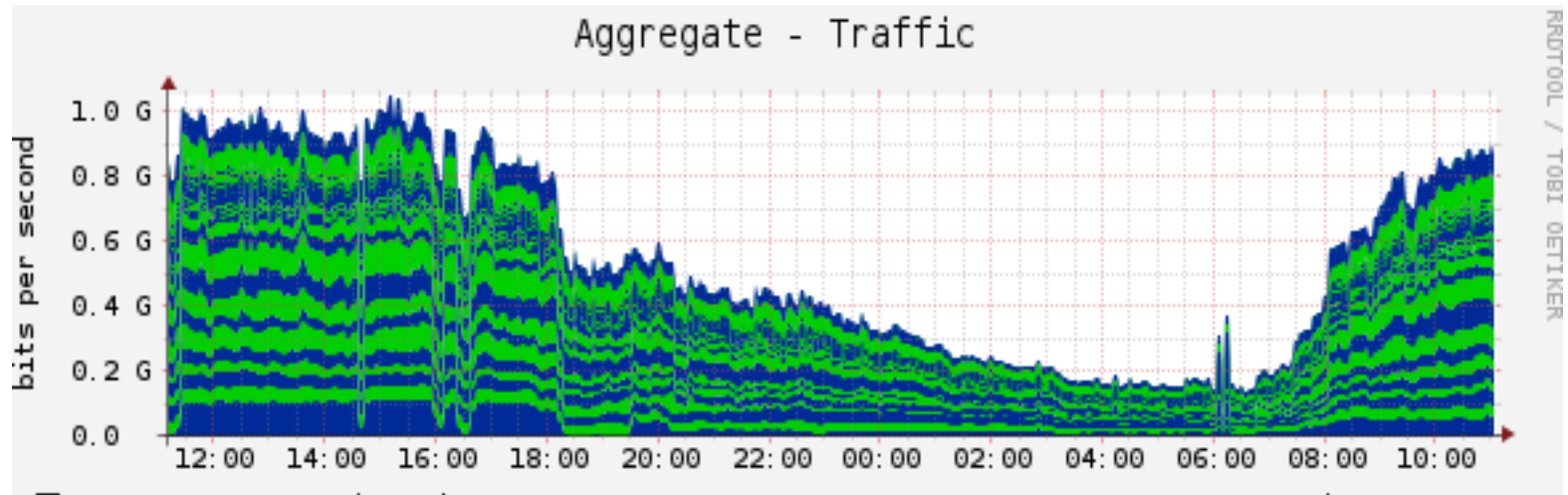
Growth rate: 115.5%

# traffic 2013



When Google Cache was still on at the IXP

# Current traffic 2014



We currently do about a 1Gbps at peak times

KIXP receives routes from 150 ASN numbers in the world 50% are from Africa

Google cache is off at the moment but we are working to bring it back on

# Before migration

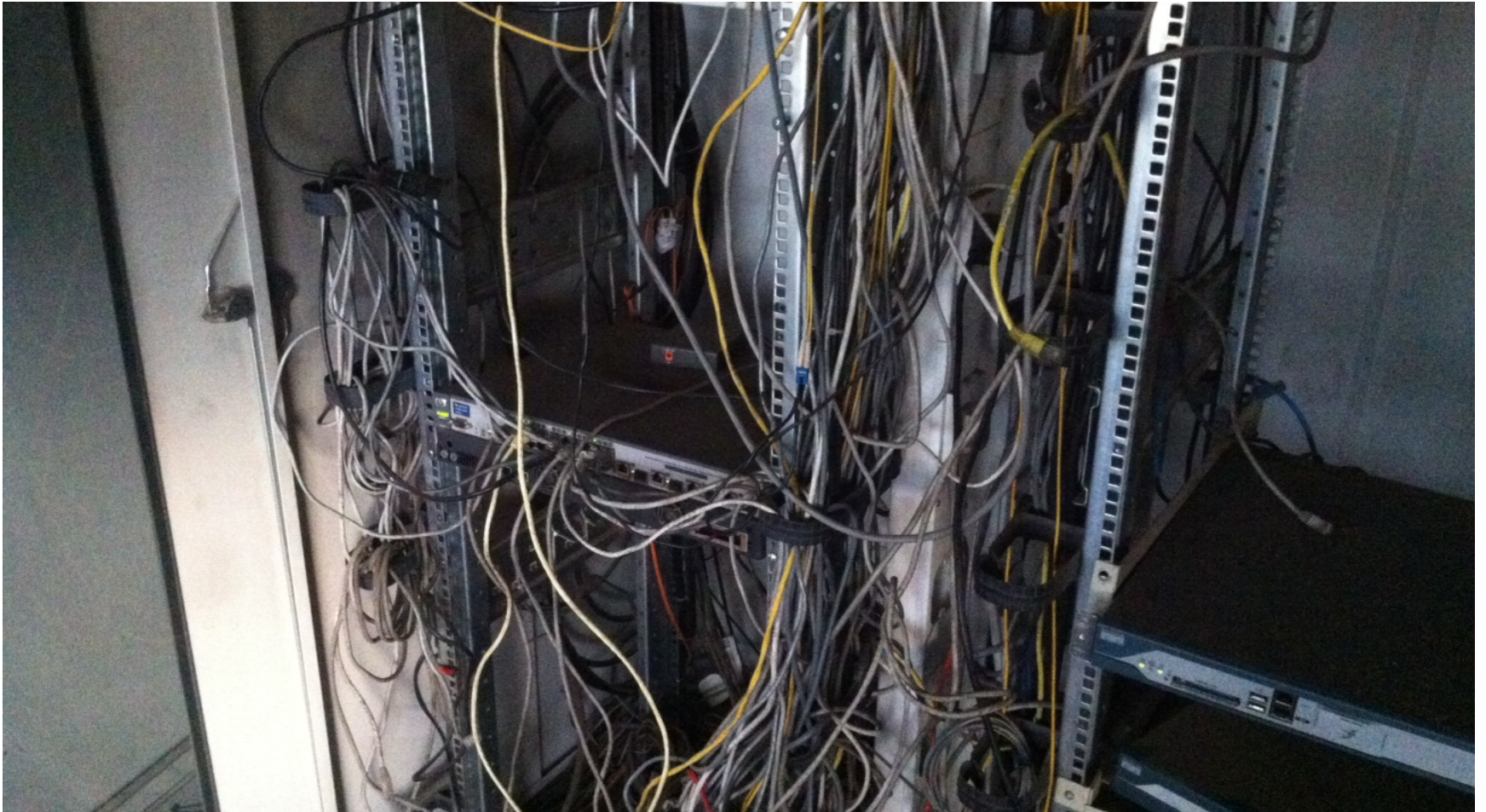




# After migration value adds



# Before migration cisco switch





# After Migration peering switch Foundry BigIron 15000



# Migration

- .Currently we have relocated to a new Data center.
- .Peering is mainly on L2.
- .Has had 100% uptime since Feb 2014
- .Core switch has changed to a better and bigger one, BigIron 15000 Foundry Networks which is capable of handling 10Gig ports. We have orders of several 10Gig ports and plans are underway for new Core switch that will handle multiple 10Gigs to 100Gigs connections.



# Challenges of migration

- Access to the new Data center
- Change of IP for the new site
- Every client might require a different amount of attention and control

# Lesson learnt on Migration

Tools used :

- . Sophisticated Excel Sheet was used , Sending this forward and backward caused multiple versions of the same sheet to exist at the same time.
- .Start early enough and implement a web accessible database or use Google docs.
- .Some used Open Office instead of Excel did not make things easier
- .All client will always want to be the last to connect.
- . A network freeze would have been a good but that was not going to happen because there was change of last mile and testing

- Notification

- Communication was every week and the last month 3 times a week via email and phone calls.

