

LEGISLATIVE COUNCIL BRIEF

REVIEW OF TYPE II INTERCONNECTION POLICY

INTRODUCTION

At the meeting of the Executive Council on 6 July 2004, the Council ADVISED and the Chief Executive ORDERED that the regulatory intervention under our current Type II interconnection policy applicable to telephone exchanges for individual buildings covered by such exchanges should be withdrawn, subject to the following conditions –

- (a) the withdrawal should be fully implemented by 30 June 2008;
- (b) in the run up to 30 June 2008, the withdrawal should be implemented on a building-by-building basis and apply to buildings already connected to at least two self-built customer access networks;
- (c) the withdrawal at buildings already connected to at least two self-built customer access networks should be subject to a two-year transitional period to ensure no disruption of choice and service to consumers and a one-year “grandfather” period thereafter to protect the regulated interconnection terms (including charges) for lines connected before and during the transitional period;
- (d) after the “grandfather” period, or 30 June 2008, whichever is earlier as the case may be, interconnection terms (including charges) should be subject to commercial negotiations between the carriers concerned; and

- (e) buildings meeting the “essential facilities” criterion that justifies mandatory interconnection in the consumer interest should be exempt from the withdrawal arrangement.

JUSTIFICATIONS

What is Type II Interconnection

A 2. Type II interconnection is a regulatory measure requiring a fixed carrier, normally an incumbent who enjoyed a monopolistic position before market liberalization, to open up its copper-based customer access network to its competitors at the “last mile”. Detailed explanation of this concept is at Annex A. This regulatory tool is widely deployed in the world to facilitate market entry, speed up market competition, enable early realization of consumer benefits, and avoid wasteful duplication in network investment, against a monopolistic background of the telecommunications industry and the very high barrier to market entry for new carriers.

3. Our Type II interconnection policy was introduced in 1995 when the local fixed carrier market was first liberalized. Its objective is to promote the telecommunications industry, encourage investment in network, facilitate effective competition in the telecommunications market, and enhance consumer choice. The policy has applied to the three new entrants at the time, namely Hutchison Global Communications Limited (HGC), Wharf T&T Limited (Wharf T&T) and New World Telecommunications Limited (NWT), with the incumbent, PCCW-HKT Telephone Limited (PCCW-HKT), being obliged to provide interconnection. The other competitors who entered the market from 2003, notably Hong Kong Broadband Network (HKBN)¹, are not eligible for mandatory Type II interconnection as of right.

4. It should be noted that the eligible competitors do not obtain interconnection facilities at the “last mile” for free. If commercial negotiations between PCCW-HKT and a competitor should fail to arrive at

¹ Before 2003, HKBN operated as a wireless fixed carrier only.

a mutually agreed price, the Telecommunications Authority (TA) is empowered under the Telecommunications Ordinance (Chapter 106) to determine, if necessary, the relevant interconnection charges payable to the incumbent by its competitors, based on the reasonable relevant capital and operating costs and a reasonable cost of capital for providing the interconnection. Nor is interconnection the only way to provide customer access. Competitors are at liberty to build their own networks, in addition to interconnection.

The policy review

5. The availability or otherwise of, and the arrangement for, mandatory Type II interconnection has major implications on service provision by carriers, benefits to consumers, incentive to carriers to invest in facilities, competitiveness of our telecommunications infrastructure and the structure of the telecommunications market as a whole. In January 2003 the Government announced its intention to review Type II interconnection policy and consult the public. We have conducted two rounds of public consultation since May last year that ended in March this year. In the public consultation, we have examined in detail the impact of mandatory Type II interconnection on the accomplishment of the objectives of facilitating effective competition and enhancing consumer choice on the one hand and encouraging investment in network infrastructure on the other. The continuation of mandatory Type II interconnection is justified only if the benefits from facilitating effective competition and enhancing consumer choice outweigh any potential detriment arising from dampening of incentive for investment in network infrastructure.

