

# Kenya's Rural Access to Communications

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# Rural Access to Communication

- To meet the goal of vision 2030, can the government of Kenya build ICT infrastructure in the rural areas to facilitate improved access to remote and poor areas?
- To answer this question, let us walk together to see how a direct government involvement in ICT through a VSAT technology can create space for private sector investment in the rural areas.

# The Vision 2030

- Kenya government made universal ICT access a key tenet of its economic plan.
- Even though Kenya is set to turn a corner in Broadband with recent arrivals of the EASSy, SEACOM and TEAMS fibre-based international submarine cables, access of broadband to the rural areas still remains a challenge.

# Data on ICT Development

- Currently % population of Kenyans within 24km of fibre is 39.4%.
- Certain industry sectors constrained by location in difficult terrain
- According to the estimates, it is shown that 10% of broadband penetration may have an impact of 1.4% of GDP; 10% increase in the Internet penetration is equal to 1.1% of GDP as well as 10% increase in mobile penetration is equal to 0.8% of GDP

# Current Data for Kenya

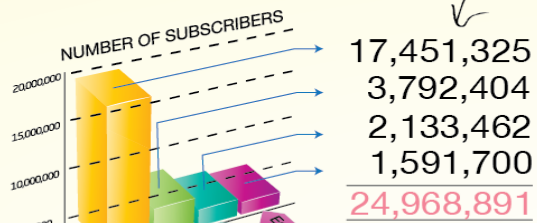
(Source: TeleGeography)

Total wireless subscribers (Jun 2011):	23,360,000
Population penetration:	58.80%
Quarterly growth:	0.30%
Total broadband subscribers (Jun 2011):	155,000
Household penetration:	1.70%
Quarterly growth:	14.80%
Total PSTN lines (2010):	380,748
Household penetration:	4.30%
Annual growth:	-33.30%



## Subscribers

The total number of mobile subscribers in Kenya as per the second quarter of 2010/2011 stood at

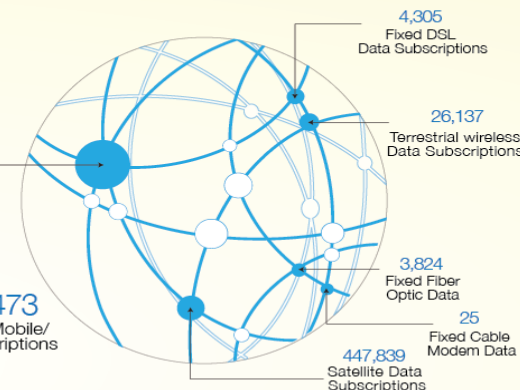


## Penetration

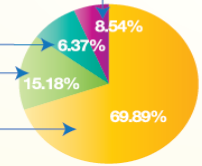


## Mobile Internet

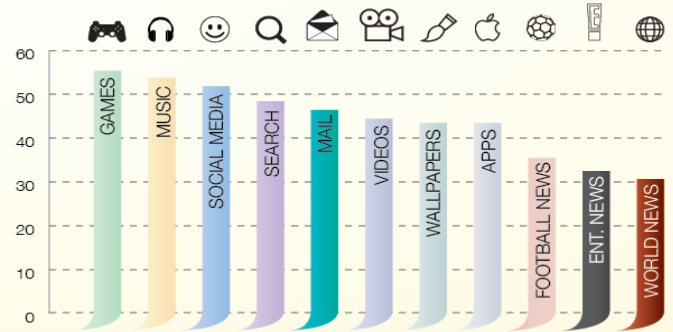
As of May 2011, there were **10,199,836** Internet users



Which can also be represented as this



In the same quarter..



