



Telecom InfoTechnology Forum – Conference  
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Broadband, Broadcast and Content:  
Where Does Hong Kong Stand?

## Executive Summary

### Overview

- Convergence is really all about broadband, whether it's IPTV, FMC, VoIP or Web-based streaming services. Because of high broadband penetration rates Hong Kong is uniquely well positioned to take the lead, a good example being IPTV.
- But broadband convergence is increasingly about content. What will drive the demand for content? Which of the emerging distribution channels will be successful and for what type of content? IPTV? mobile TV? video Podcasting? vblogs? Web-based TV? digital TV? Given the proliferation of access channels and devices, why has not Hong Kong spawned more start-up Web-based content services? Is there a need to stimulate innovation, or is the process latent, just waiting for the next dot.com boom? Is this purely an industry and commercial issue, or should it also find a voice in Hong Kong's arts and cultural development policy debate? Should content creation and design be addressed more rigorously within schools and colleges when planning future curricula?
- Is there a market for local content or for the localization of regional and global content? The role of the Web portal may be important here. In Hong Kong fierce competition between networks has led them to a 'closed garden' approach, unlike the more open i-Mode model that positively encourages content creators to market their products and services. Is the 'closed garden' consumer-fed approach holding back a more spontaneous consumer-led

approach? If it is, then is it sustainable? If it is sustainable, does that doom independent local content developers?<sup>1</sup>

- What business models will be associated with the proliferation of different distribution channels? Subscription models, advertising models, sponsorship and placement models, bundling and cross-selling models? Will the consumer be the driver in the sense of demanding ‘personalized services’ (emails, SMS, IMS, blogs and vblogs, P2P file-sharing are all compelling examples of the – predominantly youth – consumer-led market) or will service providers mediate the market process, as in the traditional broadcast TV model? (In the traditional model the broadcaster buys content and offers it free to viewers and sells viewers to advertisers, or, in the pay TV model bundles the content and sells channels. Content can also be sold directly as in the pay-per-view model.) At first sight these are purely commercial issues, but in fact is regulation sufficiently flexible and adaptive to allow experimentation? The answer seems to be yes it is. According to a recent CASBAA commissioned report, Hong Kong comes out tops with Japan as the most liberal in this area.<sup>2</sup>
- Fixed-mobile convergence (FMC) – which may be better termed ‘broadband-mobile convergence (BMC) – is reality in the UK and Germany, driven it seems by two motives. BT wants to maintain its market share in the fixed line business, while cellular operators facing severe price competition and with little opportunity to increase market share are prepared to risk losing some percentage of traffic to the fixed line operators in exchange for securing and growing traffic through FMC. What is less clear is whether FMC is customer-demand driven. (Earlier efforts to market unified billing have not been very successful, and in the UK at least customers seem to prefer keeping separate fixed and mobile numbers.)
- FMC in Hong Kong has not yet come close to core network convergence. In the UK FMC ‘fusion’ service is provided by BT’s MVNO with Vodafone, but BT does not see any long term future for independent MNVOs, nor for independent cellular operators, described as ‘bankrupt utility companies’!<sup>3</sup>

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<sup>1</sup> Power sometimes shifts along the value chain. At one time the handset vendors dictated what was available. Then, with the likes of Vodafone and T-Mobile and Hutchison, operators gained the upper hand. The next step is power to consumers. They already have it in terms of price competition, but not in terms of mobile access to the Internet, which would imply eventual by-pass of the customer access networks. BWA raises the same possibility for fixed line networks. In this context FMC could be seen as a purely defensive move.

<sup>2</sup> This has not stopped Heizo Takenaka, Japan’s Minister for Internal Affairs and Communications, from criticizing Japan’s new media industry for failing to innovate due to entrenched vested commercial interests that, for example, slow down the growth of online content. As a consequence, Japan’s entire media industry generates less revenue than Time Warner. See ‘Japanese Media and telecoms outdated’, *Financial Times*, 12 January 2006.

<sup>3</sup> PCCW Mobile was launched as a 3G service in January 2006 as an MVNO using SUNDAY’s network. Is this the first step to FMC?

- Security is the other BIG issue. The trend is towards NGNs (everything over broadband IP) and that gives the issue of security at the network, service and application layers completely new dimensions. **Cisco Systems** (the Platinum Sponsor) provides a review of the holistic approach to security with an emphasis on building it into the design of networks from day one. Hong Kong, as a world leader in broadband and services, in the corporate as well as the consumer market, cannot afford to let down its guard because risk from existing attacks continues to grow, and uncertainty over future dangers likewise grows. The broadband environment is vulnerable because it is online, and sophisticated attacks demand not just clever security *technologies*, but security *strategies* to handle the attacks when they come, as they inevitably will. Is this an area where the private sector and Government could do more to promote awareness? [The next TIF will be devoted to this issue – Ed]
- Security is also a pivotal concept in the IPTV space, not so much from a disruption of service perspective but rather from a business case perspective. Without the effective security of conditional access IPTV service providers will find it impossible to strike deals with major content providers. The most successful to date is PCCW's IPTV service (PCCW was the second sponsor) because conditional access is controlled from nodes inside the network's edge, whereas SUPERSUN, rather like HK Cable, locates security within the set top box. As PCCW migrates in future years into home networking services the architecture of their model may have to change, but for the moment the STB provided by NowBroadband is basically dumb and therefore cheap. HKBN's IPTV service is yet a third model, based upon a Web-server. Conditional access is controlled within the network, but once the programmes have been downloaded they can be easily copied and shared. So architectures affect security which in turn affects the business case a service provider can offer a content provider. [Architectures also cut across regulation, so that Web-based services are not subject to current telecom and broadcast regulations.]
- The other aspect of security concerns IPRs or copyright violations. The issues raised in the conference are twofold. First, whether the laws of Hong Kong and their enforcement are balanced or not between the physical and digital worlds and between commercial and individual violators, and indeed whether those responsible for making and enforcing the laws are sufficiently knowledgeable of the industry issues. Second, do public attitudes towards using P2P file sharing, an increasingly popular activity especially among the young, suggest that both industry and laws need to adapt to a new era of the digital 'creative commons'?<sup>4</sup> These issues need much more debate at the level of policy making.
- The concept of convergence is often overplayed. Vendors are constantly pushing the technology frontiers, while operators on the other hand are

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<sup>4</sup> See <http://creativecommons.org>

looking for the commercial rationale. Typically new services are presented as breaking into new markets, but in many ways convergent services can also be viewed as defensive strategies as the debate about FMC suggests. Ventures into new media, such as IPTV, also pose the problem of a ‘clash of cultures’ because the telecoms world and the broadcast content world are very different. The economics that underpin them are also very different, and cash-rich telecom companies faced with declining voice revenues looking for content to deliver, and content-rich media companies faced with rising costs looking for cost-effective distribution channels are obvious partners. This raises important media cross-ownership issues, and increases the possibilities of industry consolidation through M&As, partnerships with inter-locking directorships and cross-selling arrangements.

- On the other hand, a new era of Web 2 services and P2P distribution architectures has the potential to open markets to unlicensed content and service providers. This will challenge many existing regulations, and that may be the best reason for a more unified approach to regulation. In the debates that accompany these trends, it is important that the Government requires and provides genuine openness and transparency as the industry moves forward. That is the essential basis of good policy-making and regulatory reform and will provide the answer to the question: where does Hong Kong stand?

