Ownership of any media has its own glamour and ideas of ‘power’ associated with it. But is it the same as or as easy as starting a new business? Sudeep Malhotra, a veteran of the satellite & cable television industry with over 25 years of industry experience under his belt, demystifies the process and takes a look at how to go about doing this! Last month we looked at the important aspects of some of the choices you have to contend with while deciding on your channel plans. This month we take a look at a simplified version of the technical parts of the satellite channel broadcast and delivery system...

As is true with any business involving technology, it is essential to understand the basics of the technical aspects in order to be able to take educated decisions.

While the thought of the technology behind satellite delivery of television channels may seem to be mind-boggling, probably you may think of it requiring at least (if not more) a degree in telecommunications to understand, that is not true.

Its quite simple really.

Think of the satellite as a mirror, located up there in the sky, facing the earth. You send a beam of light up to the mirror, which does what mirrors do best – bounces it back at the earth.

Now supposing that mirror was not a flat mirror, but was either concave or convex. Thus depending on that, it would disperse the light over a certain area on earth. This area is called ‘the footprint’. The process of beaming the signal up is called the ‘uplink’ and the process of the

अपने टेलीविजन चैनल की शुरुआत करें भाग-2

किसी भी मीडिया के स्वाभाविक का अपना प्रभाव होता है और इसके साथ विचारों की अक्षर जुड़ी होती है। लेकिन क्या यह ऐसा ही होता है या फिर यह नये विज्ञानों को शुरू करने जैसा आमतौर पर होता है? गैटेलेट्रे द्वा केबल टेलीविजन चैनल के वरिष्ठ और अपने पास चैनल का 25 वर्ष से अधिक का अनुभव रखने वाले सुदीप मल्होट्रा इस पूरी प्रक्रिया को आमतौर पर तात्त्विक रूप से बनाते हुए नये चैनल शुरू करने के विषय में एक नजर झाले हैं। बिगाड़ने महीने उन महत्वपूर्ण पाठ्यों पर ध्यान दिया जिसका समाना आपको अपने चैनल योजना पर निर्माण करने में मदद करेगा है। इस महीने हम गैटेलेट्रे चैनल प्रसारण और डिलियरी नियोजन के तकनीकी मिशऱ को समझने एवं प्रतीत कर रहे हैं।

जैसा कि तकनीकी आमिर किसी भी कारोबार के माध्यम वह मर्म है कि किसी तरह के आत्मविश्वास निर्धारण लेने में सक्षम होने के प्रयास तत्कालीन तब की मूल बातों को समझते हैं।

टेलीविजन चैनलों के गैटेलेट्रे डिलियरी के गोष्ट तकनीकी पर विचार करना संभवतः काफी आसान करता है, संभवतः आप यह गोष्ट यकीन करते हैं कि कम यंग कम इसकी गणना के लिए टेलीविजन संचार में हिंदी की जानत हैं, जो कि नहीं है।

यह वास्तव में बंद मर्म है।

दर्शन के रूप में गैटेलेट्रे को संचालित कि यह पृथ्वी की ऊपर आत्मावन में स्थित है | आप दर्शन के निष्कर्ष की बिगड़ने भेजते, यह बताने करते हैं कि दर्शन उत्पाद करता है, उसे पृथ्वी पर बेडना मोजता है।

अब मानने कि वह दर्शन समाप्त दर्शन नहीं है, यद्यपि यह अवस्था या उत्तर है, तब यह इस प्रपकाश करता है कि यह प्रकाश की गुणवत्ता के लाय स्त्रोतों के ऊपर फैलता है | इस स्त्रोत की ‘फ्यूटिप्ट’ कहा जाता है। सिग्नल को ऊपर भेजने की प्रक्रिया का अत्यंत कठिना जाता है और सिग्नल का बागम फर से पृथ्वी पर प्राप्त करने की प्रक्रिया को
signal being received back again on earth is referred to as ‘downlink’. These form the three most commonly used technical terms in satellite television.

Thus explained, the concept underlying the satellite television system is simple. Television signals are ‘focused’ and sent up using a dish antenna, called the ‘uplink dish’. This takes the signals to the satellite in space. What is a satellite? Simply defined, it is a body located in space, exactly above the equator at zero degrees, rotation along with the earth at exactly the same speed as the rotation of the earth. Thus for someone standing down on earth, it would appear to be stationary. Satellites used for television broadcasts are called ‘geostationary’ satellites, since they appear to be stationary with respect to the earth.

This enables each satellite to have a fixed ‘service area’ or footprint.

The satellite has a number of ‘amplifiers’ or ‘Transponders’, each providing a different frequency that send back the signal down to earth. These are received by the dish antenna installed by the consumer (for DTH services) or by the cable operators at their control rooms. These are the ‘downlink dish’.

