

# I N N O V A T I O N S

A SERIES OF ARTICLES WHICH EXPLORES SOME OF THE COMPLEXITIES OF EMERGING TECHNOLOGIES

## THE WAVE OF THE FUTURE

### DIRECT BROADCAST SATELLITE IN THE UNITED STATES

BY STANLEY S HUBBARD, UNITED STATES SATELLITE BROADCASTING

THE FOLLOWING ADDRESS WAS DELIVERED AT THE INSTITUTE FOR INTERNATIONAL RESEARCH (IIR) ASIA-PACIFIC CABLE & SATELLITE TELEVISION SUMMIT, HELD IN HONG KONG FROM 29 NOVEMBER TO 1 DECEMBER 1993.

High-power Direct Broadcast Satellite service will begin in the United States on or about 1 April 1994. Indeed, America's first high-power Direct Broadcast Satellite is scheduled to be launched on 17 December 1993. This satellite was manufactured by Hughes Communications for Hughes DirecTv and our company, United States Satellite Broadcasting (USSB). It will carry a complement of sixteen 120 watt transponders which will make it possible, through digital compression, to serve the entire continental US with four channels of live video per transponder or eight channels of movies per transponder via an 18 inch receiving dish. The system is entirely digital, and it will be the first widespread application of digital technology for the reception of visual, audio and data services into the home.

The first home equipment manufacturing and sales will be provided by Thomson RCA. Thomson RCA is the developer of this system, which is to be known as DSS or Direct Satellite System. The system will consist of an 18 inch satellite receive dish, a set-top receiver and a remote control. The remote control will be capable of controlling any brand of television set as well as the RCA DSS equipment.

#### ACCESS

The access control for the service will be provided by News DataCom through a chip containing SmartCard. Unlike an earlier system which has

been used by BSkyB in Great Britain, the DSS/News DataCom authorisation system will contain a special chip designed only for the DSS system. We believe that this will be the most secure system for the transmission of individually addressed television, radio and data information ever used anywhere in the world. USSB and DirecTv plan to change the SmartCard from time to time - perhaps as often as every 18 months - in order to make sure that any would-be pirates understand it would not be economically feasible to try to manufacture counterfeit cards.

The picture and sound which will be transmitted by USSB and DirecTv on the DSS system will be unprecedented high quality. People can expect to receive transmissions that will be equivalent to S-VHS or laser disc in quality.

In order to build a Direct Broadcast Satellite system, three key elements have to be put in place.

1. There must first be a high-power satellite capable of sending signals to very small receive dishes.
2. There must be a qualified manufacturer and distributor of the home receive equipment.
3. There must be one or more Direct Broadcast Satellite companies capable of providing programming and other services which will appeal to the general public or to more specialised groups of people.

In the case of Direct Broadcast Satellite in the US, all three elements are in place. In addition to the high-power

Hughes 601 satellite, Thomson RCA will sell the required DSS home receive equipment to the general public through its thousands of dealers as well as backyard dish dealers and major retail electronic outlets. The price, including all necessary equipment will not exceed \$US699. After one million RCA units have been sold, Sony will then enter the Direct Broadcast Satellite home equipment marketplace with their equipment. After six months of RCA and Sony manufacturing and distribution, the marketplace will be open to additional qualified electronic home equipment manufactures. Of equal importance, major brand-name programming is in place for both USSB and DirecTv Direct Satellite operations.

So what we have in the US is a high-power Direct Broadcast Satellite system whereby the home receive equipment will be provided by RCA, the satellite will be built and paid for by USSB and DirecTv and whereby DirecTv, USSB and RCA will cooperate together to create public awareness and interest in the value Direct Broadcast Satellite Services will offer. DirecTv and USSB will cooperate with RCA in the promotion of the system; and, of course, we will share this common satellite. USSB will own five transponders and  $\frac{5}{16}$  of the first satellite, and Hughes will own the remaining 11 transponders.

