

Type II Interconnection for the Conveyance of Narrowband Services Using the Lower Portion of the Bandwidth Available over Copper-based Local Loops

Statement of the Telecommunications Authority 4 April 2002

The Issue

The Telecommunications Authority (TA) has noticed that in recent months, a significant percentage of requests for Type II interconnection to local loops for narrowband services had been rejected on the ground that the local loops in question were being occupied by broadband services conveyed using the upper portion of the bandwidth available on the loops. In some cases, the “Providing Operator” had counter-proposed the alternative of making available to the “Requesting Operator” for Type II interconnection a separate local loop (i.e. Service Interface Point 3 (SIP3) option as explained in paragraph 16 below) which was terminated at a local distribution box located outside (and at a distance from) the customer’s premises. However, to make use of SIP3, the Requesting Operator needed to install a final drop cable from the local distribution box to a new telephone socket on the customer’s premises. Very often, due to physical constraints in the customer buildings and also the reluctance of some customers to accept installation of additional telephone cables and sockets within their premises, the Requesting Operators could not successfully complete the connection to the customers through Type II interconnection and entertain the customers’ requests for the supply of telephone services.

2. As more and more customers are using both narrowband and broadband services conveyed over a single pair of local loop, the TA is concerned that the above rejection would deprive customers of the choice of the narrowband services of other operators and adversely affect competition in the market.

Background

3. The availability of Type II interconnection as a type of interconnections under section 36A of the Telecommunications Ordinance was first confirmed by the TA in his Statement No. 6 entitled “Interconnection Configurations and Basic Underlying Principles” in the series “Interconnection and Related Competition Issues” issued on 3 June 1995 (TA Statement No. 6) (now updated and re-issued on 18 March 2002 with substantially the same content). Type II interconnection depicted in that Statement was basically for the provision of narrowband telephone services to the customers connected to the local loops being interconnected with.

4. On 14 November 2000, the TA issued a Statement on “Broadband Interconnection” (the Broadband Statement). This statement extended the availability of Type II interconnection to the conveyance of broadband services. The statement outlined, among other things, the general principles and the regulatory framework as applied to Type II interconnection for broadband services. It stated that Type II interconnection should be mandated at any technically feasible points along the local loops of the local wireline-based fixed networks. It also stated that “full bandwidth option” and “partial bandwidth option” should be available for Type II interconnection to local loops.

5. In 1999, the three wireline-based Fixed Telecommunications Network Services (FTNS) Licensees had submitted Deeds of Undertakings to the Government pledging to extend their networks to provide, on an aggregated basis, coverage of at least 50% of residential telephone line customers by the end of 2002. Part of the coverage is to be achieved by Type II interconnection in the co-location exchanges of the incumbent operator.

6. Broadband services have been developing fast in the past couple of years. As of the end of January 2002, there were 648,744 broadband connections of which 596,267 were to households. This means that about 29% of households in Hong Kong are already connected to the Internet via broadband. About 46% of these broadband households are connected through Digital Subscriber Loops (DSL) technologies over

local loops. Over many local loops, the broadband services using DSL technologies are sharing the bandwidth available with the narrowband telephony services.

7. Broadband services would continue to be vigorously marketed by operators in the coming months. If requests for Type II interconnection for narrowband services were to be rejected when the local loops in question are being occupied for broadband services, potentially the rejection rate of Type II interconnection for narrowband services would increase significantly. This problem, if not tackled, could affect the three FTNS operators in providing alternative choice to at least 50% of residential customers by the end of 2002 and providing the customers with unrestricted choice of telecommunications services in the market.

8. In this connection, OFTA has met with the incumbent and the three new wireline-based FTNS operators (which are the only operators entitled to Type II interconnection to local loops at the incumbent operator's exchanges under the current regulatory framework) in March 2002 and subsequently invited written comments from the operators on a paper setting out OFTA's preliminary views on the issues. The TA has considered the submissions of the four operators. In this Statement, the TA gives his considered views on whether the use of the lower portion of the bandwidth available over a single local loop for Type II interconnection for the conveyance of narrowband services is technically feasible and consistent with the principles as given in the Statement No. 6 issued on 3 June 1995 and revised on 18 March 2002.

