

**SUBMISSION BY MACQUARIE CORPORATE TELECOMMUNICATIONS IN
RESPONSE TO IDA'S CONSULTATION ON DESIGNATION OF SINGTEL'S
LOCAL LEASED CIRCUITS AS MANDATORY WHOLESALE SERVICE**

EXECUTIVE SUMMARY

- Macquarie applauds IDA's decision to pursue the option of regulating LLCs in Singapore.
- We believe that regulation is essential as local LLC markets are not effectively competitive.
- In particular, our concern relates to the market for wholesale supply of LLCs used as inputs to downstream retail services ranging from voice to broadband and data.
- IDA needs to regulate this market to prevent flow through distortions in retail markets.
- The most appropriate way for IDA to intervene is to set the prices and terms of LLCs under SingTel's RIO.
- As LLCs are absolutely critical to SBO (Individual) licensees as well as FBOs, IDA should include LLCs in a manner that allows SBOs who have a POI with SingTel to acquire them.
- This could be achieved by amending the eligibility requirements for wholesale services.
- However, the most logical way to include LLCs would be as an originating and terminating access product for broadband services alongside current PSTN OT&T services.
- This would be in line with international precedent and would reflect the fact that LLCs are core interconnect services.
- IDA should be careful in distinguishing these types of LLC interconnection services from standard LLC products used simply to link end customer premises.
- We believe that regulating LLCs as a core interconnect service and allowing SBOs to acquire will not have an adverse effect on alternative network build and will definitely stimulate service based competition.
- Macquarie is supportive of both IDA options for supply of LLCs but stresses that IDA must carefully define the option involving self-provided grooming pipes if this is to be of any use to operators.

EXECUTIVE SUMMARY (cont.)

- IDA must also properly define the LLC products to be provided, which we submit should cover the full range of distances and speeds for both tail circuit and grooming pipe segments.
- The scope of regulation must also extend to all technical components required to make the LLC service work, including collocation, interconnection and equipment.
- Supporting IDA price regulation should be IDA imposed non-price terms covering key operational requirements such as ordering and provisioning, as well as other important considerations such as the need to be able to migrate existing retail LLCs to the new SingTel wholesale product.
- We also submit that IDA should take the opportunity to include improved dispute resolution processes which provide for IDA to take a more active role, for example in mediating on the request of the acquiring operator.
- In relation to price regulation, Macquarie believes that IDA needs to reconsider its proposal to introduce retail minus pricing.
- Retail minus pricing is inefficient and problematic to administer due to uncertainties about the correct retail price to use and proper calculation of discounts.
- Cost based pricing would be more appropriate given that LLCs are a core interconnect service and such a model would produce far more superior outcomes for the Singapore marketplace.
- IDA could adopt a cost based approach without the need for cost studies, either on an interim or permanent basis by using international best practice benchmarks as a proxy for cost.
- Whatever pricing approach IDA takes, it will need to review LLC prices on a regular basis to ensure that they are still at a level that will promote competition.
- Having said that, IDA should not regularly review the need for LLC regulation in the first place and should definitely not impose a sunset clause on inclusion of LLCs under the RIO.
- It is not possible to predict that competition in LLC markets will be competitive over a given period of time and any change is likely to happen over the longer term such that the IDA should only revisit regulation of LLC markets in a 5-6 year timeframe, with a view to extending regulation as necessary.

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Introduction

Macquarie Corporate Telecommunications Pte Ltd (**Macquarie**) provides this submission in response to IDA's "Consultation Paper: Designation of Singapore Telecommunications Limited's Local Leased Circuits as Mandatory Wholesale Service" issued on 20 May 2003 (**IDA LLC Consultation**).

Macquarie has a strong interest in the IDA LLC Consultation as the holder of an SBO (Individual) Licence. Under this licence, we provide a wide range of telecommunications services to corporate customers in Singapore. Of primary relevance to the current proceedings, we provide corporate voice, dedicated Internet access, and a variety of dedicated access data services including IP VPN, ATM and Frame Relay. As a retailer of such telecommunications services, Macquarie is extremely concerned to ensure that there are viable options for wholesale supply of essential inputs to these services such as local leased circuits (**LLCs**) so that there can be effective retail competition. The outcome of the IDA LLC Consultation will dictate whether such competition will be allowed to occur in Singapore.

In this context, we thank IDA for the opportunity to comment as part of the IDA LLC Consultation. Below, we first outline the lack of competition in wholesale LLC markets and the need for regulatory intervention. We then discuss the appropriate form of regulatory intervention, the scope of service that should be regulated, as well as best practice price and non-price terms. Our submission includes reference to overseas treatment of LLCs and lessons to be learnt. Throughout, we suggest what we believe are appropriate responses under the Code Of Practice For Competition In The Provision Of Telecommunications Services (**Code**) as it applies to SingTel's Reference Interconnect Offer (**RIO**).

At the outset, we summarise our conclusions on the best approach to regulation of wholesale LLCs:

- We believe that IDA needs to regulate the wholesale LLC market on the basis it is not effectively competitive, and this will prevent flow through distortions in retail markets.
- The most appropriate way for IDA to intervene is to set the prices and terms of LLCs under SingTel's RIO.
- As LLCs are absolutely critical to SBO (Individual) licensees as well as FBOs, IDA should include LLCs in a manner that allows SBOs to acquire them eg. treating as an originating and terminating access product for broadband services alongside current PSTN OT&T services.

