Singapore Telecommunications Limited

Submission on the Public Consultation on the Second Review of Singapore Telecommunications Limited's Reference Interconnection Offer (RIO)

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Non-confidential version

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1 Introduction

Singapore Telecommunications Limited and its related companies (**SingTel**) are licensed to provide telecom services in Singapore. SingTel is committed to the provision of state-of-the-art telecommunications technologies and services in Singapore.

SingTel has a comprehensive portfolio of services that includes voice and data services over fixed, wireless and Internet platforms. SingTel services both corporate and residential customers and is committed to bringing the best of global communications to its customers in the Asia Pacific and beyond.

SingTel welcomes the opportunity to make a submission in response to the Consultation Paper issued by the Info-communications Development Authority (**IDA**) on the Public Consultation on the Second Review of Singapore Telecommunications Limited's Reference Interconnection Offer, dated 21 January 2011 (**Consultation Paper**).

As a leading provider of telecommunications services under the RIO and a leading proponent of innovation and competition, SingTel has a strong interest in effective pro-competition regulation of Singapore's telecommunications sector, in particular, in respect of the way in which services are regulated under the RIO.

SingTel's specific comments in response to the Consultation Paper are set out below.

In the interests of brevity, SingTel has focused its comments on its key concerns in the Consultation Paper and has not sought to respond to every issue that has been raised by the IDA in its Consultation Paper.

This submission is structured as follows:

- Section 1 – Introduction
- Section 2 – Executive Summary
- Section 3 – Access to Co-Location Space at Submarine Cable Landing Station
- Section 4 – Access to SingTel's Exchanges for IRS and MWS Services
- Section 5 – Access to SingTel's Exchanges for access to OpenNet's Mandated Services
- Section 6 – Removal of Number Portability Schedule from SingTel's RIO
- Section 7 – Provision of Additional Interconnection Link capacity

2 Executive Summary

In response to the issues set out by the IDA in the Consultation Paper, SingTel submits, as follows:

- the IDA's proposal to further regulate Submarine Cable Landing Station (**SCLS**) access to allow for licensees to supply wholesale backhaul services from the SCLS without acquiring submarine cable capacity:
  - is unnecessary and unwarranted because:
    - the backhaul market is effectively competitive and does not need further regulation to function effectively, particularly in the case of access to SingTel's SCLS; and
    - even though the IDA has already removed *ex ante* regulation in respect of the backhaul market where it has found high levels of competition, the backhaul market continues to remain *highly* competitive with a high degree of choice in terms of backhaul providers and technologies – this is particularly the case with access to SingTel's SCLS, which is currently served by 12 providers, and
  - would:
    - be inconsistent with the IDA's own regulatory principles of reliance on market forces where competition is effective; and
    - be inconsistent with international regulatory practice where regulation has been withdrawn from markets where there are effective levels of competition.
- in respect of the IDA's proposal to mandate access to SingTel's exchanges to allow licensees to build, and provide local connectivity to other operators co-located at SingTel's exchanges:
  - there is no market failure (nor has the IDA provided any scrap of evidence of market failure) in the backhaul connectivity market and the IDA has already stated that operators are required to deploy their own infrastructure to SingTel's exchanges to access SingTel's Interconnection Related Services (**IRS**) and Mandated Wholesale Services (**MWS**)
  - this is consistent with the approach adopted by the European Commission (**EC**), which still regulates access to terminating segments (i.e. tail LLCs) that are the bottleneck facilities in respect of the local exchange, but has recognised that backhaul connectivity to local exchanges is competitive by withdrawing regulation as per the IDA's own practice, to date
  - in any case, SingTel is prepared to make a wholesale commercial offer available to those licensees that wish to co-locate in SingTel exchanges for the sole purpose of supplying wholesale connectivity services to other licensees at these locations

- in respect of the IDA's proposal to mandate access to SingTel's exchanges to enable licensees that wish to build local connectivity to access other OpenNet's mandated services:

  - SingTel is prepared to offer cost-oriented access to its exchanges for the purpose of enabling Facilities Based Operators (**FBOs**) to rollout their own infrastructure to OpenNet's Central Office and access OpenNet's mandated services – this is consistent with SingTel's current practice of offering cost-oriented access to IRS to FBOs that rollout their own infrastructure to SingTel's exchanges

  - however, SingTel considers that the only way this proposal would work is if OpenNet was subject to a similar obligation in respect of providing direct physical interconnection at OpenNet's Central Office location to Qualifying Party (**QP**) FBOs who wish to establish direct physical connectivity with the OpenNet network

  - direct physical interconnection at OpenNet's FDF at the OpenNet FDF in the Central Office presents the most economically and technically efficient point for QP FBOs to establish direct physical connectivity with the OpenNet network and access mandated services

  - QP FBOs are currently deprived of the opportunity to readily connect to the OpenNet network at any technically feasible point due to the absence of mandated physical interconnection by OpenNet at OpenNet fibre distribution frame (**FDF**) at the NetCo room at the Central Office being available under the OpenNet Interconnection Offer (**ICO**)

  - the absence of mandated physical connectivity with the OpenNet network at the OpenNet FDF in the NetCo room at the Central Office creates significant inefficiencies by:

    - preventing QP FBOs from establishing connectivity at a technically feasible point

    - hindering QP FBOs from establishing connectivity with the OpenNet network at the most efficient connectivity point

    - forcing QP FBOs to acquire unnecessary network elements to connect to the OpenNet network thereby incurring unnecessary costs

    - requiring multiple fibre patching points before enabling connectivity between the QP FBO's network and the OpenNet network which introduces additional multiple points of failure

  - the absence of mandated physical interconnection in the ICO at the OpenNet FDF in the NetCo room is inconsistent with international best practice

  - mandating physical interconnection at OpenNet's Central Office coupled with SingTel's proposal to provide cost-based access to its exchanges to allow QP FBOs to rollout their own infrastructure to OpenNet's Central Office would better promote facilities-based competition

- SingTel welcomes the IDA's proposal to remove Fixed Number Portability (**FNP**) from the RIO and develop FNP guidelines:

  - FNP is a multi-party operation and all parties should be involved in agreeing the key elements of FNP operations

  - SingTel proposes that the IDA's proposed FNP guidelines should take account of certain key considerations, including the underlying technology of FNP

- SingTel does not agree with the IDA's proposal that SingTel should be responsible for acquiring Interconnection Link capacity for interconnection arrangements between two operators:

