
Regional Development Forum for Africa

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Broadband Wireless Infrastructure & IPv6 Issues

Désiré Karyabwite

IP Coordinator, TND

ITU-BDT

E-mail: desire.karyabwite@itu.int



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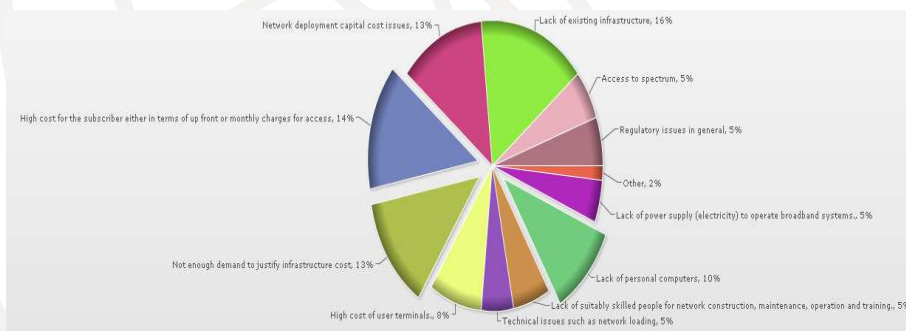
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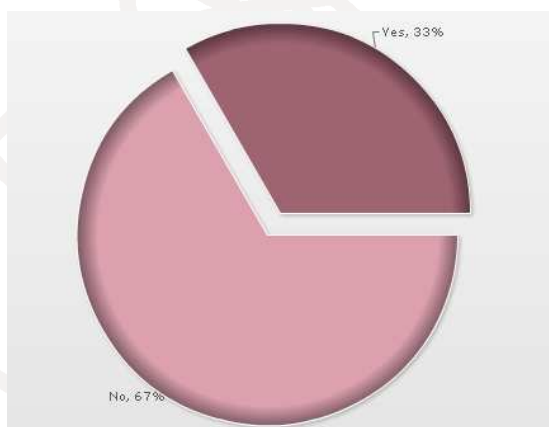
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1. Introduction

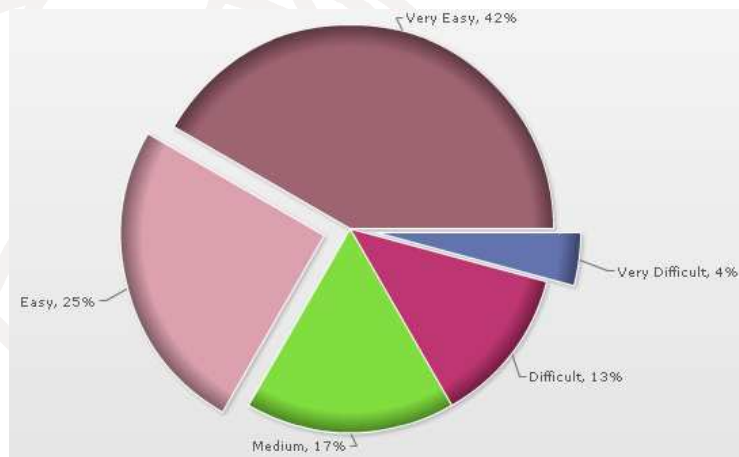
Barriers to Broadband Access Deployment



Are there affordable loans/ other financial assistance for operators to provide broadband to last mile customers?



How difficult is it for operators to receive licences for broadband build out?