The market landscape

6. Since the introduction of the Type II interconnection policy in 1995, we have seen different business strategies adopted by PCCW-HKT's competitors in rolling out their services and networks. Of the four major market players other than PCCW-HKT (see paragraph 3 above), HKBN is left with no choice but to build its own customer access network. HGC is also building its fibre optic network steadily and is operating quite independent of the availability of mandatory Type II interconnection. On

the other hand, NWT and Wharf T&T rely more on Type II interconnection to roll out their own services. In terms of network investment and coverage, these carriers have together built networks that have covered some 53% of the households in Hong Kong . In other words, 53% of the households in Hong Kong are covered by at least two independent customer access networks including that of PCCW-HKT.

B

7. The statistics on market shares of the carriers in the narrowband telephony market and the means by which they provide their services (through self-built network or Type II interconnection) are set out in Annex B. The four competitors to PCCW-HKT captured about 28% of the market at the end of February 2004. Type II interconnection has enabled 58% of households to have a choice of carriers in telephone services and users of 11% of telephone lines have exercised this choice. On the other hand, the broadband market is unique in that market share (Annex B) is more widely distributed with the availability of an additional competitor, namely Hong Kong Cable Television Limited (HKCTV)² and the less significant reliance on Type II interconnection using PCCW-HKT's fixed network over xDSL. Together the competitors have an aggregate share of about 45%.

Analysis

8. We can draw a few conclusions from the current market situation:

- (a) the market liberalization that started in 1995 has resulted in a significant rollout of network by competitors covering 53% of the households in Hong Kong. This rate of infrastructure building is impressive by any standard and is probably partly a result of the urban concentration of Hong Kong;
- (b) the absence of mandatory Type II interconnection was not necessarily an impediment to market entry in areas with

² HKCTV operates a hybrid fibre coaxial cable network for the provision of cable television services. Starting from 2000, HKCTV has been permitted to offer telecommunications services using cable modem technology over the hybrid fibre coaxial cable network as well. Since then, it has provided broadband internet access service in addition to cable television services (but not conventional telephony services, see paragraph 12)

certain favourable conditions, nor was its availability necessarily a push towards reliance upon such a facility. HKBN and HGC respectively testify to these observations;

- (c) for others, the availability of mandatory Type II interconnection may discourage investment in additional fibre based alternative customer access network to buildings, even if it is technically feasible and economically viable to do so. In such case, the positive effect of enhancing competition and choice should be balanced against the possible dampening of investment incentive and the negative effect on promoting the telecommunications industry;
- (d) one of our major policy objectives is to encourage investment in advanced and high bandwidth telecommunications infrastructure capable of supporting new and innovative services on demanding technological platforms. We should recognize that PCCW-HKT's legacy copper-based customer access network has its limitations in delivering multimedia broadband services. To realize our vision as a leading digital city, we should give new impetus to encourage investment in advanced infrastructure by competitors, which in turn will also induce PCCW-HKT to upgrade its infrastructure in order to compete; and
- (e) although in the long term consumer interests are best served by an advanced infrastructure that meets the increasingly sophisticated needs, we should guard against any abrupt policy change that will immediately impact on consumer choice, as well as carriers that have so far focused on a strategy based on our Type II interconnection policy and have indeed invested accordingly.

9. On balance, we decide that we withdraw mandatory Type II interconnection in an orderly manner with the conditions that consumer choice should not be unduly reduced, that sufficient notice and lead time is allowed for carriers relying on Type II interconnection to switch to building their "last mile" network and infrastructure, and that in cases

where the “essential facilities” criterion is met, mandatory Type II interconnection will remain a remedy to enhance consumer choice. Our detailed decision is set out below.

Two networks requirement

10. We decide that, for buildings already connected to at least two self-built customer access networks, the current Type II interconnection policy applicable to telephone exchanges for individual buildings covered by such exchanges should be withdrawn, subject to the transitional arrangement set out in paragraphs 17 & 18. For these buildings, the benefits of additional consumer choice and competition brought about by mandatory Type II interconnection would be outweighed by the detriment from dampening investment incentive if mandatory Type II interconnection were continued in these buildings. Withdrawing mandatory Type II interconnection from these buildings would send a clear signal to the carriers, encouraging them to roll out their networks to buildings if they are not to be left out. In addition, it would also encourage the carriers to roll out their networks to buildings not yet connected to an alternative customer access network because once their self-built customer access networks reach a building, they would not face competition from carriers relying on Type II interconnection after a transitional period.

