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OPINION PIECE

HDTV and high-density living drive broadcast evolution

By Chris Jaeger, Managing Director International Business, Broadcast Australia

Perhaps catalysed by the Beijing Olympic Games, 2008 will likely go down in history as the year in which high-definition television (HDTV) finally took off. Thanks to the Olympics coverage, where content was produced in 100 per cent HD, consumers finally witnessed the HD 'wow factor'. Full 1080i resolution with 5.1 surround sound leveraged a host of specialty cameras—such as 'super-slo-mo cam' that showed bullets exiting pistols, or 'target cam' that depicted arrows approaching from the perspective of the target. Sales of HD televisions escalated in the lead up to the Games and viewers were not disappointed.

But even as consumers have embraced the superior viewing experience of HDTV, terrestrial broadcast technology groups have been working hard behind the scenes. Satellite, cable and, to some extent, IP delivery platforms do not have the same bandwidth limitations as terrestrial TV, giving them a head start in the HDTV arena. This has spawned the development of terrestrial platforms that will sustain HDTV broadcasting and allow it to compete with these other delivery options.

Of the new technologies to be released this year, it is therefore hard to look past the release of the second generation digital video broadcasting - terrestrial (DVB-T2) standard. DVB-T2 joins China's digital multimedia broadcast - terrestrial/handheld (DMB-T/H) standard in offering dramatically improved capacity over DVB-T, along with increased robustness of the signal.

Both these attributes promise greater options for broadcasters, as they provide more flexibility to support multi-channelling or a greater number of HDTV services within the same amount of spectrum. Moreover, with MPEG-4 video compression thrown into the mix, the resultant capacity improvements are even more dramatic. It is estimated that the combination of DVB-T2 and MPEG-4 will provide around 60 per cent more capacity than is achievable with DVB-T and MPEG-2. Such

a scenario makes the prospect of broadcasting HD-only technically viable for broadcasters, although this may not be a commercial reality for some time to come.

Aside from HDTV, the other major paradigm shift in terms of viewer expectation of the free-to-air (FTA) viewing experience is in the realm of interactivity. Here, the passive ‘lean back’ experience of traditional TV viewing is transformed into an interactive ‘lean forward’ scenario, where the audience influences its own viewing experience.

Once again, interactivity demands more capacity in particular of terrestrial broadcasting standards. Carousel-style datacasting services, where IP data is broadcast and cached within a specially designed set-top box (STB) and interrogated, are one form of interactivity where a return path is not required. But whether or not a return path is incorporated, interactive services all involve the broadcasting of a significantly higher volume of data.

This is good news for broadcasters, who can hope not only to grow audiences, but also to establish new revenue streams through charging for some of these services. Interactivity opens the door for broadcasters to explore the delivery of new types of services and to enhance their relationship with viewers. With the appropriate regulatory framework, broadcasters will ultimately stand to profit from a broader revenue base.

Not all is smooth sailing, however. Despite the escalating consumer interest in interactivity and HDTV, a minor hurdle has arisen for those in high-density living environments. Multilevel residential condominiums in cities such as Singapore and Hong Kong are typically serviced by master antenna TV systems, which have recently shown signs of not standing up to the performance requirements of HDTV—or indeed SDTV in many cases. For most high-rise populations to watch digital television, these master antenna systems require upgrading.

This has, not unnaturally, led to the contemplation of mechanisms for broadcasting DTV signals to be received in apartments without the need to upgrade master antenna systems. In turn, such contemplations have led to the conceptualisation of a new generation of transmission network specifically targeting such high-density environments.

We are entering a new era of terrestrial broadcasting—an era that not only demands DTV in multilevel condos, but also demands TV reception on handheld and portable devices. The next generation of transmission network is likely to satisfy all these demands simultaneously. It will provide a common network infrastructure for broadcasting HD and SDTV signals for fixed, portable and mobile reception, without the need for external receive antennas. One possible network

architecture takes the form of a metro distributed transmission network (DTN), building on concepts developed for mobile TV coverage.

The year 2009 is thus likely to see a new generation of transmission network architecture take shape. Although still in the refinement stage, the DTN promises much for the future. Just as the terrestrial broadcasting standards are evolving to better support new service platforms such as HDTV and interactive applications, so too is terrestrial transmission infrastructure making the leap into the future.

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Company background
With over 75 years experience as the owner and operator of one of the most extensive terrestrial broadcast transmission networks in the world, Broadcast Australia provides end-to-end transmission services for radio and television (analogue and digital) broadcasters. The company's core competencies include planning and network design, engineering design and project management, complex systems integration, site development and installation, operations and network management and in-house repairs and maintenance.

Broadcast Australia also develops world-class solutions and applications for new and emerging technologies—such as Infocasting, Digital Radio and Mobile TV—working with strategic partners throughout the Asia Pacific region. Subsidiary companies include Hong Kong-based confined space coverage group, Radio Frequency Engineering Limited (RFE), systems integration and product supply specialist, The Bridge Networks, and critical application and hosting provider, Hostworks. Broadcast Australia is a 100% owned subsidiary of Macquarie Communications Infrastructure Group, an entity listed on the Australian Stock Exchange (ASX code: MCG).

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