



by Michael J. Martin
Comlink Systems

Bird benefits

New strategies will help cable operators take advantage of signals from SRDU service providers

Just over five years ago, when both of the Telesat Canada Anik E-Series satellites failed simultaneously, cable operators were thrown into a frenzy, struggling to react to an event that most experts said could never happen. Well, it did and the negative impact on the Canadian cable industry was rather significant.

Everyone involved in the industry scrambled to recover lost traffic.

Telesat did an admirable job restoring the signals lost from the affected broadcasters and specialty channel services. They restored source television traffic and at the same time regained control of their two lost birds. It was a hectic time, especially for Telesat. Our hats should be tipped to them for the hard work they did for themselves, broadcasters, specialty channels, cablecos and the Canadian TV viewers.

Many valuable lessons have been learned as a result of this significant event. New approaches have been implemented to ensure a stable future for the process of collecting inbound television traffic by BDUs (Broadcast Distribution Undertakings). Some of the approaches used today include:

- the addition of super trunk, optic fibre links creating redundancy between headends
- the reduction in the gross number of headends
- direct terrestrial links with programmers via fibre, microwave and off-air reception methodologies

The Canadian cable industry is now much better able to withstand situations of catastrophic failure, should they ever reoccur.

Soon, we will be facing a new inbound signal collection challenge. The digital specialty service license hearings that ran through the latter half of August and the first part of September will decide who will

win one of these coveted licenses from the 91 Category 1 and 355 Category 2 applications. The new challenge facing the typical CATV operator is to determine the best way to collect these numerous new signals. Based upon the aggressive level of competition expected in this all-digital marketplace, these specialty channel applicants will need to maintain extremely low operating costs in order to be financially successful.

Therefore, one of the key strategies to achieve this low-cost operational mandate is to make use of one of Canada's licensed SRDU (Satellite Relay Distribution Undertaking) service providers. This strategy will increase the dependence on satellites as the principal signal delivery medium. Three key names come forward when considering the SRDU business: Bell ExpressVu; Cancom; and Star Choice. Now that Cancom and Star Choice are really one company, the selection is truly limited to two service providers.

While Telesat has also offered direct carriage for some of the existing specialty channels in the past, their efforts have not been viewed as being overly aggressive and have failed to satisfy many operators in this highly competitive business. The two DTH providers have demonstrated better value for most BDU operators.

Bell ExpressVu has a new DBS-type satellite in orbit that has performed flawlessly for the past 15 months. ExpressVu's NIMIQ satellite is located at 91 degrees west. Star Choice has been waiting patiently — with its traffic still on the older, recovered Anik E-2 satellite — until the new, super-powered FSS Anik F-1 launches. It was expected to blast into the orbital slot at 107.3 degrees west, displacing Anik E-2 sometime last month. If all goes well, Anik F-1 should begin providing a higher power FSS service later this fall.

In the satellite business, in-service dates are never a certainty until

the bird actually reaches a successful orbit, deploys properly, completes its commissioning tests and is released for operational service. Even then, Murphy's Law is never forgotten. Assuming a successful launch for Anik F-1, both DTH companies will then have tremendous satellite platforms from which to offer their prospective SRDU services to BDU operators.

Change is coming

Cable companies will need to reconsider the equipment used to collect their new digital traffic from ExpressVu and Cancom/Star Choice. In the past, traditional satellite receiving systems with simple L-Band splitters and analog receivers handled the task well. Today, however, there is a new mix in hardware to be considered involving high-grade, digital consumer receivers and robust commercial integrated receivers/decoders (IRDs). Three technical approaches are expected to be used for the new services. Examples are given below.

Figure 1: Traditionally, satellite signals are demodulated from the RF carrier, decoded into individual base-band analog streams and then used as strictly analog sources. They are then re-modulated as CATV channels using analog AM modulation. An example might be the manner in which most CATV operators transmit TSN or YTV.

Figure 2: Since all of these new specialty channels will already be in a digital format, the logical thinking would be to simply keep them as digital streams. If individual, discrete streams of TV channels are desired, then an IRD will be used that offers a digital output. This output spigot will provide a signal that is downstream of the tuner, demodulator, multiplex decoder and conditional access (C/A) sections, yet is still upstream of the data decoder and analog output sections.

The desired digital TV channel is identified by its PID (Program ID) and then diverted from the principal data aggregate. It is then offered at the output connector reconditioned as an MPEG II DVB-ASI stream. This signal is then fed into a new data aggregate multiplex and re-multiplexed with digital TV channels from other sources. The new digital data aggregate created will usually have a local C/A applied. This data aggregate is then modulated as a 64 or 256 QAM CATV data stream for CATV transmission.

Figure 3: When an entire satellite transponder load of channels is desired, a third process can be used to block convert the traffic to the new cable TV digital format. A process known as "trans-modulation" could be employed to convert these signals from the satellite's QPSK modulation to a technique that

conforms to CATV's preferred 64 QAM or 256 QAM modulation method. There are scenarios where the conditional access is either carried forward from the satellite SRDU service provider and other scenarios where it is blocked and another new C/A stream is applied.

No matter which approach you utilize for your headend system, you will be forced to accept an increased dependence upon satellites for your inbound traffic collection needs. Planning and implementing technical redundancy in your antennas, cabling systems and digital receive equipment will definitely make your headend much more robust. But, if another catastrophe occurs, then there will still be very little that can be done to survive. The big difference today, is that CATV operators will have split the SRDU traffic between two new high-grade satellites. This is better than placing all of your eggs in one basket. ■

Michael J. Martin is the president of Comlink Systems, a division of Cygnal Technologies. He can be reached for comment or to answer questions at michael.martin@comlink.ca.

