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**OPINION PIECE**

### **Could television bridge Asia's ICT divide?**

[OPEN PRECEDE]

Digital television, with its powerful multi-stream '*infocast*' functionality, could underpin a free-to-air ICT revolution across Asia, writes Chris Jaeger, Managing Director - International Business, Broadcast Australia.

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Government bodies across Asia have long recognised that *information*—and most particularly the high-speed and seamless delivery of such information to the populace—is the key to prosperity and improved standards of living. Across the region, we are seeing national information communication technology (ICT) strategies being developed, refined, and deployed. A prime case-in-point is the significant ICT goals outlined in Malaysia's Ninth Malaysia Plan (9MP), which was unveiled in March 2006. Within the 9MP is the so-called 'National Strategic Framework for Bridging the Digital Divide (BDD)', which sets out to "expand the communications network to ensure more equitable access to information and services".

The challenge Malaysia faces in the ICT sector is formidable. It currently has an overall computer penetration of 21.8 per cent of households, with Internet dial-up penetration at 13.9 per cent and broadband penetration at 1.9 per cent. It is important to note that in Malaysia's rural regions—where Internet connectivity is often rare or non-existent—this computer penetration figure falls to around nine per cent of households.

Malaysia is not the only country in the region targeting an order of magnitude escalation in PC and Internet penetrations. An important alternative information delivery method that could be considered by Malaysia—and indeed by many other Asian countries—is one that is already right under our nose, and ready to use. The television.

### **Transforming the TV**

Infocasting—or 'datacasting' as it is alternatively known—is a unique application of digital terrestrial television (DTT) broadcasting. While the entertainment diversity and spectral efficiencies of DTT

are well publicised, the broader functionality of DTT and its ability to transform the humble television into a rich 'information kiosk' are less known.

The infocasting concept permits government bodies and its agencies to distribute vital information and education programs to the populace, in a mix of text, fixed image and audio/video formats. The spectral efficiency of DTT permits multiple streams of such information—which might be health advice, education, national emergency support, parliament coverage and reports, farming and crop advice, and so on—to be broadcast extensively and widely via the free-to-air DTT network.

The contrast of the potential (and almost immediate) penetration of DTT infocasting against conventional PC/Internet connectivity is dramatic. Again considering Malaysia, television currently reaches all five million households across the country's 330,000-square kilometre landmass. In effect, all of Malaysia's 26 million people have access to a television and, once a free-to-air DTT network is in place, the addition of a simple DTT set top box (STB) could easily provide access to a multi-stream wealth of infocasting.

This stark contrast between the percentage of television households and PC households is not uncommon across the region, with China at 90 per cent versus 4.6 per cent, Thailand exhibiting 94 per cent versus 7.1 per cent, and Indonesia at 59 per cent versus 1.5 per cent.

### **Infocast interactivity**

The advantages of infocasting become even more apparent with the advent of viewer interactivity. Using a purpose-built interactive STB, the infocast viewer is provided with an interactive data mining experience, as he or she explores a pre-selected array of multi-format information.

Such interactivity is a feature of an Australian Government-endorsed infocast trial service in Sydney known as **DIGITAL FORTY FOUR**. Broadcast Australia is providing the technology and delivery platform for the **DIGITAL FORTY FOUR** trial, and is also the infocasting trial license holder.

The interactivity in the Sydney trial is founded on the multimedia home platform (MHP) standard, which is a standard for supplementary DTT services based on the digital video broadcast (DVB) platform. Under the MHP standard, a separate stream of data (embedded in the DTT transport stream) is broadcast to the STB, comprising all the 'channels' of interactive information, which are repeated over and over every few seconds in what is called the MHP 'data carousel'.

At the request of the user (via the STB's remote control), the MHP-compliant STB interrogates the data stream, then caches and decodes the selected data. An important benefit of the MHP interactive standard is that it is far more spectrally efficient than conventional continuous video and audio streams. Using MHP, around 50 times the data can be accommodated in one quarter of the bandwidth, when compared with that of conventional streaming video.

From a user's perspective, infocast data mining provides a true 'seek-and-learn' interactivity experience. Multiple streams of data can be constructed in tree-format, allowing the viewer to search and learn as he or she requires. Importantly, this allows government bodies and their agencies to push out the most vital information as it is required, on a national scale.

### **Emergency infocasts**

While DTT infocasting offers almost limitless information dissemination scenarios, arguably the most important is its potential role in emergency services and post-disaster reconstruction programs.

