

**SINGAPORE TELECOMMUNICATIONS LIMITED RESPONSE TO
CONSULTATION PAPER: DESIGNATION OF SINGAPORE
TELECOMMUNICATIONS LIMITED'S LOCAL LEASED CIRCUITS AS
MANDATORY WHOLESALE SERVICE**

1. INTRODUCTION AND STATEMENT OF INTEREST

Singapore Telecommunications Limited (**SingTel**) is pleased to be given the opportunity to comment on the *Consultation Paper: Designation of Singapore Telecommunications Limited's Local Leased Circuits as Mandatory Wholesale Service*, issued by the Information Communications Authority of Singapore (**IDA**) for comment on 30 May 2003 (**Consultation Paper**).

SingTel is licensed to provide telecommunications services in Singapore. It was corporatised on 1 April 1992. 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. Servicing both corporate and residential customers, SingTel is committed to bring the best of global communications to its customers in the Asia Pacific and beyond.

As a leading provider of telecommunications services and a leading proponent of innovation and competition, SingTel has a strong interest in effective pro-competition regulation of Singapore's telecommunications industry.

2. EXECUTIVE SUMMARY

SingTel submits that the Local Data Service (**LDS**) market, including the Local Leased Circuit (**LLC**) segment of that market, is already highly competitive, offering end-users and suppliers an innovative and dynamic range of LDS transmission and access options at internationally competitive prices. The imposition of additional regulation is accordingly unnecessary and unwarranted. The IDA should allow the unfettered operation of market forces to continue to provide end users with benefits in the LDS market.

SingTel does not agree with the IDA's assessment that while the IDA believes that SingTel's posted retail prices are generally competitive, the IDA is still considering intervening. SingTel finds this statement perplexing. SingTel believes that international comparative competitiveness is a stronger indicator that intervention is not required. We fail to see any justification for additional regulatory intervention where the IDA itself acknowledges that SingTel's posted retail prices are internationally competitive. The proposed regulatory intervention is entirely inconsistent with allowing market forces to operate in the Singapore market.

SingTel also clearly examines in this submission the state of competition in the LDS market having regard to the indicia noted in the IDA Consultation Paper. In summary, SingTel submits that:

- there are a broad range of current and potential substitutes for LLCs in Singapore at all relevant bandwidths, as recognised by the OECD, such as ATM, Frame Relay, IP VPN, xDSL, WLL, ISDN-2 and ISDN-30;
- LLCs form part of a broader LDS market in which there are a number of competitive providers in Singapore including at least three (3) LLC networks deployed in the CBD and at other industrial, science, technological and business parks throughout Singapore;
- LLC prices are internationally competitive, as is acknowledged by the IDA itself, and have been subject to significant market driven price reductions estimated by the IDA's Chairman Mr Lam Chuan Leong to be 35% since 2000;
- SingTel has developed wholesale LLC product offerings as early as 1999/2000 to meet market demand offering competitors' term discounts, volume discounts and aggregate bandwidth discount for 2Mbit/s circuits and term discounts for higher bandwidths. This wholesale scheme followed on from an earlier pricing initiative commercially offered by SingTel – being the special LLC scheme introduced in 1999 for ISPs and end-users who require LLCs to connect to ISPs for the purpose of Internet access, e-commerce and Internet content hosting activities.
- SingTel continues to be prepared to commercially offer a wholesale LLC service as evidenced by the recent filing in 2003 of an enhanced wholesale LLC offer which providing significant discounts to competitors that was only subsequently withdrawn as a result of the regulatory and commercial uncertainty created with the release by IDA of the Consultation Paper;
- there are low regulatory and economic entry barriers to the LDS market which impose a further competitive constraint on SingTel and other existing competitors, including low switching costs and highly informed and price sensitive customers;
- there are a range of alternative access technologies available to SingTel's competitors for acquisition from SingTel, including Unbundled Network Elements (**UNE**) such as Unbundled Local Loop (**ULL**), made available to competitors under the SingTel Reference Interconnection Offer (**RIO**) which enable FBOs to offer LDS services including LLC at bandwidths up to and including 2Mbit/s;

- end users have currently available to them wide range of innovative and quality service offerings offered by SingTel since the introduction of competition including IP VPN through the SingTel MegaPop suite of services, WDM services, DSL enabled ATM and Ethernet enabled ATM, wholesale ADSL and other customised services.

Further, the proposal in the Consultation Paper to mandate SingTel to provide wholesale LLCs represents a significant and fundamental departure by the IDA from the promotion of facilities based competition as the most effective means of developing and maintaining effective telecommunications competition in Singapore.

The proposed additional regulation will undermine genuine infrastructure competition, reducing incentives for operators to invest in rolling out network across Singapore and risks significantly devaluing the investment in infrastructure that operators have made to date.

If the IDA were truly minded to stimulate further LDS competition that would be in the immediate and long term interests of end-users, then SingTel submits that the proposals in the Consultation Paper should be abandoned in favour of allowing SingTel greater flexibility to price its LDS according to market driven commercial imperatives. SingTel should also be exempted from the dominant licensee obligations in respect of local leased circuits because these obligations impose inflexible and costly tariffing arrangements on SingTel which mean that end users do not receive the full benefit of competition for such services.

In the event that the IDA proceeds with designation despite the market evidence supporting forbearance from additional regulation, SingTel provides in section 5 critical considerations which the IDA should take into account.