*Plenary Session A1/B1: Where Does Hong Kong Stand?*

1. **John Ure, Director of the Telecommunications Research Project**, opens the conference by thanking the Platinum Sponsor, **Cisco Systems**, and **PCCW**, Sponsor, for their support, and introduces **Francis Ho, Permanent Secretary for Commerce, Industry and Technology (Communications and Technology Branch)** to give the Welcoming Address. **Francis Ho** portrays the telecom and broadcast sectors and their regulation as in a state of flux, such are the technology and business changes overtaking the industry. The Government is to introduce a consultation on the best way forward for regulation, specifically the idea of a unified regulator. Australia and the UK are examples of recent adoption of this approach, while ICT regulation in Canada and the USA has for a long time come under one roof. The key issue to be awaited in this regard is whether the reforms proposed should be mainly structural [*this seems to be true in Australia – Ed.*] or substantial [*more true of OFCOM in the UK – Ed.*]. The Government is also planning a comprehensive review of broadcasting policy, to look into issues such as content broadcast over the Internet and to mobile phones. The start of digital terrestrial transmission (DTT or digital TV) in Hong Kong by 2007, the growth of IPTV and the immanence of wireless access technologies such as WiMax also raise questions of how to license these services.
2. **Francis Ho** notes the transition the industry is undergoing in its search for new business models as a result of these technologies, many of which are ‘disruptive’

of existing market strategies, as posing questions against old policy issues such as restrictions on cross-media ownership and cracking down on anti-competitive behaviour by service providers either colluding or discriminating in their efforts to tie-up content. The issue of content is perhaps the most difficult for Government to have a policy. For example, could or should Government attempt to place production quotas on licensed broadcasters to encourage independent local content production? [*The summary Session B2 discussion below suggests that Government intervention on the supply side would not work because demand from service providers is either for international content, such as Hollywood and world sports, or for very low cost production that would not find a market beyond Hong Kong – Ed.*] By identifying this broad range of issues, the Permanent Secretary really laid out the agenda for the conference.

3. Hong Kong's regulator, **M.H. Au, Director General of the Office of the Telecommunications Authority** (and legally the person vested with the powers of the Telecommunications Authority) follows with a robust defence of OFTA's consultation process. In particular, M.H. assures the conference that consultation, far from adding to uncertainty in the industry, is part of the transparent process by which regulatory risk is minimized. [*This is in response to the 'united front' of mobile and fixed line operators – ex-HKBN and ex-NWT – who have argued that OFTA should delay consultation and the issuing of BWA licences until full reviews of licensing and spectrum policies have been undertaken, a process that would probably delay BWA by 18 months or more. Singapore has already issued BWA licences.*<sup>5</sup> Ed.] In principle 'regulations are clear, predictable and transparent.' OFTA's approach is to 'break down the issues into manageable blocks' because convergence raises so many issues simultaneously, such as numbering, spectrum licensing, network charges between convergent services, the implications for the universal service obligation, network and service licensing principles where scarce resources are and are not involved and where market do or do not work efficiently.
4. **M.H. Au** steers the conference through many of these issues (which are outlined in more detail in the consultation papers) noting that OFTA has shifted gears from the *ex ante* prescriptive or pre-emptive and sector-specific vertical approach to the mostly *ex post* market-led and horizontal approach which applies the principles of competition policy to the sector. The interesting question arising from convergence will be whether this light-handed approach remains applicable in all cases. For example, in the case of cross-media ownership there would be resistance to lifting all restrictions. For example, spectrum trading, should it be introduced, could end up serving the interests of a powerful few. Add 'independence' to 'transparency' and one of Hong Kong's advantages is a world class regulatory regime. Long may it remain so. In this light, the coming debate on a unified regulatory agency will be interesting and important.

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<sup>5</sup> See [http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20051125\\_2/table.html](http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20051125_2/table.html)

5. **John Mak, Telecom Business Consultant, Cisco Systems (Platinum Sponsor)** provides the essential technical network details of an NGN that delivers converged services. The key development in terms of network functionality is the compression of the 7-layer ISO reference stack (1. physical, 2. data, 3. network, 4. transport, 5. session, 6. presentation and 7. applications layers) into just 3 layers (1-3. network, 4. service and 5-7. applications layers). Intelligence, security, etc., can be built into whichever layer is required (see **Bill Zeng** in Session A2), but the control layer in the typical NGN is the service layer that sits on top of any IP network and can be hard-wired or programmed to support any range of applications above it as required. Unlike the core network of a traditional PSTN which a new entrant had to replicate before being able to offer service, the NGN is quintessentially tailored to the level of service requirements the new entrant desires to offer. From the network architecture perspective, the core network is a bunch of servers that support network intelligence and service nodes at the edge of the network. The closer the edge is to the end user the shorter the local loop and the more effective the bit-rate throughput. [*The cost of the NGN and of the provisioning of convergent services has shifted outwards to the edge and is variable according to whatever service level the network service operator chooses – Ed.*] From the network service perspective, NGNs offer personalized services. Differentiation and choice enter the new converged world of telecoms, IT and new media. For example, fixed-mobile convergence allows a customer to use a personal number that is intelligently call-forwarded to wherever they may be. The end user can program through their handsets and PC terminations the services they wish to receive from the network. These services will eventually include home network of consumer electronic devices. (Also see summary of Session B2.)
6. **John Mak** also draws attention to the business issues which are not straightforward. For example, in the case of mobile operators and fixed-mobile convergence, will they want to ‘give up their mobile minutes?’ John cites research showing ‘that 30 per cent of mobile users are actually indoor.’ Fixed-mobile substitution favours mobile, but fusion gives minutes back again. This then is ‘a necessary evil’ that operators will have to face if they are to take full advantage of convergence. For example, in the enterprise market, managers will see cost savings from fusion and will opt for those service providers offering it. In this way John identifies the way markets and technologies will interact, to which of course regulation must also respond with flexibility. This is the point where Hong Kong stands right now.
7. **Marion Lai, Deputy Secretary, Commerce, Industry and Technology (Communications and Technology Branch)** completes the picture of convergence in Hong Kong by reviewing local content, broadcast and new media initiatives. The technology issues here are very much secondary to the content issues, yet government cannot and does not get involved in content, except for reasons of regulation, whereas government can and does influence technology. The choice of digital terrestrial transmission (DTT) is an example. Here the

government is trying to be flexible, giving the free-to-air broadcasters (ATV and TVB) the opportunity to adopt the Mainland's standard if China goes ahead before the end of 2006, otherwise the European standard will be adopted.<sup>6</sup> Other interventions include support for the Digital Media Centre and the Wireless Development Centre, both at Cyberport plus an iResource Centre to create a 'unified digital assets management platform', the post-production facilities at the Shaw Studios in Tseung Kwan O, financing for the Film Development Fund and support for the Digital Entertainment Centre's incubation and training programme. These initiatives all support the use of enabling technologies albeit with the aim to foster the development of the creative side of the industry. The big question is, how successful will these initiatives be? Unlike telecom where the market is strong, the content side is at the mercy of some very different economics because demand is uncertain, the costs of production are relatively high, the costs of reproduction are minimal (therefore piracy is cheap) and the shelf-life of the product is frequently short. If local content production is to flourish it will almost certainly require demand from the network service providers as they market convergent services, such as mobile TV and IPTV. But is this likely? The message from Session B2 may cast some doubt. This is an area where closer liaison between policy makers and the industry would be helpful, if only to adjust expectations and for a reality check. **Marion Lai** points out (in reply to a question) that the Chief Secretary has indeed initiated a Film Development Committee to look into the future of that sector. Since convergence implies multiple distribution channels, the scope of this Committee should also take that into account.