  - each party should bear its own costs associated with acquiring and managing Interconnection Link capacity

  - SingTel's wholesale origination and termination services already provide the ideal alternative to direct or indirect interconnection arrangements and would result in significant time and cost saving for operators wishing to interconnect whilst allowing an efficient mechanism for recovery of costs through SingTel's charges

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3 Access to Co-Location Space at Submarine Cable Landing Stations

3.1 Summary

In this section, SingTel submits that:

- the backhaul market for access to SingTel's SCLS is already highly competitive and no regulatory intervention by the IDA is required

- there is no market failure (nor has the IDA provided any scrap of evidence of market failure) in the backhaul market to warrant the sort of regulation proposed by the IDA

- regulation where there is no apparent market failure is inconsistent with both existing IDA policy as well as international best regulatory practice

3.2 The current arrangements for SCLS access remain appropriate and have worked effectively in facilitating competition

The IDA has invited comments and views on whether the IDA should allow third parties to acquire access to SingTel's SCLS, in accordance with the terms of the RIO, without the need to access submarine capacity, to enable them to supply wholesale backhaul services to other operators in respect of the SCLS[1].

1 Question (1a)(i) of the Consultation Paper.

Without providing any evidence to support its claims, the IDA has argued that access to SingTel's SCLS in the manner proposed by the IDA would:

- facilitate an even more competitive backhaul market;
- enhance the competitiveness of downstream markets that require international connectivity as an input; and
- promote an efficient way of utilising resources associated with network deployment.

SingTel submits that cost-based access to SingTel's SCLS and associated facilities should be required solely for the purpose of accessing capacity on a cable system via SingTel's submarine cable connection services, as currently provided for under the RIO.

As the IDA is aware, under the current arrangement, a FBO may acquire access to SingTel's co-location space at the SCLS to access capacity at the cable system only if the FBO:

- owns its own capacity in the cable system
- has an IRU for use of capacity on the cable system; or
- has a long term lease to access leased capacity on the cable system from a third party.

SingTel would then provide the FBO with a connection service pursuant to Schedule 4B of the RIO to connect the FBO's co-location equipment to the cable system for the purpose of utilising the capacity on the cable system to provide telecommunication services to end-users.

SingTel should not be required to provide co-location at its SCLS for any purpose other than facilitating access to its IRS and MWS.

If SingTel is to provide access to its facilities solely for the purpose of a licensee to be able to supply wholesale backhaul services to other operators, this access should occur on a commercial basis given the competitive nature of backhaul to SingTel's SCLS. To this end, SingTel is prepared to offer access to its SLCS, as a wholesale service, to licensees that wish to use SingTel's SCLS for the purpose of wholesaling backhaul services to other operators. This would be negotiated as a wholesale service, separate from any of the services provided as IRS or MWS pursuant to the RIO, and in the same manner as any other wholesale service provided by SingTel.

3.3 The IDA has already confirmed the backhaul market to be competitive

As one of its reasons for further regulating access to SingTel's SCLS, the IDA has proposed that providing co-location space to third parties at the SCLS for the purpose of allowing them to wholesale backhaul services would facilitate an even more competitive environment for backhaul. The IDA has asserted that this would further ensure international connectivity costs in Singapore remain competitive compared to other markets.

SingTel is perplexed by the IDA's comments.

The IDA has formally recognised the competitiveness of the backhaul market by granting SingTel's request for exemption from *ex ante* regulation in respect of backhaul, in 2009 (**Final Decision**)[2].

In the Final Decision, the IDA highlighted a number of characteristics that demonstrated competitive backhaul, which included the following:

- SingTel is no longer the dominant provider of backhaul and SingTel's market share in the backhaul market has significantly declined;
- business end-users are co-locating at third party data centres where they could receive backhaul services from multiple service providers;
- entry barriers into the backhaul market have significantly lowered, enabling more competitive operators to provide services;[3]
- evidence has shown that operators are frequently purchasing backhaul from other carriers and terminating their backhaul in carrier-neutral centres; and
- end-users are able to readily switch backhaul providers to obtain services from someone else.

The above-mentioned findings in respect of the backhaul market remain true today. In fact, competition levels in the backhaul market have further strengthened since the Final Decision in 2009.

Accordingly, SingTel is particularly perplexed by the IDA's justification of its proposal on the basis that "there are less than 10 Licensees who have accessed and deployed backhaul facilities to SingTel's SCLS"[4].

There are, in fact, currently 12 FBOs that are co-located in SingTel's SCLS that offer backhaul services to customers. This figure is more than three times the amount of players that are typically considered necessary to establish the existence of a competitive market and to justify the removal of *ex ante* regulation.

Furthermore, SingTel considers that the high number of existing FBOs co-located at the SingTel SCLS shows that the backhaul market is strongly characterised by the fact that customers have choice in terms of backhaul providers to be able to utilise SingTel's mandated services.

[**Start of Confidential**]

2 IDA, Final Decision on the Request by Singapore Telecommunications Limited for Exemption from Dominant Licensee Obligations with Respect to the Business and Government Customer Segment and Individual Markets, 2 June 2009.

3 Whilst the IDA found that only 6 FBOs had co-located their equipment at SingTel's SCLS at time of the review, but, the IDA acknowledged that additional new entrants had also started to enter the backhaul market, in 2008 – showing signs of growing competition in backhaul resulting in a continuous lowering of SingTel's place as the more competitive backhaul provider.

4 Paragraph 7 of the Consultation Paper.

[**End of Confidential**]

3.4 No failure in competition in the backhaul market to warrant regulation

SingTel is perplexed by the IDA's proposal to regulate access to the SCLS for the purpose of enhancing competition in the backhaul market, where, as shown above, there is no evidence of substantial market failure.

As shown in section 3.3 above, competition in the backhaul market is strong notwithstanding the removal of *ex ante* regulation. The IDA should only impose regulation where there is a clear need to address a lack of effective competition in the market, and where lack of effective competition is expected to persist over a given period of time.

This is consistent with the approach contemplated under the Telecom Competition Code and by regulators in overseas markets.