11. During the course of public consultation, some suggested that HKCTV’s hybrid fibre coaxial cable (HFC) network should be qualified as an alternative customer access network, as it covers over 80% of households in Hong Kong and provides broadband Internet access service. Our view is that withdrawing mandatory Type II interconnection for buildings which are connected to at least two self-built networks is based on the consideration that for such buildings, the benefits of additional consumer choice and competition brought about by mandatory Type II interconnection would be outweighed by the detriment from dampening investment incentive if mandatory Type II interconnection were continued in these buildings. However, for buildings connected by HKCTV’s HFC network and PCCW-HKT’s customer access network only, withdrawing mandatory Type II interconnection in a short timeframe will erode consumer benefits.

12. First, consumers will not have a choice of telephony service as HKCTV's HFC network is not yet capable of supporting conventional telephony service on any scale. Second, they will not have a choice of high bandwidth broadband services, as the capacity of the cable modem service provided over HKCTV's HFC network is very limited compared to broadband services provided over a fibre-based alternative customer access network³. Third, other Internet service providers (ISPs) will be limited to PCCW-HKT's network for wholesale service to provide service-based competition, as HKCTV's HFC network is not open to these ISPs and consumers would not benefit from competition at the wholesale level which would be translated into lower prices and greater variety of services at the retail level. The continuation of mandatory Type II interconnection in these buildings until the buildings are connected by at least one alternative customer access network, or until the cable modem service is upgraded so as to qualify HKCTV's HFC network as an alternative customer access network, would generate substantial benefits from expanded consumer choice and more effective competition which would outweigh any detriment from potential dampening of investment incentive given the clear signal that once the buildings are connected to at least one alternative customer access network, mandatory Type II interconnection would be withdrawn after a transitional arrangement.

13. In line with the policy objective to induce investment in advanced infrastructure which will benefit consumers with innovative services, we will qualify HKCTV's networks (as well as other networks using the latest technology) as an alternative network based on three objective assessment criteria. They are their ability to deliver both voice and broadband services, network capacity as well as open platform. This would encourage HKCTV to upgrade its HFC network to the benefit of consumers.

14. There were also suggestions that the broadband and narrowband voice services be treated differently in respect of their obligations for Type II interconnection. We do not support this. In the

³ Capacity deployed on HKCTV's network for telecommunications is limited. Only one channel in the spectrum over the coaxial cable is deployed for a cable modem service. The rest of the spectrum is used for broadcasting. The capacity over this channel (8 Megabits per second for download operation and 5 Megabits per second for upload operation) is shared by a number of buildings in the same cluster. The capacity is way below that available to a building connected by a fibre-based access network.

era of convergence and rapid technological development, more and more new services can be provided over modern customer access network. Voice services, broadband Internet access services, TV services, video telephony service and other multimedia services are a few examples. Indeed, very often, the distinction between these services is becoming blurred, such as the Voice-over-IP (Internet Protocol) service which is a voice service running over a broadband platform. It is therefore not appropriate to consider the withdrawal of mandatory Type II interconnection separately for different types of services.

15. Indeed, as explained in paragraphs 11 & 12, HKCTV's HFC network does not have the attributes to be treated as an alternative access network to trigger withdrawal of mandatory Type II interconnection. There would therefore not be any material difference in the conclusion between whether or not broadband or narrowband voice services would be similarly treated.

Building-by-building arrangement

16. We have reviewed whether we can adopt a more broad-brush area-by-area or exchange-by-exchange approach in the withdrawal arrangement, instead of a building-by-building approach. We have concluded that this is not practicable given the heterogeneity of our geography and the conditions of individual buildings. The TA will develop a scheme which is pragmatic and administratively non-burdensome to implement the building-by-building approach. The TA plans to publish the first building list submitted by carriers (PCCW-HKT excluded) and verified by the Office of the Telecommunications Authority in October 2004.

Transitional arrangement

17. We further decide that such buildings be subject to a two-year transitional period to ensure no immediate disruption of choice and service to customers (as mandatory Type II interconnection is still possible) and to allow carriers to roll out their own networks. At the end of the initial two-year transitional period, more than 53% (see paragraph 6 above) of Hong Kong would be free from mandatory Type II interconnection. We

also decide to adopt a one-year “grandfather” period thereafter to protect the regulated interconnection terms (including charges) for lines connected before and during the transitional period. After the expiry of the “grandfather” period, interconnection terms (including charges) should be subject to commercial negotiations between the carriers concerned.

