Series - Satellite Commentary -

TREND TO BROADBAND COMMUNICATIONS AND ITS EFFECTS ON SATELLITE COMMUNICATIONS

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As a research engineer in a Japanese international communications company, I entered upon a satellite career around twenty years ago. At that time, satellite communications were star media, covering most of the world with broadest capabilities, as compared to coaxial submarine cables and short-wave communications. I clearly remember that excitement I felt when I phoned over a communications satellite to a foreign country by actually feeling the delay by the satellite.

However, around 15 years ago, one of the features of satellite communications, the broadband capability, was completely taken by newly emerged optical submarine cables, which were installed and operated with a surprising speed in the world. First, cables were constructed to connect separated two points. Then, optical submarine cables were interconnected, sometimes interconnected under the sea, to form networks covering the world. As a consequence, another feature of satellite communications, the wide service availability, was also taken by submarine cables. People then got accustomed to new media with a small delay, optical submarine networks, which clearly changed the role of satellite communications. I sometimes heard people criticized the delay of satellite communications, and felt the dawn of a hard time for satellite communications research engineers. Nowadays, voice communications are widely used in mobile satellite systems, however, voice services in the fixed satellite systems are strictly limited to links connected with developing countries.

Internet becomes popular with an incredible speed. It is common that an elementary or junior high school student uses a PC in his/her home to exchange e-mails or to browse Web pages. Under these circumstances, broadband media, e.g. ADSL, become also popular. $ 25 for unlimited Internet connections is now not a great surprise.

The trend toward broadband communications made a society where people do not pay as much money for broadband services as before, which again changes the role

of satellite communications. For example, if we use satellite links for telephony communications conveying information peculiar to individuals, the tariff may become too expensive for those accustomed to broadband services. I believe that satellite communications should find specific fields to survive, where information transmitted through satellites be shared by many in a real-time or non-real-time fashion.

Satellite broadcasting services may be a satellite representative service, where information is shared by many users. Not surprisingly, the trend toward broadband communications surely affects satellite broadcasting. Users strongly request that satellite broadcasting services be served with a low tariff yet even with more satisfying contents. Internet may be another satellite service where information is shared. Satellite communications are often utilized to transmit heavy contents to remote Internet service providers. In future, more advanced satellite Internet services will emerge where users unconsciously utilize satellite communications with a low tariff. In such systems, satellite communications will be activated only when terrestrial cellular systems and/or radio LANs, connected to optical cables, are unavailable. In another word, satellite communications are used just to complement terrestrial radio systems, since satellite communications are essentially more expensive services than terrestrial ones. To realize such systems, where satellite communications, cellular systems and radio LANs are seamlessly and economically switched, cheap satellites, cheap launchers, cheap operating cost, and cheap user-friendly terminals would be mandatory, on which I will discuss in the next issue.

It is a pity that a rising generation nowadays does not experience brilliant excitements related to satellite communications. But, I believe that satellite communications will come back again in future with fascinating broadband services, which never be realized with other media.