



Comments of MCI

Regarding the Consultation Paper:

**Handover of Tail Local Leased Circuits Under Schedule 7B of Singapore
Telecommunications Limited's Reference Interconnection Offer**

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Introduction

MCI welcomes the opportunity to comment on the iDA's Consultation Paper, *Handover of Tail Local Leased Circuits Under Schedule 7B of Singapore Telecommunications Limited's Reference Interconnection Offer*, dated 4 July 2005, concerning local leased line interconnection between SingTel's Leased Line SDH network and that of competitive operators at SingTel's Local Exchanges.

MCI shares the concerns raised by the iDA regarding V.35 Interconnection at the Local Exchange level, described in Schedule 7B of SingTel's Reference Interconnection Offer (RIO); namely, that:

- it imposes unnecessary and unjustified costs on the requesting licensee;
- involves an inefficient use of co-location space at SingTel's exchange buildings; and
- entails an inherent technical deficiency of the V.35 Interface Standard for Carrier-to-Carrier connection.

We consider that each of these issues is inconsistent with iDA's policy objectives contained of its 16 December 2003 Decision¹:

The iDA recognized that it would not be economically feasible for new entrants to duplicate the extensive reach of SingTel's LLC network, especially the last mile access to end users. Therefore, with the LLC Decision, iDA seeks to enhance competition in Singapore's LLC markets, lower LLC market entry barrier, encourage operators to build trunk side infrastructure, and bring about lower telecom costs to businesses and end users in Singapore.

This paper comments on iDA's proposed "Direct Handover Configuration²" proposal, and reiterates our concerns regarding the absence of a multiplexed G.703/G.704 standard interface. In doing so, we discuss the recent intervention by UK regulator OFTEL - the UK Partial Private Circuit ("PPC") Model - as well as the US Special Access Model.

The IDA Remedy - A RIO Local Leased Circuit Model

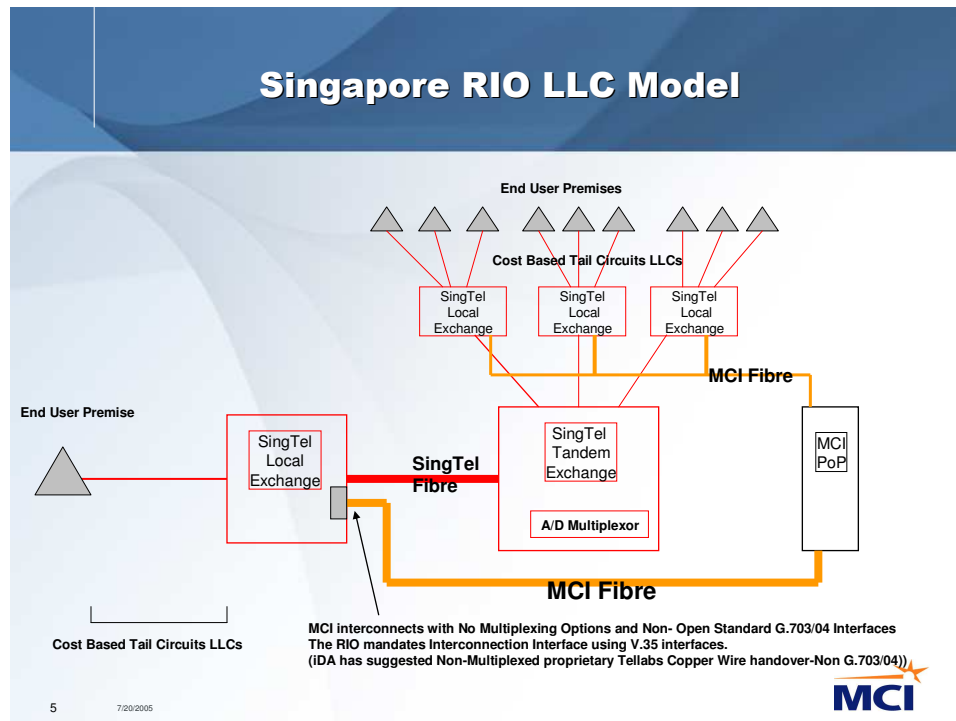
Local Leased Circuits ("LLC") are essential network element inputs for any telecommunications service provider involved in the supply of dedicated services to end-users. In most markets, incumbent local operators possess significant market power over this key access service.

