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WELCOME

NOT

Once again a lot to report from the Project Office... NAB proved to be a success with the DVB booth hosting yet another 'world's first' by transmitting a dual service of HDTV and DVB-H in a single 6MHz DVB-T channel using hierarchical modulation. A demonstration of DVB's work in the IPTV arena also proved to be a big draw.

At NAB the DVB officially announced the simultaneous publication of the Commercial Requirements for DVB-T2 and a Call for Technologies for the next generation terrestrial television specification.

A word from the DVB Project Office

Also, it's been a good time for DVB in the Asia-Pacific region. DVB is delighted with the announcements from Malaysia and Indonesia that the countries are to adopt DVB-T as its standard for digital terrestrial broadcasting and would like to extend a hearty welcome.

This news was accompanied by word from the broadcasters of the ten ASEAN countries, participating in the 4th ASEAN Digital Broadcasting Meeting held in Kuala Lumpur, that they had agreed to recommend adoption of DVB-T as the their digital terrestrial broadcasting standard.



This issue of DVB-SCENE visits Asia to discover Vietnam's commercial DVB-H service and to take a look at the challenges the region faces in deploying HDTV services. David Wood also ponders on 'who will win the heart of broadband'. Enjoy the issue.

NEW MEMBERS

ATEME - Provider of MPEG-4 AVC / H.264 video compression solutions. www.ateme.com

CSP - Innovazione nelle ICT - Innovation and research centre for the Piedmont region of Italy. www.csp.it

DEIS/ARCES - University of Bologna - Advanced research centre on electronic systems for information and communication technologies. www.arces.unibo.it

ICO Global Communications - A next generation satellite communications company. www.ico.com

RGB Networks - Delivers high density, flexible video processing solutions. www.rgbnetworks.com

Roundbox Inc. - Provider of mobile broadcast software. www.roundbox.com

Screen Service Broadcasting Technologies S.p.A. - Produces and sells a complete line of digital equipment for broadcasting. www.screen.it

Telenet N.V. – Quadruple play operator offering fixed and mobile telephony, broadband Internet and interactive digital television services. www.telenet.be

Tilgin AB – Develops and markets IPTV set-top boxes, residential gateways and related management applications. www.tilgin.com Verimatrix, Inc. - Provider of software based content security and revenue enhancement technologies for pay TV networks. www.verimatrix.com



The DVB World Conference hosted in Dublin earlier this year was another great opportunity to network and catch up on DVB activities. Some of the highlights included the keynote speech delivered by Vincent Dureau in his new role as Head of TV Technology at Google, the latest news from China on its broadcasting standards, the new DVB timeline for the next generation of digital standards was introduced, and information and case studies were presented on mobile TV in North America and Italy, as well as what's happening in Japan. The latest developments in IPTV were covered and there was a debate on its future - open Internet or walled garden services?

The conference organisers have decided that in future it will be the turn of other cities to host DVB World. The next annual conference will enjoy the location of Budapest. The 2008 event will take place 12 – 14 March. Further information will be posted on the organiser's website - www.dvbworld.eu.

Correction: DVB-SCENE, Edition No. 21, Page 10. 'Las Vegas Hirewire Act' - Nokia has no plans to join the RRD/Hiwire trial.















The views expressed in this newsletter are those of the individual DVB members or guests and are not necessarily the views of the DVB Project Office or Steering Board.

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MOBILE TELETEXT

Hannu Anttila, Vice President, Business Development, Sofia Digital,

Traditional teletext services remain one of the most valued TV offerings by broadcasters around Europe attracting tens of millions of viewers daily and generating millions of euros of revenue for broadcasters every year. Retaining this revenue and loyal viewer base is essential when rolling out new mobile TV services. Hannu Antilla of Sofia Digital reports.

Invented in the early 1970's, teletext is now offered by almost all European broadcasters and many others around the world. Usage numbers are impressive - in the UK 22 million people use teletext every week and in Finland over 25 percent of the population use it every day. The service provides up-to-the-minute information and is a trustworthy source and extremely easy to use. Its popularity means that teletext has become an integral part of the TV viewing experience and a service that is expected to be available wherever a TV channel is being watched. Mobile TV services with DVB-H are

As the requirement clearly exists, Sofia Digital has implemented a mobile teletext decoder application. The application is implemented using Java MIDP (Mobile Information Device Profile) technology in order to be installable to as many mobile devices as possible. FLUTE (File Delivery over Unidirectional Transport) filecast can be used in DVB-H to send the application to mobile devices. The filecast stream containing the application is associated as an additional service component to the TV channel and included in the same time slices with the audio and video. This way, the file download is

At the 2007 3GSM exhibition in Barcelona, Sofia Digital demonstrated a mobile teletext service with Nokia, using Nokia N92 and N77 terminals, and with Abertis Telecom providing the city-wide DVB-H network.