- IDA must properly define the LLC products to be provided, which we submit should cover the full range of distances and speeds for both tail circuit and grooming pipe segments. The scope of regulation must also extend to all technical components required to make the LLC service work, including collocation, interconnection and equipment.
- Supporting IDA price regulation should be IDA imposed non-price terms covering key operational requirements such as ordering and provisioning, as well as other important considerations such as the need to be able to migrate existing retail LLCs to the new SingTel wholesale product.
- In relation to price regulation, Macquarie believes that IDA needs to reconsider its proposal to introduce retail minus pricing. Cost based pricing would be more appropriate given that LLCs are a core interconnect service and such a model would produce far more superior outcomes for the Singapore marketplace.
- IDA could adopt a cost based approach without the need for cost studies, either on an interim or permanent basis by using international best practice benchmarks as a proxy for cost.
- It is not possible to predict that competition in LLC markets will be competitive over a given period of time and any change is likely to happen over the longer term such that the IDA should only revisit regulation of LLC markets in a 5-6 year timeframe, with a view to extending regulation as necessary.

Wholesale supply of LLCs is a competitive problem

The IDA welcomes views and comments on competition in the local LLCs market. Is the local LLCs market competitive and if not, what are the factors contributing to this? All comments should be supported by relevant evidence and reasoning.

Macquarie is of the firm view that wholesale LLC markets in Singapore are not competitive and this has flow through effects on related markets. In reaching this conclusion, it is necessary to first identify the markets concerned, assess the current state of competition and then assess barriers to entry that impact on future prospects for these markets.

Markets should be carefully defined as wholesale LLC markets

It is critical to competition analysis that all markets affected be defined and it is too simplistic to just find an “LLC market”. The key market where competition is currently failing is the market for wholesale supply of LLCs. This market can be further split by reference to LLC type or capacity, however, this distinction is secondary to recognising that the focus should be on the wholesale level. The related markets where competition is adversely affected are the retail markets for LLCs, but more significantly markets for

broadband/data services, as well as corporate voice to which wholesale LLCs are an input. The markets are national.

Macquarie is concerned as the IDA LLC Consultation places undue emphasis on retail competition and on retail LLCs. It states that SingTel offers close to retail prices to FBOs such that FBOs can't compete in the retail LLC market. We would reclassify the problem as being that SingTel offers retail prices full stop, and that this means both FBOs and SBOs cannot properly compete in all downstream markets – data, Internet, retail LLC etc. Further, the consultation seems to stress the core problem as being with limited competition in the retail market. We agree this is a flow through effect but IDA must recognise that the core issue is lack of effective *wholesale* competition. This is necessary to ensure that regulation is appropriately targeted.

As part of implementing the new European regime, Oftel is currently in the process of reviewing the state of competition in UK leased circuit markets and determining what regulation it will impose. It has detailed its initial conclusions in “*Review of retail leased lines, symmetric broadband origination and wholesale trunk segments markets, 11 April 2003*” (**Oftel LLC Review**).

Of relevance to the IDA LLC Consultation, Oftel identified the following wholesale markets. It has gone on to find these markets are not competitive, despite the fact that UK telecommunications have been liberalised for far longer than Singapore:

- Wholesale low bandwidth symmetric broadband origination (up to and including 8 Mbit/s).
- Wholesale high bandwidth symmetric broadband origination (above 8 Mbit/s up to and including 155 Mbit/s).
- Wholesale trunk segments.

The broadband origination services identified by Oftel are equivalent to the LLCs under consideration by IDA. Although referred to as origination services, this is intended to cover the fact that termination is also provided over the relevant circuits. The services considered by Oftel include both contended (shared) or uncontended dedicated capacity. Uncontended services include terminating segments, whether the entire LLC from customer to competing operator node or part thereof. Oftel has treated these symmetric, always on services as being in a separate market from asymmetric broadband services such as ADSL access.

The markets defined by Oftel correspond to the EC Recommendation markets for “wholesale or terminating segments of leased lines” (Market 13) and “wholesale trunk segments” (Market 14).

From a geographic perspective, Oftel has treated the national market as requiring regulation, and has not let itself be caught up in the complexities of identifying specific

areas where there may be more effective competition in the form of alternative LLC connections. It has determined it impractical to reduce the geographic scope of the market by reference to substitution possibilities.

For the above reasons, we urge IDA to take a clear approach to market definition and define the key market as the national wholesale LLC market, with relevant national retail markets including those for voice, broadband, data and Internet as well as retail LLCs.

Wholesale LLC market is not competitive

Macquarie refers to the various submissions made by the industry over the past year in relation to excessive wholesale LLC prices in Singapore. These submissions provide evidence that prices are high compared to international benchmarks. IDA appears to have reached a similar conclusion in its initial investigations of LLC markets. Such high prices clearly point to the fact that the wholesale LLC market in Singapore is not competitive. SingTel's monopolistic attitude toward these services is also demonstrated by its refusal to offer wholesale prices to other operators and only making available a retail product.

Further evidence of the lack of competition can be found in the limited penetration of other FBOs into the wholesale LLC market. In Singapore, there are very limited LLC suppliers as there are very limited alternative networks. Only StarHub supplies a limited substitute network with access to a minority of buildings (less than 30%). While it does supply other operators with LLCs, a proportion of these LLCs are still resold SingTel circuits and StarHub offers all circuits as a retail product ie. even it does not compete at the wholesale level. The last mile build by MCI is so insignificant that it would not impact any competition analysis.

Macquarie submits that there are significant barriers to competition which have caused the current problems in wholesale and retail markets. These barriers will also serve to prevent effective competition in future unless IDA takes regulatory steps to counter this.

As outlined above, Oftel has found that competition is not effective in wholesale LLC markets largely due to high barriers. We do not believe that the Singapore environment can be so different, particularly given the relatively immature state of competition. We therefore believe that the factors which Oftel has identified as causing this competition failure also exist here. SingTel is able and will continue to behave in a dominant manner because:

- It controls a wide reaching infrastructure.
- It is able to exploit economies of scope and scale more effectively than others.
- There are significant barriers to entry, particularly sunk costs from building network (we refer IDA to the Oftel LLC Review for a detailed discussion of this).