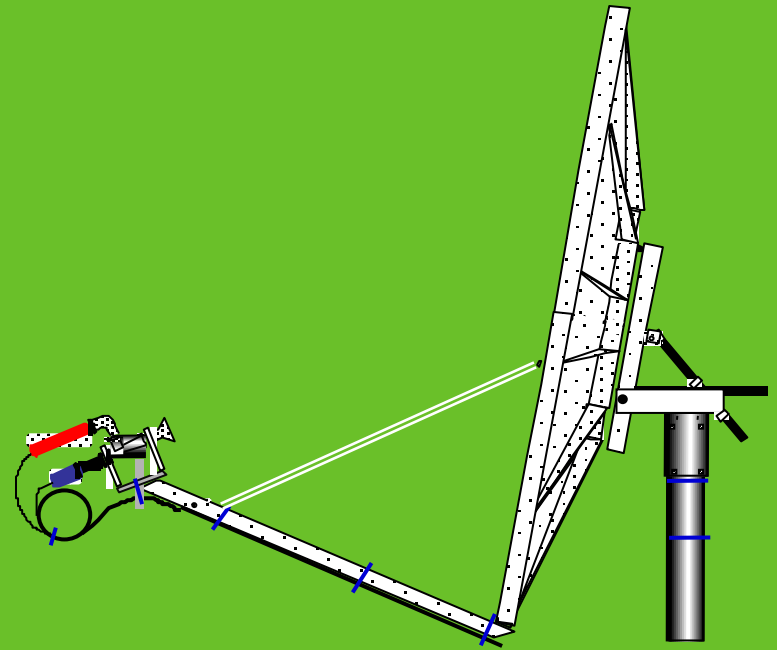
## MOBILE INTERNET USAGE

# VSAT Technology

- Through VSAT technology in rural areas can help increase GDP

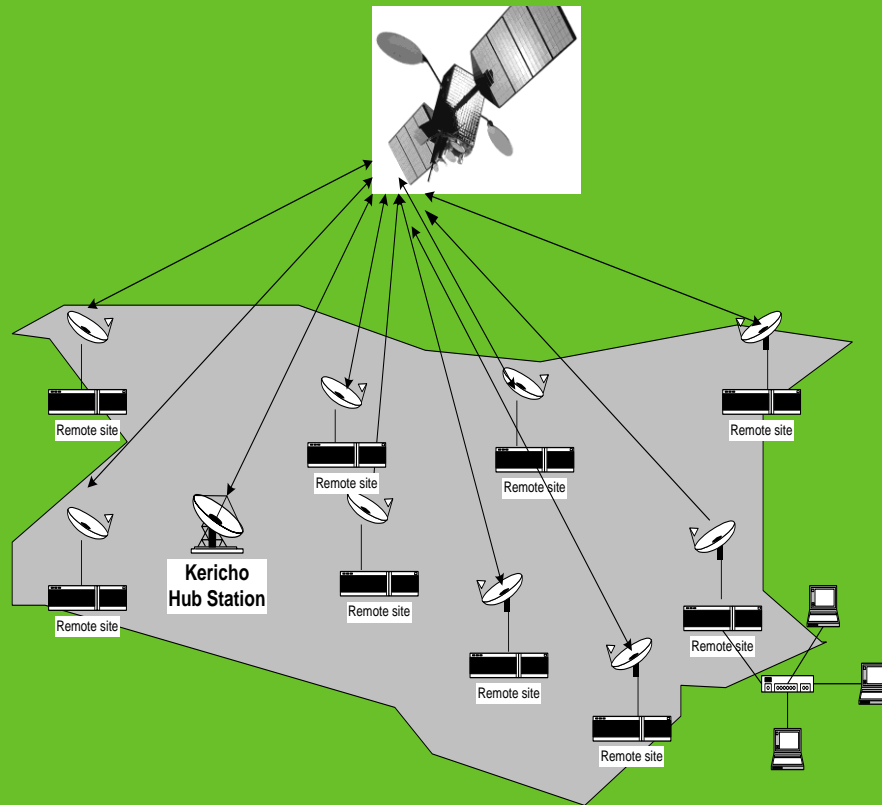
# What Is a VSAT?

- A **V**ery **S**mall **A**perture **T**erminal is a small fixed satellite antenna with a diameter less than 3.8 m that provide highly reliable communication means between a central hub and almost any number of geographically dispersed sites.





# VSAT Topology



# Applications

- Retail Networks
- Corporate Networks
- Rural Telephony and Network extension
  - Cellular Backhaul
- Internet/Intranet Access
- SCADA/Line Monitoring
- Disaster Recovery
- Video Applications
- Distance Learning
- Disaster Recovery
- Ship-Board Communication
- Telemedicine



# Advantages of VSAT

- Quick Installation
  - A satellite network can be installed in a matter of weeks
- Geography
  - The networks can span rain forest, deserts and mountainous terrains
- Bandwidth
  - Upgradable bandwidths for bigger pipe for video, data and voice
- VSAT offers telecommunication providers easily scalable, cost-effective Internet access