The content for the teletext service was provided by CCRTV Interactiva, part of the local Catalan broadcaster TV3. To ease the integration, we chose to extract the teletext data directly from the DVB-T network. The teletext data for the chosen service had about 900 pages, resulting in about 900 kilobytes of uncompressed data. As hundreds of files cause a considerable amount

"...efforts have concentrated on making video services work but recognition is growing for interactivity to provide the extra boost..."

being launched at an increasing rate. Early efforts have concentrated on making video services work but recognition is growing for interactivity to provide the extra boost to make the business case work. Naturally a good place to start is to look at the most successful interactive TV service of all time – teletext.

Teletext pages are delivered in the vertical blanking interval (VBI) lines on analogue TV networks. DVB has standardised methods for delivering the same data in MPEG-2 transport streams and receivers either have a built-in decoder or do a VBI insertion for the connected television unit. In DVB-H, however, no such specific methods exist for teletext.

initiated automatically by the receiver once the viewer selects the service. The teletext application can alternatively be made available for download over 3G/GPRS or be factory embedded. Teletext pages can then be carried in their original binary format over filecast as well. The binary format is very compact and compresses even further to allow the required broadcast bitrate to be in the range of tens of kbps. It is also possible to deliver the pages over the cellular network with 3G/GPRS. Furthermore, the mobile device platform provides several benefits to teletext services. Most revenue from teletext comes from advertising and premium rate call-in or SMS services. The mobile teletext application can find these numbers from the page content and allow the user to place the call or send the SMS directly. Even web addresses can be opened with the device's

of overhead to the filecast system, the data was packaged into container files, which compressed easily to less than 200 kilobytes in total.

The application was also presented as an interactive service on the Electronic Service Guide (ESG). When turned on by the viewer for the first time, the application was installed onto the receiver. Once installed, the application could always be started directly from the ESG.

The attention the application got at the event was astonishing. Mobile teletext was immediately familiar to the users and regarded as highly usable. We got to hear numerous appraisals, such as "This is what makes it television, without teletext it's just streaming video."

In conclusion we can state that being the most successful interactive TV service ever, existing teletext services are a natural candidate for the first interactive service in any mobile TV offering. Mobile teletext will act as a catalyst to more advanced interactive services.

Hannu Anttila is Vice President, Business Development at Sofia Digital, an interactive TV solution provider focusing on open standard technologies, such as DVB-MHP and OCAP. Hannu has worked at Sofia Digital since 2001.

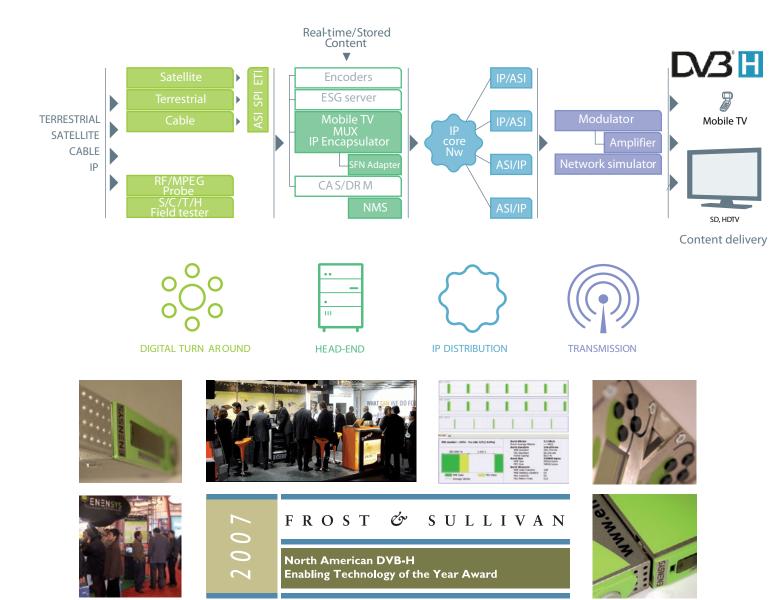




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Is there some mistake? The hottest Internet idea is not from California? Janus Friis and Niklas Zennström are Europeans. The two Euronerds who brought you Skype - free phone calls which don't always work but usually do - and the P2P (Peer to peer technology) service Kazaa - have recently launched an 'Internet TV' service, Joost (www.joost.com). Joost provides (or at least will provide when the beta test is complete) a package of TV channels, and programmes on demand. Sounds like an 'IPTV' or digital cable service? Looks like one too? But this time it is coming via the Open Internet, and anyone in the world can watch with no special set-top box or local network. IPTV networks are 'walled garden' networks which offer a package of channels, programmes on demand, play along multimedia, and stand alone interactivity. They are convenient because the costs to us are usually part of a network operator's triple play or quadruple play subscription package - a one stop shop for all our media and communication needs. The DVB Project continues to play an important part in the development of IPTV technologies, and will help converge the world on common standards The traditional wisdom is that IPTV will provide many features that the

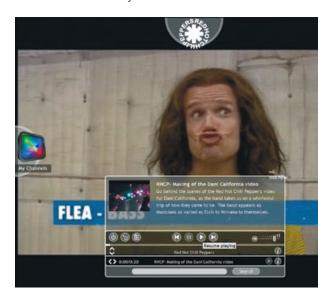
Open Internet cannot, and will be more attractive for 'lean backers' or 'couch potatoes'. The principle advantage is a high 'Quality of Service'. An IPTV system is engineered so that what the viewer asks for, he gets, without any argument, or the 'buffering' delays we used to get on Internet delivered video. Open Internet is a 'best effort' system, rather like a motor highway – when the highway is full of cars, things can grind to a halt. This is the price of it not being a 'walled garden'.