Article 4.1.2 of the Telecom Competition Code provides that:

> *"<u>To the extent that Licensees are not subject to competitive market forces, regulatory intervention is necessary</u> to ensure that such Licensees provide services, both to End Users and to other Licensees, on just, reasonable and non-discriminatory prices, terms and conditions* (our emphasis).*"*

Further, Article 1.5.1 of the Telecom Competition Code states that:

> *"Market forces are generally far more effective than regulation in promoting consumer welfare. Competitive markets are most likely to provide consumers with a wide choice of services and reasonable goals."*

And further, the Telecom Competition Code requires that regulation should be proportionate and based on the problems identified. Article 1.5.4 of the Telecom Competition Code provides, as follows:

> *"To the extent that a given market is not yet competitive, significant ex ante regulatory intervention is likely to remain necessary. Where this is the case, IDA will seek to impose regulatory requirements that are carefully crafted to achieve clearly articulated results. Such requirements will be no broader than necessary to achieve IDA's stated goals."*

SingTel submits that regulation for the sake of regulation and without the need to address specific market failures is sub-optimal from a regulatory practice perspective and has seriously distortive effects on the market.

The Singapore telecommunications regulatory environment is already governed by one of the strictest regulatory regimes in the world. SingTel submits that the IDA's approach to regulation is already inconsistent with international best practice to the extent that the IDA unnecessarily mandates access to certain facilities and services that are already effectively competitive.

SingTel submits that the IDA should carefully reconsider its proposals in terms of mandating certain access rights in the RIO, as proposed in the Consultation Paper.

This approach reflects international best practice, as reflected in the EC regulatory framework. Recital 27 of the EC Framework Directive provides that *ex ante* regulatory obligations in respect of telecommunication networks should only be imposed where there is an identified competition problem.

Recital 27 of the Framework Directive provides that[5]:

> *"It is <u>essential that ex ante regulatory obligations should only be imposed where there is not effective competition</u>, i.e. in markets where there are one or more undertakings with significant market power, and where national and Community competition law remedies are not sufficient to address the problem* (our emphasis)*."*

In assessing the competitive state of a market, and whether or not to impose regulation, the EC provides for cumulative criteria for the National Regulatory Authorities (**NRAs**) to apply to help identify which markets are susceptible to *ex ante* regulation:

- whether there are barriers to entry and to the development of competition in the market;
- whether there is tendency towards effective competition; and
- insufficiency of competition law by itself – without *ex ante* regulation – to address the market failures.

The EC explains that[6]:

> *"In summary, whether an electronic communications market is susceptible to ex ante regulation would depend on the persistence of high entry barriers, on the lack of a tendency towards effective competition and on the insufficiency of competition law by itself (without ex ante regulation) to address persistent market failures."*

SingTel is seriously concerned that the IDA has not provided any evidence to demonstrate a lack of effective competition or market failure to justify the imposition of regulation to address the backhaul market. Instead, the IDA has simply stated that regulation should be imposed to '*further*' enhance competition, and reduce prices, in the backhaul market. Given the evidence showing high levels of competition, provided above, the onus should be on the IDA to demonstrate why it considers that such additional regulation is necessary.

5 EC, Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).

6 EC, Commission Staff Working Document, Explanatory Note Accompanying document to the In summary, whether an electronic communications market is susceptible to ex ante regulation would depend on the persistence of high entry barriers, on the lack of a tendency towards effective competition and on the insufficiency, Second Edition , {(C(2007)5406)} – page 11.

The number of existing FBOs in SingTel's SCLS that are able to offer backhaul services to other operators – currently at 12 is well above the metric that is typically used by overseas regulators to determine whether backhaul markets should continue to be subject to *ex ante* regulation.

For example, the Australian Competition and Consumer Commission (**ACCC**) – when considering how specific domestic transmission capacity routes are regulated – considers that a route in respect of which there is <u>at least three</u> optical fibre competitors present or in very close proximity (within 1 kilometre or less from the GPO of a regional centre for a given capital-regional route), is sufficiently competitive and contestable to allow deregulation in respect of that particular route[7].

A similar approach has also been adopted by other overseas regulators.

For example, Ofcom has also used the '3 operator' test to measure contestability in the context of leased line markets in respect of a particular route[8]. Ofcom has stated that[9]:

> *"In order to illustrate the differences in competitive constraint that may exist, Ofcom's base case assumption is that in the circumstances of leased lines markets there would need to be <u>at least two additional operators (i.e. at least 3 operators)</u> in an area in order to provide a sufficiently different competitive constraint"*(Our emphasis).

Similarly, the FCC has used three or more competing operators providing services in respect of a particular transmission route to be sufficient sign of competition[10]. In that case, the FCC determined competitiveness of a particular transmission service route[11] by considering the following two indicators:

- number of fibre-based co-locators at an exchange (known in the US as a wire centre)[12]; and
- number of business lines at a wire centre[13].

Accordingly, the FCC has stated that the following number of competing providers in respect of a particular route show that route is sufficiently competitive:

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7 ACCC, Transmission Capacity Service, *Review of the declaration of the domestic transmission capacity service,* Final Report, April 2004; ACCC, Domestic Transmission Capacity Service, *An ACCC Final Report on reviewing the declaration of the domestic transmission capacity service,* March 2009.

8 Note: in addition to the number of operators serving an area, Ofcom also considers the economic distance build, which is the distance that an operator would build out from their network in order to reach end-users – therefore, Ofcom assumes that an operator would be willing to build out 250m to reach business end-users.

9 Ofcom, *Business Connectivity Market Review,* part 4, page 395.

10 FCC, *Triennial Remand Order,* 15 December 2004, FCC 04-290, WC Docket No. 04-313 – CC Docket No. 01-338.

11 Known in the US as Dedicated Interoffice Transport.

12 The number of fibre-based co-locators is regarded as indicating the degree of feasibility of duplicity of transmission facilities.

13 This is said to indicate that there is sufficient amounts of revenue to justify deployment of competing infrastructures (business lines compared with normal lines indicate higher demand for services and bandwidth).

- where there are <u>four or more</u> fibre-based co-locators, and 38,000 or more business lines;[14] or

- where there are <u>three or more</u> fibre-based co-locators, and 24,000 or more business lines[15].

Given the fact that overseas regulators use the '3 operators' threshold to determine competitiveness, the IDA's proposal to introduce regulation in a market where there is more than three times this amount would be seriously disproportionate and inconsistent with international best practice. It would be a 'backward' decision.

