

**CONSULTATION ON HANDOVER OF TAIL LOCAL  
LEASED CIRCUITS UNDER SCHEDULE 7B OF  
SINGAPORE TELECOMMUNICATIONS LIMITED'S  
REFERENCE INTERCONNECTION OFFER**

**25 July 2005**

**JOINT SUBMISSION OF MEMBERS OF  
THE ASIA PACIFIC CARRIERS'  
COALITION**

## STATEMENT OF INTEREST

We appreciate the opportunity given by the Infocomm Development Authority (“IDA”) to comment on the consultation (“Consultation”) on the technical means for the handover of tail local leased circuits under Schedule 7B of Singapore Telecommunications Limited’s (“SingTel”) Reference Interconnection Offer (“RIO”).

The carriers involved in preparing this joint submission (“Submission”) are (i) BT Singapore Pte Ltd, (ii) Cable & Wireless Global Pte Limited, (iii) Macquarie Telecom, (iv) Pacific Internet Limited, (v) T-Systems Pte Ltd., and (vi) IDT. The carriers may also be submitting their own individual more detailed comments.

All of these carriers are currently purchasing services, such as local leased circuits, co-location and interconnection services from SingTel, either pursuant to the RIO or otherwise. The terms of the RIO are therefore extremely important to each of these carriers.

## **INTRODUCTION**

We welcome IDA's request for views and comments on Singapore Telecommunication Limited's ("SingTel") Reference Interconnection Offer ("RIO"). As mentioned, the RIO is of critical importance to us, as it deals with essential services we require in order to conduct our business.

Due to the technical nature of the issues being considered, APCC would be happy to discuss the interface issues further with the IDA. APCC refers to its joint submission dated 05. May 2005, and the comments made to the topics raised by IDA in the consultation paper issued 04 July 2005 hereafter.

## **EXISTING HANDOVER CONFIGURATION**

As APCC has highlighted previously in its submissions to the IDA on SingTel's RIO, we remain concerned about the un-multiplexed V.35 interface for the regulated SingTel wholesale local leased lines.

We submit that an un-multiplexed V.35 interface is suitable for an "end-user" premise to "end-user" premise type connection and is inappropriate for a carrier-to-carrier interconnection.

APCC notes that SingTel has a primary obligation to behave in a non-discriminatory manner with respect to the "wholesale services" it provides to its own retail business and the wholesale services it provides to other operators. This is highlighted in section 6.3.3.1 of the Competition Code. However, the un-multiplexed V.35 for the regulated SingTel wholesale local leased lines currently available under the RIO differs significantly from the multiplexed G.703 interface commonly found in SingTel's "DigiPlus" commercial offer.

The regulated V.35 interconnection (for 64-1024 kbps) as depicted in Figure 1 of the IDA's consultation paper requires the following equipment to be provided by the licensed operator: (a) Winchester V.35 Interface Equipment and (b) An associated V.35 Serial Cable.

APCC agrees with the IDA's view that this current configuration is both technically and economically inefficient. The IDA highlights the unnecessary costs and the inefficient use of co-location space to facilitate this handover configuration.

### **(a) Imposition of Unnecessary and Unjustified Costs on the Requesting Licensee**

APCC shares IDA view that the V.35 interface standard requires the use of an NTU for each  $n \times 64$  kbps circuit. The need for an intermediary equipment results in FBO's incurring additional costs to access tail LLCs.

An FBO would need to incur

- (i) the cost of an NTU for each n x 64 kbps circuit that it obtains
- (ii) additional auxiliary costs for equipment racks, co-location space and power requirements
- (iii) additional costs for spare part provisioning and maintenance

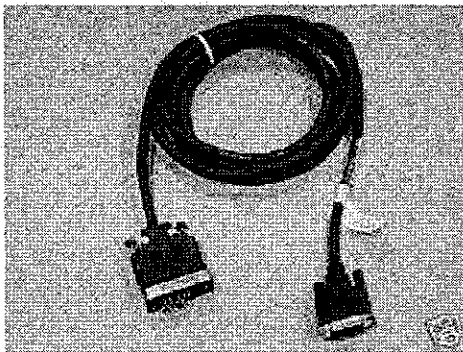
**(b) Inefficient Use of Co-location Space at SingTel's Exchange Buildings**

Under the Code 2005, SingTel is required to lease up to 10 square metres of equipment footprint space in each of SingTel's exchange building to other FBOs. As co-location space is a limited resource that FBOs require to access tail LLCs and all other interconnection related services obtained under the RIO, it should be used in the most efficient manner. However, the existing handover configuration does not make efficient use of the co-location space as FBOs are required to use an NTU for each n X 64 kbps circuit that they obtain from SingTel. Furthermore, FBOs may face operational difficulties as they are restricted by the limited space to co-locate the NTUs, in addition to other equipment such as multiplexers (MUX) and transmission equipment.