But there are those who believe that things will improve on the Open Internet, and that, in time, we will see many systems like Joost being a 'reliable' Open Internet system which couch potatoes are happy with. The author believes that the two main technologies which will reduce the Internet route congestion weakness most are P2P and multicasting For P2P systems, everyone opens their computer to others, so the streaming or downloading can be done without congesting the main highway back to the source. You get your stream from other people who are watching or have stored the same thing. The EBU (among others) has been testing P2P technologies, and last year's Eurovision Song Contest was live streamed in quite high quality with a peer to peer technology. It worked

faultlessly, and we are doing the same again this year.

Multicasting is rather like passing from house to house with the same content dropping off a copy as you go, so though the content can be a bit delayed, you do not congest the main highway back to the source. We are less advanced in trials of multicasting than P2P, but it is coming, and will probably be helped by the next generation Internet Protocol IPv6. It may be that these technologies will reduce the Quality of Service gap between the Open Internet and IPTV. Furthermore, Open Internet users may have no subscription to pay apart from a broadband connection. But the biggest advantage of all may be in choice of content. This could be huge and come from all over the world. Like Internet Radio today, where there are between 30,000 and 100,000 radio stations to listen to, the same cornucopia may be true of watchable Internet TV.

So Joost (and others) may be the shape of things to come. But...let's not jump to the conclusion that this is just throwing a switch and it happens! There is still a lot to be done to make the Open Internet the place people go for their normal viewing. We also still have much to learn about technology, what people want, and how much they are willing to pay for it. Don't put the TV or IPTV box in the attic yet.



DVB-SCENE: 07



Vietnam - Paving the Way for Broadcast Mobile TV in Asia

TAKING IT TO THE STREETS

Pawan Gandhi, Head of Mobile TV & Internet Experiences, Multimedia, Asia-Pacific, Nokia

Vietnam is on a roll. In November 2006, the World Trade Organisation's General Council approved the country's membership, with accession taking place in January. If this is big news for Vietnam on the world economic stage, the nation of 84 million people catapulted itself onto the technology stage, propelling itself over the entire world bar one country, when it launched the commercial deployment of live

By the end of March 2007, VTC recorded a healthy subscriber base, lending proof to the fact that consumers do wish to have their television intake whenever and wherever they can get it – not just in fixed locations such as their homes or offices.

"Mobile TV has changed my life," said Nguyen Quoc Huong, a 36 year old deputy general director from Ho Chi Minh City "I never thought the day recent London School of Economics study on the impact of mobile TV on how people consume television, commissioned by Nokia and conducted by Dr Shani Orgad, brought out the following results:

- People will consume mobile TV to gain increased flexibility and control through being able to watch their favourite programmes on the move
- People will consume mobile TV to fill empty times and kill boredom
- Viewers may prefer local content although global content, especially news and sports channels, are still likely to be popular
- People are likely to watch mobile TV when commuting on public transport, are in waiting situations (traffic, doctor's office, bus), during work and school breaks, and even at home (in the privacy of their rooms)
- The most popular viewing times for mobile TV are likely to be 6am – 9am, lunchtime and 6pm – 10pm
- The popular genres and programmes on mobile TV are likely to mirror their counterparts from traditional television, but will be tailored to the new medium.
 For example, news, but with an adapted format that will be short, focused and possibly personalised.

Mr Jawahar Kanjilal, Director for Multimedia Experiences, Asia-Pacific, Nokia, is aware that the fruits of his labour, and those of his untiring colleagues in Nokia's Multimedia business group's Watch New team – to promote open industry standards for mobile TV – are starting to ripen.

"There has never been a proposition more compelling than television in your pocket," said Kanjilal. "Since the birth of television, researchers, engineers, scientists, technologists — just to name a few groups of people — have been tinkering with the tube to make it smaller, better, sharper, and a host of

"Since the birth of television engineers have been tinkering with the tube to make it smaller, better, sharper..."

DVB-H broadcast mobile TV services in December 2006. Coming hot on the heels of the September announcement of the service, live signals began transmitting across Ho Chi Minh City (HCMC) and Hanoi – making Vietnam the first nation in the Asia-Pacific region, and only the second in the world behind Italy, to launch commercial DVB-H services.