In the UK, this conclusion was supported by market share data at the retail level, with the assumption that any wholesale share would be significantly larger. Oftel found that it was also supported by the incumbent's past behaviour in failing to supply a broadband origination product other than at retail rates, in the absence of regulatory intervention. These are also clearly characteristics of the Singapore market.

Retail markets are being impacted

Overall, the prevailing view seems to be that Singapore is becoming less and less competitive in the pricing of its telecom services. Such sentiments have been expressed by the Economic Review Committee and are apparent from the US-Singapore trade negotiations. We believe this is largely due to the high cost of LLCs, given that they form an increasingly higher proportion of total service costs, with the recent fall in international bandwidth prices.

Macquarie submits that with the lack of effective competition at the wholesale level, SingTel is able to leverage its dominance into downstream retail markets for LLCs, broadband/data and Internet. This should be addressed by wholesale regulation rather than retail intervention at this stage.

Regulatory solution is to treat LLCs as an interconnect service

The IDA welcomes views and comments on the IDA's proposed regulatory measures to promote greater competition in the local LLCs market and those market sectors that may depend on LLCs. Are there additional issues that the IDA needs to consider in implementing these measures? Would these regulatory measures be effective in stimulating network rollout by competing operators in the longer term? Are there other more appropriate or effective regulatory measures that the IDA should consider rather than designating SingTel's LLCs as a mandatory wholesale service under the Code in the short-term?

Regulatory intervention to set prices and terms is appropriate

LLCs are critical inputs into important broadband/data products in Singapore. As stated in the press release for the IDA LLC Consultation:

“LLCs are key telecommunications products used by businesses for data, voice, video and Internet connectivity. Effective competition within this sector can make a positive contribution to the overall competitiveness of the economy by driving costs down for businesses and offering consumers a wider range of products and services and at more competitive prices.”

In the absence of effective competition in the wholesale supply of LLCs, it is appropriate for IDA to intervene and set the prices and terms offered by SingTel.

In a number of countries, particularly in Europe, there has been clear recognition of the need to regulate LLCs to ensure effective competition. Further, this has been done on the basis that LLCs are a key interconnect service. As a result, regulators have actually set prices and terms rather than just imposed loose competition protections. We urge IDA to take the same approach.

The Oftel LLC Review has thus far concluded that it is essential to continue to regulate wholesale LLC markets (aside from retail regulation, which we do not address in this submission) under the interconnect regime. The following conditions will continue to apply:

- A general obligation to provide access on reasonable request.
- Requirement not to unduly discriminate.
- Basis of charge obligations to be cost orientation with use of a cost accounting system.
- Price control.
- Accounting separation.
- Requirement to publish a reference offer.
- Obligation to give 90 days notice of changes to prices, terms and conditions for low bandwidth symmetric broadband origination.
- Obligation to give 28 days notice of changes to prices, terms and conditions for high bandwidth origination services.
- Same day notification for trunk segments.
- Requirement to provide quality of service information.
- Requirement to publish technical information with 90 days notice.
- Obligations relating to requests for new network access.

The general obligation to provide LLCs at a range of bandwidths is part of a direction under the interconnection regime.

Oftel is of the view that the above is an appropriate and proportionate response given its analysis of the state of competition. The wholesale regulatory measures are to promote competition in the retail markets by allowing competitors to purchase the necessary inputs.

We point out that Oftel has correctly recognised in this regard that the relevant retail markets here are not for retail LLCs but rather for any services which rely on wholesale LLCs as an input, including symmetric broadband internet access, data and VPN services. Oftel clarified that the relevant issue was not whether these services should be subject to retail regulation but rather ensuring that any dominance at the wholesale level could not be exploited in downstream markets.

Both FBOs and SBO (Individual) licensees should be eligible acquirers

Regulated LLC terms should apply to both FBOs and SBO (Individual) licensees (**SBO(I)s**) that have a POI with SingTel. This would meet the objectives of the regulatory regime and be consistent with international practice. For example, in Europe and UK, service providers and not just network operators are able to acquire LLCs as an interconnect service.

It is essential that SBO(I)s as well as FBOs are able to acquire LLCs at regulated rates. Current RIO services which are restricted to FBOs are generally only relevant to those who are building network anyway such that the competitive effect is neutral. However, LLCs are critical to the business of SBOs. SBOs use the same LLC products in the same way as FBOs. They compete head on in the supply of broadband/data services and to discriminate in the pricing of key inputs as between the two licence categories would distort that competition.

IDA has previously recognised that where FBOs and SBOs vigorously compete in this way using the same inputs, regulation should not discriminate. The current framework provides that, for PSTN origination, termination and transit (**OT&T**), both FBOs and switched (Individual) SBOs should be eligible for mandated supply and at the same prices. We believe this demonstrates IDA's recognition that, while facilities based competition is important, service based competition must also be allowed to develop alongside, rather than necessarily downstream.

LLCs can be contrasted from the previous designation of IPLCs as a wholesale service to which only FBOs were entitled. In that case, FBOs were allowed regulated wholesale IPLCs so that they could use these as part of their backbone network before building it. Regulation of IPLCs was not intended to improve SBO competition as well by enabling alternative FBOs to resell IPLCs to SBOs for inclusion in end user products. In fact such resale was prohibited.

We assume that by regulating LLCs, IDA wants to improve overall competition including in the supply of retail services by ISPs and other data SBOs. If LLCs are restricted to FBOs, there must be an expectation that competition will nevertheless improve through FBOs reselling LLCs to SBOs and thereby providing an alternative to SingTel. However, whatever price the FBOs acquire LLCs for, there will always be a mark up to SBOs. This immediately distorts competition at the retail level where they compete head on. This distortion is further exaggerated where the regulated price is retail minus. If FBOs only get retail minus pricing, after adding their mark up, SBOs are just as likely to end up with

a retail price as under the current unregulated scenario. FBOs would always be able to offer a better retail price other than as a result of greater efficiency.