8. The other possibility, not unrelated, is the Mainland market, and here government has been pursuing the opportunities through CEPA (Closer Economic Partnership Agreement) for 'better market access for Hong Kong-originated or mainland-Hong Kong co-produced movies and TV dramas'. These are early days, and there is certainly no good reason why Hong Kong's creative talent should not be able to take advantage of the new digital media age. On the network side, as a recent CASBAA study has revealed, Hong Kong comes out very well for its light-handed regulatory approach to pay-TV and IPTV and Hong Kong is up among the world leaders. [*The question is, can this network demand be translated into a local content demand – Ed*]

#### **P2P - PPLive**

9. Perhaps the most 'disruptive' of the new technologies to emerge over the Internet is P2P (peer-to-peer) algorithms that allow for ubiquitous file sharing. **Billy Yao, CEO of Synacast**, talks about (and later in the day gives an impressive demonstration of) his company's PPLive programme. PPLive hit the front page of the AWSJ in September 2005 due to its use in China to pirate and stream live ESPN football matches around the world. **Billy Yao** explains that unlike other P2P software PPLive requires no downloading and allows for instant viewing of

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<sup>6</sup> China has experimented with its own standards in IPTV and DTT, but the former seems uncertain while the latter has to be viable before the 2008 Olympics. See Briefing Paper.

streamed video. Using the software with full DRM (digital rights management) features effectively opens the way for anyone to set up a Web-based IPTV service or e-Learning service at very little cost. One of **Synacast's** customers is the Shanghai Media Group offering IPTV.<sup>7</sup> The three components of this broadcast technology are a client/server modem, a content delivery mechanism (CNM) and a Synacast algorithm called 'intelligent flow control' which finds 'the best peer who can share the data with a peer. Here, the best has two meanings. One is a fast user and another is max-use stable bandwidth.' By this **Billy Yao** suggests the best is a local partner served by readily available bandwidth.

10. P2P runs through the discussion of the Forum like a red thread. In Billy Yao's words 'P2P technology is a revolution to the modern Internet. P2P film and P2P live streaming is quite a weapon for our content provider. That is my opinion.'

*Session A2: Broadband telecommunications: convergence over next generation networks; FWC and Unified Licensing*

11. **Hubert Chan, Vice Chairman, ITAHK** chairs session A2. The first speaker is **Michael Heuer, VP, Business Development & Consulting, Global Telecom Markets, BT** who introduces us to BT's Bluetooth-based fixed-mobile convergence (FMC) service known in the UK as 'fusion'. BT's Bluephone allows users to connect to BT's fixed line service in the home or office, to BT's WiFi hotspots in coffee shops, airports, etc., and to Vodafone's 3G network out on the streets. BT launched an MVNO with Vodafone for this purpose.<sup>8</sup> The introduction of the Bluephone handset and the fusion service is part of BT's wider strategic transition to what BT calls its 21<sup>st</sup> Century Network, an all-IP NGN that incorporates all systems from network management to customer relations and billing. With the 21<sup>st</sup> Century Network, BT is building a worldwide platform to support services to be marketed under three separate entities, BT Wholesale, BT Retail and BT Global. FMC is therefore just one of many convergent services that will be marketed. BT has launched a similar service in Germany.
12. Although it would seem that under this arrangement the mobile operators could actually lose traffic to fixed line operators, especially during phone use in the office and at home,<sup>9</sup> according to **Michael Heuer** it is the mobile operators who are driving FMC because they stand to lose even more traffic to their direct competitors. Additional pressure comes from the fact that they paid huge licence fees in Europe for 3G, but cannot easily increase market share. Most of their customers are pre-paid but ARPUs are falling fast, so their strategy of migrating users to post-paid subscriptions includes FMC service along with the bundling of

<sup>7</sup> At the time of writing only the Shanghai Media Group is licensed to trial IPTV in China, although both China Telecom and China Netcom seem to be doing it as well.

<sup>8</sup> The only MVNO Vodafone has agreed to.

<sup>9</sup> Evidence from Cisco suggests that 30% of mobile phone use in Asia Pacific is at home (see John Mak above) and BT's research suggests 70% in the UK is actually within buildings.

services. But one factor delaying this development is the lack of widespread broadband in much of Europe. [*Scandinavia and increasingly the UK are notable exceptions – Ed.*]

13. BT's UK services are broadband based (also see below the characterization of convergence as being a broadband phenomenon) but FMC remains, at the service level, at the front end only. By contrast in Germany BT began with a 'home-zone' PSTN service with 02 being the prime mover with a service called Genion which is based upon core network convergence or backend OSS. Later Vodafone began a similar service, Vodafone@home, including number portability. There are now over 5 million FMC users in Germany. But BT's experience with numbering in the UK is to maintain separate numbers for fixed and mobile customers. For regulatory reasons the German model cannot be used elsewhere for the moment. Clearly, different tariffs, billing systems and network charges for fixed line and mobile calls remain a stumbling block for operators, the regulator and consumers.
14. From the customer's perspective, BT offers in addition to the PSTN service two contracts bundled into one, with BT Mobile (MNVO with Vodafone <sup>10</sup>) and BT Broadband (includes BT's Openzone WiFi network), plus a free mobile handset and a mobile number. [Resistance from mobile operators has stopped vendors widely adding Bluetooth to handsets to prevent customers from by-passing mobile networks, but here is a case where competition is driving the market to the advantage of customers. There is a lesson here for Hong Kong where too many self-serving industry voices complain of over-competition – ed.]
15. Fixed mobile *network* convergence is unknown in Hong Kong at this stage, but BT is doing a lot to push standards within the FMCA (Fixed Mobile Convergence Alliance), especially in Germany to integrate the NGN OSS (Operating Support System) and the WiFi/WiMax BSS (Base Station Subsystem) to make possible roaming between FMNs. **Michael Heuer** also stresses the important role to be played by the UMA (unlicensed mobile access), especially for SME applications and services, in spreading inter-operability from GSM to networks and devices using unlicensed spectrum.<sup>11</sup> BT also has plans to introduce SIP (Internet enabled) phones into their Openzone service which currently claims 30,000 hotspots worldwide, an application attractive to corporate clients.
16. Where does this leave mobile operators? In Session A1, **John Mak of Cisco** calls FMC 'a necessary evil' that the mobile operators have to embrace. **Michael Heuer** notes that his team members 'refer to mobile operators as bankrupt utility companies.' The key to their longer term independent survival is to become masters of content and 'mobile operators are not the greatest marketers in the

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<sup>10</sup> But **Michael Heuer** does not see much of a future for MNVOs as long term convergence implies increasing bundling of services over NGN networks.

<sup>11</sup> See <http://www.umatechnology.org>

world, to market content.’<sup>12</sup> In response to discussion questions, **Michael Heuer** agrees that it is largely a question of pricing to determine which networks people choose to use, but the strategy of operators is also influenced by user segment. Driving BT’s push to fusion in the UK is protection of fixed line market share, but driving BT in overseas markets will be different factors, for example offering special mobility functions to corporate customers. The key factor here will be revenue-sharing agreements or network charges to support roaming. No one really knows what business models will eventually arise.

17. **Bill Zeng, Business Development Manager, APAC SP Sales Operation, Cisco Systems, Inc. (Platinum Sponsor)** addresses network and user security, an issue of ever growing importance in an interconnected world of NGNs. He makes the point that the three layered IP NGN as described by **John Mak** in the plenary session is Cisco’s version of converged networks, and the issue of security needs to be an integral part designed into all three layers of the network as well as in the access networks and devices. The spread of broadband is a double-edged sword. As well as benefits there comes an increase in the number of insecure devices, such as PCs connected to the network, and inevitably convergence attracts criminals and malicious intruders to exploit new opportunities. On another dimension, broadband vastly increases traffic volumes and while P2P networking is an innovative solution to many applications over broadband, it ‘is no way to figure out how to optimize the transportation of the packets’ for example to reduce cross-oceanic packet volumes and maximize in-country and regional packet traffic.
18. The key components of security are (i) authentication, you are who you say you are, (ii) confidentiality, and its corollary lawful intercept, (iii) integrity, packets arrive as they were sent without unauthorized alterations, (iv) non-repudiation, so the sender is responsible, (v) access control, or conditional access so access is denied to those not permitted, and (vi) availability, that is service of the required quality is available to every qualified person who requests it. Achieving this comprehensive level of security requires reliability at the data plane to ensure the packets are ok, at the control plane to ensure the correct routing of packets, and at the management plane for network analysis and trouble shooting. **Bill Zeng** breaks down all security issues into three categories: (a) services, everything from FMC to e-commerce to video streaming and gaming, and services yet to come and with associated threats as yet unknown, (b) the threats themselves, their nature and characteristics, and (c) the solutions, and these are not standalone but closely related to the services provided. For example, ‘massive’ or ‘distributed’ denial-of-service attacks are widely used to blackmail websites that generate daily large revenues through e-commerce and/or advertising. (Most at risk are porn sites, for obvious reasons, but equally auction sites, news sites, etc.) A common ploy is the use of botnets as agents to seize control of PCs of unwitting users to launch an