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4 Access to SingTel's Exchanges for IRS and MWS Services

4.1 Summary

In this section, SingTel submits that:

- it is open for licensees to access SingTel's exchanges at cost-based prices for the purpose of accessing IRS and MWS under the RIO;

- there is no market failure in respect of access to SingTel's exchanges to warrant regulation and operators are required to rollout their own infrastructure to SingTel's exchanges to access IRS and MWS – this reflects the fact that competitive build by FBOs to SingTel's exchanges is not a bottleneck (nor should it be seen as so); and

- in any case, SingTel is prepared to negotiate wholesale commercial offers with operators wishing to wholesale services from SingTel's exchange to other operators;

4.2 SingTel already offers physical access to its exchanges to allow FBOs to access IRS and MWS services

The IDA has proposed to allow third party FBOs who wish to build local connectivity to SingTel's local exchanges for the sole purpose of providing connectivity services for other operators co-located at SingTel's local exchanges for interconnection and accessing unbundled network elements and services[16].

SingTel submits that access to cost-based prices, including physical access to SingTel's local exchanges, should be required solely for the purpose of accessing an IRS under the RIO, as currently provided for under the RIO.

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14 These figures show very high availability of revenue to justify deployment of alternate infrastructures. Further, the four or more fibre-based co-locators threshold indicates that at least one operator has co-located at two ends of a particular route and can connect, which is a reasonable proxy for the ability to self-provision as well as wholesale services to other operators.

15 These figures show high availability of potential revenues to justify deployment of competing infrastructures and show sufficient levels of competition exist.

16 Question (1b)(i) of the Consultation Paper.

As noted in section 3 above, SingTel should not be required to provide co-location at its local exchanges for any purpose other than facilitating access to its IRS and MWS – for example, interconnection or unbundled network elements offered by SingTel under the RIO.

If SingTel is to provide access to its facilities for the purpose of wholesaling backhaul services to other operators, this access should occur on a commercial basis. To this end, SingTel is prepared to offer access to its local exchanges, as a wholesale service, to licensees that wish to use SingTel's exchange for the purpose of wholesaling backhaul services to other operators. This would be negotiated as a wholesale service, separate from any of the services provided as IRS or MWS pursuant to the RIO, and in the same manner as any other wholesale service provided by SingTel.

4.3 There is no market failure to warrant regulation

SingTel does not consider that there is market failure in access to SingTel's local exchanges to justify regulatory intervention to facilitate co-location at SingTel's exchanges in the manner proposed by the IDA.

In line with the principle of promoting facilities-based competition in the Telecom Competition Code, licensees are required to deploy their own infrastructure to SingTel's exchanges for the purpose of accessing SingTel's IRS and MWS services.

The IDA has itself stated that operators are required to rollout infrastructure to SingTel's exchanges for the purpose of accessing SingTel's IRS and MWS services. In the IDA's decision on the designation of SingTel's Local Leased Circuits (**LLC**) as designated MWS, in 2003[17] (**LLC Decision**), the IDA concluded that new entrants should be required to build their own portions of LLC infrastructure, including trunk segments, but required SingTel to provide mandated access.

The IDA has stated that:

> *"IDA has assessed that the most appropriate longer-term measure to address the current lack of competition in the Wholesale LLC Market is to designate "last mile LLCs (i.e. LLC tail circuits) as an Interconnection Related Service ("IRS") under the Code ... However, in line with the <u>IDA's policy of encouraging facilities-based competition, new entrants should build portions of the LLC infrastructure where it is economically feasible to do so</u>. These portions include LLC trunk circuits (i.e. higher bandwidth circuits commonly used to connect two operators' exchange buildings, fibre rings / backbone and backhaul connection to cable landing station*.) (Our emphasis)"

Further, the IDA has stated that[18]:

[17] IDA, *Explanatory Memorandum issued by the IDA - Designation of SingTel's LLC as Mandated Wholesale Services,* 16 December 2003.

[18] The IDA went further to implement return minus pricing for LLCs to bring about more competitive wholesale LLC prices, and to facilitate an incentive to build their own trunk circuits.

> *"Cost-based LLC tail circuits should provide sufficient incentives for a competing operator to at least build the LLC trunk circuits to SingTel's exchange buildings in order to access SingTel's LLC tail circuits."*

Similarly, the European Commission no longer considers that the market for wholesale trunk segments to be a market that should be susceptible to *ex ante* regulation for leased lines *"on the basis that there is a clear trend towards effective competition through parallel infrastructures, which also indicates that entry barriers are insufficiently high ...*[19] *"*. However, the European Commission has continued *ex ante* regulation in respect of terminating segments because of high non-transitory barriers to entry and the absence of tendency towards effective competition. Under this model, licensees are encouraged to rollout their own infrastructure to incumbent exchange locations to be able to access terminating segments at cost-based prices provided by incumbent operators.

Therefore, while it is consistent with international best practice to maintain regulation in respect of certain components of the market that present bottlenecks, in markets where there is effective competition， the IDA should refrain from unnecessary regulation. As noted above, when it comes to services associated with the local exchange, it is the terminating segments (tail LLCs) that remain the bottleneck, not backhaul connectivity to exchanges.

Accordingly, it follows that backhaul infrastructure service to SingTel's exchanges is not a bottleneck.

In any case, SingTel is prepared to negotiate commercial terms with parties wishing to access SingTel's local exchanges for the purpose of wholesaling connectivity services to other operators in a similar manner as any other wholesale service provided by SingTel.

The IDA has also sought views on whether there are any other benefits and costs that may be brought about by such measures, which IDA should be aware of and should take into consideration[20].

SingTel submits that the IDA should not be concerned with whether there are any costs or benefits to other licensees. SingTel, as stated above, is not required to provide access to its services or facilities at cost-based prices, in accordance with the RIO, for the purpose of enabling other FBOs to derive commercial gain from the provision of commercial services. The only obligation SingTel has is to provide cost-based access for the purpose of accessing IRS and MWS. As stated above, SingTel is prepared to offer a wholesale service offer for access to its exchanges for the purpose of providing services to other operators.

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19 EC, Commission Staff Working Document – Explanatory Note Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to *ex ante* regulation.

20 Question (1b)(iv) of the Consultation Paper.

5 Access to SingTel's Exchange for Access to OpenNet's Mandated Services

5.1 Summary

In this section, SingTel submits that:

- SingTel is prepared to provide cost-oriented access to its exchanges to QP FBOs to rollout their own infrastructure to establish connectivity with the OpenNet network;
- however, SingTel believes that the only way this proposal would work is if OpenNet was subject to an obligation to provide physical interconnection at its Central Office – QP FBOs are not currently able to readily avail themselves of this option due to the lack of mandated physical interconnection in the ICO (unlike the SingTel RIO);
- direct physical interconnection at OpenNet's FDF in the NetCo room at the Central Office is the most efficient point of connectivity for QP FBOs who wish to rollout their own infrastructure to access OpenNet's mandated services; and
- the absence of mandated physical interconnection at OpenNet's FDF at the Central Office creates serious network inefficiencies for QP FBOs that need to connect their network with the OpenNet network, which in turn results in QP FBOs bearing unnecessary costs.