- All customers knew

about the migration. Nobody was surprised.

- All is good if everything is tested before you really need it.

We've managed to keep our initial time line –  
due to thorough planning

# Achievements

- We began in 1 site, currently we are on 3 sites (2 in Nairobi, 1 in Mombasa)
- Implemented BIRD Route server for software based routing
- Reduced the latencies from over 1200ms to less than 10ms for local content
- Running the only CIRST programme in the country
- KIXP has saved ISPs in Kenya \$1.5 million per year on international connectivity and also increased mobile data revenues by an estimated \$6 million for operators according to a study on impact of IXPs in Africa done by ISOC (<http://www.internetsociety.org/ixpimpact>)

# Challenges

- Lack of local content eg website hosting is not done locally media companies
- Advertisement of Routes at the Exchange by Members (aggregation and de-aggregation of routes) cause of the Google cache being switched off in short aggregates were coming in via the IXP, getting mapped on the CDN, the CDN would then send traffic to those aggregates, but the moment the traffic left the CDN and hit HOST network, it would start flowing towards the de-aggregate route.
- Peering members are slow to changing of IP address case in particular the movement to a new location

# Future Plans

- Deployment of a source forge file server to drive more traffic to the exchange
- Encourage the uptake of ipv6 in the region through trainings.
- Getting financial institutions to peer to easy transaction
- Get Akamai and the likes of UBUNTU net on board



THANK YOU

**ASANTE SANA!**



# QUESTIONS

Reach us on

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