# VSAT Application to Economic Pillar for Development

- Infrastructure:
  - Telecommunication
  - Water and sanitation facilities
- Science, Technology & Innovation:
  - Scientific research
  - Technical capability of workforce
  - Raising quality of education in our institutions
- Millennium Development Goals (MDGs)
  - Universal primary education
  - Lower HIV/AIDS and major diseases incidence
- Short Target for VSAT Application:
  - Education Institutions, Kenya's Secondary Schools
  - Medical Institutions
  - Security/Crime Prevention
  - Water and Sanitation

# Education Institutions: Kenya Schools in the Rural Areas

**Establish a computer supply program that will equip students with modern IT skills:**

- Instant access to global education resources
- Ability to serve a large number of students at a potentially reduced costs
- Efficient delivery of course materials independent of location and time
- Quick and easy way to create or revise course materials
- Interaction with other students through email and discussion forums
- Opportunities for international, cross-culture and collaborative learning

# Kenya Secondary Schools Estimate Summary

Nairobi	48	Nyamira	131
Kiambu	99	Gucha	131
Kirinyaga	63	Bondo	34
Muranga	85	Suba	7
Nyandarua	86	Rachuonyo	40
Maragua	82	Nyando	44
Thika	106	Kuria	12
Nyeri	124	Kajiado	18
Kilifi	30	Kericho	54
Kwale	28	Laikipia	34
Lamu	5	Nakuru	96
Mombasa	19	Nandi	74
Malindi	9	Narok	17
Taita Taveta	37	Samburu	7
Tana River	9	Bomet	50
Coast	137	Koibatek	20
Mbeere	36	Bureti	47
Meru North	34	Keiyo	29
Moyale	3	Transmara	10
Embu	56	Baringo	34
Meru South	40	Turkana	8
Marsabit	5	Elgeyo-Marakwet	24
Kitui	63	Trans Nzoia	53
Isiolo	5	Uasin Gishu	72
Machakos	127	West Pokot	19
Meru Central	56	Bungoma	130
Makueni	139	Busia	28
Tharaka	10	Kakamega	83
Mwingi	35	Vihiga	84
Kisii	91	Lugari	28
Kisumu	49	Mumias - Butere	60
Saya	53	Teso	15
Homa Bay	31	Mount Elgon	20
Migori	44	Garrisa	9
		Wajir	6
		Mandera	6
		Ijara	1
		<b>NATIONAL Total</b>	<b>3,242</b>

# Item Requirements for 2,000 Schools

Item	Quantity	Unit Price (\$)	Total (\$)
<b>Ground Equipment</b>			
<b>Hub site</b>			
Antenna 7.6 , motorized, hub	1	Existing	
Hub Network Management System	1		
SSPA 100 W (1:1) with rack	1		
Hub Baseband-to-IF-Equipment (HBE)	1		
<b>Remote sites</b>			
2.8 m C-Band transmit/receive antenna, feed, non-redundant Outdoor Electronics Unit (ODU) with 5 W SSPA, non-redundant Indoor Electronics Unit (IDU), cabling.	2,000		
Voice over IP interface cards	250		
Total Hardware			
<b>Services 10% of hardware (Estimated)</b>			
<b>Total hardware and service</b>			

# Medical Institutions in the Rural Areas

- Through ICT, the remote health centers can link with major health institutions in the counties.
- Enhance availability of basic drugs at the centers
- Speedy response during emergencies
- Doctors can exchange information
- Sharing and developing medical information
- Doctor's access to latest information on diagnosis and treatment
- Enhanced prevention and management
- Establishment of community database of drug and information center
- Telemedicine: Doctors can communicate with their clients on health needs



# Security/Crime Prevention: Rural Access

- Residents can speedily inform authorities on security issues before they get out of control
- Community policing becomes more effective
- Surveillance systems can be installed in the institution within community
- Accuracy of information to authorities is more accurate

# Water and Sanitation: VSAT Application

- ICT can be used to inform community on best practices in sewerage management, water treatment and environmental sanitation
- Establishment of internet services will help community to upload and send images on community basic needs
- The ICT will be used for research purposes, treatment and monitoring of water and sewage systems

# Conclusion

- We can close the gap, reduce the digital divide, we can reduce the economic divide, the political divide, increase our GDP, by providing VSAT services to Kenya's rural area and we can do now!

Q&A