In recognition of the fact that full conditions for effective and sustainable competition in the retail LLC market required, in part, an effectively competitive wholesale LLC market, the iDA on 16 December 2003 designated "last mile" LLC (LLC tail circuits) as an Interconnection Related Service ("IRS"). As an interim measure, SingTel's LLC were designated as a mandated wholesale service and subjected to a regulated retail minus pricing structure for a period of 18 and 24 months, for the Central Business District and the Non-Central Business District respectively. Competitive Facilities Based Operators are given this window of opportunity to extend their network to interconnect with SingTel's LLC network at the local exchanges.

¹ Explanatory Memorandum issued by the IDA: Designation of Singapore Telecommunications Limited's Local leased Circuits as a Mandated Wholesale Service, 16 December 2003.

² The iDA is considering mandating a direct handover involving 2- pairs copper wires at the SingTel local exchange. This may require FBOs to install Tellabs 8100 nodes and other relevant Tellabs proprietary interfaces.

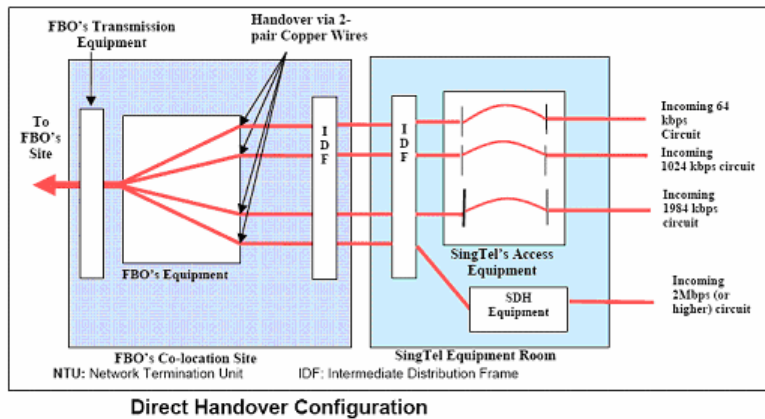
The Singapore RIO LLC Model is depicted as follows:



Facilities Based Operators are to extend their network into SingTel’s local exchange to take the IRS-designated SingTel tail circuit LLCs. However, the tail circuit LLCs available to these operators are exchange-specific, that is, local exchanges into which the FBO has not extended its fibre are excluded from the regulation. The tail circuit LLCs are to be handed over unmultiplexed at the V.35 Interface level³.

The iDA has also suggested an option: the use of a “Direct Handover Configuration” on 2 pair copper wires requiring the specific installation of Tellabs 8100 node and other relevant Tellabs proprietary interfaces by interconnecting Facilities Based Operators at SingTel’s local exchanges.

³ MCI explained the technical challenges of a V.35 “Carrier –to-Carrier” interface in a letter to the iDA, dated 30 December 2004



MCI's Concerns

MCI has a number of concerns with this proposed approach, as set out below.

(i) The Absence of G.703 and G.704 Open Standard Interface

The G.703 and G.704 are the open standards used for a carrier-to-carrier network interconnection. This allows the interconnecting carriers, who have built their networks on different supplier platforms, to achieve a seamless handover at the designated point of connection whilst not being denied the benefits of a vendor-specific equipment procurement policy.

MCI believes that a proprietary handover is inappropriate. In MCI's experience, the "Direct Handover Configuration" using proprietary equipment and interfaces is not the manner in which carrier-to-carrier interconnections are carried out. In the absence of an open standard network interface, possible network compatibility issues could arise. At this stage, we would urge the iDA not to consider anything short of a G.703 and G.704 open standard interface.