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<sup>12</sup> High charges for music over 3G networks in the UK is killing off the mobile networks as a source of downloads and encouraging not always legal uploading of music to mobile phones according to the Financial Times ‘High rates mute music downloads’ 5 January 2006, p.21

attack without their knowledge. The solution lies in the ability of the network to withstand such attacks and to filter attack traffic into sidings while allowing genuine traffic to pass through. Another example is a denial-of-service attack on a SIP (Session Initiation Protocol) server. SIP is used for Internet phones for VoIP services, so this type of attack is at the applications layer, and the solution involves a session border controller on top of the network foundation security to police the SIP protocol.

19. Three important messages come from **Bill Zeng**. First, security threats continue to evolve and become more sophisticated. Second, that NGNs are designed to handle and provide converged services, so the old PSTN – cable TV – VAS model that saw isolated islands of networks each needing their own separate security no longer applies. Third, security needs to be thought about from day one. This is both a major challenge and an opportunity for vendors, operators and service providers to provide customers with secure solutions. In response to questions, **Bill Zeng** also refers to voice spam as a major irritation and cost in terms of time and money. **M.H Au** from the floor informs us that OFTA will be submitting anti-spam legislation to Legco early in 2006.
20. Joining the speakers for a panel discussion are **Dr Tony Seeto, Director of Business Development, Hong Kong CSL, York Mok VP, Marketing, New World Telecom, Dr Liang T. Wu, Executive Vice President, Emerging Technology, PCCW (Sponsor)**. A good example of an application recently launched by HK CSL that leverages convergence is a video-sharing service that, unlike circuit-switched video conferencing that has to be set up before a call, allows video sharing to take place during a call at a moment of choosing. This application will work over fixed networks also. In describing this new service, **Tony Seeto** makes the point that 10 years previously he worked for Hong Kong Telecom and FMC was being discussed then. Until recently little had changed.
21. Both **York Mok and Dr Wu** saw the focus of convergence as being not between PSTN and mobile but specifically between fixed broadband and mobile, with **Dr Wu** suggesting replacing FMC with the term BMC. **York Mok** sees bandwidth restrictions on the mobile side as the limitation. But ultimately convergence is about business models, and **Dr Wu** makes the point that done wrong it leads to cut throat competition, done well it creates new opportunities, whether these lie in triple play or, for example, the use of mobile robots and UWB (ultra wideband) for remote sensing that are linked to control centres by broadband networks.
22. But will new business opportunities influence convergence of the service providers themselves? Will FMC (or BMC) see a merger of operators around unified core networks? **Bill Zeng** sees this as the future direction because NGNs will allow operators to roll out new services and applications much more quickly and efficiently. Cisco Systems is currently working closely with BT to solve some of the outstanding technology hurdles. For **Dr Liang Wu** the issue can be handled simply through an IP gateway as far as the PSTN is concerned, while the 3GPP

side has already defined IMS (IP Multimedia Subsystem) as the architecture ‘which is no more than a soft switch with a SIP layer sitting on top of it. That is exactly what the fixed call NGN.’ The real danger is that fixed, Internet phone, and mobile providers may each end up with no-interoperable IMS, but ‘that is an issue of vendor management instead of the operator issue.’ **Tony Seeto** agrees ‘totally’ and that service providers should be completely focused on customer issues. For example, ‘the user wants to control the media’ (a point that **Stefan Rust** in Session B3 makes regarding personalization of services.)

23. **M.H. Au** responds on behalf of OFTA to the issue of core network convergence vs. service level convergence. OFTA sees at least five levels of convergence: (i) the access level, (ii) the core network level, (iii) the control level, (iv) the application layer ‘in that the application can be delivered to any device through the underlying layers’, and (v) the convergence of access devices.
24. **Numbering:** the issue of numbering comes arises several times in the discussion. The need for numbers is not just growing by subscribers but also by services. For example, numbers may indicate mobile or fixed, location or reflect personal preferences such as call fixed at home, mobile out of the office, voice messaging during a meeting, etc., they indicate the direction of network charge payments between interconnecting operators, a number could indicate video-phone service availability, or may be assigned to a SIP Internet phone and IP address, or to a person’s adopted name (e.g., Skype phone), and so on. Convergence means the possibility of any combination of the above at the same time. [*The following is a simple representation of numbering a function of numerous variable – Ed*]  
  
$$\text{Number} \sim f(\text{access device, charging principle, location, portability, service type, personal preferences, IP address, adopted Internet community name, jurisdiction, ...})$$
25. **Michael Heuer** in fact suggests that a better way of seeing convergence is not so much as a dependency upon numbering or devices, etc., (‘too much linked to the old paradigm’) but rather the ‘seamless integration’ (interoperability?) of broadband communities of interest through whatever means, such as in the Skype P2P model, and using the medium of choice, such as voice, video, avatars, IM, etc. (So IP-based broadband networks and Internet provide common meeting points for various communities.) **Tony Seeto** looks forward to the long distant day when we all have just one number but can list under it our preferences, locations, etc.
26. **M.H. Au** points out, because different jurisdictions operate different regulations (Hong Kong operates mobile party pays (MPP) due to the PNETS (Public Non-Exclusive Telecom Service) licencing policy<sup>13</sup>) the solution to the numbering

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<sup>13</sup> For consumers fixed and mobile tariff structures appear rather similar due to the bundling of mobile minutes for flat rate payments. The basis of PNETS is clearly called into question by the substantial growth of mobile networks and traffic. Removing PNETS would be necessary to clear the way for full FMC.

problem will vary.<sup>14</sup> **Michael Heuer** suggests the majority of users still seem to prefer different numbers for fixed and mobile. In fact BT offers three numbers: PSTN, mobile and broadband. In the UK, unlike Germany, FMC services still use separate numbers. (*The answer in Hong Kong will inevitably be the end of the PNETS regime and presumably CPP will replace MPP– Ed.*)

*Session B2: Television: content and transmission in a digital and IP era*

27. The focus of session B2 was very much upon the dilemmas along the value chain, from content producers and providers (copyright protection and digital rights management), to distributors and network operators (security and revenues for telecom and broadcast service providers), to consumers (choice anytime, anywhere and anyhow). Timing seems to be a big issue. Content owners (notably the film and TV studio-based majors and music companies) have been cautious-to-slow in adopting (distribution) and adapting (business models) to P2P digital software technology, often frustrating technology-savvy consumers owing to high prices (the marginal cost of digital distribution is zero) and delays in distribution release (movies and DVDs don't get released in Hong Kong for several weeks after their North American release, and services such as iTunes and vPod downloads are not available at all). The advent of P2P software technology is an invitation to consumers to take their own steps to watch content of their choice when and how they please, and for free. Many if not all consumers would probably pay for high quality services if the price was right, as iTunes seems to show. Getting something for nothing is always a temptation but not always the motive.
28. **Simon Twiston Davies, CEO of CASBAA**<sup>15</sup> chairs the session. The first speaker is **Craig Norris, Alkira Technologies**. Craig has been consultant to IPTV provider SUPERSUN.<sup>16</sup> Craig focuses on the different business cultures of telecom and TV. For a telecom play, IPTV offers a way to utilize unused network broadband capacity over a network. The telecom business was traditionally about selling bandwidth, not content. By contrast, TV broadcasters 'live and die by the phrase "content is king"... a very different mentality compared to a telco.' Later, **Ricky Wong, Chairman of HKBN**, echoes this point, telling us that he is a telecom man so when starting IPTV he had to get use to the different ways in which business is conducted in the content world: 'I learned a lot in the last three years -- the same movie can cost \$10,000 or a million. It depends on how much relationship -- how much wine you can drink in one night. So, you know, that is not the game I know how to play with but that is the reality and so it is very painful.'

