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Southern Africa Telecomunications Association

VoIP AND BROADBAND WORKSHOP

@ Luanda – Angola

26-28 October 2005

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SATA Executive Secretary

Overview of VoIP and Broadband Deployment by SATA Members

- What is VoIP and Broadband?
- Driving Factors for VoIP and Broadband
- VoIP and Broadband Deployment by SATA Members
- Global and African Deployment Status
- Challenges and Drawbacks
- What is the future like?
- Conclusion

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What is VoIP

VoIP – Voice over Internet Protocol/IP/Internet Telephony

- The Routing of voice conversations over the Internet or any other IP network
- Voice data flows over a general-purpose packet-switched network, instead of the traditional dedicated, circuit-switched voice transmission lines

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VoIP and Triple-Play Challenge

Short-Term

- Fixed Telephony
- Mobile Telephony
- Fixed Datacom
- Cable TV
- Electric Power Companies
- Railway Companies

They are ALL Service Providers, Carriers & Retailers

Driving Factors

Traffic Growth
Mobility
Internet/Intranet
Network Convergence
New Services

New Regulation
Globalization
Competition
Consolidation
New Business Models

Long-Term

VoIP & Broadband Deployment

NO	ORGANISATION	TECHNOLOGY	
		Broadband	VoIP
1	Angola Telecom	Yes	No
2	Botswana Telec	Yes	No
3	Telecom Lesotho	Yes	Yes
4	Malawi Telecom	Yes	No
5	Mauritius Telec	Yes	No

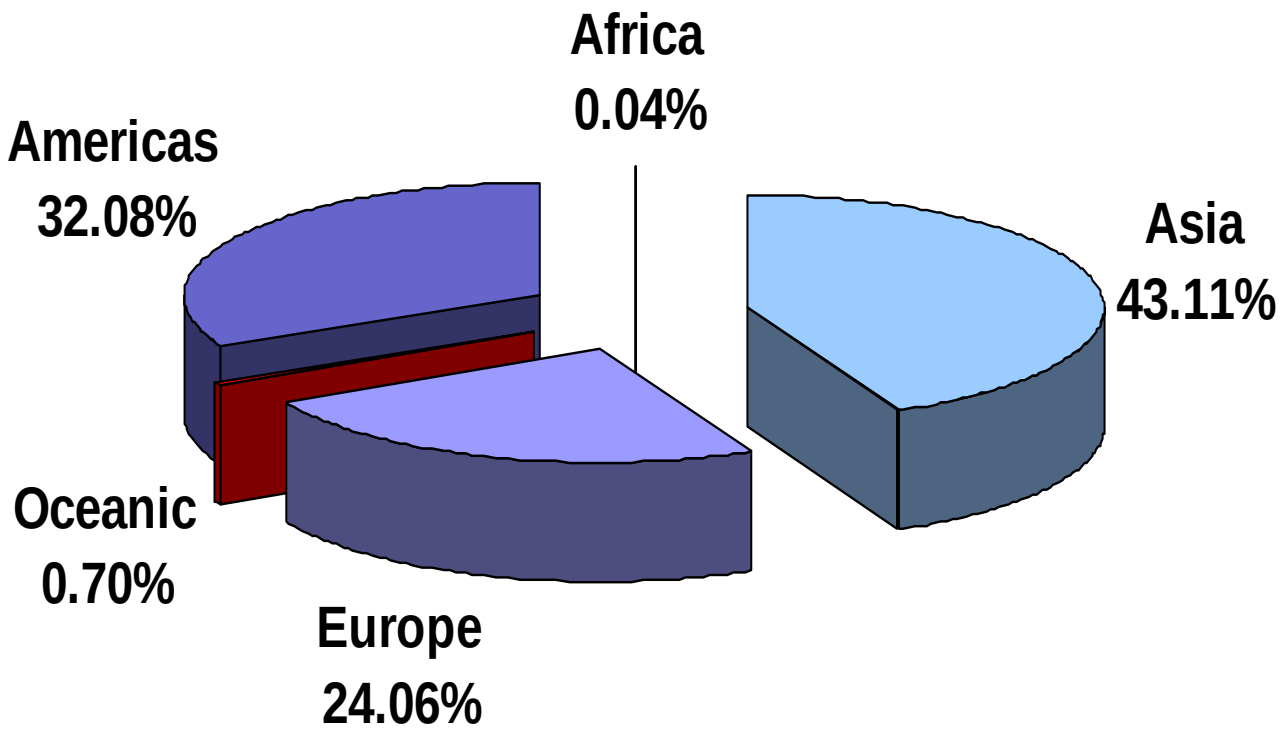
VoIP & Broadband Deployment

NO.	ORGANISATION	TECHNOLOGY	
		Broadband	VoIP
6	Movicel Angola	No	No
7	Mozambique Tele	Yes	No
8	Telecom Namibia	Yes	No
9	Telkom SA	Yes	Yes
10	Swazi Telecom	Yes	Yes