5.2 SingTel is prepared to offer cost-based access to its exchange to enable QP FBOs to rollout infrastructure to OpenNet's Central Office

The IDA has sought views on whether third parties should be allowed to build local connectivity to SingTel's local exchanges in order to access other operators' mandated services that will require access to SingTel's local exchanges[21].

SingTel is prepared to offer QP FBOs access to its exchanges, at cost-oriented prices, to enable QP FBOs to deploy their own infrastructure to OpenNet's Central Office to access OpenNet's mandated services pursuant to the OpenNet ICO.

The IDA has recognised that cost-oriented prices encourage competitors to build their own infrastructure for the purpose of accessing certain mandated services. For example, in the case of SingTel, the IDA has made it clear that – to access SingTel's exchanges – licensees are required to <u>rollout their own infrastructure</u> to connect their networks to SingTel's network to be able to access IRS pursuant to the RIO.

However, SingTel believes that the only way SingTel's proposal for access to its exchanges at cost-based prices for the purpose of accessing OpenNet's mandated services would work is if the IDA imposes corresponding requirement on OpenNet in respect of providing costoriented physical interconnection at OpenNet's FDF in the

21 Question (1b)(ii) of the Consultation Paper.

NetCo room at the Central Office to QP FBOs to be able to connect with the OpenNet network at that location.

5.3 Physical interconnection at OpenNet's Central Office is the most efficient point of connectivity

As the IDA is aware, direct physical interconnection for QP FBOs who wish to deploy their own infrastructure (i.e. fibre cables) to OpenNet's Central Office to connect to the OpenNet network is not currently mandated as a cost-based service under OpenNet's ICO.

SingTel considers this to be a serious shortcoming in the current OpenNet ICO.

Physically interconnecting with the OpenNet network at the OpenNet FDF in the NetCo room at the Central Office presents the most efficient location for QP FBOs who have already invested (or wish to invest) in the deployment of fibre infrastructure to connect with OpenNet's network. Therefore, this should be the point at which OpenNet is required to allow direct connectivity between its network and the QP FBO's network to enable access to mandated services.

The Telecom Competition Code 2010 requires the Dominant Licensee to offer and allow interconnection to occur at any technically feasible point, including Fibre distribution frames[22]:

> *"...a Dominant Licensee must offer to allow interconnection to occur at any technically feasible point."; and*
>
> *"A Dominant Licensee must also offer to provide Facilities-based Licensees with access to UNE at the following points of access ("POA") in its exchange MDF, building MDF and outdoor cabinets (if controlled by the Dominant Licensee):*
>
> *(a) Distribution frames;*
>
> *(b) Fibre distribution frames; and*
>
> *(c) Digital cross connect frames".*

Furthermore, the IDA has required OpenNet to offer access to its passive infrastructure at any technically feasible connectivity point in the NetCo Interconnection Code[23]:

> *"The ICO shall state that access to the Licensee's infrastructure will be offered at any technically feasible Connectivity Point in order to access Mandated Services provided by the Licensee. At a minimum, the Licensee shall offer to allow interconnection at the following Connectivity Points:*
>
> *(a) MDFs at the CO;*

22 Code of Practice for Competition in the Provision of Telecommunication Services 2010, Appendix 2 Schedule of Interconnection Related Services and Mandated Wholesale Services, Section 3.3 and 6.5.

23 Code of Practice for Next Generation National Broadband Network NetCo Interconnection, Section 6.1.

(b) DFs at TERs/MDF Rooms of Residential Premises and Non-Residential Premises;

(c) 1st TPs of Non-Residential Premises and Residential Premises; and

(d) any other Connectivity Points that the Licensee may propose."

The IDA should require OpenNet and OpenNet has an obligation under both the Telecom Competition Code 2010 and the NetCo Interconnection Code to offer access to its passive infrastructure at the most efficient point of connectivity that is technically feasible (i.e. OpenNet's FDF at the NetCo room in OpenNet's Central Offices where OpenNet's access fibre cables are terminated).

This is consistent with international best regulatory practice.

The WTO *Regulation Reference Paper,* to which Singapore is a signatory, requires signatory countries to ensure interconnection at any technically feasible point[24]. The WTO Reference Paper goes further to provide that such interconnection must be provided[25]:

"...and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided (our emphasis).*"*

Article 9(2) of the same Directive provides that[26]:

"2. In particular where an operator has obligations of non-discrimination, national regulatory authorities may require that operator to publish a reference offer, which shall be sufficiently unbundled to ensure that undertakings are not required to pay for facilities which are not necessary for the service requested, giving a description of the relevant offerings broken down into components according to market needs, and the associated terms and conditions including prices."

Furthermore, the lack of physical interconnection at OpenNet's FDF in the NetCo room at the Central Offices seriously hampers QP FBOs who wish to directly access the OpenNet network.

Cost-oriented access to FBOs who wish to rollout their own infrastructure to OpenNet's Central Office would only work when combined with mandated physical interconnection at OpenNet's Central Office. This would significantly reduce any potential barriers for QP FBOs seeking to establish direct physical connectivity between their network and the OpenNet network, and would allow more QP FBOs to invest in or leverage on their own

24 WO, *Telecommunications Services Reference Paper,* 24 April 1996, Article 2.2.

25 Ibid, Article 2.2(b).

26 EC, *Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP),* Official Journal L 199, 26/07/1997 P.0032 – 0052.

infrastructure to achieve greater network and cost efficiency in the provision of high bandwidth fibre services to end-users.

Furthermore, without mandating physical interconnection there is little incentive for OpenNet to finalise agreements for provision of such services (i.e. physical interconnection to requesting QP FBOs). QP FBOs could potentially have to wait long periods before being able to acquire certain essential network elements and services from OpenNet if such acquisition was left to be dealt with by way of reaching a Customised Agreement.