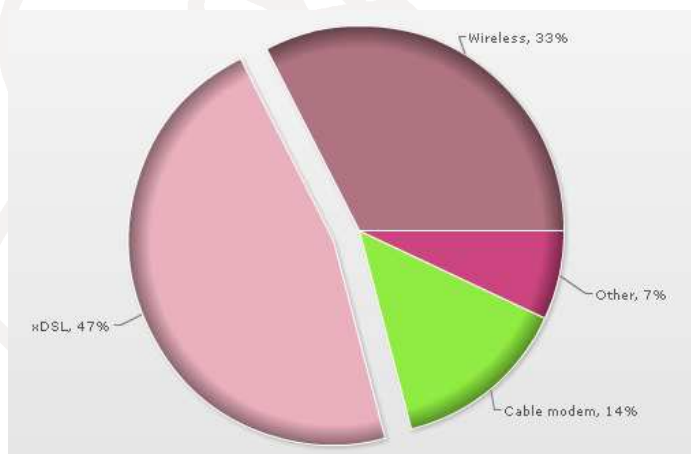


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broadband technology Trends

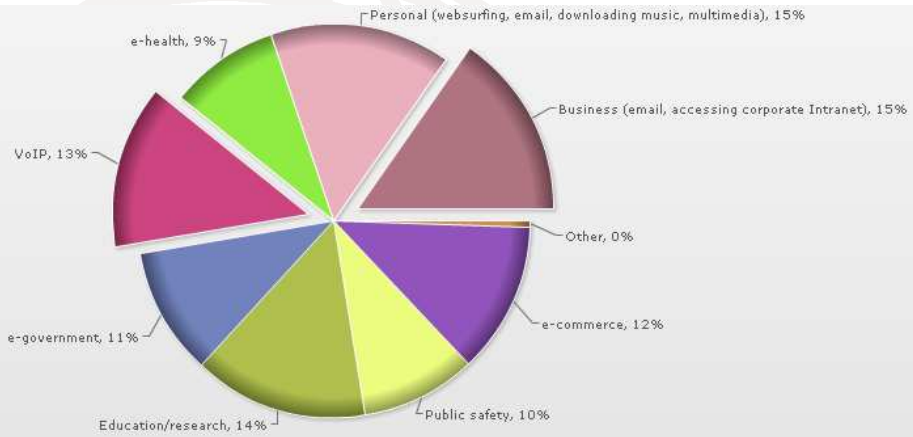
Which broadband technology is growing the most quickly?



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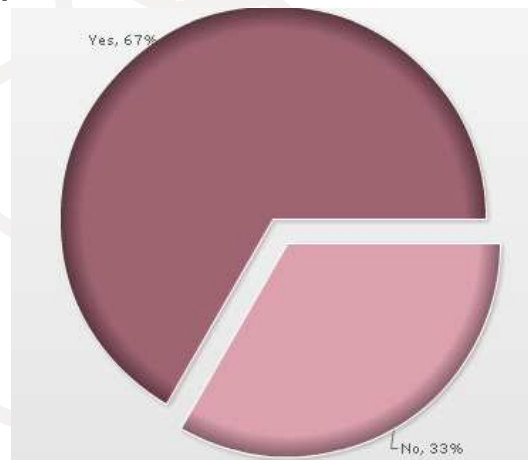
■ For which applications is broadband service used?



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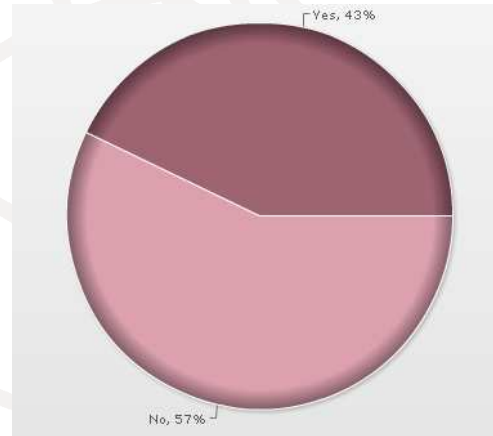
■ Is there any special program for schools?



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■ Is there any special program for hospitals?



2. Broadband Wireless Infrastructure

Project brief description: The ITU-McCaw Wireless Broadband Network and developing ICT applications will provide free or low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries.

The expected outcome of the project will include:

- Deployment of Wireless broadband infrastructure for identified areas in selected countries in Africa;
- Development of ICT applications
- Training local experts on the operation of deployed wireless communication Network.
- Development of national ICT broadband network plan for entire territory of the beneficiary countries.

Wireless Broadband Urban Connectivity



- URBAN Base Station**
- M-LSS coverage up to 5 miles
 - Fully managed base station transmitter
 - Includes OFDM radio transmission
 - Omnidirectional or sector applications
 - Scalable antenna, scalable capacity
 - Configurable TDD antenna diversity capacity
 - Low cost installation
 - Supports bandwidth management
 - Dual redundant 48 volt DC power supply



- URBAN Business**
- Indoor M-LSS coverage up to 3 miles from base station
 - Consistent throughput performance to edge of cell
 - Configurable service levels (DSL) to support small and medium enterprises
 - Plug-and-play subscriber unit (CPE) connects to computer or LAN through standard Ethernet port
 - Self-installable subscriber unit – no truck rolls required
 - Outdoor M-LSS subscriber unit available

