UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION
INTERNATIONAL ATOMIC ENERGY AGENCY
INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS
I.C.T.P., P.O. BOX 586, 34100 TRIESTE, ITALY, CABLE: CENTRATOM TRIESTE

PARTICIPANTS' REPORTS-3

ICTP - URSI - ITU/BDT WORKSHOP ON THE USE OF RADIO FOR DIGITAL COMMUNICATIONS IN DEVELOPING COUNTRIES

(17 - 28 February, 1997)

"Use of Radio Systems for Digital Communications in Ethiopia"

A. Bizuayehu
Addis Ababa
ETHIOPIA

Use of Radio Systems for Digital Communication in Ethiopia.

Abstruct

During the past years the use of Computer Systems for industiral applications has become increasingly widespread. In Ethiopia such application has bee in practice widely in area such as: Airlines, Telecommunication, Commerical Bank, Weather Station, Railway & Shipping & Agricultural Companies either in public or private sector. In this paper the application of radio systems for computer networking is reviewed, accordingly to the principal current application areas in Ethiopia.

Background and Vision

To meet urgent demands in computer networking, on developing country like ethiopia. must intensify and hasten its efforts to build and operate successefully appropriate communi-cations network. Typically, the computer networks coul be needed either to provide information to the developed economical sectors or alternatively to support the establishement of small but widely-based cottage industires. Among such obvious areas are Banks, and Insurance ventures. There are several challenges currently facing the Ethiopian Telecommunications Coorporation (ETC) to the sole provider of telecommunication service to provide a reliable, good quality, and cost effective service for custemers who are ineed of computer networking.

1. Services are too costly to introduce and maintain
2. New technology makes new services possible
3. There are inconsistencies in the data needed to Operate the network and the service.

Radio Systems is the current effort set up to dieal with different aspects of these problems. It has become clear taht any new technology which performs a routing function must be available at the same cost or preferably, a lower cost than the conventional alternative. It is in this context that the markete price of the Digital Radio Systems has been investigated. The cost of the various components which make up the proposed system are being analyzed to uscertain what those costs are and what opportunities exist to reduce them. The major work and conclusion of the

project are thus presented in this section.

Simplified Representation of the computer networking by using radio links for commercial bank of ethiopia.

Commercial bank of Ethiopia is the major banking service provider in the public sector. It has 50 branch offices in the country, and its major operation is in the capital city. Addis Ababa where 40 branch offices are located and the rest 20 are in the towns of the regions.

The goal of the bank is to interconnect its computerized branchs office so as to provide an efficient and reliable service to its coustmers. There are a number of proposal have been studied to realize the goal of the company by Ethiopian Telecommunication (ETC) overtake the development and implementation of the project based on the need of the Bank. The work were result in a set of specifications of the network, its component parts and its key interfaces to the existing telecom network.

The major aspects of the network is shown as system block diagram in the figure.

i) Branch Office: The Head& Branch Office Local area network (LAN) were installed by the bank depends on their need.

ii) Transmission media: It is this part of the project that ETC has been responsible. The first task was to decide either to use the existing telephone line or to construct a stand alon system. The existing telephone lines has many shoot coming to use for this system, Among them reliability, quality and security is the major factor.

To construct astand alone system that has high reliability, goal quality, and secured transmission media was the decesion reached by ETC.

Among th4 various transmission media and systems of Digital Radio Multiplex Access for the following two major reason

1. Economically the cost of the system is low compared to other media such as Optical fiver and Copper cable
2. Technically the quality, reliability and security of the system is high compared to the existing copper. Wire line and its system configuration is flexialbe and easy to expand and interface to the existing trunk digital microwave system in the city.

Due to the above reason ETC decides to implement trhe project using digital radio multiplex access subscriber system (DRMASS) and the studyt phase of the project is now completed.

Conclusion

This paper has given an overview of the current status of usee of digital radio system for computer networking in Ethiopia. Though commercial bank of Ethiopia computer networking project not yet implemented and now in its study phase, there are a number of companies such as Insurance, Railways who needs to network their branch offices.

Generally the current result of the commerical bank of Ethiopia computer network using digital radio subscriber System (DRAMASS) will give RTC good experience to the future.

BIZUAYEHB
ACHENEF
FROM ETHIOPIA