<sup>14</sup> In calling party pays (CPP) regimes the problem is rather high (asymmetric) mobile termination charges. As Michael Heuer points out, in Germany mobile charges can exceed fixed by factors of 4 up to 20.

<sup>15</sup> See <http://www.casbaa.com/home.htm>

<sup>16</sup> SUPERSUN uses the technology of Galaxy, the company that provided IPTV using satellite access, and provides access over the HGC broadband network.

29. Another difference pointed to by **Craig Norris** between the telecom and the broadcast inheritance concerns conditional access. In the telecom world the security is more likely to be embedded in the network, and in parallel the set-top box (STB) may not even have a hard disk (for example, in the case of PCCW's Now service – see Briefing Paper <sup>17</sup>) while in the broadcast model traditionally the STB can store multiple programmes from different channels. The former architecture is referred to in the industry as a 'thin client' and the latter a 'thick client' and in this case a 'thick client' allows the viewer to switch channels and programmes rapidly. In the case of 'thin clients' the viewer's instructions have to travel back up the network to the server and back down again to delete the current programme and transmit the requested one. This can cause delay unless bandwidth is sufficient. Later, **Ricky Wong** reinforces this point, citing HKBN's 100 Mbps Metro Ethernet broadband network.
30. Standards, according to **Craig Norris**, have also proved a major problem for providers of IPTV, again because of the divergent telecom-broadcast traditions. European digital video broadcasting (DVB) STBs will work throughout the continent, but encoding, encryption and security are another matter. The days are long gone since TV rights were a 'licence to print money' [*the famous saying of Canadian media mogul Lord Thompson of Fleet on winning a commercial TV licence in the UK in the 1950s* <sup>18</sup> - Ed] and broadcasters are always looking for ways to save money. By contrast, the cost of IPTV equipment for telecom companies is a very small part of their total revenues, so TV companies are not used to dealing with vendors who are used to dealing with telcos, who offer proprietary equipment and price accordingly. There is 'a collision of two universes and a culture clash in many ways.'
31. **Dr Chao Shen Chang, VP Enterprise and Consumer Electronics Group, ASTRI** speaks next. He places IPTV in context of four broad developments: (a) the spread of broadband access, (b) the digitalization of content, of which P2P is an application example, (c) the trend towards convergence, of which triple and quadruple plays are examples, and (d) the demand from consumers for the electronic delivery of services at home, at work and while mobile. The home electronics market is one of the big prizes. Dr Chao identifies four 'clusters': entertainment, information, appliances and home office/automation. Dr Chao sees the STB as the critical link between IPTV and home electronics, as providing 'a huge opportunity for telco carriers to enter the consumer electronics market.' Through the STB services such as VoIP and PVR (personal video recording or 'time shifting') will be enabled, followed by home networking of multiple media receiving devices through the STB. – [*This is indeed the stated objective of PCCW - Ed.*]

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<sup>17</sup> See [http://www.trp.hku.hk/tif/papers/2005/nov/briefing\\_051124.pdf](http://www.trp.hku.hk/tif/papers/2005/nov/briefing_051124.pdf)

<sup>18</sup> See Wikipedia [http://en.wikipedia.org/wiki/ITV#The\\_early\\_years:\\_1954.E2.80.931963](http://en.wikipedia.org/wiki/ITV#The_early_years:_1954.E2.80.931963)

32. ASTRI is developing STB technology for commercialization, counting among its enterprise customers the Shanghai Media Group.<sup>19</sup> Dr Chao sees the major challenge as providing security within the STB once it is equipped with a hard disk to provide services such as browsing content. He sees the video distribution network as migrating to the edge of the network (as in the PCCW model) with which the STB interacts, but this raises the major dilemma for service providers. Once the content is actually stored within the STB, can it ever be safe even with encryption decoders inside? And if security is handled through algorithms and software programmes, are they forever safe against hackers? Later in the panel discussion **Paul Jackson, Chief Engineer, NDS Asia Pacific**, takes issue with this, arguing that security that is not designed into the hardware is not secure, and that ‘there is no such thing as secure software.’ **Ricky Wong** agrees, giving assurance that his vendor, Cisco Systems, likewise embeds security in the network’s equipment, although in Ricky’s case the security is to guarantee his billing of customers. Once his content has been viewed it can be copied (‘we cannot protect it after it has been decoded in a video format’) which inevitably influences the type of content in which HKBN specializes, such as children’s programmes, popular afternoon viewing and adult entertainment.
33. **Ricky Wong, Chairman of HKBN** is the third speaker. He emphasizes that access devices for video will proliferate, ‘the PDA will definitively become your personal TV set.’ In fact, any kid with a PC and hard disk can offer TV and video over the Internet (as demonstrated by PPLive earlier and witness the rise of the Vlogs, following the success of the Blogs). In the panel session **Ricky Wong** answers the questions why did HKBN enter the IPTV market and what were the biggest hurdles. His answers are amusing, frank and also interesting. Regarding IPTV: ‘I will not do that, but I was forced because all my competitors ... cable has triple play, PCCW has triple play, and even Hutch works with TVB...’; the main barrier to entry? ‘I have no money. Content is king... then it depends on who makes the content. Is the content my own personal video or is it the content from Hollywood?’ In a nutshell Ricky identifies the key issues. Triple play, is it offensive to break into new ‘old TV’ markets, defensive to utilize bandwidth, reduce churn and add stickiness to broadband, or a long term strategy to reach into consumer electronics and home networking? Does anyone really know? But for the service provider it carries the costs of content, equipment (especially STBs), security, billing, sales and marketing. If the larger players, HK Cable and PCCW, can bid for Hollywood movies and ESPN sports content, the smaller players have to find cheaper content, and content of all kinds has a short shelf life. Does that, can that, point in the direction of locally produced content? But even if it does, would the market for such content also be only local? If at one end of the scale the major content producers are looking for diversity of distribution channels (movies theatres, TV, DVDs, vPod, PDAs, IPTV, Mobile TV, etc.) then at the other end of the scale the small local content producers are more likely

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<sup>19</sup> The Shanghai Media Group is the only one in China yet officially authorized to offer IPTV, although China Telecom and CNC seem to be trialing their own services.

faced with adversity of distribution in the form of monopsony buyers, exclusive deals with 3G operators or TV or IPTV companies.