5.4 The absence of physical interconnection at OpenNet's FDF in the NetCo room at the Central Office creates significant network inefficiencies

The current network configuration, which does not provide for direct physical connectivity to the OpenNet network at OpenNet's Central Office, creates significant inefficiencies by forcing QP FBOs to acquire a number of unnecessary network elements from OpenNet to connect to the OpenNet network to access mandated services.

For example, SingTel, as a QP FBO wishes to acquire direct connectivity between its network and the OpenNet network, is forced to acquire segment fibre services and co-location services to establish connectivity between the two networks.

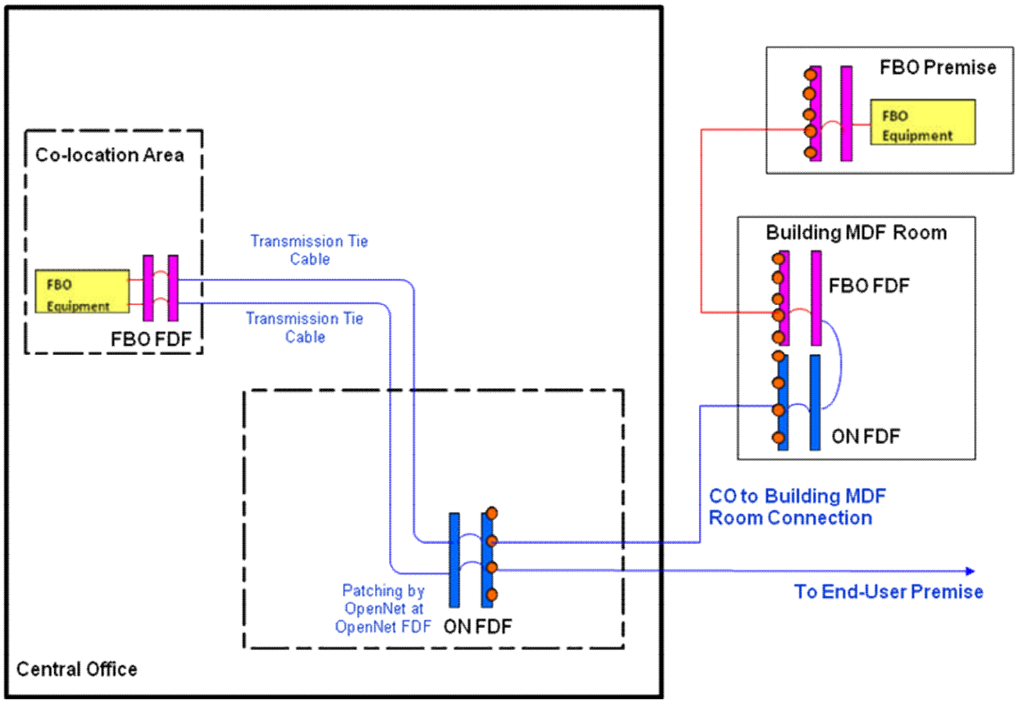
These additional elements unnecessarily increase the costs borne by the QP FBOs requiring access to the OpenNet network.

SingTel submits that these costs are unnecessary given the fact that FBOs could potentially connect to the OpenNet network at a more efficient connectivity point if OpenNet was required to provide physical interconnection at the fibre distribution frames in the Central Offices where OpenNet's access fibre cables are terminated, or within its co-location facility at the Central Office.

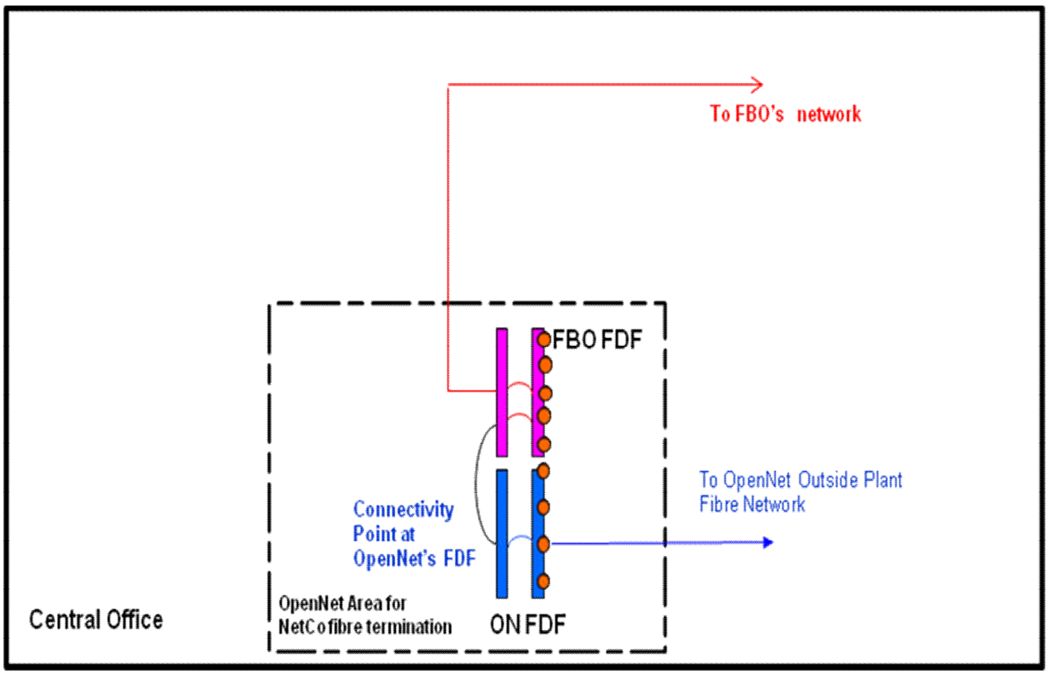
Mandatory acquisition of co-location services as well as segment fibre services to establish connectivity between the OpenNet network and the QP FBO's network means that the fibre requires patching at several locations. Under the current configuration, the fibre needs to be patched at 7 different points, required on a per end-user connection basis. Each additional and unnecessary fibre patching point introduces an optical loss rate of -0.4 to -0.5 dB as well as an additional point of failure. resulting in the degradation and deterioration of quality of service being supplied to end-users.

The below diagram shows the difference between the current network configuration that applies with OpenNet not having to offer physical interconnection at its Central Office, versus what would be an optimal configuration if OpenNet was required to provide physical interconnection at its Central Office.