18. In our public consultation, we proposed a more conservative arrangement with a three-year transitional period to be followed by another three-year “grandfather” period. We have shortened these periods in light of further assessment on the time needed for new network rollout.

Sunset date for total withdrawal

19. The above arrangements are at least in theory open-ended, as mandatory Type II interconnection will not be withdrawn from buildings that are technically feasible and economically viable to install alternative customer access networks but have not done so. Such a situation is highly unsatisfactory. Indeed some suggested in response to the public consultation to set a date for the total withdrawal of mandatory Type II interconnection for the whole of Hong Kong. This will reinforce the above arrangements with greater clarity and certainty. We agree with this view and decide that the final sunset date be set on 30 June 2008, beyond which all mandatory Type II interconnection (except for buildings meeting the “essential facilities” criterion as explained in paragraph 20 below) will be withdrawn. This final sunset date is reasonable as it sends a clear signal to the market for investment in network infrastructure, allows time for strategic realignment and new network rollout, offers opportunities for adoption of new technology, and protects the interest of the consumers in the interim.

“Essential facilities” criterion

20. Based on the informal input from carriers, about 20% to 25% of the households in Hong Kong are either technically not feasible or economically not viable for a carrier to roll out its customer access network to them at present. This percentage is expected to drop in future with the availability of other alternatives such as those provided by wireless access technologies and the upgrading of HKCTV’s HFC network.

After the final sunset date, we need to provide a safety net to protect those remaining households from being deprived of the benefit of competition. As such, the TA will apply the “essential facilities” criterion in deciding whether to mandate Type II interconnection. This concept is based on the established competition law principles, whereby the TA will assess a request for interconnection on the basis of whether PCCW-HKT's customer access network can be duplicated and whether refusal to access that customer access network will foreclose competition. If PCCW-HKT's customer access network is considered "essential" for competition based on these two factors, the TA will accept the request and mandate interconnection.

Overseas experience

21. A substantial number of overseas jurisdictions including Australia, Canada, UK, and US have implemented mandatory unbundling of local loop (similar to our mandatory Type II interconnection). No jurisdiction has yet been able to withdraw their local loop unbundling policy. Canada declared in 1997 a timetable for partial withdrawal. But in 2001, after having reviewed the state of competition in their fixed carrier market, they declared that the intended withdrawal would be extended with no preset termination date. Hence, Hong Kong would be the first jurisdiction to implement withdrawal of mandatory Type II interconnection.

OTHER OPTIONS

22. The option of maintaining the status quo would be untenable as it would encourage some carriers to continue to rely on Type II interconnection to reach customers, thereby discouraging further investment in advanced telecommunications networks. On the other hand, total withdrawal of mandatory Type II interconnection without any transitional arrangement will immediately deprive over 400,000 existing customers of the competing carriers of their choice. This will cause service disruption and arouse severe criticism by the public.

IMPLICATIONS OF THE DECISION

23. The Office of the Telecommunications Authority Trading Fund would absorb the financial and staffing requirements arising from the implementation of the decision within its existing resources. The economic and other implications of the decision are set out in paragraphs 25 to 26.

24. The decision is in conformity with the Basic Law, including the provisions concerning human rights. It has no civil service, productivity, environmental and sustainability implications.

25. To consumers, the decision could mean a reduction in choices of carriers in the short to medium term. However, the conditions for the withdrawal of regulatory intervention as listed in paragraph 1 above would help safeguard consumer interests during the transitional period and “grandfather” period. In the medium to long term, the accelerated rollout of networks should more than compensate 75% to 80% of the consumers by giving them a genuine choice of advanced telecommunications networks.

26. To the telecommunications industry as a whole, the likely wider coverage and faster rollout of multiple advanced networks would provide platforms for launching more advanced telecommunications services and applications for consumers. This would be instrumental in Hong Kong’s progression towards a leading digital city with more business opportunities.

PUBLIC CONSULTATION

27. Two rounds of consultation have been conducted. The subject has been discussed twice at the Information Technology and Broadcasting Panel of the Legislative Council.

