

Multimedia Application over Satellite Communications

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Abstract—Satellite communications have a great advantage over any other communication network whenever the information is targeted to a large population of receiver or when they are spread over large areas. This makes satellite communications to be especially suitable for the provision of multimedia applications in remote areas that would be very expensive to reach with terrestrial cables or even terrestrial radio links.

This paper proposes the architecture of multimedia applications (for example, electronic newspaper/magazines, remote learning, multipoint audio/video conferencing, enterprise distance training) based on the Geostationary Earth Orbit (GEO) satellite communication facilities with the Moving Picture Experts Group (MPEG) technique. Users can get desired information from multiplexed data by using the multimedia satellite communication systems. Satellite communication system expects to be used to offer these multimedia services rapidly and larger bandwidth.

Keywords—satellite communication; geo-stationary earth orbit; videoconference; multimedia applications; MPEG-4.

I. INTRODUCTION

Multimedia information service will need to become interactive broadcast in order to satisfy the users' varied high performance requirements [1]. With the rapid technological advances experienced until now, we expect that very soon we will have information technology which includes telecommunications, computing, video, TV, video-conference, and consumer electronics in every building (home or business). The challenge of this is provide multi-application network accessible to everybody everywhere. It is recognized that the terrestrial network, even very large bandwidth, available due to optical fiber technology alone cannot meet the requirement. A large investment is required to bridge the last mile between the local exchange and the customer.

Geostationary satellite communication satellite usually provides a backbone to interconnect regional computer network, or to support enterprise network or local network and can play a complementary role by reducing the time to market [2]. The overall goal of broadcasters is to provide larger and better service over a given bandwidth. The satellite system adopts digital platforms for providing two-way multimedia services as well as data broadcasting. These platforms will improve greatly the speed of multimedia services to the end user and will provide the possibility of downloading very large files in a very short time (e.g. downloading speeds of up to 45Mbps). Though the multimedia satellite communication system using transportable earth stations of the medium bit-rate satellite will be carried out.

II. SYSTEM ARCHITECTURE

The satellite communication architecture is shown in Fig.1 [3]. For wideband multimedia applications, geostationary satellites with several high-gain spot beam antennas, onboard processing, and switching are the logical step to migrate from pure TV broadcast to interactive multimedia services. The system is a two-way network delivering data services as a high data rate to the end-user station via a GEO satellite using the digital video broadcast (DVB) standard. The satellite communication system is preferable to ANASAT-8 of satellite transponder Fig.1 gives an overview of the system an earth station at the uplink site sends the multimedia data to users via satellite network. Users can access the terrestrial transmit the users' desired information from the end-user station or send the multimedia data to other stations via satellite network directly. The multimedia satellite configurations is a space-based communications system that provides