VoIP & Broadband Deployment

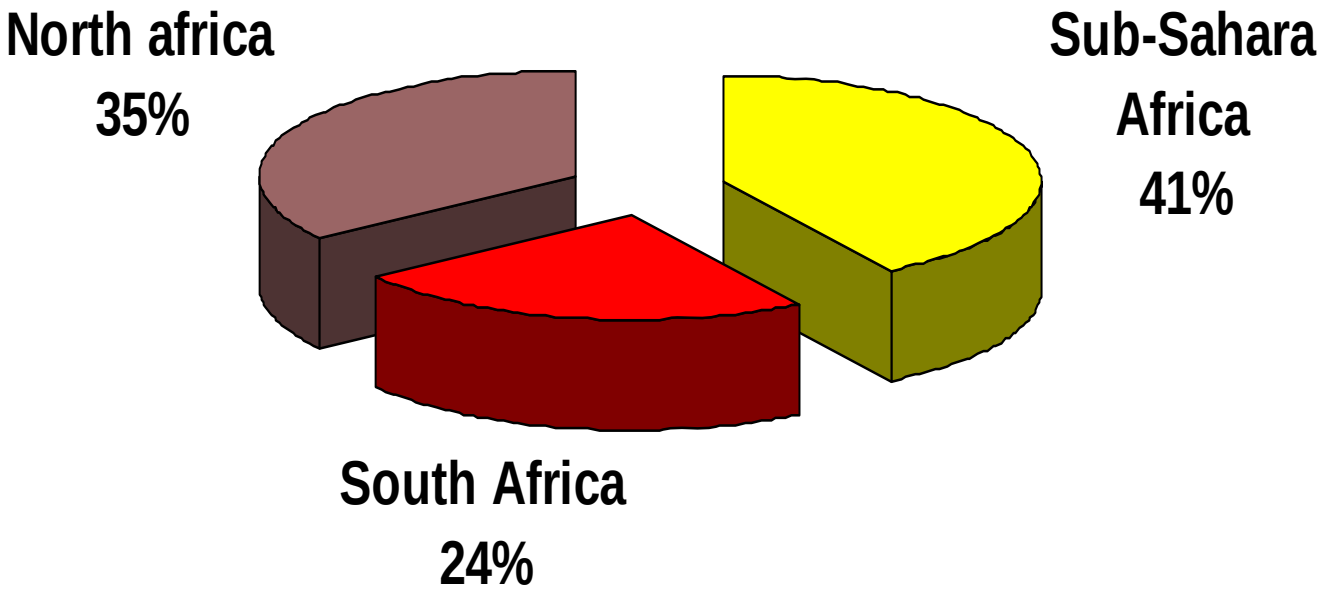
NO.	ORGANISATION	TECHNOLOGY	
		Broadband	VoIP
11	Tanzania Telecm	Yes	No
12	Zambia Telecom	Yes	No
13	Tel.One Zimbabwe	Yes	No
14	Econet Lesotho	Yes	No
15	TeleAccess Zim	No	No

Broadband Subscribers in 2003 (Distribution by Region)



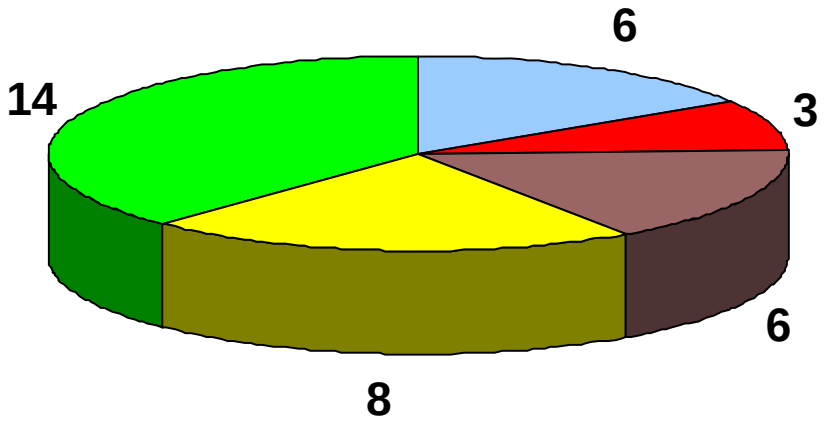
Source:TMG, December 2004

Distribution of Internet Users in 2003



Source: *ITU*

VoIP Regulation in Africa



- No Policy For IP Telephony: No reponse
- Full Competition: All PTOs, licensed or not allowed to use both IP networks and Internet for voice calls
- Partial Competition: Non-licensed PTOs allowed to use either Ip networks or Internet for voice conveyance
- Prohibited: All PTOs (even licensed ones) prohibited from using IP networks or Internet for voice conveyance
- Restricted: Only licensed PTOs allolwed to use IP networks or Public Internet for voice conveyance

