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SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Fixed and Broadcast Communications (1)

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INTERNET OVER SATELLITE - POTENTIAL FOR DIGITAL INCLUSION

Abstract

Over the last decade Internet has evolved from a communication tool to cover most facets of human activities and is now enlarging itself to cover the machines. It has also now become indispensable as a source of information, innumerable number of web based applications, social networking and entertainment. The developing world has also realized the potential of Internet to transform the lives of people in all cross sections of society. Digital inclusion and broadband access to Internet are now being included in the national policies of many countries. The aspects of quality of service of access to Internet such as availability and speed are the issues that are being addressed for continued improvement of these parameters, so also to accommodate new applications While optical fiber is primarily considered for the high speed Internet service, there are many areas in several countries which cannot be provided connectivity through fiber due to difficult and remote terrains and techno-economic reasons. Internet over Satellite (IoS) is emerging as the medium for providing access to such areas. While IoS systems are mainly proposed for providing direct internet connectivity to end users, IoS technologies can also help filling the gaps in middle mile connectivity for ISPs not only in rural and remote areas but also in urban areas. The advances in satellites such as high throughput satellites (HTS) with frequency reuse through multiple spot beams are enabling the provision of high speed internet in a cost effective way. In the ever increasing mobile applications and use, satellites in co-existence with terrestrial system can play important role in improving the quality of service and network costs. This paper examines the various aspects of IoS systems such as satellite orbits, frequency bands of operation (Ku and Ka bands), sizing of the network (number of spot beams, gateways, latency, access speeds, total throughput, and number of subscribers), local distribution systems, applications including mobility, integration of different satellite based services, etc.