#### DISTRIBUTION

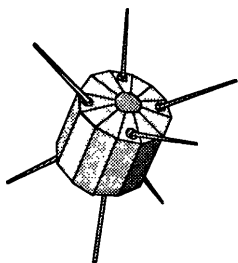
In addition to the USSB and DirecTv program distribution systems, DirecTv

has entered into arrangement with the National Rural Telecommunications Cooperative to distribute equipment and programming in certain rural areas within the US. USSB will be selling its programming within those same areas in competition to DirecTv and NRTC. The two Direct Broadcast Satellite licensees will own and operate a satellite together but will compete for programming, audience and revenue. Six months or so after the launch of the first satellite, which will be known as DBS-1, Hughes will launch a second 16 transponder satellite which will be owned and operated exclusively by Hughes. Both of these satellites will be located at the 101 West Longitude orbital slot.

The DSS equipment is so designed that when a consumer buys the home receiver equipment, he may point the dish at 101 and receive both USSB and DirecTv program offerings with equal ease. In other words, a 'seamless' Direct Broadcast Satellite service which will make it easy for the general public to receive the services of both Direct Broadcast Satellite companies.

In the US there is a large and successful cable television industry. Cable in the US reaches about 62 million homes out of a total of 94 to 96 million homes. Cable has been a very profitable business and cable has had a virtual monopoly on the delivery of multichannel television program services in the US. For this reason, some have suggested that because cable is so widespread in the US, it should be very difficult to establish a Direct Broadcast Satellite system. The truth, however, is quite different. Cable has paved the way for a successful Direct Broadcast Satellite system because cable has educated people to understand the value of a multichannel video service. That is to say that when cable first began, people did not understand what it was to have

a choice of 20 or 30 different programs at any given moment, but over the years cable has done a good job of



educating the public on the value of such multichannel programming services. DBS will benefit greatly from this education process.

### **PROGRAMMING**

Cable has been so successful and so popular in the US that it has become the policy of the US government to do whatever it can to encourage competition and diversity in the multichannel video marketplace. To that end, in the fall of 1992 the US Congress passed the *Cable Television Consumer Protection and Competition Act* of 1992. This Act, among other things, 're-regulates' the cable industry and provides the rules under which cable must operate. One of the provisions of the Act provided that cable systems which also own program sources - we call them vertically integrated systems - may not withhold their programming from competitors such as DBS or land wireless multichannel television, which is otherwise known as MMDS<sup>1</sup>. When the new law took effect, programmers who had wanted to deal with Direct Broadcast Satellite no longer had to worry about possible reprisals from unhappy cable operators. Since that day, cable programmers have been eagerly pursuing the two DBS operators, USSB and DirecTv.

For example, our service, USSB, has acquired what we feel is the best programming available for offering on our service. We will have multiplex services from HBO and Viacom. These services will include all that HBO and Cinemax offer as well as Showtime, the Movie Channel and FLIX offerings. In addition, our company will offer MTV, VH-1, Nickelodeon, Comedy Central, Lifetime, perhaps one other basic service, and the All News Channel which is a 24 hour headline news service produced by Conus Communications. (The All News Channel is a joint venture between Viacom and Conus Communications). In addition, USSB will offer two advertiser-supported, over-the-air channels. These two channels will be similar to an independent television station operation. We like to think of them as

national independent television stations. There will also be two special-interest groups. Over a few years time, this special programming will consist of arts, special sports, education and many other unique services. Other program offerings from USSB are yet to be decided.

### **DIRECTV**

DirecTv, because it has more transponders, will be offering even more services: The Cartoon Network, CBC Newsworld (Canada), CNN, CNN Headline News, CNN International, C-SPAN, C-SPAN 2, Country Music Television, The Discovery Channel, Disney Channel, E! Entertainment Televisions, Family Channel, The Learning Channel, The Nashville Network, Northstar (Canada), Sci-Fi Channel, Superstation TBS, TNT, Turner Classic Movies, and the USA Network. In addition, DirecTv plans to offer more than 60 channels of pay-per-view video-on-demand movies with a new movie starting every 15 to 20 minutes. DirecTv will also be providing out-of-market major league sports. (Out-of-market means, for example, that if the New York Yankees baseball team were playing the Boston Red Sox, everyone in the country who wishes, except those people who live in Los Angeles and Boston, would be able to watch that game from DirecTv). We believe this is a very good concept and we hope Hughes will have great success with it.