Rolled out by the entrepreneurial and boundary breaking Vietnam Multimedia Corporation, or VTC, Vietnam's DVB-H services today reach subscribers in HCMC, Hanoi and Hai Phong, with clear expansion plans in place to not only extend out to a larger part of the population, but also to increase the offering from the current portfolio of radio and TV channels of sports, music, news and drama entertainment. VTC is also in negotiations with international broadcasters, seeking carriage rights to make the mobile TV offering more comprehensive

would arrive when I would be carrying my TV in my pocket. More importantly, it helps me keep track of real-time business and local news as they are relevant to my business."

Mr Nguyen's sentiments are echoed not just by his countrymen, but by the majority of pilot users around the world who have had the opportunity to experience broadcast mobile TV. A other modifications."

"We're witnessing a massive transformation in consumer trends and media consumption behaviour, as described in the LSE study. Our pilot studies around the world have also shown that consumers want live broadcast television in their pockets, and they're willing to pay for it, and Vietnam is no exception."



ASIA-PACIFIC FACES HDTV CHALLENGE

Tay Joo Thong, Chief Technology Officer, MediaCorp

HDTV has taken off the world over. At the end of 2006, global HDTV penetration was at 48 million homes out of 1.2 billion TV households worldwide. By 2010 the HDTV market is expected to reach US\$34 billion. The number of HDTV homes is set to treble by 2011. High definition TVs will be in 151 million homes worldwide by 2011, with more than half in the US. The US, Japan, China, UK and Germany are currently the top five markets for the number of HD set homes worldwide (Source: Informa Telecoms and Media). In the Asia-Pacific region, HDTV is also gathering momentum especially in Japan, South Korea and Australia. Over 9.9 million TV households in five Asia-Pacific countries - Australia, China, Japan, South Korea, and Singapore - received and watched HDTV programming by the end of 2006. Total consumer revenue from HDTV content being broadcasted in Asia-Pacific will reach US\$8.06 billion by 2012 (Source:

Japan is leading the HDTV movement with many households owning HDTV sets. China announced its HDTV plans at the Asia-Pacific Broadcasting Union (ABU) meeting held in Beijing in November 2006. Hong Kong has announced plans for HDTV and India is planning to conduct a test trial on HD. Similarly, other ABU countries such as Turkey are making HD plans. In the ASEAN region, Singapore completed its HDTV trial in March and announced an HD channel on UHF channel 38. Malaysia national broadcaster RTM is trying out digital services over two channels and is working out plans to broadcast HDTV during the Beijing Olympics using the DVB-T standard. The Philippines



- 3. HD broadcast equipment is getting more affordable
- 4. The quality and sound is superior to analogue and broadcasters see it as a logical development of analogue TV to fight the threat of HD DVD.
- 5. Regulators see value in HDTV services
- Despite the above, countries, especially the less developed ones, are taking a cautious approach. The main reason is the cost to consumers and broadcasters. Broadcasters are expected to pay 20 -30 percent more in production. An MPEG-2 standard definition set-top box can cost as little

Singaporeans have given the thumbs up for HDTV. According to the survey conducted, more than 90 percent of the trial participants interviewed were satisfied with the picture quality. Starhub, the cable company, launched two channels in January and MediaCorp, the free-to-air broadcaster, has continued its HDTV transmissions planning an official launch in November. Both companies use MPEG-4/H.264 set-top boxes.

The trial has highlighted some of the technical issues that will be faced by other broadcasters as well. The main issues are the costs of the MPEG-4 AVC set-top box, its stability, the efficiency of encoding, the legacy aspect ratio problems and a problem with audio. Just as MPEG-2 has stabilised over the years it will take a while before MPEG-4 AVC is stable. But without a doubt HDTV is the way to go. MediaCorp, the dominant broadcaster in Singapore, plans to move to a new complex where all its facilities and channels will be aimed at high definition. With the support of the Media Development Authority it is working closely with partners worldwide to produce programmes on HD for its own channels and for the international

Tay Joo Thong is the CTO at MediaCorp and was Chairman of the Technical Committee that selected the Digital TV Standard for Singapore. Currently, he is working on the HDTV project and the ADB initiative. He also chairs the ABU **HDTV Advisory Group.**

"...without a doubt HDTV is the way to go."

is reported to be interested in HDTV services, but will leave it to the market to decide the timing. Brunei is planning to trial HDTV later this year. The other countries: Indonesia, Vietnam, Cambodia, Myanmar, Laos, and Thailand are running tests of

standard definition services and are planning to set aside spectrum for This sudden HDTV phenomenon is

brought about by a number of factors - chief of which is the advance of consumer electronics and the threat of the New Media. The factors that are encouraging the growth of HDTV are:

- 1. Consumer displays for HDTV services are getting cheaper and proliferating the market
- 2. HD programmes are also available with major distributors producing in HD

as US\$25 and an HD MPEG-4 AVC settop box about ten times more. An interesting development is taking place - the ten country ASEAN group (population about 500 million) is discussing how the group could adopt a common DTT standard. This is done through an initiative from Brunei and supported by Singapore. Known as the ASEAN Digital Broadcasting Initiative (ADB) broadcasters and regulators held the fourth meeting to agree on how a common digital terrestrial TV standard could be adopted. Among other issues discussed were analogue switch-off dates and common equipment issues, such as set-top box and integrated TV receivers. HDTV is one of the features in this initiative but implementation will depend on the various development plans of each country.