Ultimately, Macquarie submits that whatever approach to regulatory intervention is taken by IDA, both FBOs and SBO(I)s should be entitled to LLCs on the same basis. If IDA determines to regulate LLCs as wholesale services, this means it should amend the Code so that eligibility for wholesale services may be extended to SBO(I)s that have a POI with SingTel, depending on the service in question. IDA clearly has powers to amend the Code at any time and without the need to go through any complicated process. The change would be relatively simple and leave the IDA able to focus on the core issue of what wholesale terms should apply.

However, Macquarie believes that there is an even more suitable alternative, which retains the current distinctions between RIO services that only FBOs are entitled to and those that SBO(I)s can also acquire. LLCs should be treated as OT&T services for broadband. We discuss this alternative immediately following.

Inclusion of LLCs as broadband OT&T under the Code and RIO would be appropriate

LLCs are essentially interconnect services that provide symmetric origination and termination for broadband/data between a customer and interconnecting licensee over SingTel's network. They are the broadband/data equivalent to the PSTN origination and termination services currently regulated under the Code and supplied under Schedule 2 of the RIO.

As a result, we believe that the logical approach, which reflects the reality of the service, would be to include LLCs as a new form of OT&T under the Code, with consequent minor amendments as necessary to reflect that they are used for broadband/data and not PSTN voice. Such changes would really only be required to Appendix 2, section 3 of the Code. The key provision would be a new section 3.4 on broadband OT&T, which defined the scope of the LLC service, taking into account issues raised in this submission. In terms of the RIO, sections on PSTN OT&T would remain as is and broadband OT&T would form new sections in Schedules 1 and 2 based on price and non-price terms of the kind suggested in this submission. Schedule 8 provisions on collocation would also need to be amended to reflect IDA's self-provided grooming pipe option.

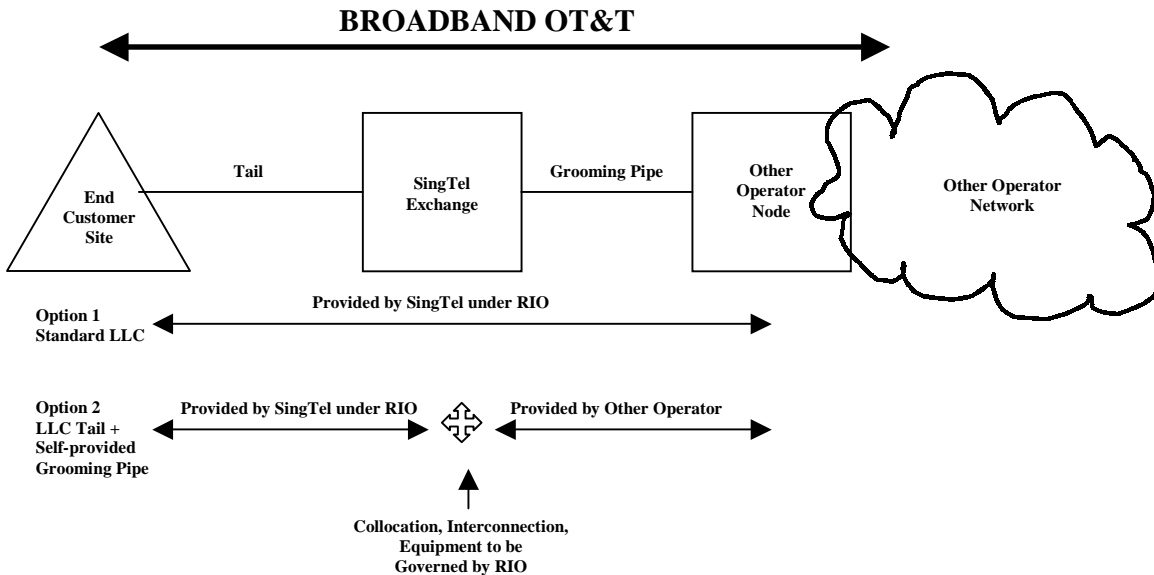
While this may appear to involve a number of amendments, it would mean that IDA would not have to take the more significant step of changing RIO service eligibility requirements as suggested for the wholesale service designation approach above. SBO(I)s are already entitled to OT&T if they have switching infrastructure. The SBO(I) who require LLCs will also be those who have switching infrastructure. The IDA could therefore restrict eligible SBOs to those who have a POI with SingTel. This also neatly excludes SBO class licensees such as hotels who may otherwise want to jump on the bandwagon to get LLCs at cheap prices for immediate retail use rather than as inputs to retail services.

Classifying LLCs as OT&T also neatly distinguishes these from retail circuits provided between two customer premises. As with PSTN OT&T, LLCs are not end to end products but rather inputs to other services which involve connection between SingTel and another operator's network. Again, this analysis prevents parties such as hotels with SBO (Class) licences from cannibalising the retail market for leased circuits.

Treating LLCs as OT&T would be consistent with that taken in the Oftel LLC Review. As outlined in our discussion of market definition, Oftel classifies wholesale LLCs as broadband origination services. It would also be in line with the European approach generally, which treats LLCs as a key interconnection service and not just a wholesale product.

We also believe that IDA's proposal in relation to grooming pipe build and collocation is consistent with this approach. Just as with PSTN OT&T, there will be a choice for FBOs between 'virtual collocation' ie. leasing the interconnect link/grooming pipe from SingTel and physical collocation ie. self providing the link to the SingTel node and connecting at that point. SBO(I)s would be entitled to virtual collocation.

Macquarie clarifies its view of the way LLCs should be regulated as a core OT&T interconnect service below:



The above can be contrasted to the LLC diagrams in the IDA LLC Consultation, which focus on LLCs between customer premises, with the tail treated the same way but the grooming pipe being aggregated capacity to the customer's head office. This is more of a retail or wholesale resale scenario rather than the correct interconnection scenario above.

