

# IPv6 Deployment, cc Perspective

## *dot KE Experience*

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*"dot KE for Every Name in Kenya!"*



# outline

- **introduction**
- the policy
- the training
- the process
- the deployment
- the challenges
- conclusion

# introduction

- KENIC sets up test-beds for Internet technologies
- among the first African ccTLD's to deploy IPv6 on its core network.
- ipv6 test-bed in 2006
- address space provided by tunnel brokers (<http://www.tunnelbroker.net/>)

# the policy

- challenges in controlling and managing the assigned address space
- KENIC applies for an IPv6 block from AfriNIC
- **no policy** for assigning IPv6 PI address space to end-sites
- KENIC, with other members, drafts policy:
  - Vincent Ngundi
  - Alain Aina
- policy was ratified by the AfriNIC Board on 13<sup>th</sup> June 2007
- KENIC applies for IPv6 PI /48 and is allocated on 13<sup>th</sup> July 2007

# the training

- KENIC engineers trained by AfriNIC
- self initiatives through test-bed
- attendance of relevant forums
  - Workshops: AfNOG
  - ICANN, AfriNIC, AfTLD, IETF
- KENIC facilitating building capacity locally
  - Internship program
  - awareness seminars
  - Workshop (17th-20th June 2008) to train local engineers on the deployment of IPv6

# the process

- after the policy implementation
  - application for v6 /48 PI block
  - policy development ran **concurrently** with an infrastructure analysis of its current systems
  - systems upgrades, mainly the routers which required memory and IOS upgrades.
  - KENIC runs an open office. Most, if not all, **open source** operating systems are IPv6 ready and such there was no need for OS upgrades.

# the deployment

- configuration of BGP for IPv6 and DNS with IPv6 quad-A (AAAA) resource records
- registry system support
- KENIC is in the process of adding IPv6 quad-A records in its zone and requesting for an update in the IANA database
- test beds:
  - dns already successful
  - webservice already successful
  - mail service in progress..
  - others, eg. VoIP, to follow

# the challenges

- challenges encountered:
  - lack of an IPv6 PI assignment policy in AfriNIC region
  - policy development process
  - inadequate hardware and network operating systems
  - inadequate human technical capacity



# conclusions..

- deployment of IPv6 cheap or dear
- depends on:
  - **when** one starts deployment
  - the **size** of the network
  - the current **hardware** and **software** and
  - **how soon** they want their networks to be IPv6 ready
- way forward:
  - deploy IPv6 on our networks in order to mitigate the effects of the imminent depletion of the IPv4 address space
  - time is NOW!

# useful references..

- KENIC <http://www.kenic.or.ke/>
- AfriNIC <http://www.afrinic.net/>
- IETF <http://www.ietf.org/>
- RFC's <http://www.rfc-editor.org>
- IPv6 Portal <http://www.ipv6.org/>
- 6Deploy <http://www.6deploy.org/>

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