ANALYSIS: PVRs

Alexander Shulzycki, Senior Media Analyst, EBU

The Personal Video Recorder (PVR) market in Europe is just emerging and is expected to gain traction in the next few years, mostly driven as a bundled service by pay TV operators. Meanwhile, the advancement of an open standard PVR by forming a consensus with broadcasters and manufacturers may offer the best long term prospects for the rapidly growing free-to-air digital television market. In the US estimates of PVR penetration range from 13 percent to 20 percent, while in Western Europe most estimates put the figure at less than 5 percent. The most advanced European market for PVRs is the UK where the Sky+ PVR service claimed 1.4 million subscribers in mid 2006. Looking forward, Europe is expected to close the gap but remain behind the US in penetration levels. The milestone for 50 percent penetration in the US is expected in 2009/10.

PVR penetration will be driven by cable and satellite pay operators in the medium term. There will be a significant increase in 'passive adopters', those who accept PVR functionality bundled into their digital set-top boxes. So important is the PVR in reducing churn and increasing ARPU (Average Revenue Per User) that pay operators, especially on the cable side, are beginning to add PVR capability into all new digital set-top boxes. Of the approximately thirty pay PVR offers now available in Europe almost all of them launched no earlier than 2005, so we are just entering this high growth phase driven by pay TV. However, the rate of PVR penetration will eventually stall as pay TV subscribers become the only group with access to full PVR functionality. In the future mass adoption of the technology may require a different solution.

PVR implementations for free-to-air services

The development of a horizontal market for PVR equipment using the same standards to ensure consistent application of PVR features could significantly boost PVR penetration in the long run. There are close to 30 million DTT households in Europe today and this free-to-air digital segment is rapidly growing while pay TV subscriber uptake is flat. As analogue switch-off starts to happen in more regions in Europe the need for a free-to-air solution becomes more

Although sales of off-the-shelf PVR players are robust, the EPGs and functionality of these devices are limited because standards are not built in and most broadcasters are not transmitting appropriate data based on nonproprietary signalling and metadata standards. TV-Anytime, an ETSI standard, offers the basis for such open









standards but has not yet been fully implemented.

The free-to-air model took a step forward in the UK where the DTT platform Freeview recently launched a PVR service called Playback which uses a limited profile of TV-Anytime together with SI (Service Information) data. We understand that several Nordic markets particularly Norway

and Denmark are looking seriously at this type of solution. The emergence of an open standard PVR this year is an important development for broadcasters to consider.

For broadcasters the choice between a PVR pay model and the free-to-air alternative is a critical one. Under the currently dominant PVR proprietary model, broadcasters face the typical gatekeeper issues in which the control of their channel line up, EPG placement, interactive applications, and PVR functionality are in the hands of the pay TV operator. Broadcasters need to ensure their access to the technology and functionality of PVR devices, to provide standard programme information to the market, and to take appropriate steps soon. Last year the EBU issued a report, 'Free-to-air Television and other PVR Challenges in Europe', recommending that broadcasters take immediate action on this front or risk losing visibility and control. The report stressed that stakeholders need to work together to offer consistent EPG and signalling metadata across a critical mass of channels and concluded that "TV-Anytime and the associated DVB standards constitute the only realistic basis for a free-to-air PVR service in Europe"

Timeshifting in Perspective

Finally, a brief word on the effect of PVRs on viewing behaviour, a much studied area. Concerns that the television audience will be liberated from advertisers by technology may have been exaggerated. Television is assuredly going through a period of rapid technological development accompanied by uncertainty, but it is likely that this latest television revolution will be characterised by a mixture of gradual adjustment and reaffirmation of basic strategies for audience attraction. Recent Nielsen research showed that PVR owners still watch most programmes in stream and view about two-thirds of all commercials, whether timeshifted or not. Previous studies based on reported behaviour implied more dire consequences, even the end of the advertising model. A purely personalised television schedule without commercials is not imminent, and whether PVR technology will be the long awaited, irresistible impetus for a radical change in viewing behaviours remains to be seen.

In My Opinion - Millette Burgos

DIGITAL MIGRATION

While working as a broadcast journalist eight years ago, I remember wishing for someone to invent a 'tapeless' way of capturing video. Little did I know that a technology genie was actually listening to my lament! The irony of it all is that I have moved on to print journalism. However, I am fortunate enough today as managing editor of APB to have a front seat view of how broadcasters across the region are enjoying the coming of age of digital technology. I have witnessed how digital technology has brought about greater productivity and creativity in a TV network, such as the Philippines' ABS-CBN station, where I used to work.

When I left the company in 2000, it was still very much in the analogue domain. Three years later, when I interviewed the head of ABS-CBN's new digital production unit, I heard stories of initial resistance to the change in its production workflow. But constant discussions between management and staff, supplemented by large doses of training to handle the new digital production process, made the migration to a tapeless environment a success story for this TV network.