Regulatory intervention will be largely neutral in terms of future network build

Macquarie submits that requiring SingTel to supply LLCs on a regulated basis, whatever the approach used, will be largely neutral in terms of incentives for FBOs to build alternative networks. This is because, even in the absence of regulation, it is highly unlikely that Singapore will see alternative ubiquitous local networks appear within the next few years, given current economic conditions and forecasts for the future.

The heydays of frantic network build have gone and seem unlikely to return. Operators worldwide are moving to more of a service based model where they build as much as makes sense, for example, limited CBD rings, but do not build to the customer premise except in special circumstances such as for absolutely key customers whose location is near to their ring. We believe that this will continue to be the case with or without regulated supply of LLCs. It is simply unrealistic these days to expect extensive local network build even if LLCs are priced at a high level. This is clear from current practice where, despite unregulated and high LLC prices, FBOs are not actively building last mile links.

We discuss this issue further in the context of appropriate timeframes for regulation of LLCs at the end of this submission.

Comments on grooming pipe build/collocation option

Macquarie believes that IDA's second option to allow operators to self provide the grooming pipe, collocate with SingTel and then acquire a regulated LLC tail to the customer is sensible. This option may work for some FBOs in some exchanges. It would also benefit SBO(I)s if permitted to lease the grooming pipe and connection to SingTel from other FBOs.

However, IDA needs to take care in defining the scope of this option. It should ensure that operators have flexibility to supply the grooming pipe segment in whatever way is most efficient for them. This should include the ability to build (where an FBO) or to buy or lease the grooming pipe from another FBO if commercially available.

IDA should also clarify the scope of the service by reference to required POIs. Macquarie believes that an efficient network topology requires that FBOs be allowed to connect a grooming pipe to SingTel and use this pipe to service multiple local exchanges. A dedicated pipe should not be required at each exchange. The ability to use pipes for multiple exchanges would ensure that FBOs do not incur wasteful expenditure and inefficiently use capacity in acquiring grooming circuits to every exchange, even if the exchange only supports one customer.

Macquarie also submits that an operator terminating in an exchange should be able to provide wholesale products to other carriers in the exchange. For example, if an operator is in an exchange, it should be able to use StarHub services. Further, entry pricing needs to be controlled ie. the price SingTel can charge per exchange for other players to bring services in.

Ultimately, we stress that IDA's second LLC option is a complementary regulatory measure and cannot be treated a solution the LLC problem. There must still be regulated provision of a complete LLC from customer premise to competing operator node. This is in line with

international precedent and reflects the reality that the complete LLC is a bottleneck. FBOs and SBOs are simply not in a position to build to all the SingTel exchanges and still be able to keep end product prices at a reasonable level. The cost of building these grooming pipes would have to be factored into retail prices with the result that these would be excessive. Licensees would simply not be able to compete with SingTel given its sunk cost advantages.

To elaborate, the cost of build typically involves infrastructure build and public works (trench digging etc.). These costs are much higher for a new entrant due to two main reasons: the volume is much lower, hence the cost is higher; the suppliers/tradespeople have an existing market to sell to and are doing very well without new entrants. They do not want to be competitive in supplying new entrants as it may affect their SingTel relationships, hence an operator like Macquarie would need to source new vendors and tradespeople.

The Oftel 2003 Review notes that it is essential to regulate LLCs to the competing operator site and not just to incumbent exchanges to ensure that barriers to entry for new operators are low. Similarly, if Singapore operators could only interconnect by building their networks and installing equipment at SingTel exchanges, there would be significant costs. This would deter market entry and therefore affect the development of competition.

Scope of regulated LLC service should be broad to ensure competitive flexibility

The IDA welcomes views and comments on the technical definition or specification for the LLCs including the range of bandwidths (for example, 64kbps, 512 kbps, 2 Mbps) that the IDA should designate as mandatory wholesale service. Please provide detailed supporting reasons for each proposal and comment made.

Full range of bandwidths and distances needed

Macquarie submits that the scope of LLC service subject to regulation should include the full range of bandwidths and distances, including high speed circuits. In other words, LLC prices should be established from 64kbps up to STM1 level, and for distances under 2km, under 5km, and above.

In relation to the tail circuit (as distinct from grooming pipe), an E1 or 2Mbps circuit is a typical wholesale service offering, as this is the default speed for standard 'ISDN Primary Rate,' which most corporates use to carry voice. Data speeds of 1Mbps and 512Kbps are also popular as they perform better than standard ADSL Internet Links. 128Kbps and 64Kbps are still used for international data in particular.

While the bulk of LLCs required for downstream retail services are 2Mbps and below. However, there will still be a number of instances where licensees require higher speed circuits to serve important customers. To have the flexibility to do this they need a viable supply source. Currently, they do not as SingTel is the dominant supplier and supplies on unreasonable terms. The fact that there may be less demand for these speeds does not detract from the fact that the supply of higher speed circuits is not effectively competitive and needs to be regulated. Where there is a market for a service, the existence of effective competition should be the test of whether supply should be regulated and not how 'popular' the service is.

The EC's latest draft *Commission Recommendation on Leased Lines Interconnection Prices and on Major Supply Conditions for Wholesale Leased Lines* issued on 3 June 2003 (**EC Draft 2003 Recommendation**) sets price ceilings for short distance LLCs of up to 2km and up to 5km. The speeds subject to their recommendations were 64kbit/s, 2Mbit/s and 34Mbit/s although the EC noted price information on higher speeds had not been available and could be included in future versions of the recommendation.

Oftel has regulated LLCs across the board and in its latest Oftel LLC Review proposes to continue to regulate low and high speed LLCs up to and including 155Mbit/s. It is only proposing to exclude very high speed LLCs based on a proper competition analysis, which showed that the incumbent had a relatively low market share and there were significant alternative sources of supply.