Wireless Broadband in Rural Areas



- RURAL Base Station**
- M-LSS coverage up to 10 miles
 - Fully managed base station transmitter
 - Includes OFDM radio transmission
 - Omnidirectional or sector applications
 - Scalable antenna, scalable capacity
 - Low cost installation
 - Supports bandwidth management
 - Dual redundant 48 volt DC power supply



- RURAL Business**
- Indoor M-LSS coverage up to 5 miles from base station
 - Consistent throughput performance to edge of cell
 - Configurable service levels (DSL) to support small and medium enterprises
 - Plug-and-play subscriber unit (CPE) connects to computer or LAN through standard Ethernet port
 - Self-installable subscriber unit – no truck rolls required
 - Outdoor M-LSS subscriber unit available

3. IPv6 Workshop: When, Where, Why

- 4, 5 September 2008, Geneva
- According to the activities of the Study Group 2, and 3, and following requests by some Member States
- 2 days workshop
- Almost 150 participants
 - around 35 Member States
 - around 15 private Sector
 - 4 RIRs
 - EU, ETRI, ATIS, ICANN, ISOC, IGF Secretariat

Main Objectives

- To *raise awareness* of the importance and opportunities of the deployment of IPv6
- To *answer key questions* related to international public policy issues on the migration from IPv4 to Ipv6, with emphasis on the economic aspects of IP address allocation
- To *identify future requirements* for ITU's related work, including standardization and technical and capacity building assistance to developing countries.

Structure

- **Facts and Current Status**
 - Status of current assignment of IPv4 and IPv6, overview of real figures, such as the status of current regulatory and policy regimes, and the situation in developing countries.
- **Technical issues**
 - Current technical debates and key questions to enable IPv4-IPv6 migration. Technical proposed scenarios expected in migrating to IPv6, the threats and the opportunities. ITU role on technical issues (such as NGN deployment in relation with IPv4-Ipv6 migration).
- **Economic dimension**
 - Discuss on the economic impact of the migration from IPv4 to IPv6, present relevant ITU-T Study Group and other contributions, and discuss possible answers to specific questions.

General Considerations

- Migration could be slower than expected
- Very low deployment of IPv6
- Costs associated to the migration were felt as not critical, specifically in relation to the eventual benefits
- Lack of awareness on pro and cons of migration to IPV6 and low awareness of real status of current IPv4 allocations
 - Emblematic example given by AFRINIC – most of the allocated IP addresses in AFRICA are still not assigned because lack of requests by ISPs
- Work in progress to evaluate address transfer markets and generally speaking transfer mechanisms (RIRs)
- Work in progress on capacity building (EU, IPV6 Forum)

Relevant outcomes

- All stakeholders have a role to play:
 - Governments, RIRs, IANA, IGOs
 - Coordination and International Cooperation is essential
- Need for knowledge sharing and capacity building . Proposal for the establishment of a joint ITU-T, ITU-D project aimed at providing assistance to developing countries in
 - Raising awareness on IPv6
 - Technical assistance on the IPv6 migration process
 - International Cooperation with key players (e.g. EU, IPv6 Forum, etc
- Role of ITU-T in carrying on studies on possible economic impacts of the migration to IPv6, as well as technical and standardization issues (e.g. IPv6 and NGN, security aspects)

4. Conclusions

- **Broadband Access Policy and Strategies are needed**
To Connect Schools, Hospitals and Public Institutions.
- **Obvious:** IPv6 will come; strategies for the migration to be defined and implemented
- Collaborative efforts are not only encouraged but necessary
- Better understanding; facing the real issues; building capacity
 - Starting deploy IPv6 to see what is it and how it works (e.g. testbeds)
 - Properly assess and define the strategy that is compatible with the operational requirements
 - Exchange experiences and best practices
 - Start planning for scaling-up

▪ **IPv6 and VoIP: Major Challenge?**

After Japan (2006) and USA (2008): The US Government has issued a mandate to all vendors to make the switch to an IPv6 platform by summer of 2008.

IPv6 advantages:

- carrier-grade QoS with IPv6
- Addressing voice delivery across firewall and NAT (network address translation)
- Preventing denial of service attacks
- Enabling interoperability (IPv4 / IPv6)

All these policies and advantages will boost IPv6 deployment

**Thank you for your
attention!**

International Telecommunication Union