

IPSTAR for Remotes: A New Wave

It's fitting that one of the most exciting developments in remote newsgathering should originate from one of the most remote cities in the world —Perth in Western Australia.

Con Michael, chief executive of Balconi Telecommunication Solutions describes his device as the Balconi IPSNG Solution. It has distinct advantages over DVB and ENG methods in getting news stories from a remote location to a central site.

Basically a very portable, very compact, lightweight satellite terminal, the Balconi IPSNG uses Internet protocol to upload the AV signal to the newsroom at the TV network. The 'magic bullet' is not only that the signal is IP in form but that it uses the IPSTAR network (see Sidebar) to handle the up/download.

The advantages of IP include two-way paths, so you can not only feed your live material back to base but also download files on a return path back to the field. This means you could not only feed raw news footage to base but send an edit made in the field, then accept feedback of any requests for additional coverage; you could even download a text stream for an onsite teleprompter.

The Seven Network has actually trialed this function— among others—in its current testing being held in Perth; another add-on is access to VOIP for field to base telephony or for talk-back. Newspapers are bringing pressure on their journalists to gather not only news but also to capture stills and video for papers' Internet news sites.

Michael mentioned that there has been interest from major news groups such as the Fairfax company, Westralian News Group and Foxtel's production house. Fairfax, which publishes major newspapers in a number of markets, already sends out photographers with a Sony HD camera as well as digital SLR still cameras. He sees these potential buyers of IPSNG as "the ones that are expanding and not the TV stations."

DVB vs IPSNG

The comparisons between DVB transmission and IPSNG are illuminating: DVB uses an 8.5 Mbps bandwidth while IPSNG uses 2 Mbps. Using such a narrow bandwidth, the dish can be small - either 74 cm or 96 cm in diameter, depending on the downlink footprint desired. A DVB setup could weigh anywhere up to 500 kg while the IPSNG weighs around 60 kg total. The signal-processing unit (SPU) is called the Allibox, thanks to some real world operational experience offered by a journalist named Allison. The rig was designed so it requires no technically trained operators. Housed in a luggable suitcase- sized box roughly 40 wide by 20 cm deep (16x8 inches) and weighing about 20 kilos (44 pounds), it takes composite video and balanced analogue stereo audio inputs from one camera; an RF signal goes from the box to the dish.

The box is an encoder, an FTP input device (rated at 2 Mbps), a router, a satellite terminal and a VOIP carrier so you can talk to the studio. "The router is a wireless storage router so you can also have a connection to the Internet and you've got connectivity for talk-back via the phone," explains Michael. "While you could expand the number of inputs by adding a switcher, Michael suggests speed is a factor, so getting one link to air is a priority.

Once the Allibox and the dish are set up the next stage is to switch to a preset IP address for whatever location you wish to transmit to. This takes about three seconds.

The prototype SPU has two locations installed but, in the final model, nine will be possible. Once the studio sees your ID on screen it automatically switches the Allibox into the network. In use, you pull up with the gear at the location, haul the Allibox and a six-petal dish out of the car, and then a balance is set up. Within five minutes you should have assembled the dish and found the satellite.

"It's very easy. You hit the button on the Allibox and it does the rest for you. It identifies that you've come on line, knows what class service you are, it then knows where the routing is and connects you to the appropriate class of service - identifying your bandwidth and what you pay for," says Michael.

He adds: "Because we are priority one we get straight through. The studio 'sees' us, then it's up to them when they want you to come in or not. You could be streaming video to the studio within five minutes. No satellite bookings are required... the system is always on... and users only pay for the amount of data sent."

A test was made at a local Perth beach—a severe trial for ENG signals—and the crew managed to send pictures back to the studio within five minutes of the car arriving. The IPSNG gear can be run from 240v mains or 12v battery power—from camera-type rechargeable NiCads or NiMHs, even a car battery. Current draw is up to 150 watts. There are two configurations: The 74 cm dish could be mounted on top of a car or SUV; the 96 cm gear is a flyaway setup, housed in a Pelican box with wheels, fits in a backpack, is airline checkable and small enough to be stowed in a chopper luggage hold. The latter is in six pieces and normally set up on a folding tripod base. Comparative capital costs: a DVB setup could span A\$200-500,000; the IPSNG approach sits at A\$40-80,000. This means that a broadcaster could deploy half a dozen units in the field where before the cost of only a single OB van be justified.

