

# TOWARDS A NIGERIAN NREN: The Journey so far

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# THE TELECOMMUNICATION ENVIRONMENT

- Nigerian Communication Commission (NCC) established by decree 75 of 1992 to:
  - Create a regulatory environment to facilitate the supply of telecommunications services and facilities.
  - Facilitate the entry of private entrepreneurs into the telecommunications market.
  - Promote fair competition and efficient market conduct among all players.
- National Telecommunication Policy published in 1998 and revised and launched in 1999.

# The Telecoms Environment – contd.

- Nigerian Telecommunications Act passed in 2003 by the National Assembly.
  - Gave autonomy to NCC.
  - Led to the deregulation and liberalization of the telecom industry.
  - Establishment of the National Frequency Management Council
  - Establishment of Universal Service Provision Fund (USPF)
- Some results of the deregulations and liberalization include:

# The Telecoms Environment – contd.

- Two national carriers, NITEL and Globacom licensed.
- Four digital mobile operators: MTN, Globacom, Zain and Etisalat licensed.
- Twenty other operators to provide fixed wireless services at national and regional levels were also licensed.
- First communication satellite (NIGCOMSAT-1) launched in 2007 to provide telecommunications coverage, navigation, digital broadband, etc.

# The Telecoms Environment – contd.

SN	INDICATOR	2003	2009
1	Population of the country	140 million	150 million
2	Main (fixed) telephone lines	888,500	1,307,600
3	Mobile subscribers	3,149,500	75,934,207
4	Internet users	750,000	23,000,000
5	International internet bandwidth	92Mbps	693 Mbps (2008)
6	No of licensed ISPs	about 40	400+

Source: ITU

# The NIGERIAN IT POLICY

- IT policy approved in 2001.
- Some policy objectives include:
  - To ensure that ICT resources are readily available to promote efficient national development.
  - To establish and develop ICT infrastructure and maximise its use nationwide.
  - To integrate ICT into the mainstream of education and training.
  - To create an enabling environment and facilitate private sector (national and multinational) investment in the ICT sector.
  - To encourage government and private sector joint venture collaboration.
  - To develop human capital with emphasis on creating and supporting a knowledge-based society.
- Nigeria Information Technology Development Agency (NITDA) established to implement the policy.

# THE NIGERIAN IT POLICY - CONTD

- Policy empowers NITDA to enter into strategic alliances and joint ventures and to collaborate with the private sector to realize the specifics of the country's vision of “making Nigeria an IT capable country in Africa and a key player in the information society by the year 2005” – not yet achieved.
- Nigeria National ICT for Development (ICT4D) Strategic Action Committee set up to develop a new ICT policy for the Country.