(ii) The Inability to Obtain Multiplexed Tail Circuit LLCs

The key multiplexing option that was featured in SingTel's retail commercial offer, continues to be excluded from the Singapore RIO LLC Model. MCI is puzzled by this exclusion as SingTel is able to hand over multiplexed tail circuits LLCs to itself and also to other carriers under the retail offer. MCI reiterates that multiplexing is a hallmark feature of a true carrier-to-carrier interconnection. Exclusion of this ability relegates a carrier interconnection to that of an end-user connection⁴.

Multiplexing is important in Singapore as the majority of end users purchase telecommunication services at speeds of 2Mbps and below. Multiplexing therefore is vital to ensure that the tail circuit LLCs connecting to the end user premises are handed over by SingTel in the most efficient manner possible. This allows for the cost savings from

⁴ For a detailed discussion of these issues, see MCI's appeal to the iDA dated 18 October 2004- "Request to the iDA for Reconsideration: Direction of the iDA of Singapore: Modification of RIO to Incorporate Wholesale LLCs."

multiplexing of low-speed circuits to be passed on to the end users in the form of competitively-priced services.

(iii) The Inability to Interconnect with SingTel's LLC Network at Tandem Exchanges

The manner in which Facilities Based Operators are mandated to interconnect with SingTel's Local Leased Line Network has an important bearing on the interconnecting carriers and the end-users of telecommunication services, as both would be adversely impacted by a sub-optimal network interconnection solution.

Facilities Based Operators that already committed financially to a series of milestones as part of their licence obligations are now required to replicate significant capital investments in each of 27 SingTel Local Exchanges to take full advantage of the new regulations.

This is quite unlike the UK Partial Private Circuit ("PPC") and the US Special Access Model (discussed further below), where interconnecting carriers need only to interconnect at a higher-tier Tandem Exchange to access all end-user customers served from that Tandem Exchange. As such, the PPC or Special Access could transverse several local exchanges before reaching the end user premises. In contrast, the Singapore RIO LLC Model, if adopted in the UK and the US contexts, *would have required all competitive carriers to build out their network to every local exchange serving one of their end users*. This would have presented a serious capital expenditure issue for most competitive carriers.

MCI believes that the requirement to interconnect at the nearest end user-serving local exchange, as opposed to a higher-tier tandem exchange, may not have sufficiently reduced the barriers to entry for competitive operators, as envisaged in the December 2003 Decision. Significant upfront investments are required for the massive replication of point of connection equipment and infrastructure at all of SingTel's local exchanges. Another issue warranting serious consideration is the extensive lead time to enable a build-out of such nature.

Should the iDA decide to transfer the cost of SingTel's multiplexing function to the interconnecting carriers, we urge that the iDA do so based on cost associated with multiplexing at the tandem exchange only. A policy transferring SingTel's multiplexing cost associated at the local exchange level imposes unnecessary costs upon the interconnecting carriers. This cost element increases substantially in proportion to the number of local exchanges from which a competitive carrier must serve its end-users.

Recommendation

MCI believes that is important for any National Regulatory Authority to put in place a suitable and sustainable framework to ensure that the Facilities Based Operators continue to deploy robust and efficient network infrastructures.

MCI believes that it is possible for the iDA to consider implementing requirements comparable to the "Special Access" regime in the United States. Such a requirement would provide for robust network interconnection for the interconnecting Facilities Based Operators and would contain extensive alternatives for interconnection, including multiplexing options. The twin goal of a high

bandwidth multiplexed handover at the Open Standard Interface at the tandem exchange level can be achieved in a “Special Access” type solution to SingTel’s Local Leased Circuits.

MCI urges the iDA to consider seriously its proposed solution to SingTel’s Local Leased Circuits. The outcome of iDA’s consultation is very important: it will determine the manner in which networks are deployed and interconnected in Singapore. A sub-optimal solution potentially could give rise to network inefficiencies, pose unnecessary costs to competitive carriers and also fail to prevent anti-competitive price-squeeze behaviour by SingTel in downstream markets.