Thus, in a span of just a few years, the tape based analogue workflow is rapidly being eased out of newsrooms and production houses across the Asia-Pacific region.

However, going digital in Asia is more than just improving production and newsgathering workflows. Digital technology is also an opportunity to tap into new geographic markets.

While the Asia-Pacific is not a homogeneous region, TV programmes can now be repurposed for other markets with similar culture or taste. Some genres of programming do find easy acceptance in neighbouring



Millette Manalo-Burgos is the managing editor of Asia-Pacific Broadcasting (APB). Prior to joining APB as a news editor in July 2001, she was a broadcast journalist for a top rated news show (Balitang K), produced by ABS-CBN Channel 2, in the Philippines.

APB has been the voice in the broadcast and multimedia industry for the past 25 years. APB brings to its readers news of groundbreaking events, views and interviews, reviews of the hottest development impacting the industry as well as tracking the latest technology trends.

IPTV, and are busy crafting policies that would nurture the growth of these new platforms.

Indeed, one of the most commercially successful IPTV deployments in the world is in Hong Kong. PCCW's NOW Broadband service has more than 750,000 paid subscribers.

However, despite the convergence in

The big question for many individual countries in Asia is which digital standard to adopt — DVB, ATSC, ISDB, or the newly developed Chinese DMB-T/H standard?

The majority of countries in Asia are opting for DVB. In recent months, three more ASEAN countries, that is, Indonesia, the Philippines and

"...some broadcasters are still taking a cautious attitude in migrating to digital."

countries, and exporting them via digital satellite technology is becoming more prevalent. For example, TV content produced by a Beijing based TV network or production house can be easily exported to viewers in Singapore and Malaysia.

Digitised video can also be cut and repurposed into offerings for new delivery platforms such as IPTV and mobile TV.

Thus, we find in Asia today many countries are carrying out mobile TV trials. In the more technologically advanced Asian countries like Japan and South Korea, mobile TV is a reality. Broadcast and telecom regulators in the region are very optimistic on the growth of new TV services like mobile TV and

broadcast and IT technologies gaining a foothold in the broadcast industries across the Asia-Pacific region, some broadcasters are still taking a cautious attitude in migrating to digital. The cost of going digital is still relatively

high. What additional streams of revenue can be obtained from going digital? What are the price points of a new LCD or plasma TV in the country? Are consumers willing to pay a premium for a new TV set and digital programming?

Thus, many broadcasters we spoke to are still very cautious; they would rather wait until their government sets an analogue switch-off date — or when they wake up one day to find that they are living in analogue isolation.

Malaysia, have announced that they are going the DVB way.

Thus, the announcements gave a much needed fillip to the efforts by the ASEAN countries to come up with a common digital set-top box.

The Asia-Pacific Broadcasting Union's recent DTV Symposium 2007 in Kuala Lumpur, Malaysia, on Digital TV: "The Path to Implementation" can be seen as another noteworthy effort to offer free-to-air broadcasters an opportunity to gain first hand knowledge on how to go digital.

But whether the pull or push factors of going digital in Asia are coming from the broadcasters, the regulators or market forces, one thing is certain — going digital is no more an option!

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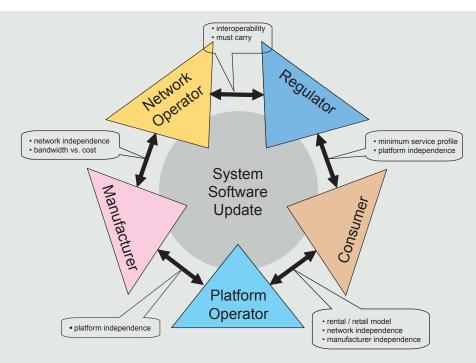
Alexander Adolf, Chairman, DVB TM-GBS Group

First conceived in early 2001, the DVB System Software Update (SSU) specification (ETSI TS 102 006) is leading a quiet life and has gone rather unnoticed amongst the hot news. Having seen the last update in 2004, the SSU specification is truly a stable specification.

The services enabled by it are essential to most platforms. Strictly speaking, the software update functionality is the only one absolutely required to work on a new device when it is first rolled out. All other functionalities (like e.g. watching TV) could be seen as optional. And in fact, this approach has become good practice in the desktop/PC software market by providing a 'check for updates' feature.

Striking the Balance

When the commercial requirements emerged in 2000, one of the first questions to answer was what a 'software update' actually was and at what levels it could affect a terminal. Manufacturer proposals at the time ranged from image-at-once to file-system based, incremental updates with package management. A good part of the work during the following year was to separate transport issues from operational issues and responsibilities



issues. The common ground to enable both models was to provide a means to download an object, which will then be dealt with by the terminal in an implementation specific way. The transmission and operational requirements were relatively

straightforward to sort out. Software images are carouselled on air for a specific period and possibly with a schedule (e.g. only during night hours). Software images are of course only suitable for specific devices from specific manufacturers or platform

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operators. Bandwidth limitations will apply implying minimum download durations.