In the wake of the end-2004 Asian tsunami, a network of community-run radio stations—known as the Aceh Emergency Radio Network (AERnet)—was quickly established across the Territory of Aceh. The network provided vital communications, linking up family members and advising Acehnese of reconstruction and rehabilitation efforts. This popular radio network exists to this day, and now operates under the name of the Aceh Reconstruction Radio Network (ARRnet).

It is worth considering the magnifying effect that DTT infocasting might have had on the reach and power of AERnet, which was a simple analogue radio broadcast system. The multi-stream nature of DTT infocasting could provide the very specific information needed on stream-by-stream basis. These streams would support the tens of specialist and special need groups caught up in such events: the displaced, the rescuers, the medical teams, the food/water distribution groups, the emergency transport teams, and so on.

### **Fast-track deployment**

The greatest benefit of DTT-based infocasting is its potential ubiquity and ease of deployment. Leveraging the advantage of the 100 per cent television households referred to earlier, a national DTT upgrade permits viewers to be immediately 'on-line' and information-enabled with the addition of a simple STB (at around US\$75 today, and expected to fall, as is the trend for modern electronics).

DTT free-to-air infocasting has enormous information dissemination benefits, and exhibits some interesting advantages over conventional broadband ICT options. First and foremost, it reaches 100 per cent of population easily and simply. For governments and their agencies, particularly in countries and regions where computer and telephone penetration figures are low, this is an enormous attraction.

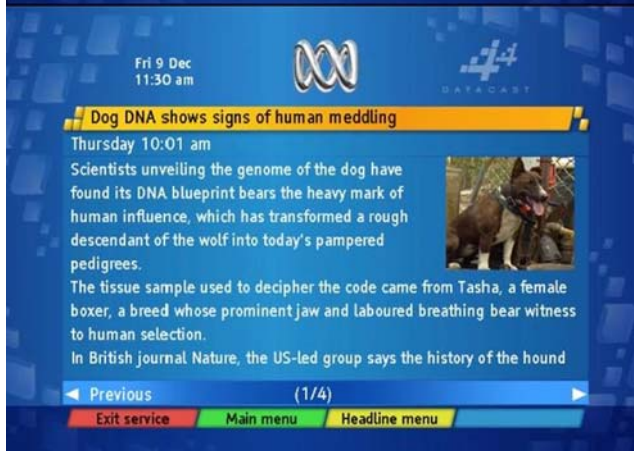
Also, the information it provides is contention-free. As DTT broadcast is founded on a simple scale-free, one-to-many architecture, there is no risk of subscriber over-demand, nor any potential future need to upgrade to support a growing 'subscriber base'. Consider this alongside the contention challenges experienced in fibre optic, satellite, DSL or 3G telephony systems.

From a deployment perspective, DTT infocasting represents a 'ready to go' ICT solution in the many Asian countries—specifically those where a national digital television broadcast infrastructure is either already in place, or under development. In this regard, DTT infocasting has the potential to play a key role in bridging the ICT divide across the Asian region.



Broadcast Australia's General Manager – International Business, Chris Jaeger





The DIGITAL **FORTY FOUR** interactive infocasting service is being trialled in Sydney, Australia, with Broadcast Australia providing the technology and delivery platform. (Images 2 and 3 illustrate real-time road traffic cameras on the Sydney Harbour Bridge and ANZAC Bridge respectively. Image 4 illustrates two stages of an infocast news service.)



Infocasting is a unique application of digital terrestrial television (DTT) broadcasting, utilising existing television broadcast infrastructure. (This is Broadcast Australia's Gore Hill site, from which the DIGITAL **FORTY FOUR** interactive infocasting service is broadcast.)

### **Company background**

As the owner and operator of one of the most extensive terrestrial broadcast transmission networks in the world, Broadcast Australia provides transmission services for radio and television (analogue and digital) broadcasters and offers site sharing and infrastructure services.

With over 70 years broadcast transmission experience, Broadcast Australia plays a strategic role in developing new and emerging technologies—including Infocasting, Digital Radio and Mobile TV. The company's aim is to provide world-class broadcasting solutions throughout the Asia Pacific region by working with strategic partners, including wholly owned subsidiary, The Bridge Networks.

Broadcast Australia is a 100% owned subsidiary of Macquarie Communications Infrastructure Group, an entity listed on the Australian Stock Exchange (ASX code: MCG). Its sister company, the UK-based Arqiva, specialises in providing broadcast transmission solutions for fixed and mobile media applications.

**Web site** <http://www.broadcaustralia.com.au/>

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