Considerations

9. In April 1999, the TA issued a Statement on "Type II Interconnection between New World Telephone and Hong Kong Telephone" (the 1999 Type II Interconnection Statement) announcing the commercial agreement reached between the two operators after TA's mediation on the dispute. The terms and conditions under this commercial agreement have since become the benchmark of the industry for narrowband Type II interconnection. The 1999 Type II Interconnection Statement has recognized that in Type II interconnection

for narrowband services, the Requesting Operator does not occupy the full bandwidth of the loops. Under the terms stated in that statement, the guaranteed bandwidth was 300 Hz to 3,400 Hz minimum for basic grade and 300 Hz to 50 kHz for premium grade which is sufficient for services with data rates up to 144 kbps. It was also specified that the Providing Operator shall not install any conditioning device which would have the effect of lowering the top limit of the bandwidth to below 50 kHz.

10. In the “partial bandwidth” option stated in the Broadband Statement, the upper and lower portions of the bandwidth may be used by two different operators for the separate operation of broadband and narrowband services. The Broadband Statement stated explicitly that the upper portion of the bandwidth should be available to the Requesting Operator for broadband services. It did not say explicitly whether a Requesting Operator may request Type II interconnection to the lower portion of the bandwidth available over the loops for narrowband services.

11. The TA considers that the transmission channel formed using the lower portion of the bandwidth over a local loop, like the channel using the upper portion, is an element of a telecommunications network. Therefore access to, and interconnection with, this channel, like interconnection to the channel using the upper portion, is within the scope of “interconnection” under section 36A(3D) of the Telecommunications Ordinance.

12. The TA considers that it is technically feasible for the lower portion of the bandwidth to be available for Type II interconnection for narrowband services. The cut-over procedure (as illustrated in the diagram in Annex) is similar to that for Type II interconnection to the unshared loops.

13. The TA considers that making available the lower portion of the bandwidth for Type II interconnection for narrowband services would not cause unacceptable mutual interference between the narrowband and broadband services as the two types of services are already being operated simultaneously without any unacceptable mutual interference.

14. As two operators would be operating services sharing the same pair of local loops, operators have raised the issues of coordination procedures between operators for dealing with customers' complaints. The incumbent operator has submitted that, with the lower portion of the bandwidth being used by another operator for the conveyance of narrowband services, the automatic testing equipment for the testing of the local loop can no longer function. Manual testing would have to be performed instead and this could affect the efficiency in the fault isolation and restoration for the conveyance of the broadband services occupying the upper portion of the bandwidth over the local loop. The TA considers that these problems are not insurmountable and should not be used as an obstacle to deny the realization of the more important policy objective of providing freedom of choice to the customers. The TA considers that these problems can be dealt with by working out proper coordination or liaison procedures between the operators concerned for the testing of the loops. The TA encourages the operators to continue the dialogue and will be prepared to convene meetings to facilitate the agreement of the necessary procedures.

15. The TA considers that making available the lower portion of the bandwidth for Type II interconnection for narrowband services is consistent with the Government policy of using Type II interconnection to speed up the development of competition in the market while the customer access networks of the new entrants are being rolled out. As stated in the paragraph 7 above, the non-availability of the lower portion of the bandwidth for Type II interconnection for narrowband services as a result of the upper portion being occupied for broadband services could cause restriction on the consumers' choice of suppliers for narrowband services independent of their choice for broadband services. It would also cause confusion to the consumers when they have applied to the new operators for the supply of telephone services, only to find their applications rejected after a waiting period. It would affect the consumers' perception of the capability of the new operators in handling and servicing customer orders promptly.

16. The TA has considered alternatives available for Type II interconnection for narrowband services. To provide normal voice

telephony services, the following options are applicable:

a) Service Interface Point (SIP) 1 (No local loop sharing)

This option is available where the existing local loop, at the time of the request for Type II interconnection, only carries narrowband services and can be made available to the Requesting Operator for Type II interconnection without any modification to the termination at the existing socket already installed on the customer's premises.

b) SIP1 (Local loop sharing)

At the time of the request, the existing local loop is occupied by both narrowband and broadband services. The lower portion of the bandwidth available on the existing local loop is made available to the Requesting Operator for narrowband services as described in paragraph 12 above while the upper portion will continue to carry the existing broadband services. This option involves the sharing of the bandwidth over the local loop by two different operators for narrowband and broadband services.

c) SIP2

This option is available only where at least a spare pair of local loop (unterminated) is available to the customer's premises. The narrowband telephone service will be transferred to a spare pair of local loop and sharing of the local loop with the broadband services would not be required. The Providing Operator and the Requesting Operator must send staff to the customer's premises to attend to the cutover. The Providing Operator must extract the ends of the spare local loop to make them available to the Requesting Operator. The Requesting Operator must provide another socket and to connect it to the spare local loop made available by the Providing Operator.