# ICT ENVIRONMENT IN NIGERIA

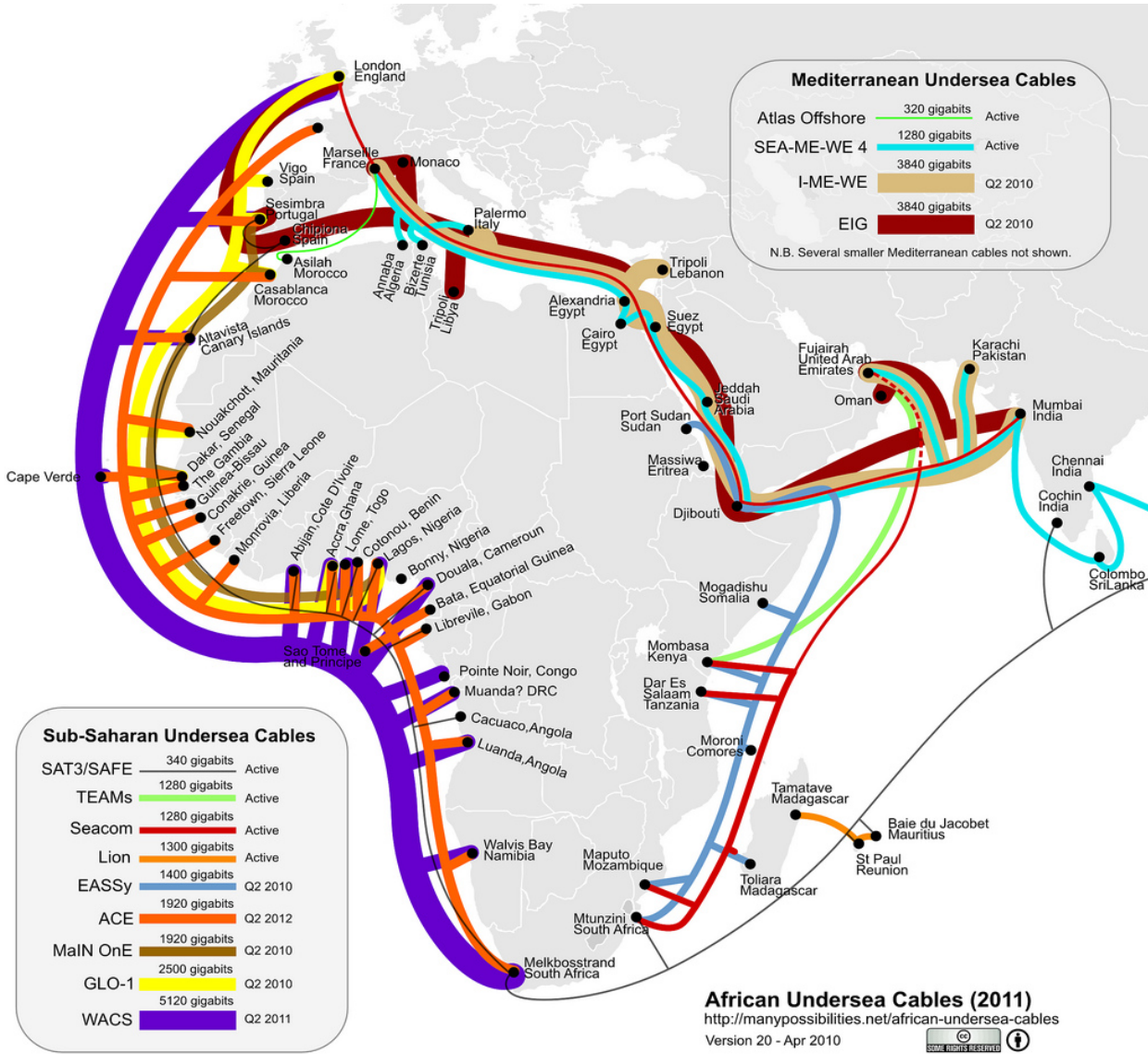
## INFRASTRUCTURE



# International Infrastructure

- By 2009, about 5 international submarine fiber optic cables have arrived Nigeria.
- Collectively provide over 6.45Tb/s of capacity.
- All available by 2<sup>nd</sup> quarter of 2011

# International Infrastructure



# National Infrastructure

- Several national fiber backbone networks are being rolled out. These include:

SN	COMPANY	CAPACITY	ROLLOUT YEAR	COVERAGE
1	Multi-link	10Gbps	2006	National
2	MTN	10Gbps	2010	National
3	Phase3	2.5Gbps	2009 – 2010	National
4	Glo	640Gbps	2011	National
5	NITEL			

- Some ISPs deploying FTH.
- NITEL has 7 digital secondary switching centers across the country, 52 primary centers (16 digital) and 286 local exchanges (135 of the digital)
- Unilag CoEx working on a DS-3(45MB) fiber connection to the National Film Institute in Jos.