In delineating the scope of the service, IDA should be mindful to include all LLC elements. It should therefore require provision of the grooming pipe segment at various speeds that either match the tail segment or allow an operator to aggregate tails, for example over an STM-1. The handover speed is also relevant as highlighted by Oftel in its regulation of LLCs.

Requiring provision of high capacity grooming pipes would reflect current market practice and efficient network design. In most cases, LLC regulation would be meaningless if it did not require grooming pipes of sufficient capacity that operators can efficiently use that capacity by sharing between customers. Macquarie submits that in this regard, STM-1 pipes are ideal and should be supplied as a product per se rather than operators being required to acquire an STM-1 based on multiple lower speed circuits.

From a broad technical perspective, a 155Mbps pipe is the most common trunk or grooming service as the terminating equipment for both supplier and buyer is cheaper. 45Mbps circuits are also common due to the low cost, however the cost of terminating equipment is quite high. Unfortunately there are no intermediary speeds due to technical limitations, so if an operator requires more than 2 Mbps in a single pipe, 34Mbps or above is the only option.

Regulation should apply to all relevant service components

In a similar vein, Macquarie stresses that the regulation of LLCs needs to extend beyond price control of LLC monthly rental and include other service components such as:

- Initial connection and any other one-off charges.
- Collocation.
- Interconnection and equipment.

If related service components cannot be obtained on competitive terms, then clearly the supply of the wholesale LLCs themselves will remain uncompetitive. IDA should therefore regulate all related service components so that overall its intervention achieves IDA objectives.

The EC Draft 2003 Recommendation stresses the need for prices to be regulated across the board in this way. The Oftel LLC Review and previous PPC Directions also recognise that all relevant service components should be regulated both in respect of price and non-price terms. Oftel has been careful to stress that the regulation of LLCs at cost oriented prices should extend to key technical areas such as actual interconnection and equipment, whether it be at the incumbent or competing operator exchange.

Regulation of non-price terms is critical

The IDA welcomes views on other related issues that the IDA needs to address in designating SingTel's LLCs as a mandatory wholesale service. Comments should be supported by relevant evidence and reasoning.

Regulated provision of LLCs is meaningless if it only extends to price terms. Regulation of non-price terms is critical to ensuring the LLC product is in fact commercially useable and that the real price of the product is not inflated through cost increases from poor quality.

Oftel has outlined the key parts to a reference offer covering LLCs:

- Clear service description.
- Terms including charges, ordering, provisioning, billing and dispute resolution, with sufficient information to enable operators to make technical and commercial judgments so that there is no adverse competitive effect.
- Information relating to technical interfaces and points of interconnection, such information to ensure operators are able to make full and effective use of the services.
- Conditions related to maintenance and quality (SLA). Minimum acceptable service levels are necessary to ensure that services are provided in a fair, reasonable, timely and non-discriminatory fashion.
- Terms and conditions that are fair and reasonable as would be offered in a competitive market and that do not impose a margin squeeze.

Oftel believes that its regulation should not only specify prices and the obligation to provide the service but should also detail specific non-price terms, rather than leave these to the incumbent to decide. BT is then required to include these terms in its contracts. We suggest that IDA take a similar approach to guide SingTel in its drafting of new RIO provisions and thereby minimise delays in 'negotiating' the final form of the RIO section on LLCs.

Migration requirements

A key Oftel requirement which should be implemented in Singapore is that the incumbent must migrate existing retail circuits provided to other operators to the new wholesale regime. Oftel has set a maximum charge for paper and technical transfer of circuits and has rejected any limitations on how long operators can take to request migration.

Operational terms

Provisioning

Provisioning procedures must be detailed to make supply of LLCs meaningful. There is absolutely no point if a licensee can buy affordable LLCs and supply a downstream product at a competitive price if they cannot be competitive in lead time to supply. If SingTel delays in the provisioning of LLCs, this will clearly impact delivery dates for retail products. The relevant retail broadband/data services are typically provided to high end corporates for whom the service may be mission critical. Such customers will not tolerate delays in service delivery.

Macquarie understands that current provisioning times for retail LLCs are adequate and in the range of 14 days. This should be the minimum time for wholesale provisioning, although we would argue that it would be preferable if the timeframe was shorter to ensure that other operators can offer competitive lead times at the retail level. Ultimately, the key requirement must be that SingTel performs the task within the same timeframe as it does for itself. Otherwise other operators cannot compete even if their provisioning times appear adequate in themselves.

We note that the EC Draft 2003 Recommendation deals explicitly with delivery times and the importance of preventing delay tactics by incumbents. Delays and wide variations in delivery times have proven to be a problem in EC member countries and the EC pointed out that, without financial penalties for late delivery, there remained a risk of delays. The EC therefore set best practice delivery timeframes by comparing data of member States and identifying the third lowest delivery time.

The EC recommends that regulators require LLCs to be supplied under enforceable SLAs and within contractual delivery times. These should be as short as possible and allow operators competing in retail markets to achieve best practice delivery times in those markets. The EC recommends financial penalties that have a deterrent effect and also adequately compensate operators for losses and competitive disadvantages resulting from delayed delivery times.

Best practice timeframes and access requirements should also be imposed in the case of operators seeking to take the self-supplied grooming pipe/collocation option. For example, SingTel should not be permitted to place onerous conditions on timeframe to access exchanges, security requirements etc. Nor should SingTel be allowed to delay if it is doing the patching itself.

Faults

Fault management and rectification procedures must be detailed to make supply of LLCs meaningful. There should be set SLAs and penalties for non-compliance. There is absolutely no point if a licensee can buy affordable LLCs and supply a downstream product at a competitive price if the quality of the product is not competitive. If SingTel delays in the rectification of LLC faults, this will clearly impact the retail product. Again, the relevant retail broadband/data services are typically provided to high end corporates for whom the

service may be mission critical. Such customers will not tolerate service outages that spread over hours, let alone days.

There should also be penalties related to the number of faults experienced in a period as well as failure to meet regulated fault rectification timeframes.