While admitting that IPSNG's current output is "acceptable" as news quality and just above that of satellite phone video—but with full motion—Michael foresees big advances in IP transmission in the next 12-18 months and is confident that it will be comparable to most OB streams by that time.

There are major benefits, mostly due to the straightforward setup routine. Michael remarks that, if you've ever done a live satellite cross "it's a pain in the backside: you have to ring the satellite people, get them to turn on, then they have to 'see' you, do the polarisation line-ups before you're allowed to transmit."

The IPSNG approach calls for a three minute turn on "and once you press the 'ON' button you fly," he continued. "To uplink via IPSTAR you don't need to make any forward satellite bookings. You don't need to wait for a transponder to become available— you just turn it on.

Michael explains "It's 'Pay As You Go'—so you can have it always on. If you're in a situation where you're just sitting there— connected—and you have a 20-30 minute wait for the next interview, you're not actually paying for any data until the streaming begins."

Payment for the service is in 15-minute blocks. You could have it on all day as long as you're not streaming—and you're not paying for it. The other benefit of the IPSTAR link is that there is no need for a teleport in the link. The downlink goes direct to the TV station.

The unit is robust in the field. In Seven's field-tests even the expensive and brittle electronics came through unscathed. Reliability of the signal path from point A to point B? With the IPSNG you can allocate two destinations for the transmission, so if you are sending from Uluru in the centre of Australia you can allocate Sydney or Perth to receive—and if one doesn't work you can switch to the other.

In the planning of the equipment it was necessary to move from an engineering approach to meet operational needs. Michael adds, "If something is not performing or whatever I can actually see something go wrong and, even during transmission, fix it up."

Bandwidth Solution?

Using IPSTAR's narrow bandwidth addresses issues of spectrum allocation—now a hot topic not only in Australia but in other regions where the demands of mobile telephony, broadcast TV etc are squeezing current spectrum availability.

Communication authorities are kicking spectrum allocations into billion dollar price levels, becoming major challenges to TV corporations' fiscal health. The immediacy factor is also a powerful one: an IPSNG vehicle, manned by one person, could be sent to a city news event, the satellite link established in a few minutes and a live cross made—even during the news broadcast. It could also be thrown into the back of a chopper and landed on site in quick time.

Con Michael sees the relationship that Balconi has established with IPSTAR and with some of the hardware suppliers has helped the IPSNG Solution get where it is, so the next stage will be licensing the solution back to the other areas within their own footprint. He coyly points out that "there is a little place called China and a little place called India that may be of interest to us." Not surprising since these two countries plus Indonesia, Malaysia, Thailand, Vietnam and Japan account for three quarters of the world's population. Last year

Michael and his team ran demonstrations in Singapore for a variety of clients, to the Seven Network, and to newspaper interests and horse racing entities.

IPSTAR

Con Michael describes IPSTAR as “the world’s most unusual satellite” in that it is a consumer service that mainly delivers programming to residential and corporate subscribers using the internet bandwidth.

When Michael approached the company with his plan to use it for the IPSNG transmissions they had to “get their head around what I was trying to do” but, once on board, they were happy to change their setup to conform.

There are three main footprints: these cover China, most of Indonesia and PNG plus Australia using the Ku- and Ka-Bands. This means the 74cm dish can cover a 400 km circle around Perth, a 400 km circle of Darwin and then all of the Australian East coast and all of New Zealand. IPSTAR’s modulation and coding technologies use radio frequency bandwidth, allowing for high and flexible digital transmission rates.

The system allows for the use of small antennas and transmitters suitable for home and corporate use and can maintain up to 99.6 percent link availability rate.