# THE NIGERIAN EDUCATION SECTOR

- About 500+ tertiary institutions in the country including federal universities (36), state universities (36), private universities (41), teaching hospitals, research institutes, colleges of education, polytechnics, monotechnics, Schools of nursing, colleges of agriculture, schools of health technology.
- Notable regulatory agencies in the education sector include:
  - National Universities Commission (NUC) for universities.
  - National Commission for Colleges of Education (NCCE) for colleges of education.
  - National Board for Technical Education (NBTE) for polytechnics
  - Federal Ministry of Health (FMH) for teaching hospitals.

# THE NIGERIAN EDUCATION SECTOR

- NUC established Nigerian Universities Network (NUNet) in 1995.
  - NUNet took off in 1996 with the training of 20 persons on electronic networking at International Center for Theoretical Physics (ICTP), Trieste Italy.
  - Donated computers and associated hardware to the Universities to start dial-up e-mail systems.
  - Set up a server at the NUC that connected the Universities to the ICTP in Trieste.
- Universities at various levels of ICT implementations.
  - Many have ICT policies, ICT strategic plans and established ICT directorates.

# THE NIGERIAN EDUCATION SECTOR

- Most of them use VSAT technologies for internet access.
- Bandwidth capacities range from 128kbps – 20mbps, costing between \$4.5 - \$6.00 per kbps/month.
- Various campus-wide backbones including fiber, wireless technology. Many have no campus backbone.
- All have access laboratories ranging from 10 – 100+ computers for students access.
- Several have in-building connectivity using wireless, UTP and/or Co-axial cables.
- Network contents and services include:
  - Websites (virtually all universities have one)
  - E-mail services with local (.edu.ng) domains
  - Digital Libraries, Students Portals, Databases, Course Management Systems.

# THE NIGERIAN EDUCATION SECTOR

- NUC initiatives include: NVLP, VIHEAF, Nigerian Universities Portals, NUTALP, Nigerian Universities multi-media communications network, UMIS and Google Apps in the Universities.
- Several efforts being duplicated because we are not talking to each other very much.
- Capacity building initiatives.
  - ETF sponsored training programs for teachers (skills acquisitions).
  - Individual institutions initiatives.
  - Schoolnet/ETF skills development at secondary schools
  - JAMB, NECO online registration
  - Some internship programs for students.
  - NgNOG for technical staff

# THE NIGERIAN EDUCATION SECTOR

- Partnership with private and government organizations for ICT development including:
  - Cisco and Microsoft academies.
  - ETF sponsored training of teachers in ICT.
  - NCC/USPF donations of ICT equipments.
  - MTN/SchoolNet Nigeria digital laboratories and Cyber Cafes.
  - STEP-B ICT support. 28+ ICT related projects, including Center of Excellence in Software Engineering, IBM Collaboratory Research Initiatives, etc.



# THE NREN EFFORTS

## ICT FORUM MANDATE

- Established in 2005 as an NGO with grants from Carnegie and Macarthur foundations.
- Set up to foster collaborations between Nigerian Higher Education Institutions.
- Membership grew from six founding universities to twenty-two including Colleges of Education.
- Activities include:
  - Hosting of bandwidth consortium providing bandwidth for universities in Central, East and West Africa.
  - Domestication of Africa Network Operators Group (AfNOG) into Nigerian Network Operators Group (NgNOG) to offer ICT based capacity building.

# THE NREN EFFORTS

## ICT FORUM

- Mandate by Association of Vice-Chancellors of Nigerian Universities (AVCNU) on 26<sup>th</sup> February, 2008, to drive the process with little result.