Current Network Configuration



Proposed Network Configuration



As shown above, it is clear that – first and foremost – the proposed network configuration, which requires OpenNet to provide direct physical connectivity between the QP FBO's network and the OpenNet network at the most efficient connectivity point in the OpenNet's Central Office (i.e. at the OpenNet FDF in the NetCo room), would eliminate the above-mentioned inefficiencies that QP FBOs currently incur in connecting with the OpenNet network.

First, direct access would reverse the need for QP FBOs to acquire unnecessary OpenNet network elements and services to be able to access OpenNet's mandated services.

Secondly, the QP FBOs would no longer need to deploy additional active equipment at OpenNet's co-location space. Rather, QP FBOs would have the ability to utilise their own infrastructure, including existing active equipment wherever that may be housed.

This would also minimise the requirements for power and air-conditioning associated with the management of the current co-location space and the additional deployment at different points in the network, thus, further reducing unnecessary costs currently borne by QP FBOs.

Moreover, direct physical interconnection between the OpenNet network and the QP FBO network would minimise the number of times and locations the fibre needs to patched, thereby reducing the potential points of failure and enhancing the quality of end-user connections.

Finally, allowing physical interconnection at OpenNet's Central Office would create more space in OpenNet's co-location space, and enable other FBOs who have not, or do not wish to deploy their own fibre infrastructure to acquire co-location space at OpenNet's co-location area to access OpenNet's mandated services.

6 Removal of Number Portability Schedule from SingTel's RIO

6.1 Summary

In this section, SingTel submits that:

- SingTel welcomes the IDA's proposal to remove FNP from the RIO; and
- SingTel welcomes the IDA's proposal to develop comprehensive guidelines for number porting, but invites the IDA to take account of certain key issues.

6.2 SingTel welcomes the IDA's proposal to remove FNP from the RIO

The IDA has sought views on whether it would be appropriate to remove the number portability schedule from the RIO.

SingTel welcomes the IDA's proposal to remove the FNP from the RIO. SingTel has previously submitted that the IDA should do so, and that FNP regulation should not be imposed on a Dominant Licensee, when FNP is a multi-party service and its implementation requires agreement between all related parties.

Further, as submitted previously by SingTel, in a multi-party industry, any porting process does not only involve the Recipient Network Operator (RNO) and Donor Network Operator (DNO), but also the third party operator to support the porting. Any arrangement on FNP is subject to all parties' agreement, not only the Dominant Licensee.

SingTel also does not possess any dominant power in fixed number porting. In any case, SingTel cannot unilaterally offer FNP services due to the inherent nature of multi-party industry.

It is also an established principle of contract law that in an arrangement where multiple parties are concerned, all parties must agree in respect of all issues. Therefore, an agreement is not valid unless all parties agree. Moreover, as the IDA has itself acknowledged, there has been no take-up of the said schedule for number porting services, and most parties have, thus far, negotiated separate commercial arrangements for the implementation of number porting services.

Accordingly, SingTel agrees with the IDA's proposal that the Number Port Service and correspondingly Number Port Schedule can be removed from SingTel's RIO.

6.3 IDA should take account of certain key considerations to number porting when developing guidelines

The IDA has also sought views on whether it would be appropriate to develop guidelines for multi-party number portability service arrangements, and sought views on what specific issues the guidelines should address.

SingTel welcomes the IDA's proposal to develop advisory guidelines for multi-party number portability service arrangements. The proposed guidelines should be developed by the parties that have either implemented number portability, or are in the process of doing so. This is to ensure that the guidelines take account of the key issues associated with implementing number portability.

In particular, SingTel submits that the final guidelines should consider, and provide detailed guidance on, the following specific issues:

- key technologies underpinning the delivery of number portability; and
- description of porting processes and times.

SingTel submits that to ensure the proposed guidelines adequately address the key issues concerning the implementation of number porting services; the IDA should consult, and develop the guidelines in tandem, with the telecommunications providers implementing number portability services.

7 Provision of Additional Interconnection Link Capacity

7.1 Summary

In this section, SingTel submits that

- SingTel, as a transit operator, should not bear the cost inefficiencies in acquiring and dimensioning of Interconnection Link capacity for conveyance of transit traffic between operators;
- SingTel is already offering wholesale services as an alternative for licensees that do not wish to establish indirect or direct interconnection; and

- establishing interconnection between two operators' networks, either by way of acquiring transit services from SingTel or SingTel's wholesale services, reduces time and cost associated with direct interconnection arrangements.

7.2 Each operator should be responsible for its own Interconnection Link costs

The IDA has sought views on whether the RIO should require SingTel to acquire additional Interconnection Link capacity for the conveyance of transit traffic, and if so, the appropriate mechanism for SingTel to recover its costs[27].

SingTel rejects the IDA's proposal that it should be responsible for the procurement of Interconnection Link capacity for the conveyance of transit traffic between two other operators – where SingTel is simply acting as the transit operator in relation to indirect interconnection arrangements between the two operators.

The IDA's proposal unreasonably shifts the responsibility and cost inefficiencies of establishing interconnection by the two operators to SingTel.

In particular, SingTel is concerned that the IDA's description of existing Interconnection Links and additional Interconnection Links capacity, as described in Diagram 1 of the Consultation Paper, is not consistent with interconnection arrangements between two operators, in practice.

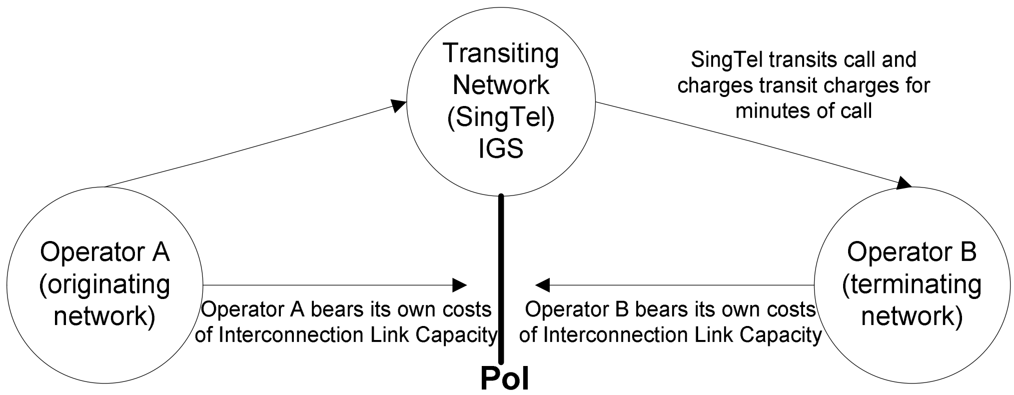
SingTel is not a party to indirect interconnection agreements between operators A and B. In establishing indirect interconnection, operators A and B may designate SingTel's Interconnect Gateway Switch (**IGS**) as their Point of Interconnection (**PoI**) for traffic terminating to their respective networks. Each operator is responsible for its own costs in acquiring Interconnection Links on its own side of the PoI.