Source:*ITU World Telecom Regulatory Database*

Challenges & Drawbacks of VoB

- Technological
  - Infrastructure
  - Technology
  - Governance/ Management
  - Reliability
  - Voice Quality
- Social Obligation
  - Universal Service Vs Universal Access
- Political/Legal
  - Regulatory
  - Taxation
  - Security
- Commercial
  - Interconnection Payments
  - Virtual Numbers

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Technological-Infrastructure

- Initial careful study, design, and implementation
- Maintenance requires highly comprehensive and sophisticated in-demand skills sets
- VoIP standards are still evolving
  - Session Initiation Protocol (SIP) – Microsoft
  - Media Gateway Control Protocol (MGCP) – Cisco
  - H.323 – All the others

➢ Risk of purchasing non-industry standard ?

Technological - Implementation

How to design and execute a migration strategy to the new IP telephony system without disrupting normal business operations

- Infrastructure upgrades
- System preparation and testing
- Voice circuit provisioning
- Deployment schedule
- Quality of Service (QoS)

Broadband over Existing Infrastructure

- Satellite and Wireless broadband solutions are still in their infancy
- Most broadband users still rely on fixed-line connections to access the Internet
  - Digital Subscriber Line (DSL) using traditional fixed telephone lines
  - Cable Modems using cable TV networks

Technological – ‘Technology’

- Multiple components
  - (Vendors Argument: Modular and scalar?)
- Reconciliation of performance requirements of voice with the unpredictable nature of data on a single network
- Standardization of hardware; routers, switches and cabling

Technological - Voice Quality

Where IP packets are lost or delayed at any point in the network between VoIP users, there will be a momentary drop-out of voice. This is prevalent in:

- Congested networks
- Long distances
- Internetworking between end points
- ➢ Require introduction of priority schemes for voice traffic (e.g., IP Version)

Technological - Reliability

Traditional telephones are powered by the phone lines, which in the event of a power failure will be kept live by the back-up generators or batteries located at the exchange. Broadband phones are powered at the point of distribution.

Legal -Security Vs Legal Interception

Vulnerabilities – CIA

- Confidentiality (“Sniffer”, “Vomit”)
  - Ill-intended users may hide behind anonymity to conduct illegal activities (E.g., drug dealing or terrorism)
  - If service is not licensed (E.g., Wi-Fi in 802.11 standard in the unlicensed 2.4 GHz band) it may be difficulty for legal authorities to trace, or monitor, suspicious calls
- Integrity (Denial of Service attacks – DoS, e.g., Mobility Extension)
- Availability

Political/Legal - Taxation

- Difficulty to apply sales tax on outgoing calls if operator is not licensed
- May also be inefficient to tax only licensed operators because this will encourage licensed operators to shift more of their traffic onto untaxed VoIP platforms

Commercial - Interconnection Payments

Fact: Completion of a long-distance call typically requires the cooperation of two or more PTO, at origin and destination of the call and for transit

- If incoming calls are “dumped” onto an operator’s network, with no prior agreement on an interconnection charge (or settlement payment), it may not be possible to levy interconnection fees.
- Interconnection fees also become elusive when international calls are made to appear as if they are coming from a virtual number inside the call zone of the terminating operator

Commercial - Virtual Numbers

User uses a single phone number, regardless of their geographical location and regardless of whether they are using a mobile or a fixed-line telephone

- Offers benefits for users but raises regulatory and commercial concerns
  - Locating the origin or routing emergency calls
  - How to charge the user for such calls whose termination is unknown

Integration into GTN System

While the standard POTS (Plain Old Telephone System) and Mobile phone networks share a common global standard (E.164) which allocates and identifies any specific telephone line, there is no widely adopted similar standard for VoIP networks

Social-Universal Service Vs Access

Correlation between urbanization and population density and the supply of broadband services

- Cheaper to connect users who live within a short distance of each other
- Higher ROI in urban areas - investors shun poor rural areas
- Low income groups in rural areas
- Low basic education and e-education literacy levels
- Broadband deployment comes with high fixed costs

Social Obligation- Emergency Calls

Emergency calls cannot easily be routed to a nearby call centre, and are impossible on some VoIP systems because the nature of IP makes it difficult to geographically locate network users

(Except e911 capability on IPBXs)

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Governance Challenge

- Lack of cooperation between telecom and data teams in a voice-data convergent network
- Shift in responsibilities
  - Telecom teams feel threatened by data teams over network control
  - ➢ Power Play

Some Advantages of VoB

- Ability to deploy value-added and high-margin services
- Ability to tackle complex network issues:
  - Security
  - Reliability
  - High Performance

Role of Broadband in Info Society?