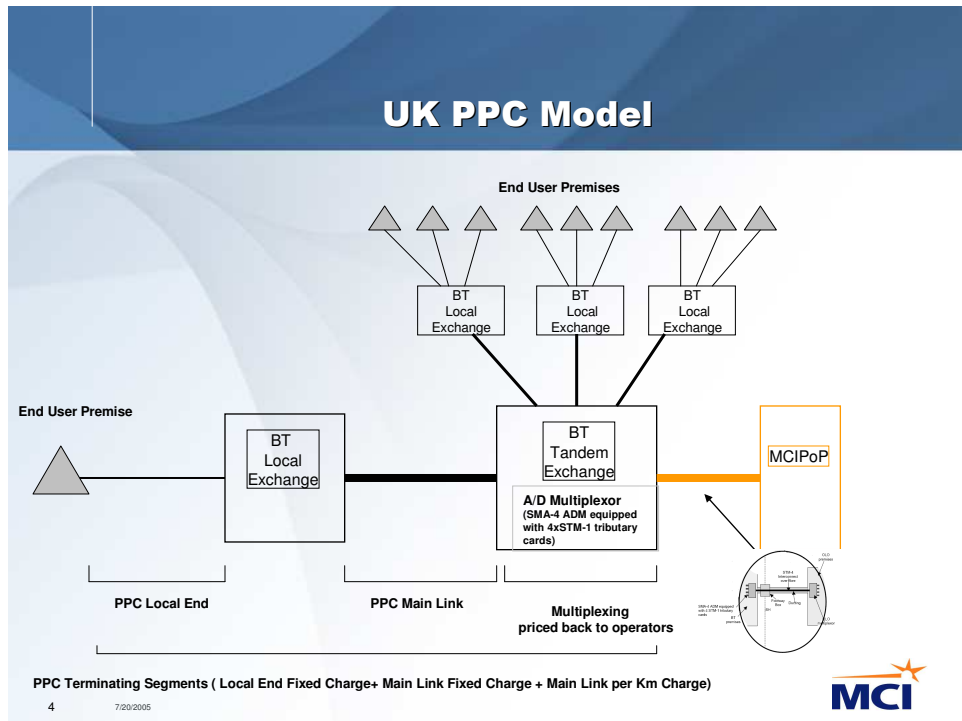
Annex A:

The UK Partial Private Circuit (“PPC”) Model

In July 1999, the Competition DG of the European Commission opened a formal sector inquiry into the price of leased lines across the EU, which concluded that competition had been slow to develop in leased line services. In a review document, OFTEL (as it was then known), UK’s National Regulatory Agency, identified the key failing in competition as the absence for the foreseeable future of competitive pressures in the market for wholesale terminating segments, not just the “last mile” between the incumbent’s local exchange and the customers premises. A regulated PPC Model was developed to address the imbalance in competition for local leased lines.

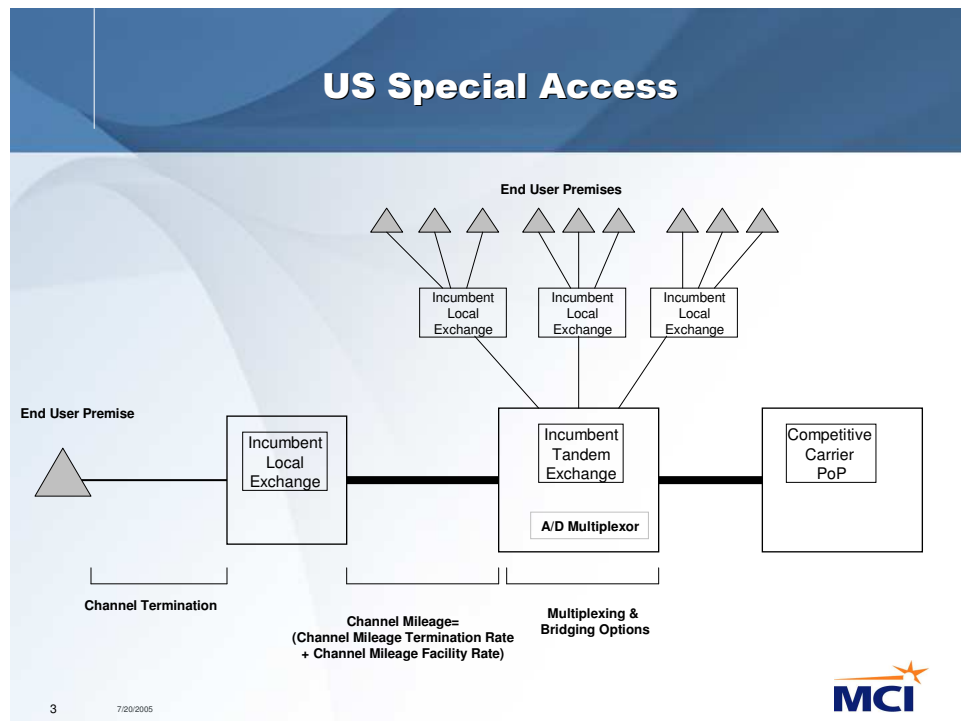
The PPC is defined as a part leased line providing a dedicated capacity connection from a customer premise to an operator’s point of connection (POC) using the BT Leased Line SDH network. PPCs are available in bandwidths from 64kbps to 622 Mbps.