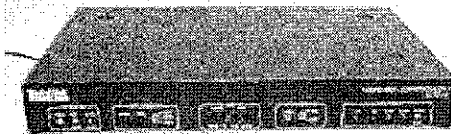
We attach, for information, some pictures to indicate the size of the equipment required for each of these interfaces.

**V.35 SingTel LX Interconnection - the Interface Equipment Requirements**

**V.35 Serial Cable**



**V.35 Interface Equipment**



Each set of connecting cable, consisting of a Winchester Interface equipment and a dedicated V.35 Serial cable, is required to meet the interconnection needs for every individual customer.

In other words, a carrier seeking to serve 300 customers in the vicinity of a SingTel local exchange would require 300 dedicated sets of the equipment pictured above to be installed at the local exchange. The V.35 Winchester interface equipment needs to be housed in collocation racks. The V.35 and its auxiliary equipment (for example, power amp fuses) could result in considerable collocation requirements. This results in considerable demands on space in each of the SingTel local exchanges in which the competitive carrier plans to collocate for Local Leased lines. Investing in customer premise type connection equipment to meet the demands of a carrier to carrier interconnection is also highly inefficient from an engineering and commercial perspective.

### **(c) Technical Deficiency of the V.35 Interface Standard for Carrier-to-Carrier Connection**

By introducing an additional network element (i.e. the NTU) between SingTel's and the FBO's networks, additional equipment compatibility testing may be necessary prior to the handover and activation of circuits. Further, additional network elements may result in more potential points for network failure. This in turn requires more complex fault identification and restoration work in the event of circuit failures.

In addition to the reasons highlighted by the IDA in paragraph 6 of the Consultation, APCC also notes that the current handover configuration results in increased power requirements, due to the large volume of equipment required. It is also our understanding that certain equipment suppliers will cease or reduce support for the Winchester V.35 Interface Equipment in the short to medium term. For these reasons, APCC agrees with the IDA's conclusion that the current handover configuration is both economically and technically inefficient.

The technical and practical issues with the current handover configuration is illustrated by the fact that a number of licensed operators continue to take SingTel's "DigiPlus" commercial offer rather than the tail local leased circuits under the RIO. In order for SingTel to be able to offer the DigiNet services, it is clearly providing itself internally with a non-V.35 interface. APCC submits that SingTel should provide the same groomed non-V.35 interface to other licensed operators under the RIO.

### **IDA'S PROPOSED APPROACH**

APCC broadly supports the IDA's proposed Direct Handover Configuration approach to address the implementation problems associated with the existing handover configuration. However, a Direct Handover Configuration alone would not achieve an optimal regulatory and technical solution. In conjunction with IDA's proposed Direct Handover Configuration approach, APCC would strongly urge the IDA to also require channelization for the carriage of multiple tail LLCs from FBOs collocated equipment to customer premises

### *Direct Handover Configuration*

The IDA's Direct Handover Configuration removes the V.35 interface and APCC supports this proposal. However, APCC notes in paragraph 8 of the consultation paper that IDA is considering the Direct Handover Configuration as an "option" for direct handover of tail LLCs by SingTel to the FBO's collocated equipment via 2-pair copper wires without the need for an intermediary and separate network terminating unit. APCC would query why the Direct Handover Configuration should only be an "option" when this is preferred over the existing V.35 handover configuration? APCC believes that the Direct Handover Configuration should be available as a standard service that FBOs can obtain at the same rates, terms and conditions as the existing handover configuration for tail LLCs. The Direct Handover Configuration should not be categorized as an additional or special service under the RIO.

It is also difficult to assess the precise impact of this proposal without further technical details and specifications. APCC believes that it, in-part, addresses the problems associated with the V.35 interface. APCC submits that, subject to the technical feasibility of the solution, as discussed further below, the proposed configuration would address the inefficiency problems associated with the existing handover configuration for the reasons set out by the IDA in paragraph 9 of the Consultation.

The cumbersome interconnection arrangement under an un-multiplexed V.35 interface can be remedied in-part with the designation of a multiplexed G.703 interface at SingTel's local exchanges for the regulated local leased lines. A multiplexed G.703 interface would take away the requirement for the Winchester type connections and the heavy demands on collocation racks. This would also replace the multiple equipment and space requirements with a requirement for a single collocation rack to meet the needs of hundreds of customer connections.