"Broadband networks are the key to maximizing the promise of an evolving and converging Information and Communication Technology (ICT) sector"

Kathleen Q. Abernathy, Commissioner of US FCC

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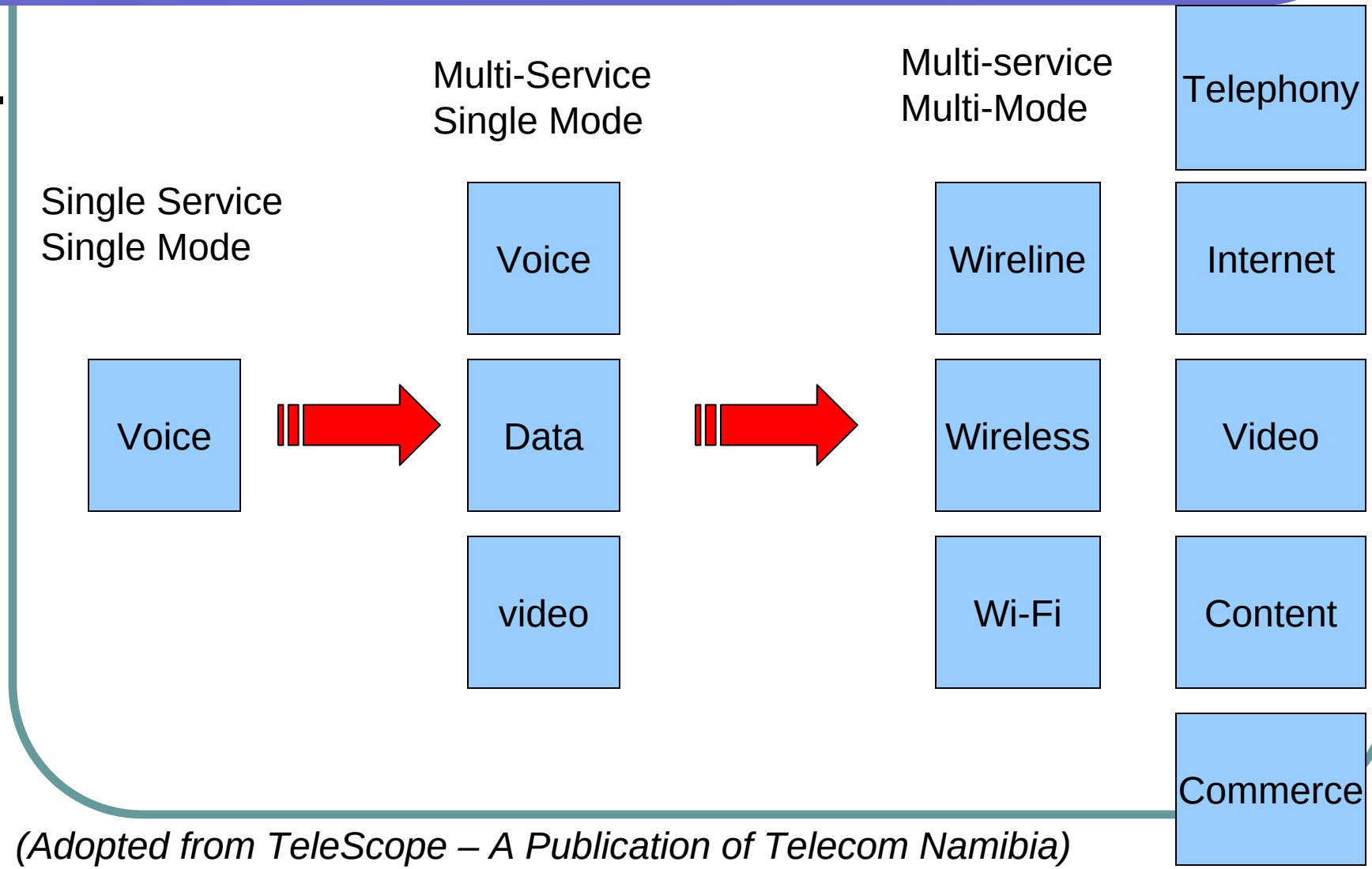
Where is the Telecoms Industry Headed



(Adopted from TeleScope – A Publication of Telecom Namibia)

Future Challenge

The hardest fact to understand is that traditional telecommunications business will become as ‘any other business’…. Providing communication services will be nothing special anymore…..Voice will become a commodity….With all its implications for us.

Andrea Löhnert, *Snr Mngr-BD, TN*

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The Future

If you are not careful, the past just carries you forward; and it carries you forward into a place where the past is irrelevant.

David Varney: *Executive Chairman, HM Revenue and Customs*

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Conclusion

Muito Obrigado