PUBLICITY

28. We will hold a press conference to announce the decision, and a spokesman will be available to answer enquiries from the media.

BACKGROUND

29. Under section 36A of the Telecommunications Ordinance, the TA may determine the terms and conditions of interconnection. He may make a determination on the request of a party to the interconnection or, in the absence of a request, if he considers it is in the interest of the public to do so. Type II interconnection is one of such types of interconnection.

30. The Government initiated a review of the Type II interconnection policy in 2003. Two public consultation exercises were launched, in May and December 2003 respectively. 11 and 17 submissions were received respectively.

31. Generally speaking, apart from telephone exchange, interconnection can also be made at a distribution point under public streets or at the in-building wiring system in individual buildings. Interconnection at these two latter points would need to be maintained because bottlenecks exist in many buildings and it could be difficult for a carrier to install a second in-building wiring system. Even if this is possible, carriers would most probably install copper, instead of optical fibre ones which would boost Hong Kong's overall infrastructure. At present, Type II interconnection applies to copper-based, but not optical fibre, customer access network. This is because unlike the copper network which pre-existed before market liberalization in respect of which PCCW-HKT has first mover advantage, all carriers should have had equal opportunities to lay optical fibre cables.

ENQUIRIES

32. In case of enquiries about this Brief, please contact Mr Tony Li, Principal Assistant Secretary, Communications and Technology Branch, Commerce, Industry and Technology Bureau at 2189 2210.

Communications and Technology Branch
Commerce, Industry and Technology Bureau
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The Concept of Type II Interconnection

A fixed carrier's network is generally divided into the customer access network part and the backbone network part. A customer access network part is the "last mile" of a fixed network, running from local telephone exchanges of the network to customer premises, while the backbone network part comprises the other parts of the network.

2. Type II interconnection is interconnection to a fixed carrier's network at the customer access network level. Through the interconnection, the party requesting the interconnection can use the customer access network of that fixed carrier to provide service. Three forms of Type II interconnection are available at present:

- (a) Interconnection applicable to telephone exchanges – interconnection made at the telephone exchanges such that the party requesting the interconnection may use customer access network starting from the telephone exchanges to customer premises;
- (b) Interconnection applicable to a distribution point under public streets – interconnection made at a distribution point under public streets, such that the party requesting the interconnection may use the customer access network starting from that distribution point to customer premises. Such distribution points are usually located between telephone exchanges and customer premises; and
- (c) Interconnection applicable to in-building wiring systems – interconnection made at the in-building wiring system in individual buildings, such that the party requesting the interconnection may use the in-building wiring system within that building.

3. Although all three forms of Type II interconnection are available, the first form (i.e. interconnection applicable to telephone exchanges) attracts most controversy. The second form (i.e. Interconnection applicable to a distribution point under public streets) is not widely used by fixed carriers at present. As for

the third form (i.e. Interconnection applicable to in-building wiring systems), there exists a mutual need from both PCCW-HKT and its competitors to lease in-building wiring systems from each other to provide services. Hence, commercial negotiation works quite well for this form of interconnection.

4. Given the focus of controversy, the Brief concentrates on the discussion of our Type II interconnection policy applicable to telephone exchanges.

Market Share in Local Fixed Carrier Market

Narrowband Voice Market (as at end of February 2004)

	No. of lines connected via Type II interconnection	No. of lines connected via direct access to buildings	Total no. of lines	Market share
HGC HKBN NWT Wharf T&T	427,202	626,301	1,053,503	27.7%
PCCW-HKT	0	2,747,803	2,747,803	72.3%
Total	427,202	3,374,104	3,801,306	100%

Broadband Market (as at end of February 2004)

	Local Multi-point Distribution System and leased circuits	xDSL	Fibre-to-the-building	Hybrid Fibre Co-axial Cable	Total no. of lines	Market share
HGC	-	-	√	-	587,665	44.9%
HKBN	√	-	√	-		
HKCTV	-	-	-	√		
NWT	-	-	√	-		
Wharf T&T	-	√	√	-		
Others	√	√	-	-	722,061	55.1%
PCCW-HKT	-	√	√	-		
Total	<100,000	<700,000	305,981	<300,000	1,309,726	100%