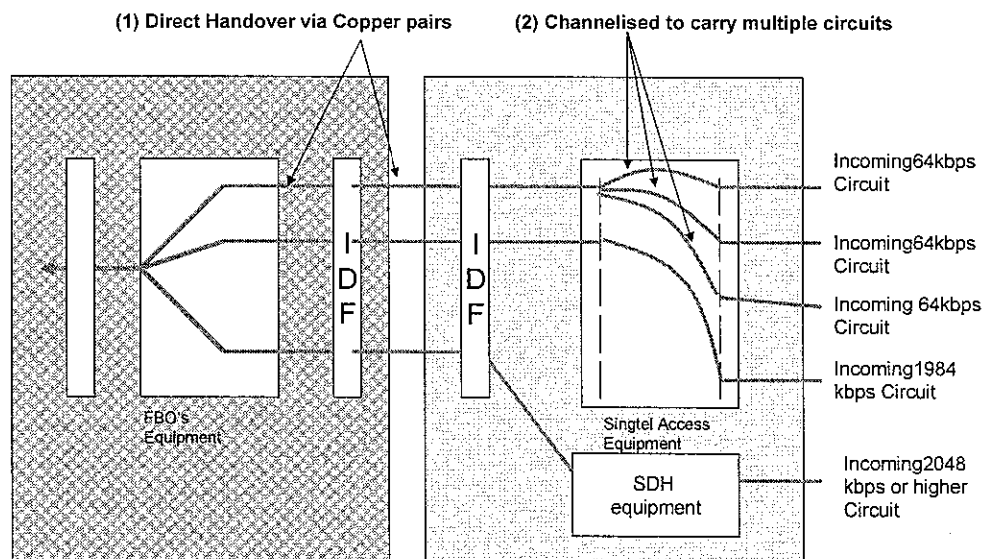
APCC notes that the IDA states that SingTel uses Tellabs 8100 equipment to provide LLCs and that this may place a requirement on FBOs to have to install Tellabs 8100 nodes and relevant Tellabs proprietary interface to enable SingTel to handover tail LLCs to FBOs under the Direct Handover Configuration. APCC does not believe that this issue is valid. A number of APCC members are either not familiar with such equipment or have expressed concerns that there would be problems using the Tellabs equipment within their current network. APCC is also concerned over the proprietary nature of the Tellabs interface – this indicates that there may be some restrictions in relation to access and use of these interfaces and that the costs of this equipment may be significantly higher than standard similar equipment. APCC submits that there is no reason for the interface to be proprietary as a standards based G.703/704 interface could be used and stipulating a requirement to use the Tellabs interface in relation to the Direct Handover Configuration in the RIO would negate any benefits of IDA's proposed Direct Handover Configuration over existing arrangements. As such, the RIO should not require the use of a particular vendor's equipment especially when international standards exist.

## Channelised Circuits

Whilst APCC supports the IDA's proposals for a Direct Handover Configuration, APCC believes that the IDA should require SingTel to handover circuits as channelised circuits. The changes proposed by the IDA, from the existing handover configuration to the IDA's proposed approach is effectively a change in the mechanism for handover but, in both cases, the licensed operator remains responsible for the grooming of the circuits which it receives. APCC submits that, in practice, the most efficient mechanism for the provision of tail LLCs is for SingTel to handover channelised circuits. This is the delivery mechanism which competitive carriers would like to take wholesale LLCs and we submit that this service should form a wholesale service available under the RIO. In the vast majority of international jurisdictions, including Australia and the UK, incumbent operators provide LLCs on a channelised circuit basis. The APCC's preferred approach is illustrated in the self-explanatory diagram below.

APCC submits that the IDA's proposed Direct Handover Configuration **together** with channelization capability for tail LLCs will achieve the optimal solution.

## Preferred Approach



In fact, a number of licensed carriers currently take tail LLCs from SingTel, through a product called DigiPlus. This service provides channelised circuits. APCC submits that a product of this nature should be incorporated within the RIO, providing operators with

clarity of terms and pricing for such services. At the moment, although commercially available as a DigiPlus service, this does not provide the licensed operators with clear regulated terms for the provision of these services, as the service and pricing can be amended at any time by SingTel.

## **CONCLUSION**

We believe there is no legitimate technical, commercial or policy reason why SingTel proposes to use a significantly more inefficient solution (which SingTel itself does not use) which unnecessarily raises rival's costs, increases administrative burdens and unfairly increases SingTel's revenues. APCC supports the IDA's proposal for a Direct Handover Configuration, as set out in Figure 2 of the Consultation. APCC however also urges the IDA to consider a requirement for SingTel to provide wholesale LLCs as fully channelised circuits.

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