The dish antenna has a device referred to as a LNB, or a ‘lpw noise block-converter’ that takes these satellite signals and converts them into lower frequencies called the ‘IF’ frequency. A cable connects the LNB to the satellite receiver, which carries these signals to the receiving unit. In this receiver, the signals are further processed to separate each television channel. This content is then given out from the audio-video ports behind the receiver so that a common television set can receive and show you the pictures.

Sounds simple? The attached diagram will also make it easier to understand.

**COMPRESSION**

As recently as about 8 to 10 years back, most
channels in the sub-continent were broadcast in the analog format. This meant that each channel would use about 36 MHz of bandwidth on a satellite. Thus resulting in a 12-transponder satellite being able to broadcast only 12 channels.

Then along came new technology called MPEG 2 which enabled up to 10 to 12 channels to be broadcast from a single transponder. Suddenly satellite rentals per channel took a nosedive and rates dropped, with the total capacity on existing satellites growing 10-fold.

In the past year, an even more efficient technology from the same group was launched called MPEG4, which now enables the same transponder to provide downlinks for up to 20 channels using the same 36 MHz bandwidth. Here costs of rental have again started to dip for channels using this technology.

But here's the catch…. Over 90% of the cable networks have digital satellite receiver which are MPEG2. These are available in the local markets for prices as low as Rs.800/- for a ‘made-in-China’ unit, going up to Rs.3000/- for a digital receiver with more features.

In comparison, the MPEG4 digital satellite receivers are still low volumes, hence costing almost 3 to 4 times that amount. Hence cable networks now insist that the channels provide the digital receiver to them in case they require carriage.

Bottom line – it pays in the long term to provide for the newer technologies and reduce monthly transponder costs, instead using the money saved in the first year to buy MPEG4 satellite receivers to distribute free to the cable networks.

THE PLAYOUT & UPLINK SYSTEM

The Uplink system basically consists of a player, processor, compression unit and an uplink dish. This could be divided into a pure Uplink facility which is responsible for taking the channel signals provided by you and pushing it to the satellite (or ‘Uplinking’ it). It is at this location also that the signals can be compressed and / or scrambled if need be.

The ‘Playout’ facility or location is where
the tapes or your programmes to be broadcast are actually ‘played’ out so as to provide a signal to the Uplink facility.

This could either be located at your own office or studio, with the signals being transported to the Teleport (where the uplink dish is located) via fiber cables or by microwave point-to-point transmissions; or alternately as was traditional in the past, be located at the Uplink center itself.

The player used would depend on the format which you choose to produce and broadcast your programmes in. It could be the relatively economical DV (digital video) or mini-DV, DVC, DVC Pro, Beta or the high end Digi-Beta tapes being used.

Alternately, quite a few of the new budget channels these days are moving into the tapeless environment, where all processing and playout of the programmes is done from a server or a large hard disk. This is a great saving in terms of costs of tapes and transportation of these from the studios to the playout / uplink facility on a daily basis.

You would of course have to hire a professional specialist company to design this for you and to choose which hardware and software best suits your needs.

In the event that you have decided to scramble the signals of your channel, the scrambling hardware can also be located at your playout facility, though many prefer this to be at the Uplink site.

The ‘authorisation’ of the decoders supplied to cable networks is done using a software called the ‘Subscriber management System’. This can be remotely located anywhere, even away from the playout or Uplink locations, perhaps even at your office, or on an online server, thus enabling you to control it from anywhere in the world by just logging in thru the internet!

**DOWNLINK SYSTEM**

The downlinks system or ‘Receiving Unit’ consists of a dish antenna, LNB, connection cables and a satellite receiver (these days a digital receiver is used, the analog ones have now almost disappeared).
Dish antenna are the cheapest form of the system. They come in various shapes and sizes – and recently colours also. Quite a change from the earlier drab white, black or grey tones! The receiving system. The cost of an individual C-band dish used by cable networks (as different from the dish used for reception from DTH services) can again vary from Rs. 1000/- to Rs. 10,000/- depending on size and quality.

An LNB would cost about Rs.100/- to 300/-. A good quality free-to-air digital satellite receiver would cost around Rs. 2500/- whereas one which decodes your signals would be in the range of Rs. 3500/-. Again, we must mention that these are average rates and prices would vary with volumes. Also, as the technologies become more common, the prices keep coming down, until the time in say about a year when MPEG4 receivers would probably cost the same as the MPEG2 receivers.

That sums up the basic outlines as a crash course in the technical aspects behind the satellite channel business. While it is not possible to be an expert and do-it-yourself with this, but it will certainly help you understand the modalities better when the government or specialists place questions or options before you!

Next month we shall take a look at the Government regulations that need to be complied with – the application process and what it takes.