You may wonder why we hope our competitor DirecTv will have great success with their out-of-market sports offerings or any of their other program services. The reason is quite simple. We believe the USSB and DirecTv services, while competing with each other, will also complement each other. For the first time, people will have tremendous choice as to which multichannel provider they wish to use. People may choose from the local cable company (if there happens to be one where they live), or an MMDS (if there happens to be one where they live), or from DirecTv. Imagine what a wonderful opportunity this new world of digital plenty is going to make available to the

1. See p. 13 for a brief description.

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American, Canadian and millions of Mexican people. No longer will people have to look to a monopoly such as cable as their only source of multichannel programming. For the first time there will be genuine competition.

#### **FIBRE OPTICS AND INTERACTIVE TELEVISION**

Now that I have given you this brief rundown on the coming DBS service, you may be asking, 'What about fibre optics and what about interactive television?' We believe that, as we say in the US, 'the jury is still out' on the subject of interactive television services. To date there have been only two sources of well publicised experiences with interactive television. One was some years ago in Columbus, Ohio. The experiment was known as the Cube system. More recently, the GTE system in Cerates, California, has experimented with interactive cable services. Neither of these systems has been able to demonstrate a genuine need or desire on the part of the public for such interactive services. However, I am sure you have noted that very large and important companies in the US have been 'scrambling' to get into the interactive television business. Why is this? Is this because a genuine need for such services has been clearly demonstrated? Is this perhaps because some people in the communications industry have been caught up in the hysteria which surrounds the promotion of the interactive concept? Or is it because some companies which are themselves monopolies,

such as telephone companies or power companies, believe they have found the magic words to enable them to convince the Congress to remove restrictions which now prohibit these companies from being involved in the distribution of multichannel video programming? The magic words, of course, are fibre optics, digital and interactive.

Indeed, these words have a magical effect on many people in Washington who have been led to believe that all of the American people are going to be clamouring for interactive home television, computer services, games, home banking, home medical evaluations and on and on. I believe the answer is the last one. Namely, some large telephone companies believe they have found the story which they can play back to Congress which they hope will then move Congress to take away the restrictions which keep them out of the multichannel television business. Clearly, telephone companies want to find a way to become part of what they see as the cable television bonanza. This hysteria has led to demand by many people in and out of government that it should be the job of the government to encourage and facilitate the building of the great 'fibre optic information highway' so that every home in America might have multichannel digital interactive services available.

The problem is that important questions have yet to be answered. The questions are: Do people really want it? Do people really need it? Who is going to pay for it? Will people ultimately buy it? Should telephone service subscribers be expected to have the money that

they pay for telephone service used to help these companies buy up cable systems so as to make the cable monopolies even larger and more powerful than they already are? In other words, it becomes one

monopoly - the telephone company which would also like to deliver television service, instead of two monopolies such as we have now. In that regard, you may have read of the recent purchase by Bell Atlantic Telephone Company of America's largest cable system, TCI. The US Congress has already begun hearings to determine whether or not such a buy-out is in the public interest. I suspect that before the process is completed at least two years will have passed. What the results of these deliberations will be, I cannot predict, but I do know that the telephone companies are among the most powerful lobbies on Capitol Hill.

#### **SATELLITE VS CABLE**

Insofar as high-power DBS is concerned, however, it may not matter very much whether or not telephone companies are allowed to buy cable systems. We believe, and our research supports our belief, that millions of American people would prefer to receive their multichannel video programming via high-power Direct Broadcast Satellite rather than from a cable service. We also know that we will be the first digital service available to the American people and we know that if interactive services are going to be in demand, we, the DBS operators, will be perfectly capable of providing those services, we think, at far less cost to the consumer than any kind of fibre optics or wireless system. You may be asking, how can that be? The answer is quite simple. We can build as much memory into our home receiver/SmartCard as needed in order to provide different levels of interactive services. We can provide that service using the plain old, inexpensive, reliable and efficient telephone system for return communications from the interactive user. An interesting fact not often considered is that in an interactive environment, 96 per cent of the information will go from the provider to the user with only 4 per cent of the information coming back. It does not require huge fibre optic digital capacity for interactive users to communicate with interactive service providers. Indeed, we believe in many circumstances it would be an inefficient

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use of capital to build such a wire or fibre system. However, the US is a free country and if private enterprise wants to build such systems on their own dollar without government assistance, then they are and should be free to do so. It is our belief, however, that the government should not try to 'pick a winner' by favouring one system as against another by tax credits, direct subsidies, or by making it possible for two or more monopolies to merge and become one.