What was less obvious though were the cooperation models between the involved parties and to what extent they would need to be reflected in the transport and signalling mechanisms. The diagram summarises the result of these considerations.

The regulator and consumer have clear roles. But the network operator, manufacturer and platform operator may take different roles based on the responsibilities agreed between them. In addition to those contractual relationships, legal aspects need to be taken into account. In most markets, updates must not be installed on retail terminals without prior consumer consent. Vertical platform operators may on the other hand insist on their right to forcibly install an update on their rental terminals. Hence the SSU specification provides the means for all involved players to present themselves and act in a way reflecting their role in this ecosystem and to fulfil their obligations and execute their rights to

SSU Specification Features

Two profiles for SSU service operation are defined: the simple and the Update Notification Table (UNT) enhanced profile.

On some networks all software updates from all manufacturers need to share the same PID (Proportional-Integral-Derivative) whilst on others, each manufacturer gets their own PID. All this needs to be accommodated and

the terminals need to unambiguously and efficiently locate and acquire the update. And then, software update services may be - and are - remultiplexed from other networks. The enhanced SSU profile enables all of these scenarios whilst the simple profile allows exploiting the reduced complexity in simpler environments. In either profile, the software download(s) are locatable via the UNT which can be found via the Network Information Table (NIT) and/or the Bouquet Association Table (BAT). So search paths to those updates can be built and flexibly maintained whatever the network architecture or service plan inflexibilities are.

For transporting the software image, proprietary format streams (simple profile) or a standard update carousel, potentially shared between manufacturers, which contains standard identification of the receiver and manufacturer (enhanced profile) are defined.

Various modes of targeting a software image at individual receivers, groups, ranges and types of receivers based on addresses (Smart Card, MAC, IP) and serial numbers enable efficient and fully controlled management of the installed base.

Finally, an interface for delivering software updates to network operators for playout is recommended. It ensures consistent operation of the download by providing a means of controlling signalling and transmission characteristics according to the needs of the terminal.



Alexander Adolf received a Dipl.-Ing. (FH) degree from the Georg-Simon **Ohm University of Applied Sciences** in Nuremberg (Germany) in 1995. After developing GSM terminals for Nortel, he entered the digital media industry in 1996 by joining BetaResearch where he helped in the commercial launch of the Premiere pay TV service. Since 2000 he chairs the DVB TM-GBS group, which he first joined 1997. In 2001, he joined Micronas, a leading independent provider of innovative application-specific semiconductor system solutions for consumer and automotive electronics, where he is **Concept Engineer Systems Software.**

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Moore Analysis

PMPs

Acquiring TV shows and movies online is such a new consumer activity that the degree of its potential disruptiveness is difficult to quantify.

That online programming acquisition will threaten incumbent video programming distributors (pay and free TV broadcasters) is a foregone conclusion, however. Those broadcasters who haven't created and implemented a plan to operate within this new reality might as well start writing their obituaries now.

writing their obituaries now.

The earliest online video programming path has typically been to the computer hard drive, or to the computer hard drive and then to an optical disc.

Online programming is now wending its way from the computer hard drive to Portable Multimedia Players (PMPs), and it's only a matter of time before another spoke – the TV – will be added

to that wheel.

Examining the burgeoning PMP market sheds some light on online distribution's potential. Although these devices are also used as audio players, there is demand for video playback. In a



May 2006 survey conducted by the Consumer Electronics Association, 38 percent of respondents said they would like to watch TV programmes on their portable digital audio/video players in the next two years. In fact, Apple reported in February of 2007 that it had sold more than 50 million TV programmes and 1.3 million movies on its iTunes service since May 2005. Granted, not all of these titles have been transferred to an iPod, but it's likely that a high percentage of them have.

In 2007, Digital Tech Consulting (DTC) estimates that more than 43 million PMPs will be shipped worldwide growing to more than 71 million in 2011. DTC's definition of a PMP is a device that plays video from a local hard or flash drive, or from a memory card; has a viewing screen; uses any type of video codec, and has no feature more important than audio and video playback. Examples of these include the Creative Zen Vision W, and Apple's 'video' iPod. It excludes, for example, mobile telephones that include PMP

functions (such as the iPhone). In fact, DTC views the transfer of video programmes from the PC to the PMP as just one of several ways programming is being consumed without the help of incumbent broadcasters. Think of the PC hard drive as an electronic Trojan Horse. Many say that consumption of TV and movies on a small screen will never be a mass market reality Maybe so. But once programmes make it to the PC, the small screen isn't the only place for them to travel. The recent introduction of the Apple TV and other in-home distribution devices that feature more efficient video codecs and wireless technology, gives the consumers just one more way to access programming.

Myra Moore is chief analyst for Digital Tech Consulting (DTC), a market research firm that tracks and analyses the consumer digital video marketplace. More information on the company and its latest report on the PMP market is available at www. dtcreports.com.