34. During the panel discussion **Simon Twiston Davies** poses the question of copyright and DRM. **Craig Norris** suggests that in reality it is only those who own content who get serious about this issue, a small circle of people. **Paul Jackson, Chief Engineer, NDS Asia Pacific** sees the security industry 'between a rock and a hard place' where it is easy to overstep the boundaries where it will 'just annoy end customers', 'as evidenced by Sony's recent fiasco over DVDs and CDs' – [*Sony admitted secretly embedding cookies and was forced to retract them – Ed.*]. Paul agrees that the questioner who says he does 'not want to pay a lot of money even to wait for a DVD to come out, for example... So people use Bit Torrent to get TV dramas when they want to watch them... the industry complains all it wants about lost revenue, but until it offers an alternative, what do they expect?' is representative of many customers. But Paul also argues that a line should not be crossed using file sharing across the Internet and commends CASBAA for its recent 'series of resolutions outlining the parameters and some standards which the industry should look at adopting to protect content.' **Dr Chao** agrees that the focus on security is a rather 'passive' approach and the real challenge is to come up with new business models that exploit the opportunities of the new P2P technologies. For **Craig Norris** that would work 'as long as the content owners charged a very reasonable fee.' The two immediate problems are the fees being charged and the fact that VoD technologies are still not mature enough. **Paul Jackson** adds that the most recent VoD technology can send many movie titles to a PVR but encrypt them so their release is timed to synchronize with general release dates.
35. But **Ricky Wong** calls for a reality check, suggesting that 10 per cent of his broadband traffic is PPLive and another 70 per cent is Bit Torrent. '75% of the consumers work with BT every seven days. So they are sharing.' Whatever the figures, two things are clear. First, along the value chain, each player (content provider, vendor, service provider, and customer) has their separate set of interests which currently are at odds. Content providers want security, IPTV providers and broadcasters want content that costs them less and that customers will pay for, customers want cheap content at any time, anywhere and want to copy and share it, and vendors want to see demand for their products at every point along that value chain. The search for new business models does not yet seem to embrace all these players. Second, consumers do not have much sympathy with copyright and DRM for entertainment content, and the act of file sharing is widely practiced. At best it is like paying taxes, everyone agrees they are necessary and everyone wants to minimize their payments. The line between avoidance and evasion can be quite thin, as is the line between legitimate and illegitimate use of P2P software. For Government policy, again perhaps two issues arise. First, if the industry cannot agree on its business models there is no way that Government can give them one. This seems to suggest that promoting the content industry in Hong Kong cannot be supply-side driven. Second, for

Government policy towards copyright and IPRs in general to be successful it needs to take account of what is practical and what is generally acceptable among the public, and not be driven by the interests of any one industry.

*Session A3: Broadband telecommunications: Wireless applications, content and the challenge of P2P in the age of convergence*

36. **John Chiu, Chairman, WTIA** chairs this session. The first speaker is **Stefan Rust, SUN Microsystems** who makes clear from the outset that the technologies are less important than the business models and the IPRs associated with broadband mobile content. The scale of mobile entertainment in its various forms (music, video, games, etc) is already multi-billion dollars, and Stefan gives examples from Korea where 200,000 customers are 'paying USD12 per month to subscribe, watching 60 minutes of television a day on that mobile device.' But the challenge is to redesign content suitable for mobile phones, which are very interactive 'lean forward' devices unlike 'lean back' TV. Revenue generation 'you are seeing evolve now is much more a subscription model... we have seen, particularly in Europe, take off is the subscription to ring tone services.' But the whole process is highly complex. There needs to be cooperation with manufacturers and infrastructure providers to guarantee network and handset speeds and capacity. There needs to be work to secure IPRs, from the content creator, the composer, the artist, the writer and then from the publisher and then from the record label. And now there is a 'creative commons' and a new set of rights being established and negotiated which 'generally means that you can distribute that content through any access or any device to any consumer as long as you mention who you got that content from.' Even when you buy the right to download, this does not give the right to forward, so rights to physical (e.g. a book, a CD or DVD) and digital content are sometimes quite different. In some cases DRM software allows digital subscribers a limited right to forward.
37. According to **Stefan Rust** over 50 per cent of mobile phone users globally regularly use mobile entertainment, or very roughly one billion users. Taking the example of content directed at a female audience, the potential market comes down to maybe 300,000. Stefan suggests a conversion rate of 50% so that brings the market down to 150,000, and at, say, USD5 a month, that's USD750, 000 revenue per month addressing a global market. In fact Disney in Japan is up to USD100 million a year. But there is a ceiling on the percentage of youth market disposable income to be spent on mobile content. Stefan cites 8%. So 'one of the stories we think is going to evolve is advertising-driven solutions.' For example, getting good 'deck placement' on a content portal can drive advertising revenue. Another model is 'direct-to-consumer' working through aggregators and promoters, for example billing users of short-code dialing and premium-SMS who are responding to TV and radio adverts and call-in shows. Yet another model being explored is how to create participatory online communities. For example, blogging (*and video-blogging*) over mobile is very P2P and may be very personalized. Stefan's conclusion is that whatever model is used, the content

needs to be ‘adrenalizing, episodic and make sure you are filling time, so you have two or three minutes and that is all you have for an attention span. Secure your distribution and market your service.’ And finally, in addition to the cost of content production there is the cost of post-production localization that makes the content suitable for local handsets and the local market, so the trick is to incentivize users to generate as many transactions as possible.

38. **Alex Young, CEO, Mostyle Ptd Ltd** named his company after the idea of a ‘mobile lifestyle’. Alex starts where Stefan leaves off, with the point that ‘the myth is that you have to be a content provider to provide content, but no, anyone can provide content’ and he gives the example of video blogging. His comments on Hong Kong are interesting. In the three years since he worked in HK, ‘when you look at what is available now, it is very rich. Basically every technology hole has been plugged... And you have a very supportive local industry, something which in Australia or Singapore is not so strong in terms of a presence for building awareness and educating new entrants into the market.’
39. **Alex Young** identifies three phases to launch a new service. First, attractive pricing. Second, standardized content purchasing. ‘At the moment here in HK you have per download purchase, you have subscription, you have premium SMS. Really it is a mixed bag.’ Third, ‘maximizing the potential of portals.’ This is easier said than done. ‘So placing content under a menu structure sounds easy, but it is really an art form.’ Next comes creating a need. In Australia ‘Hutch were very, very, very clear in their marketing message. It is purely for youth. They did not throw in any business stuff just for the fun of it.’ Then comes ‘the pulling power of local content.’ Alex contrasts his experience with i-Mode with that of the traditional telco’s who create their platform and then wait for content to arrive. ‘With i-Mode you go out there and knock on everyone’s door... and say “Here is an opportunity..” and this kind of approach brings on board a lot of local content that is not traditionally on mobile.’ Alex mentions McDonalds and asks why not Fitness First? Finally, after creating the need, maintain the need. In Australia Telstra have been very successful by creating a user-friendly portal that covers everything and portal browsing is free of charge. ‘So the three key points: attractive pricing, local content and browsing as the central means of content discovery.’ And what is the next phase for mobile? **Alex Young** sees ‘mobiles being another channel to the Internet.’ And that brings him back to the points Stefan was making about Web-based content and m-commerce transactions.
40. **Chris Lau, Director of Future Services, Smartone-Vodafone** and **Charles Henshaw, Chief Executive Officer, China Resources Peoples Telephone Company Limited** join Stefan and Alex on the discussion panel. Two important points of agreement emerge, one area of disagreement and an important conclusion regarding services. First, the importance of the youth market, a point confirmed by a HKWDC survey **John Chiu** refers to. Alex again stresses the ease with which young people navigate portals and menus to find the content that interests them. Second, **Chris Lau** and **Charles Henshaw** point out that Internet

applications such as email usually start from business users who then take them into the home. The next stage is push-technologies, such as emails to a Blackberry and possibly next is Intranet access. **Chris Lau** does not agree that mobile phone users will find on-screen advertising at all acceptable, although **Stefan Rust** suggests that sponsored content can work. The important conclusion proposed by **Alex Young** and generally supported by the panel, is that for the youth market in particular, ‘rather than give them content, “Here is what we think you want”, let us give them tools, “Let us see what you can make of this.” So that is the kind of approach I see.’ [*This seems very much to accord with the past success of services such as email, SMS, IMS, blogging, etc., which were tools that were often entirely user-invented and the failure of services such as WAP, MMS, etc., that were designed for users -Ed.*] One further area of agreement, in a post-voice data world there is no such thing as a ‘killer application’ (*unless, of course, it is broadband itself*).

