TRANSPORTING EMAILS AND VOICE BY BUS TO CONNECT RURAL COMMUNITIES IN GHANA

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The Ideal World

- Efficient communication system
- Fast Speed Connection to the Internet
- Able to communicate using:
  - Email
  - Voice (regular phone or VoIP)
  - Video

The Reality

- A huge number of communities are yet to have communication infrastructure
- Internet connection is the preserve of city dwellers
- Mostly ISPs concentrate their businesses in the big towns and cities
- Most rural communities are cut off due to poor or non-existent infrastructure

Ideal Solution

- Provide country wide infrastructure to connect all villages big or small
  - Landline (Dial up)
  - GSM (GPRS)
  - Wireless Broadband
  - Fiber Optic
  - etc
- Provide high speed access to the Internet to all communities
- Make cost of ICT services affordable to all

How Possible?

- Possible but difficult
  - Cost is too high
  - ISPs are located in big cities because that is where money is
  - The last mile is just too long to reach using cost effective technologies

Objective

- Find something that works
  - Simple
  - Cheap
  - Easy to replicate
  - Scalable
  - Flexible

Solution – An Alternative

- Utilizing a store-and–forward system to carry data and voice by employing buses
- Compose of three parts:
  - A LAN at the remote rural community
  - An Internet gateway
  - A conveyor which can be mounted on vehicles (Buses etc)

Solution – An Alternative

Rural Site

- Email Server
- VoIP System
- WiFi
- Client Computers

Client PC

- Email Clients
- Softphones
- Head Phone + Microphone

Internet Gateway

- Email Server
- VoIP System
- WiFi
- Media Gateway
- Integrated Voice Response System (IVR)

Mobile System

- A PC with sufficient Storage
- WiFi
- Email Server
- Acts as a “carrier” for data

Mode of Operation - Email

- User accesses the system through the client PCs at the rural site
- User can read and send emails through the email client software
- Server stores out going messages until fetched by mobile system
- When the Mobile system arrives, it connects to the server via WiFi and picks up out going emails. Incoming emails are off-loaded to the server

Mode of Operation - Email

- Mobile system is transported on wheels to the Internet gateway
- A connection is made to the Internet gateway via WiFi and email messages are exchanged between the two systems

Mode of Operation - Voice

- User places voice calls through the microphone and the softphone by using the email address of the recipient
- The call is recorded and sent to the recipient via email
- Voice calls arrive into the email box of a user as audio attachments
- The audio attachment can be replayed by any audio tool to hear message

Benefits

- Provide a cost effective way of providing ICT services to rural communities
- Encourage the setting up of store-and-forward cyber cafes in rural communities thus linking rural communities with the rest of the world
- Facilitate communication among rural folks
- It is legal in this case to make “VoIP” calls

Thank you