Others

The Oftel LLC Review and PPC directions deal with a number of other operational issues which IDA should include in its regulation of LLCs or at least be mindful of in its supervision of SingTel's RIO. To the extent they are not dealt with elsewhere in this submission, we highlight some of these below:

- Oftel has specified the applicable forecasting and penalty regime to avoid abuses by BT and ensure flexibility for adjustment of forecasts between periods. IDA should consider a similar approach.
- It may be appropriate for there to be a minimum contract term for LLCs – in the UK this is 12 months. However, in the case of migrated retail LLCs, the start of this term should be the start date of the initial retail LLC rather than the migration date.
- SLAs should cover ordering, supply and repair of equipment as well as circuits.
- Operators should have the choice of whether to get new equipment or reuse third party equipment if available. Operators terminating LLCs should have the right to keep equipment and use it at another site/for another LLC.

Dispute resolution

IDA should specify how disputes will be resolved. Current processes drafted by SingTel allow it to manipulate disputes by delaying these through internal committees etc. Macquarie submits that IDA should provide for a LLC dispute resolution process that gives IDA more scope to get involved such as a party having the right to ask IDA to mediate. Regulator involvement in ADR processes has proven to be effective in wholesale disputes in Australia and we would like to see a similar process in Singapore.

Retail minus pricing models are problematic

The IDA also seeks views and comments on the proposed pricing principle to be adopted in the designation of SingTel's LLCs as a mandatory wholesale service and its effectiveness in promoting competition in the local LLCs market. As set out in paragraph 3.1(a) in this consultation paper, the IDA welcomes views on the proposed pricing methodologies to be adopted, in particular the magnitude of discount for "retail-minus" and whether it should be a single discount or tiered based on quantity purchased.

Retail minus model is inefficient

It is widely recognised that retail minus models are flawed relative to cost based approaches. They are arbitrary and are not economically efficient. They are often used as a way of avoiding the difficult costing studies required to determine cost based pricing. However, in recent times it appears more popular to recognise the greater efficiency of a cost based model and instead side step the cost studies by referring to best practice analyses already carried out overseas. This approach is further outlined in the following section. Below, we discuss the retail minus model.

The key problem with a retail minus model is that it is inefficient as compared to cost based models such as LRIC. It is well recognised that cost based pricing will achieve superior consumer outcomes including efficient entry, wider service choice and economic efficiency.

A retail minus model would be particularly inefficient if applied to wholesale LLCs. If a leased circuit between customer premises was being supplied by SingTel to a licensee for simple resale to a customer, retail minus may be appropriate. However, a wholesale LLC from customer premise to operator network is not immediately resupplied as a retail product and is only one input to the end product. The other licensee will have additional costs for other inputs such that its total cost may end up at the same or greater level as SingTel's initial retail price. The retail minus model would not then allow it sufficient margin to viably compete.

Definition of retail price is unclear

Retail minus models are also generally difficult to apply as they first beg the question "What is the retail price?" Macquarie does not know what SingTel's real retail price is and queries whether IDA is able to inform licensees of this so that they can properly analyse whether the proposal to charge retail minus 40% will produce a viable price.

The IDA LLC Consultation mentions that its assessment of retail prices takes into account discounts generally offered. We query whether this means that IDA has derived the real price or simply referred to SingTel's standard discounts and assumed that these are the best discounts it offers in reality.

Macquarie stresses in this regard that it is inadequate and would distort competition to simply rely on SingTel's filed retail tariff. An initial problem here is that there are no checks and balances as other licensees have no visibility of the tariff. Further, we do not believe that this filed tariff in any way reflects the real prices being offered to customers, particularly large corporates with strong bargaining power. In this scenario, even if SingTel offers a discount off its filed price, the wholesale price to other operators may still be greater than the real retail price. We understand that this was one of the complaints with the retail minus prices imposed by IDA in relation to wholesale services previously designated under the RIO.

We believe that if IDA insists on a retail minus model, it must first consult in relation to the retail price to be used as the benchmark. This should be based on actual prices in the market rather than filed tariffs. Both filed tariffs and actual prices should also be visible to other operators to ensure that the regime operates in a transparent way.

40% discount is arbitrary

It is clear that the 40% discount figure picked by IDA is arbitrary. There are always dangers in regulators taking such an approach rather than basing regulation on sound analysis.

As outlined above, we also believe that the 40% figure may not be sufficient if it is simply a discount from SingTel standard retail LLC prices with no relationship to the actual prices SingTel charges for its broadband/data products.

Further, 40% may be an inadequate discount for those operators who wish to take the regulatory option of building their own grooming pipes. The cost of these pipes and the equipment needed to collocate and connect to SingTel is high and may not be covered by the 40% discount while still leaving a sufficient profit margin to effectively compete against SingTel at the retail level.

Danger of volume based discounts

Macquarie submits that if IDA sets LLC prices based on volume discounts, this would be counter-productive to its aim of improving competition. The largest acquirers of SingTel leased circuits will be SingTel entities and so once again SingTel would be placed in the best position to out price competitors other than as a result of its efficiencies.

Cost oriented pricing is appropriate

<p><i>The IDA welcomes any comments or alternative proposals on the pricing methodologies to be adopted. All comments should be supported by relevant evidence and reasoning.</i></p>

Cost oriented pricing accords with international best practice

Macquarie submits that reference to international precedent shows that LLCs should be treated as a key interconnect service and therefore best practice dictates cost oriented pricing should apply.

The EC has recommended cost oriented pricing of LLCs for a number of years, with the framework initially being set out in its 1999 Recommendation on the Pricing of Leased Lines. In this recommendation, the EC set price ceilings for short distance leased lines on the basis that these were essential building blocks for internal communications networks of European businesses. The high prices then prevailing were detrimental to the competitiveness of European companies and were hampering the penetration of services such as Internet. Competition in the market had been slow to develop with most investment concentrated on high capacity inter-city routes rather than LLCs. The EC therefore set prices based on the prices in the lowest cost Member states as indicative of the cost oriented prices local regulators should impose.