Advanced Digital Broadcast supplies a diverse range of high-quality digital set-top boxes integrating the world's leading conditional access and middleware solutions. Whatever the technology platform, ADB maintains its position in not just leading the industry, but defining it.









MARKET WATCH

Radyne has launched the compact, lightweight DMD1050 card based modem. Also available as a DISA compliant 188-165A modem, the new modem targets the fly-away and mobile applications solutions providers. It can be purchased as a card and integrated into existing hardware or purchased with an outdoor hardened enclosure. www.radn.com



Radyne DMD1050 Modem

The new portable **Rohde & Schwarz** ETL provides a universal multistandard platform for analysing TV signals. The product combines the functionality of a TV test transmitter and a spectrum analyser in a single measuring instrument. The TV analyser platform is designed for commissioning, installing, and servicing cable headend stations and TV transmitters.

www.rohde-schwarz.com



Rohde & Schwarz ETL TV Analyser

Enensys has introduced DiviCatch RF-T/H, a compact receiver, analyzer and recorder for live DVB-T or DVB-H streams. It provides key RF indicators (MFER, C/N, etc.) and MPEG2-TS analysis. Also new, the FastCaster provides a solution for transporting high quality digital video content over IP networks. It has a throughput of 40 Mbps and fully supports SNMP and Forward Error Correction.



Enensys DiviCatch RF-T/H & FastCaster



Micronas & Ikonvergenz Kentaurus 3

Micronas and Ikonvergenz

have introduced the Kentaurus 3 production ready LCD TV series for TV manufacturers wishing to introduce motion blur removal and film de-judder solutions to their product portfolio. Its system architecture is based on the Micronas VCT-Pro LCD TV processor and the Micronas truD HD frame rate converter. www.micronas.com, www.ikonvergenz.com

Scientific-Atlanta has launched its Titan S2 DVB-S2 digital satellite receiver allowing the reception of 30 percent more data in the same bandwidth. This allows one transport stream to include more SD and/or HD services. The compact unit is part of the company's flexible Galaxy rack concept. Its performance in digital satellite reception for headends makes it suitable for digital video applications such as HFC, xDSL, MMDS and DVB-T. www.scientificatlanta.com



Scientific-Atlanta Titan S2

Verimatrix is extending its software based Video Content Authority System (VCAS) to DVB networks. VCAS provides a unified software based protection system for content delivered through DVB and IP segments of hybrid networks, and can be extended to offer smart cardless security for one way architectures. A key benefit for pay TV operators is the ability to transition existing subscribers from legacy CA systems to a more advanced security system. www.verimatrix.com

Kathrein has recently launched a new series of DVB-T and DVB-H UHF indoor antennas. The new directional, bidirectional, and omnidirectional antennas are available in a variety of models aimed at handling varying frequency ranges. The compact antennas are especially suited for TV reception in conditions where there is a penetration loss of more than 10 dB owing to the structural materials used in the construction of a building. www.kathrein.com

Ateme is introducing the compact Kyrion MPEG-4/H.264 encoder/ transcoder product family. Kyrion live encoders broadcast HD content at near SD bitrates and include SDI inputs, CBR and capped-VBR rate control modes, audio stereo and 5.1 channels. It also includes SNMP administration/ supervision plus MPEG-2 TS over UDP or RTP transport. Live encoders - from 1 to 4 channels - and live multi-format transcoder - from mobile to HD - are available with IP or ASI output. www.ateme.com

NDS is expanding its VideoGuard broadcast headend solution that will extend the reach of TV content to a broader range of devices over a wide variety of networks. The main addition is a new DRM Server component that handles the rights management of content delivered to multiple devices. The VideoGuard unified headend allows operators to essentially control and manage content and rights for the entire content. www.nds com



NDS VideoGuard

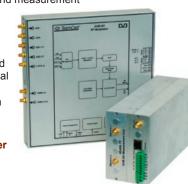
Tandberg Television has launched the mPlex media processing platform which enables ultra-low bandwidth video broadcasting to mobile devices. The compact system offers superior picture quality at bandwidths of 200-300 kbit/s or below. This high performance DVB-H encoding and transcoding solution is based on MPEG-4 AVC baseline profile with constant bitrate and variable bitrate encoding, native IP processing and flexible architectures for VBR control and mobile-specific scrambling.

TeamCast has introduced a DVB-SH compliant solution, comprising the MSH-2000 modulator and the RSH-1000 receiver modules. The MSH-2000 modulator enables the user to build DVB-SH terrestrial repeaters. It includes a DVB-SH compliant modulator ready for SFN operation, and an integrated S-Band up-converter for signal retransmission. The RSH-1000 receiver is an S-Band measurement

device which provides DVB-SH demodulation and measurement of signal quality in field trials and operational networks.

www.teamcast.com

TeamCast MSH-2000 Modulator & RSH-1000 Receiver



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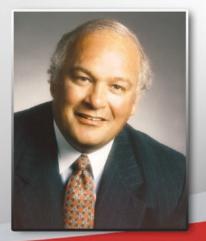


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