# THE NREN EFFORTS

## EKO-KONNECT INITIATIVE

- 100 mbps fiber optic link connecting four higher education institutions through Nigerian Internet Exchange Point to form Eko-Konnect. These institutions are:
  - University of Lagos (UNILAG)
  - FCE (T), Yaba
  - Yaba College of Technology
  - Lagos University Teaching Hospital (LUTH)

# THE NREN EFFORTS

## THE GOOGLE UNIVERSITY ACCESS PROGRAM (GUAP)

- linking six higher education institutions by fiber.
- Providing limited bandwidth for partner institutions in exchange for widespread access on campus to Google Apps for Education.
- Institutions connected include: UNN, UniBen, UNILAG, Benson Idahosa University, Covenant University and Lagos State University

# THE NREN EFFORTS

## THE NUC INITIATIVE

- Formation of a six man technical committee to develop a proposal for funding by World Bank.
- Committee expanded by AVCNU to include:
  - Seven ICT Directors from Nigerian Universities,
  - Representatives of Registrars,
  - Representatives of Bursars,
  - Representatives of Librarians.
- World Bank engaged two consultants; one national and one international (Javed Khan of Kent University) to work with the Technical Committee to develop the proposal development.
- Institution' s status presentation by select ICT Directors.
- On site visits to some select institutions by the Consultants.

# THE NREN EFFORTS

## THE NUC INITIATIVE – Contd.

- Presentation/discussion with telecoms operators.
- Compilation of survey data from Nigerian Universities.
- Sensitization meeting with Directors of ICT of Nigerian Universities.
- Draft proposal by Consultants.
- Review of proposal by technical committee, DICTs, ACVNU.
- Incorporation of inputs from the stakeholders and submission to World Bank.
- Sensitization and buy-in campaigns to other stakeholders (ETF, NCC, USPF, NA, RAs, ACVNU, etc).

# THE NREN EFFORTS

## THE NUC INITIATIVE – COMPONENTS OF THE PROPOSAL

1. Provision of Broadband Connectivity
  - A high-speed mesh network for Universities and eventually other research institutions.
  - A high-speed internet access via marine cable
2. Capacity building
  - Operators' workshop
  - End-user buy-in
  - Regulators workshops
  - Government stakeholders' workshops
  - User community training for staff and sensitization for students
3. Power plan for the network infrastructure

# THE NREN EFFORTS

## THE NUC INITIATIVE – COMPONENTS OF THE PROPOSAL

4. Provision of more and cheaper bandwidth.
5. Provision/ development of ICT applications:
  - Enterprise wide antispam & anti-virus solution
  - E- courseware
  - E-library
  - Video conferencing
  - Voice over Internet Protocol (VoIP)
  - Subscription to e-journals
  - Staff/student management & administration
  - etc



# THE NREN EFFORTS

## THE NUC INITIATIVE – THE ENABLING ENVIRONMENT

- Presence of nationwide OFC backbone. Fibre represents a better commercial proposition when compared with satellite based systems which are expensive, susceptible to weather interference and have limitations in capacity.
- More than 10,000km of OFC across the country (within reach of all Universities and other institutions)
- Arrival of marine cables
  - Sat-3 (NITEL- owned)
  - Glo-1 (640Gb/s lit November 2009)
  - MainOne (1.92Tb/s already lit )
  - WACS (3.84Tb/s to be lit Q2, 2011)
- \* Availability of quality capacity development opportunities within and outside Nigeria

# CHALLENGES

- Power is a big challenge. Many have alternative power supply to their data centers ranging from 5KVA – 500+KVA.
- Poor awareness of the benefits of ICT in education.
- ICT Policies and Strategic Plans.
- Campus-wide network coverage.
- Inadequate and expensive bandwidth
- Technical skills (Network management, bandwidth management, network security, etc)
- Inadequate user skills.
- Duplication of efforts.
- To be able to collaborate and share resources such as digital libraries, videoconferencing, Voice over IP, remote teaching, etc.
- Poor access to current and/or advanced research facilities.

# WHAT NEXT?

- Leverage on STEP-B/ World Bank to connect Federal Universities
- Register NgREN
- MoU Signed with Committee of Vice Chancellors
- Independent Appraisal with the assistance of WB
- Stakeholder contributions
- Proposed annual grant from the ETF
- Active private sector participation
- Collaboration with other RENs

Thank you

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