In turn, each operator is responsible for appropriate dimensioning of the Interconnection Link capacity on its side of the PoI based on its traffic volumes and anticipated changes over time. Any cost inefficiencies that may result from mismanagement of the Interconnection Link capacity should accordingly be fully borne by the operator.

SingTel simply acts as the transit operator, and should not be made to bear any cost associated with acquiring Interconnection Link capacity.

For example, the following diagram demonstrates that where the operators have an indirect interconnection arrangement whereby operators choose to transit traffic via the transit operator's IGS (i.e. SingTel's IGS) and operator B designates SingTel's IGS as its PoI, the transit operator is <u>simply responsible for transiting</u> the calls to the terminating party's network. Under this arrangement, each operator remains responsible for acquiring, managing and dimensioning its own Interconnection Link capacity on its own side of the PoI:

27 Questions (3)(i) and (3)(ii) of the Consultation Paper.



This is consistent with the IDA's Point of Interconnection (PoI) policy framework, released in 2008[28] (**PoI Framework**). The IDA's PoI Framework makes clear that each operator should be responsible for its own costs of Interconnection Links on its side of the PoI.

The IDA has stated that[29]:

> *"the operators will be responsible for building or leasing capacity to have dedicated links for traffic under direct interconnection, or enough capacity for total traffic sent via the transit operator under indirect interconnection, on their side of the PoI."*

The IDA has also stated that[30]:

> *"As part of the PoI Interconnection Arrangement, IDA's rationale is to allow operators to commercially negotiate the sharing of cost of interconnection, with a default arrangement that requires each operator to bear the cost of the interconnection link on their side of the PoI. IDA believes that this will encourage the equitable distribution of interconnection costs between operators."*

Therefore, SingTel submits that each operator should bear its own costs associated with acquiring and dimensioning of Interconnection Link capacity (including any cost inefficiencies in the utilisation of the Interconnection Links) on its own side of the PoI, unless the operators choose to acquire wholesale services from SingTel for the conveyance of traffic, as described in section 7.3, below.

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28 IDA, *Decision and Explanatory Memorandum issued by the IDA of Singapore on the Regulatory Framework for Telephony Services over Wireless Broadband Access Networks and Interconnection Framework for Telephony Services,* 8 May 2008.

29 IDA, Consultation Paper on the Proposed Regulatory Framework for Telephony Services Over Wireless Broadband Access Networks and Interconnection Framework for Telephony Services, 5 July 2007.

30 Ibid, paragraph 48.

7.3 SingTel's current wholesale service offering presents an ideal alternative to direct or indirect interconnection arrangements

SingTel currently offers Wholesale Origination Services and Wholesale Termination Service to licensees who wish to interconnect with other operator's networks. This allows the FBOs to leverage SingTel's existing Interconnection Links with other operators for the conveyance of their origination or termination traffic.

SingTel submits that these wholesale services provide for a reasonable recovery of the costs of utilising SingTel's Interconnection Links for the conveyance of transit traffic, including any cost inefficiencies associated with under-utilisation of the Interconnection Links due to traffic volumes that are below those forecasted by the operator acquiring the wholesale service.

Establishing interconnection between two operators' networks, either through an indirect arrangement where SingTel acts as a transit operator, or by way of operators acquiring SingTel's wholesale termination and origination services leads to significant time and cost savings when compared with a direct interconnection arrangement.

First, operators would save costs through sending and receiving all traffic through SingTel's IGS, therefore requiring to acquire fewer ports at their own switches for switching of traffic as compared to directly interconnecting with multiple operators. Secondly, the burden and costs associated with multiple interconnection testing requirements and switching configurations is significantly reduced given the fact that operators would only interface with a single operator.

And finally, operators would no longer be required to enter into often long and protracted negotiations with each other in respect of direct interconnection arrangements each time interconnection is required.

These benefits would ultimately result in significant savings on time and costs for licensees wishing to establish interconnection between networks.

8 Conclusion

SingTel asks that the IDA reconsider its proposed position on the introduction of regulation in respect of access to facilities and services that are already highly competitive, and which do not warrant regulation.

In particular, SingTel considers that:

- the backhaul market for access to SingTel's SCLS is highly competitive, and as such, does not warrant further regulatory intervention by the IDA;
- competitive build by FBOs to SingTel's exchanges is not a bottleneck and licensees are required by the IDA to rollout their own infrastructure to SingTel's exchanges for IRS and MWS purposes;
- FBOs already have access to SingTel's exchanges for access to IRS and MWS at cost-based prices, however, SingTel is prepared to negotiate wholesale commercial offers with FBOs wishing to wholesale services from SingTel's exchanges to other licensees;

- SingTel is prepared to provide cost-based access to its exchanges for QP FBOs to rollout their own infrastructure to establish connectivity with the OpenNet network;

- however, SingTel considers that the only way this proposal would work in practice is if the IDA imposed a corresponding obligation on OpenNet to provide direct physical interconnection to its network at the Central Office;

- direct physical interconnection at OpenNet's Central Office presents the most efficient point in the network for QP FBOs who wish to deploy their own infrastructure to establish connectivity with the OpenNet network;

- QP FBOs are currently deprived of being able to establish direct connectivity with the OpenNet network at this point. This creates serious technical and commercial inefficiencies for QP FBOs wishing to establish connectivity and results in unnecessary costs borne by QP FBOs – mandating OpenNet to provide direct physical interconnection would eliminate this problem;

- SingTel welcomes the IDA's proposal to remove FNP from the RIO, but requests that the IDA take account of key considerations in the proposed guidelines for FNP, including key technology underpinning FNP and the porting processes;

- SingTel as a transit operator should not bear the costs associated with acquiring and managing Interconnection Link capacity by other operators wishing to interconnect their networks; and

- SingTel's wholesale origination and termination services is the ideal alternative to indirect and direct interconnection arrangements between two operators, and results in significant cost and time savings for operators wishing to interconnect their networks by leveraging SingTel's existing Interconnection Links.