Information from the Community Wireless Resource Centre

A Community Wireless Resource Centre (CWRC) is being established under the Department of Electrical Engineering, at the Makerere University. The general objective of the centre is to provide or enhance sustainable Internet connectivity infrastructure, particularly in rural or underserved areas in Uganda, by means of wireless technology.

As its flagship project, a total of six Community Wireless Networks will be designed and implemented in three regions of Uganda; Kampala, Kabale and Lira. Each wireless network will be built around an existing Telecentre and use existing resources, such as VSAT equipment and radio towers, to facilitate the establishment of the network.

The concept of Community Wireless Networks is based on the possibility for communities to build self-owned and operated communications networks. Consequently, connectivity in communities will be enhanced, and will be made available at a more affordable cost.
The project will also enhance capacity of the Telecentre staff in the installation and maintenance of community of wireless networks. The CWRC will also work towards finding suitable business models for community wireless networks that enhance their sustainability.

How does a Community Wireless Network work?

The picture below shows how the Community Wireless Network will provide all partners access to Internet.

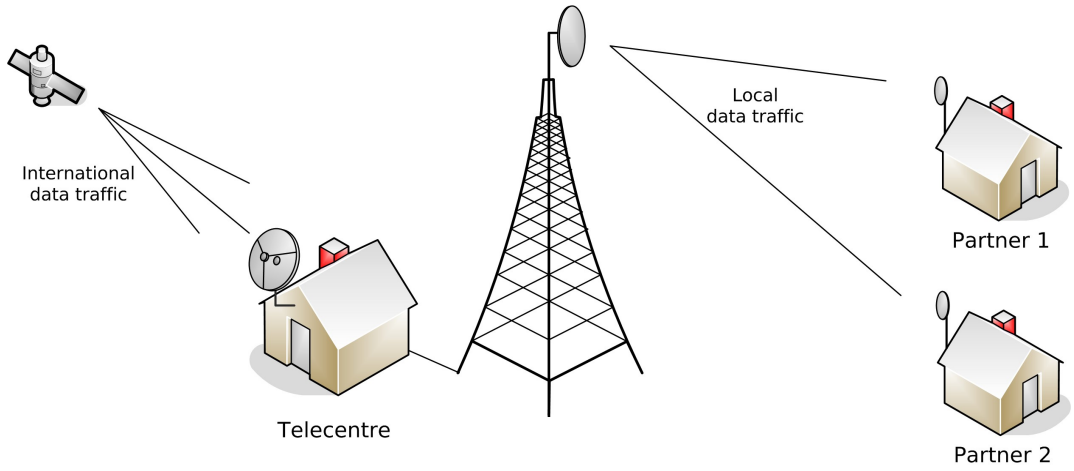

Figure 1: Graphical overview of a Community Wireless Network

1) The Telecentre is equipped with an Internet connection, normally through satellite communication as the picture above shows, or by other means.
2) By means of a network cable, the Internet connection is extended to a communication tower on the premises of the Telecentre.
3) A radio transceiver (access point) operating in the 2.4GHz unlicensed band will be installed in the communication tower.
4) Each partner will be equipped with a radio transceiver and an antenna (see Figure 2) to be able to communicate with the tower.

In this way, each partner will be able to communicate with each other and have access to the Internet.

Equipment installation in partners' premises

The following equipment will be installed in each partners premises.

A = Antenna
Receives and amplifies the radio signal sent out from the communication tower.

B = Wall mounted pole
Serves to keep the antenna in a fix position to make sure that it is placed in such angle that there is an unobstructed line-of-sight to the 'server' antenna in the tower at the Telecentre.

C = RF cable
Relays the received signal from the antenna to the radio equipment (Access Point).

D = Access Point
Processes the radio signals and forwards them to a computer or a network switch.

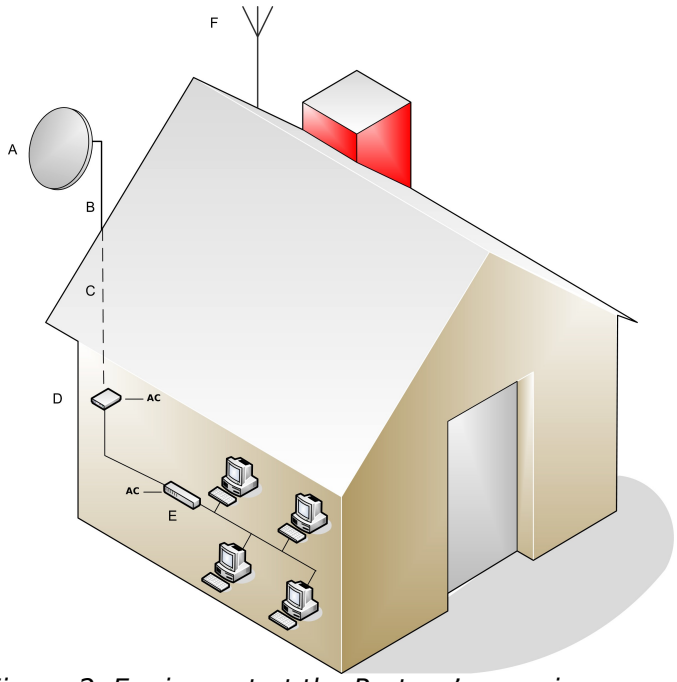

Figure 2: Equipment at the Partner's premises

E = Network switch
Enables sharing of the the Internet connection between a number of computers at the partner's premises.

F = Surge protection
Protects the partner's premises from lightning strikes. Computers, like other electronic gadgets need very stable power. All precautionary measures against any power-destabilization elements need to be taken.

Partners' responsibility

It should be noted that the partners have a key role to play in making these Community Wireless Networks beneficial to the communities. In brief terms, this is how the responsibility of procurement, installation and maintenance must be shared.

The following equipment will be procured and installed by the CWRC in each partners premises:

- Access point
- Antenna and radio cable
- UPS
- Surge protection
- Network switch

Any other equipment and installation beyond the network switch into the partner's premises are a responsibility of the partner.

The safety of all the link equipment at the partner's premises (including the antenna and Access Point) is another responsibility of the partner. The partner is also required to provide electric power for the radio equipment.

Contact Information

Below follows contact information for the Community Wireless Resource Centre.

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