The PPC consists of a local end, which is the dedicated link between the customer premise and the local Serving Exchange, and it can have a “Main Link,” which is comprised of dedicated transmission capacity between the Local Serving Exchange and the competitive operator’s Point of Connection with BT’s network at the Tandem Exchange. Competitive Carriers are able to interconnect at multiplexed levels up to STM-4 to access all end-user premises served by the Tandem Exchange. This is depicted as follows:



The US Special Access Model

Special Access refers to a dedicated point-to-point facility provided to wholesale or retail customers. There are three distinct components to a typical special access circuit: a channel termination, which connects the end-user customer's premises to the customer's local serving wire center; a second channel termination, commonly referred to as an "entrance facility," which connects the Point of Presence ("POP") of the carrier serving the end-user customer to the serving wire center; and channel mileage or "transport" between the two channel terminations.



The provision of special access services by incumbent local exchange carriers ("ILEC") in the United States is governed by a comprehensive regulatory regime that prohibits, *inter alia*, any discrimination by ILECs in favor of affiliated providers. The provision of access services is extended to all potential interconnection alternatives, including multiplexing options.

Special Access Services are provided in two general service configurations: two-point service and the multi-point service. A Two-Point service⁵ connects two customer-designated premises, either on a directly connected basis or through a hub⁶ where multiplexing functions are performed.

The Multipoint service⁷ connects three or more end user premises through a Tandem Exchange. Multiplexing options are available to facilitate the Multi-point service.

⁵ The Two-Point Service is similar to SingTel DigiNet's Point-to-Point Service.

⁶ A hub is a Telephone Company designated serving wire center at which bridging or multiplexing function are performed. The bridging functions performed are to connect three or more customer designated premises in a multipoint arrangement. The multiplexing functions are to channelise analog or digital facilities to individual services requiring a lower capacity or bandwidth.

⁷ The multipoint service is similar to SingTel's DigiNet Point-to-Multipoint service.

Optional Features: Multiplexing

Multiplexing is a network feature available in the US Special Access Service. It is described at length in the FCC Tariff No. 5:

“ a customer may order a 44.736 Mbps High Capacity Channel from a customer designated premises to a Telephone Company hub for multiplexing to twenty-eight 1.544 Mbps channels. The 1.544 Mbps channels may be further multiplexed at the same or a different hub to Voice Grade channels or may be extended to other customer designed premises or hubs....Similarly, the customer has the option of ordering Synchronous Optical Channel Service to a wire centre equipped for Add/Drop Multiplexing. This allows lower level signals to be added or dropped from a high speed optical carrier channel for delivery to a customer designated premises...⁸”

Multiplexing options are available for conversion from

- DS4 (274.176 Mbps) to DS1 (1.544 Mbps)
- DS3 (44.736 Mbps) to DS1 (1.544 Mbps)
- DS2 (6.312 Mbps) to DS1 (1.544 Mbps)
- DS1 (1.544 Mbps) to DSO (multi n x 64 kbps channels)

⁸ National Exchange Carrier Association, Inc, Tariff FCC No. 5, 5th revised page 7-3.