d) SIP3

In this option, the narrowband service is transferred to an alternative local loop available up to a local distribution box on the floor of the customer's premises or at the Telecommunications/Broadcasting Equipment (TBE) room on the ground or lower floor of the building. The Requesting Operator must provide the remaining part of the wiring (vertical blockwiring and horizontal drop wire) into the customer's premises and terminate it at a new socket on the customer's premises. Attendance of site by staff of the Providing Operator and Requesting Operator is necessary. In many cases, it might be difficult to install the horizontal drop wire into the customer's premises without disturbing existing decoration or causing other forms of inconvenience to the customers and other tenants in the buildings.

17. With regard to the above options, the TA noticed that the "SIP3" option is impractical in most cases because physical constraints preclude the installation of the additional drop wire by the Requesting Operator. As regards "SIP2", as the spare loop is not terminated, both the Providing Operator and the Requesting Operator need to send staff to the customer's premises for installation work. Apart from the additional costs involved, this cutover procedure does not satisfy the principle of "prompt, efficient and 'invisible' interconnection" stated in paragraph 6 of TA Statement No. 6 (Revised). Nevertheless, the TA noticed that some Requesting Operators prefer the "SIP2" option instead of "SIP1 (local loop sharing)" where spare local loops to the customers' premises exist. Therefore, if "SIP1 (no local loop sharing)" is not available, the TA considers it appropriate for the Providing Operator to offer, in addition to the "SIP1 (local loop sharing)" option, the "SIP2" option if the spare loops are available to the customer's premises concerned. The choice should, however, be left to the Requesting Operator.

18. In view of the fact that making available the lower portion of the bandwidth for Type II interconnection for narrowband services (i.e. the option SIP1 (local loop sharing)) is technically feasible, would not cause unacceptable mutual interference or operational/maintenance problem, is

consistent with Government policy and consistent with the “prompt, efficient and ‘invisible’ interconnection” principle stated in paragraph 6 of TA Statement No. 6 (Revised), the TA hereby confirms that this configuration of Type II interconnection is available in the Hong Kong regulatory framework. The choice of the configuration should be left to the Requesting Operator. Request for Type II interconnection should therefore not be rejected on the ground that the upper portion of the bandwidth is being occupied by broadband services.

19. The 1999 Type II Interconnection Statement has specified certain minimum bandwidth to be made available to the Requesting Operator for narrowband services. In the sharing option where the bandwidth may have already been split by existing splitters or filter devices for existing services, the bandwidth available to the narrowband services may not meet the specification in the 1999 Type II Interconnection Statement. In such cases, as the customer is merely requesting the transfer of the existing narrowband services to the alternative supplier, the Requesting Operator must accept the bandwidth available “in situ”, i.e. the width of the lower portion of the bandwidth determined by the existing “in-situ” splitter or equivalent equipment connected to the cable to split up the available bandwidth. This remaining bandwidth may be less than the “50 kHz” specified in the 1999 Type II Interconnection Statement but should be sufficient for normal voice transmission.

Conclusions

20. The TA accepts that existing commercial agreements might need to be modified to cover the above configuration of Type II interconnection. The interconnection charges under these agreements might need to be reviewed to see if the existing charges are applicable to the case where the Requesting Operator is sharing part of the bandwidth of the local loops.

21. Since there is no insurmountable technical problem that hinders the provision of voice services through the lower portion of the bandwidth of a local loop, Type II interconnection through the lower portion of the bandwidth for narrowband services should be implemented immediately in accordance with the above considerations. Rejection of

Type II interconnection for narrowband services, and offering only “SIP3” as alternative, based on the ground of occupancy of the upper portion of the bandwidth by broadband services would no longer be acceptable. The Providing Operator should offer the option of “SIP1 (local loop sharing)” and, where spare loop is available, also “SIP2”. The choice should be left to the Requesting Operator. The TA will consider issuing directions under section 36B of the Telecommunications Ordinance to require operators to interconnect their systems and services based on the Type II interconnection using the lower portion of the bandwidth available over local loops. The network operators are encouraged to negotiate with each other on the necessary modifications to the existing commercial agreements, but there is no need to wait for the completion of these negotiations before effecting the interconnection in question. Any difference between the finalized charges and the interim charges agreed to implement the interconnection immediately should be settled retrospectively upon the conclusion of the commercial agreements or following TA’s determination.

Office of the Telecommunications Authority

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Cutover Procedure for Narrowband Services

