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
• 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 13th June 2007
• KENIC applies for IPv6 PI /48 and is allocated on 13th 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

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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 (AAAAA) 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/
- 6Deploy  http://www.6deploy.org/
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