In the UK, OfTel has required cost-oriented pricing for LLCs. As part of the current OfTel LLC Review, it is intending to continue to require cost oriented pricing calculated on the basis of LRIC plus common costs. It will also impose price control to supplement principles

of ‘cost-oriented pricing’, since in the absence of this BT would have a greater incentive to overstate its costs and would have little incentive to reduce or constrain increases in LLC prices. Oftel believes price control will give BT more incentive to be efficient.

Cost oriented models need not delay implementation of regulation

Oftel proposes to do a full review of appropriate LLC pricing based on cost but will set an interim price control to ensure early benefits to consumers. We believe that IDA may wish to consider such an interim approach to address its stated concern with implementing a solution soon so that there are early benefits to consumers.

Macquarie suggests IDA could set a temporary price that was cost oriented but does not involve detailed studies, by using an approach such as the one suggested in the following section. It could then follow up with a final price based on a more rigorous cost analysis. This would be preferable to IDA rushing to adopt an easy but inappropriate model such as retail minus to ensure quick implementation, but then applying it as a final solution.

Price caps based on best practice benchmarks a proxy

IDA has stressed the advantage of a choosing a cost methodology that is quick to implement so that consumers can quickly benefit from regulation. Macquarie wholeheartedly supports this approach. However, we believe that there is a far more appropriate way to achieve this than adopting a retail minus model. An increasingly common approach taken by regulators overseas is to set cost based interconnect prices based on best practice pricing for similar services in other jurisdictions. These prices may be based on detailed cost studies anyway or may be cost oriented due to greater levels of competition.

Use of a price cap model based on best practice benchmarks will allow IDA to implement an efficient, cost oriented model that may be more speedy and less problematic to define than its current proposal. A major advantage of the approach suggested above is its use of best practice benchmarks which can objectively be applied, rather than SingTel retail prices which are subject to manipulation by SingTel. We also believe that this model is sound enough to be used as a final solution if IDA determines that it does not want to then progress to proper cost based pricing based on detailed studies.

Macquarie submits that if IDA pursues this option, it should consult with industry and particular operators with international experience, to ascertain the appropriate benchmark countries and prices to use.

Accounting separation requirements should support cost based pricing

We believe that IDA should ensure SingTel prices are cost oriented and non-discriminatory by requiring SingTel to disclose in financial statements with sufficient granularity its cost components and pricing for LLCs. This should show correct attribution of cost components between services and ensure non-discrimination in respect of its charges to itself and related SingTel entities. We refer IDA to the Oftel LLC Review for a detailed discussion of such issues.

Intervention required in the longer term as ubiquitous alternative networks unlikely

The IDA welcomes views on the adequacy of the proposed 2-3 year timeframe for FBOs to build or develop the necessary infrastructure to compete in the local LLCs market in the longer term.

Automatic sunset without competition review is inappropriate

Macquarie strongly submits that there should be no sunset clause for LLC regulation at this stage and that a 2-3 year period is in any event too short. Any reference to the winding back of regulatory intervention should not be so arbitrary and should rather rely on proper regulatory principles. It should be linked to a thorough review of whether a state of effective competition has been reached in the wholesale LLC market. An actual market review is essential as IDA can have no basis to assume that there will be a sufficiently ubiquitous alternative local network in 2-3 years or that the market will otherwise be competitive. The reality of international precedent does not support such assumptions.

The IDA LLC regulations should provide that it will review competition in LLC markets after a set period of time. We believe that the period should be long enough for real and sustainable trends to emerge eg, 5-6 years. This review would encompass whether new entrants had actually built alternative LLC networks and acquired a significant customer base.

Macquarie submits that there is unlikely to be significant change warranting review (and definitely not sunset) within the shorter period of 2-3 years. This view is based on trends in Singapore to date as well as international reality. The latter is highly relevant as competitive conditions in Singapore are not so different that substantial alternative network build will occur here when it has not overseas.

International precedent indicates alternative networks unlikely in short term

In the UK, after many years of competition, the incumbent still has a very high LLC market share. We note that the Oftel LLC Review classifies low bandwidth LLCs as not competitive and high bandwidth LLCs as only prospectively competitive. In other words, there is clear recognition that certain LLC markets may never be competitive. Even where they might be, Oftel has not attempted to set a sunset clause on regulation.

Oftel's analysis of wholesale LLC markets stressed that operators have been unable to replicate the reach of even the core network of BT. This is magnified when it comes to the access network. We refer IDA to Annex B of the Oftel LLC Review where it comments extensively on the competitive conditions creating high barriers to entry to wholesale LLC markets, which may not be overcome within a short or even long term period.

Even in the US, where competition is very mature, last mile access to most customer locations is still available only from incumbents. For example in New York, after around 20 years of competition, Verizon still has around 90% of connections. While US prices are low compared to Singapore LLCs, it is interesting that there is nevertheless an increasing push to

reregulate LLCs in the US. This is on the basis that the FCC's earlier assumption that LLC markets were about to become competitive has proven to be wrong.

On this basis, IDA should question the validity of imposing a sunset clause and instead provide that it will review the state of competition in LLC markets after a 5-6 year period before deciding whether to continue to impose regulation.

Regular price reviews needed

While the need for regulation should not be subject to question within the short term, the regulation itself will require review to ensure that it is dynamic enough to reflect changing market conditions. In particular, IDA should provide for regular price reviews to ensure that prices continue to remain competitive and in line with best practice. The need for such reviews will be greatest if IDA adopts a retail minus approach but would still apply in the case of cost oriented pricing based on benchmarks. The need for price review would be somewhat lessened if IDA based prices on SingTel's true costs, although IDA would still need to revisit such prices on occasion to check validity.