41. If there is no killer application then operators will have to move forward across a wide selection of services. One of these is mobile TV, which is successful in Korea as outlined by **Stefan Rust** earlier. **Charles Henshaw** confirms the experience of People’s that video clips of no more than 2-3 minutes are the most acceptable. He agrees with Stefan that mobile operators will play the role of providing many channels for video services. But that raises questions as to the most effective networks and standards for video transmission. As **Chris Lau** points out, compared to DVB and DMB,<sup>20</sup> 3G networks are not designed for video broadcasting. [*This could have longer term implications for multimedia wireless networks and licensing in Hong Kong if mobile TV and video services are to grow. – Ed*]. Which devices will be used to receive mobile TV and video remains to be seen, but as **Chris Lau** adds, ATV and TVB never need to worry about access devices but in the mobile world each vendor produces a different model, a point made by **Stefan Rust** earlier. To transcode content to make it work on each model, as **Alex Young** says ‘does take a fairly significant investment on the part of the operator’ with **Chris Lau** adding that ‘Nobody knew how to do it two or three years ago.’ **Stefan Rust** argues that scale is crucial here, to which **Chris Lau** suggests that is the reason ‘why you find some operators here do not do anything because it is too costly. I do not blame them because there is no business model.’
42. A related issue is the future role of WiFi and WiMax networks. **Chris Lau** makes the simple point that WiFi technology is well tested and an access point only cost around HKD200 to install. The problem is no-one wants to pay for the service, so there is no business case to build separate and competing networks. **John Chiu** notes also the lack of security with WiFi. [*This is true, but research suggests that the vast majority of SMEs do not use any security even on their PCs – Ed*]. **Stefan Rust** is more circumspect, noting that Google has invested in a WiFi network for the whole of San Francisco. But he also notes that phones used between WiFi and

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<sup>20</sup> Digital Multimedia Broadcasting is an ETSI standard derived from DAB (Digital Audio Broadcasting) and can be from satellite (S-DMB) or terrestrial (T-DMB) transmission. DVB (Digital Video Broadcasting) is an ETSI suite of standards for digital TV broadcasting.

mobile networks currently have very little battery time. 'I am not saying it is not going to happen. I am saying it takes time.'<sup>21</sup>

43. No discussion is complete without reference to China. **Charles Henshaw** sees China's market as an opportunity with a big 'O', which is consistent with a company that is now owned by China Mobile. **Chris Lau** sees China as a rather closed market, maybe for similar reasons, but with all the advantages of scale. He also sees Chinese investments in Hong Kong companies 'to a certain extent as a good thing.' **Alex Young** makes the insightful point that while content is liquid and can cross borders easily, it is often not very portable, meaning China is a different market to Hong Kong. [*This is an interesting cautionary note for Hong Kong content developers, and at the very least calls attention to the earlier point of Stefan Rust that post-production localization costs can be high.*]

*Session B3: Television: Convergence, regulation, investment and markets: future directions for broadcasting in a digital and IP era*

44. **Lorna Wong, Commissioner for Television Entertainment and Licensing Authority (TELA)** chairs the session. In outlining TELA's role in assisting the Broadcasting Authority (BA) in licence applications and renewals, Lorna notes that Hong Kong is already a world leader in IPTV and will be introducing digital terrestrial transmission (terrestrial digital TV) by 2007. New forms of TV transmission, for example over the Web and to mobile phones, call into question the current asymmetric nature of regulation, and this is presenting a paradigm shift in regulatory thinking. In 2006 the Government will issue a consultation on unified regulation in response to these trends.
45. **Vivek Couto, Executive Director, Media Partners Asia Ltd** is the first speaker and sets the scene very well first by laying out the facts and figures behind the spread of IPTV, and second by taking a quick look into the economics influencing the industry. In reinforcing a point made by **Lorna Wong**, Vivek refers to a recent CASBAA survey that finds 'Hong Kong, along with Japan, led the region with respect to regulatory practices in the multi-channel pay TV industry' and that Hong Kong enjoys 'the highest level of choice and greatest variety of programming of any in the Asia Pacific region... Between 2000 and 2005, the number of pay TV channels in the Hong Kong market has grown by 18%... The only close contender to Hong Kong in Asia is India which has seen 17% growth. Growth in Singapore is around 11%.' Hong Kong has already reached 70 per cent household penetration of broadband Internet and is expected to reach over 50 per cent household penetration for pay TV (IPTV, cable TV, satellite TV) by end-2005. [*Clearly the technologies, the market and regulation are working well together in this sector. It is worth remembering also that entertainment sectors are often called 'recession proof' and will flourish if given the opportunity- Ed.*]

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<sup>21</sup> See also Terry Graham 'Wimax Regulations in Asia' TRP Working Paper url: <http://www.trp.hku.hk/papers/2005/wimax0511.pdf>

46. The one glitch **Vivek Couto** notes is ‘rampant pay TV piracy’. Hong Kong ‘provides no criminal penalties against the unauthorised commercial use of foreign pay TV services and against individual end users.’ Despite this, Vivek also notes that ‘Hong Kong’s broadband multi-channel industry has become a laboratory for the rest of the world to see how platforms, content providers and consumers benefit in a highly competitive environment.’ [*This was true of fixed and then wireless telecoms in the 1980s and 1990s, proof positive that Hong Kong has regained a premier league position – Ed*] And a further word of caution comes when measuring success. **Media Partners** measures according to estimates of actual subscribers, not set top boxes which inflate the figures. On this basis Vivek Couto estimates iCable with 62% market share (against 76% in 2004) and PCCW NowBroadband with just under 30% market share (against 20% in 2004). SUPERSUN/Galaxy and HKBN share the remainder. The economics driving this sector, which is converging with telecoms, are very different from the economics of the traditional telecoms business. Competition drives up the costs of acquiring programming, especially when exclusive deals are sought, for example for the broadcasting of English premier league football, and although Hong Kong revenues from subscriptions and advertising are currently healthy at around USD260 million in 2004, rising costs will reduce future margins. [*Competition drives costs down in telecoms and up in broadcasting. In telecoms, high sunk costs are spread more thinly as the business expands, and with NGNs especially they vary according to the level of service being offered, whereas in broadcasting the shelf-life of programming is very short and piracy adds to the depreciation. Reduced margins will push pay TV services into new areas of business, e.g., home entertainment systems.*<sup>22</sup> – Ed]
47. **Edward Alder, Partner, Bird & Bird** addresses the issue of IPR laws in Hong Kong, making the point that this is not a regulatory issue as such. Copyright laws are essentially territorial and what constitutes infringement can therefore vary across jurisdictions. Edward selects a few of the better known recent cases to illustrate the point. Napster was a system that used P2P for file distribution but maintained a central file location directory on a Web-server. In the Napster case, which started in 2001, the trial judge granted an injunction to close Napster on the grounds that the plaintiffs would probably succeed, so the case never went to full trial. Part of the judgment rested upon the ‘doctrines of contributory and vicarious liability for copyright infringement. We have similar ideas in Hong Kong law.’ KaZaA was another case where P2P distribution was supported by file directories, but these were located on distributed ‘super nodes or super-users, super-peers, who kept records of locations of files on other people’s computers.’ In 2001 in the Netherlands KaZaA was found not responsible for copyright violations, partly on the grounds that there were plenty of legitimate uses for this P2P distribution system, but in Australia in 2005, Sharman, the new owners of KaZaA, were found guilty of authorizing the peer groups to infringe copyright law, and ‘this case is

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<sup>22</sup> But new forms of competition are already arising, from the content providers themselves, such as video programming over Google, Yahoo, MSN and now MySpace.com, the portal acquired by NewsCorp. In the UK BSkyB satellite TV has started offering movies and sports programmes over the Internet.

highly relevant and persuasive authority in Hong Kong.’ The case may be appealed. In the USA in July 2005 the US Supreme Court basically determined future US law with a decision about Grokster and another company StreamCast, a decision that dismissed parallels with the 1984 Sony Betamax VCR case.<sup>23</sup> In the Betamax case the Supreme Court upheld the view that VCRs had many legitimate uses and an insufficient proportion of illegitimate uses to warrant a ban. Grokster won an Appeal Court ruling on these grounds, but lost in the Supreme Court which found Grokster to be liable on the grounds that it was providing service to peers who were in violation of copyright, to be marketing to them, to be making no effort to filter copyright content, etc.