As I said, it will take at least two years, in our opinion, before such questions are answered; and I am sure the fight on Capitol Hill will be a long and expensive process. I cannot predict who will be the ultimate winner in Washington; but I feel confident in predicting that whatever happens in Washington, the consumer will be the ultimate winner, and in that process DBS will become a very important distribution system in the US for multichannel programming, data services and, if desired, interactive services. Keep watching - time will tell.

#### **MULTICHANNEL MICROWAVE DISTRIBUTION SYSTEMS - MMDS**

MMDS is commonly referred to as wireless cable. The wireless cable operator acquires channel signals the same way a cable operator does. Instead of modulating them onto a cable to everyone's house, the MMDS operator uses a microwave transmitter that broadcasts up to about 20 channels over a limited area to small microwave antennas aimed at the transmitter.

The MMDS operator uses various microwave frequencies that have been allowed by the FCC for this purpose. He is limited to total of about 20 channels. There has been much talk about using compression to increase the total number of channels in MMDS systems, but this is not realistic from an economic and business standpoint.



## **STAR TV AND THE GROWTH OF SATELLITE TELEVISION IN THE ASIA - PACIFIC REGION**

**PRESENTED BY JAMES GRIFFITHS, MANAGING DIRECTOR, STAR TELEVISION, AT THE ASIA-PACIFIC CABLE & SATELLITE TELEVISION SUMMIT, 29 NOVEMBER 1993**

Ladies and gentlemen, it gives me great pleasure to take part in this conference, not just because STAR is an integral part of satellite broadcasting in Asia, but because it is very timely for a conference such as this to be held in this region.

Appropriate, too, that it is being held in Hong Kong which is uniquely positioned as the gateway to the Asian region and is well on its way to becoming the pre-eminent regional media and information centre.

Professor Wei has just spoken about some of the issues facing the satellite and cable broadcasting industry in this region. Over the next three days you will be discussing a number of others, It promises to be very informative.

For my part, I will confine my remarks to what we see as the role of STAR TV in the region, and how we are responding to the enormous challenges and opportunities that exist.

As most of you know STAR - which is an acronym for Satellite Television Asian Region - was established in April 1991 as a result of visionary thinking by the Li family, who saw the potential in developing a pan-Asian satellite broadcasting company.

It broadcasts on Asia Sat with a footprint covering 53 countries from Japan in the east, to Egypt in the west, the Commonwealth of Independent States in the north, to Indonesia in the south. There are an estimated 2.7 billion people living in the footprint.

As you may know, we currently run five channels: BBC, Chinese Channel, MTV Asia, Prime Sports and Star Plus. We continue to strengthen these channels with new and better programs.

For instance, our Prime Sports channel this month began broadcasting NBA games and in boxing has carried the two most recent world heavy weight championship fights. It also carries live formula one Grand Prix motor racing,

Asian soccer, all the Grand Slam events of professional golf and tennis and the recently completed Hero Cup Cricket from India.

STAR Plus, our entertainment channel, focuses on regional and international events, from the Grammys to the Miss India competition. It will also benefit from new access to major film and television programs which will provide among others, such popular series as 'MASH', 'The Simpsons' and 'LA Law'.

Our Chinese Channel continues to draw on program sources from around the region. For example, drama from Japan is a winner with viewers and the channel produces the region's only comprehensive Asian financial program in Chinese.

Meanwhile, young people in the region turn to MTV Asia for the latest information on music, film entertainment and social issues. Recently we introduced a Chinese Top 20 and Indian Top 20 will be included from early 1994. MTV continues to blend East and West in a way that draws the youth of Asia from all across the footprint.

Similarly, the BBC now provides a Mandarin soundtrack for its main news programs and augments its already extensive international coverage with the Indian Business Report, Asia Today, and Middle East Today.

This, then, is the programming that has taken Asia by storm, and there is more to come ...

As well we have developed and are now providing four new subscription channels - the STAR Asian Movie Channel, the STAR Children's Channel and the Asian News & Business channel - for Wharf Cable here in Hong Kong.

With so many diverse cultures covered by STAR TV's footprint, there is a growing demand for multiple-language broadcasting. Already we provide programming in Mandarin and Hindi and

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