48. There are two aspects that **Edward Alder** emphasizes: the criminal and the civil. In 2005 the Hong Kong SAR Government brought criminal charges against a Bit Torrent ‘seeder’, while the Hong Kong branch of the International Federation of the Phonographic Industry (IFPI) is seeking a court ruling to require the ISPs to disclose the identities of customers who are illegitimately downloading music and video files.<sup>24</sup> In the Bit Torrent case the charges were upheld upon an interpretation of the law that found the defendant guilty not of illegal access to a server *per se* but of access for dishonest purposes. ‘That was the interesting point about it, that was not much covered in the press.’ The case is now under appeal. [*Hong Kong is the first jurisdiction in the world to bring criminal charges against a BT seed, undoubtedly a sign of international trade politics where Hong Kong wants to maintain a squeaky clean reputation, and just before the arrival of the WTO – Ed*] The civil action by the IFPI is pending. Later **Charles Mok** recalls a similar approach in the late 1990s by the music publishers to the Hong Kong ISPs. ‘Of course, at that time we ignored them... because we could not do it, we should not do it.’
49. **Charles Mok, Ex-Officio Member of HKITF** is the final main speaker on this subject. Charles is also a founding member and Chairman of the newly established Internet Society of Hong Kong. He speaks about ‘where Hong Kong should stand... from an industry point of view.’ Charles dismisses arguments about high prices encouraging piracy as ‘obviously fraught’ but recognizes that instead of grasping the opportunities that P2P brings to the market ‘the content industry somehow is doing something that is very different and just keeps on resisting it.’ [*In this sense, rampant piracy signals the failure of the market if not exactly market failure*<sup>25</sup> – Ed] Charles makes the distinction between users and abuses of technologies such as P2P, suggesting Hong Kong is more abuse than use. ‘China, on the other hand, is doing much better in this department and there

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<sup>23</sup> In which ‘Hollywood fell just one vote short of winning a ban on the VCR’

[http://www.eff.org/IP/P2P/MGM\\_v\\_Grokster/betamax\\_20th.php](http://www.eff.org/IP/P2P/MGM_v_Grokster/betamax_20th.php)

<sup>24</sup> The British branch of the Federation succeeded in a similar action in 2004, see

<http://news.zdnet.co.uk/0,39020330,39170372,00.htm>

<sup>25</sup> Market failure occurs when there are exogenous obstacles to the functioning of the market, whereas in the case of the failure of the market the obstacles may be thought of as endogenous, for example, lack of management strategic vision, concerns about cannibalizing existing lines of business, etc.

are huge opportunities there. We have so many users but not developers.’ [*The demonstration of PPLive may be an example of this difference?* – Ed]

50. He is also concerned with the way Hong Kong law is being used. For example, how well informed are the judges and ‘maybe the ISP Association should start running some courses or workshops for these judges, because I am worried about them.’ [*The newly created Telecom Research Project Corporate ([www.trpc.com.hk](http://www.trpc.com.hk) – soon to be under construction) would be more than willing to organize these!* – Ed] **Charles Mok’s** major concern is with the seeming inconsistency in Hong Kong laws and how they are applied. ‘We keep on making these laws that we know are not effective. It is a dilemma that the cyber world has given us.’ He senses that on-line piracy is being treated differently from off-line piracy and asks why is there this perception? ‘We see the legislation seems to be going in a direction that is going to make prosecution harder, not easier.’ Charles is here thinking of clauses in the Copyright Ordinance that exempt employees in the case of the use of pirated software and the lack of a requirement for companies to keep records of their software licences, etc. ‘The Government seems to acknowledge that the public view on intellectual property is different and less than about private goods or physical goods, and let them get away with it.’ Another inconsistency seems to be Government ‘targetting the individual users who are not making money from it’ rather than commercial wrongdoers. He sees part of the problem as the power of the commercial lobby and calls on the IT software industry to become more vocal ‘so that we finally have a Government industry policy for us to really help us develop our industry and not just to help the movie stars.’
51. Joining **Vivek Couto, Edward Alder** and **Charles Mok** for the panel discussion are **Cheong Shin Cheong General Manager – Broadcasting, TVB, Eric Lo Hong Kong Cable Television Limited, Ricky Wong Chairman, Hong Kong Broadband Network Limited, Joe Welch Senior VP, Government Affairs, Star Group Asia**. All the panelists agree that P2P should be seen as much as opportunity as threat. But the next big step for Hong Kong is digital terrestrial TV and **S.K Cheong** sees the issue not so much to do with standards, which will be decided by the middle of 2006, but ‘the main concern is really one of adoption’. The aim is 75% of the market by 2008, but will consumers be willing to spend \$800-\$1,000 for a digital set top box? Another challenge is ‘will our library have so little high-definition content in say seven years time when 90 per cent of broadcasters want everything high definition?’
52. For **Eric Lo** the challenge is more immediate. Eric watched the **PPLive** demo (see Plenary Session) and somehow ‘they managed to procure a set-top from our legitimate supplier, and then they encode the signals and put it on the Web and that becomes a webcasting service. Some people go to the website, PPLive, and watch our programmes... The way they are paying for the signal is through legal means; it is our set-top. Somehow they managed to get one of them. But it has violated the commercial offer. When we sell a set-top, we have very specific

commercial agreement as to how the set-top is being used.... Do I call that piracy? ... It is unlike the other form of piracy that we are dealing with every day... I cannot even say it is piracy, but certainly it carries impact on our business operations. We are looking into that.' (See also **Ricky Wong's** comments in Session B2 about the insecurity of programming over a Web-served based IPTV service.) On a more positive note Eric explains that HK Cable completed digitalization before the end of 2004, thus putting all pay TV services in Hong Kong on a digital footing.

53. **Ricky Wong**, responding to the idea that Government should help the industry avoid the consequences of people using technology to by-pass payments points out that 'the commercial organizations... have the capability to disconnect all the unauthorized users, so I do not see any reason the taxpayer helps you to do your business... obviously nobody agrees with those illegal watchers. But I think the point is, why don't you disconnect the cable connections?' [*Of course, HKBN's Web-based IPTV model does not at this stage rely upon secure content except in the sense of securing payment from viewers – Ed*] Like **Charles Mok** (above) **Joe Welch** sees the grey areas and shifting terrain arising from P2P technologies, and so sees both the 1984 Sony Betamax decision and the 2005 Grokster decision as being right. (See **Edward Alder** above). Joe also sees the value-for-money and low cost of pay TV in Hong Kong as undermining any economic rationale for piracy. [*There is clearly a distinction to be made between a 'free lunch' motive, that is a hole that can be plugged, and ubiquitous technologies that facilitate mass consumer downloading that undermine certain business models – Ed*] At the same time Joe is optimistic about high definition TV and sees content creators 'the Discoveries of the world, the Star TVs of the world, the TVBs of the world, are starting to see that (HDTV potential) and invest in content.' But returning to PPLive, Joe argues that TV should be seen as not different from mobile telephony in the sense that 'if you are in Hong Kong you want to have a mobile phone subscription, you do not take it from a Thai mobile phone operator... If you want to watch pay TV in Hong Kong, you take it from one of the four pay TV operators.'
54. [*But what if the technology allows you to do otherwise? For example, VOIP service providers are to be able to offer Hong Kong telephone numbers to overseas residents, and Hong Kong residents can obtain overseas numbers. The technology, like the Web is now global. Content has gone global. Services providers have not, despite efforts such as Vodafone. Regulations usually have not and often prevent service providers entering local markets. There is a growing mismatch, a growing disjuncture and one that consumers are exploiting in innovative ways. Service providers are less and less leading consumers and more and more following them. Therein lies a challenge, and it will be good for Hong Kong if Hong Kong can lead the world in innovating with service models that meet that challenge – Ed*]