3. NO MARKET FAILURE WARRANTING IDA REGULATORY INTERVENTION

3.1 Overview

In this part of the submission, SingTel submits that LLCs form part of a broader LDS market which is highly competitive, where there are multiple infrastructure and service providers, where prices have fallen, where quality is assured at high levels and where innovation in product offerings exists. In these circumstances, IDA should not intervene and disturb market forces. As recognised by the commitments in the Code of Practice for Competition in the Provision of Telecommunications Services (**Code**), the market provides first best outcomes.

3.2 Core principle – regulation only in the event of demonstrated and significant market failure

SingTel strongly submits that the best way to deliver competitive outcomes to end-users is to allow the competitive forces in the market to operate unfettered by unnecessary and unwarranted regulatory intervention and to allow firms to compete on price and product innovation. In the LDS market, including the LLC segment of that market, there is no evidence of substantial market failure nor has the IDA demonstrated any market failure. Where market forces are delivering efficient outcomes – i.e. where there is no demonstrated substantial market failure - the IDA should refrain from regulatory intervention.

As SingTel has pointed out in the past, the Code sets out important guidance in this regard. In particular, the Regulatory Principles providing the foundation for the Code, and which are stated to guide the IDA’s implementation of the Code provide 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 at reasonable prices.” (cl 1.5.1)

“IDA will seek to impose regulatory requirements that are carefully crafted to achieve the IDA’s stated goals. Such requirements will be no broader than necessary to achieve the IDA’s stated goals” (cl 1.5.3)

The Code’s recognition of the importance of market driven competition in bringing benefits to end-users is consistent with the Government’s stated objectives in liberalising communications in Singapore:

“IDA will regulate competition issues with a lighter hand, giving players greater flexibility to innovate¹”.

If regulation is imposed upon markets that are functioning and would otherwise continue to function effectively, the regulation will necessarily result in efficiency losses from:

- the distortion of price signals, which will result in the misallocation of resources to the provision of goods and services that are not of most value to society; and
- in the longer term, the dampening of incentives to innovate and the deterrence of otherwise warranted investment.

¹ “Bringing forward full competition in the telecommunications sector”, Statement by Mr Yeo Cheow Tong, Minister for Communications and Information Technology at a press conference on 21 January 2000

As set out in section 3.3 below, SingTel submits that the LDS market in Singapore is functioning effectively and is likely to be subject to even greater market driven competition in the coming years. Accordingly, additional regulation of LLCs as proposed in the Consultation Paper lacks any justification on the basis of market failure, and can only lead to undesirable market distortions to the long term detriment of end-users and Singapore's international competitiveness.

3.3 There is a broad range of current and potential substitutes for LLCs

SingTel submits that in order for the IDA to make a proper assessment of competition in Singapore, IDA has to perform a close analysis of the market to determine competitive substitutes for a service. SingTel believes that the IDA has not done so and as a result the IDA has a distorted view of the market. In particular, by limiting its market analysis to a LLC market, contrary to OECD statements referred to below, the IDA has taken an unduly narrow view and has wrongly excluded a number and range of competitive suppliers and a significant number and range of LDS access and delivery technologies available to end-users and suppliers. The view of competition in the "LLC market" arrived at in the Consultation Paper is accordingly more limited than is actually the case in commercial reality.

SingTel submits that the state of competition as regards the supply and acquisition of LLCs in Singapore must be assessed on the basis that LLCs are just one service offering within a broader LDS market. In fact, SingTel submits that there is a range of demand and supply side substitutes for LLCs at all common LLC bandwidths.

SingTel's submission that LLCs form part of a broader LDS market in which LLCs compete with other LDS with which they are substitutable and likely to become ever more increasingly so is consistent with international analysis on the issue. For example, the Organisation for Economic Cooperation and Development (**OECD**) has noted in its "*OECD Communications Outlook 2003*" that:

*"....asymmetrical and symmetrical digital subscriber lines (DSL) services are expected to increasingly substitute for local leased lines. As these services are much less expensive, this should place pressure on the prices of local leased lines, and should have an increasing impact on revenue in that segment of the market..."*²

*"It is important to remember that leased lines are only one technology capable of providing permanent connection to the Internet..."*³

² OECD *Communications Outlook 2003*, p 67.

³ OECD *Communications Outlook 2003*, p 124.

“... it is expected that symmetrical DSL services will provide an increasingly available substitute for local leased connections. This should provide less expensive options for business users to connect to backbone networks”⁴

Similarly, a recent OECD Working Party report on Indicators for the Assessment of Telecommunications Competition has commented that:

“Leased line services range from voice quality to high speed digital lines.....the magnitude of supply-side substitution is thought to be fairly high because it is easier for suppliers to change existing facilities to provide leased line service reacting to price changes. Data network service markets have been deregulated for a long time and are relatively competitive.....high speed digital leased line services can be a close substitute of data network services...”⁵

Substitutability between DSL and LLCs is supported by the graphs in Confidential Annex E..

Accordingly, SingTel submits that supply and demand side competition for LLCs in Singapore should be assessed in the context of competition from a wide range of LDS substitutes, including the following:

- **Digital Subscriber Line services (xDSL):** xDSL is a technology that allows for the high speed transport of data across conventional telephone lines. xDSL service may be either asymmetric (**ADSL**) offering bandwidth of up to 8 Mbit/s or symmetric (**SHDSL**) offering bandwidth of up to 2.3Mbit/s or both (**VDSL**) offering bandwidth of up to 52 Mbit/s asymmetric or 13 Mbit/s symmetric. With technological advances, for example ADSL2, speeds can be increased tremendously.
- **Integrated services digital network (ISDN) services:** is a public switched data service which allows the transmission of data in multiples of 128 kbit per second along with a channel capable of being used for signalling. ISDN can be supplied as n x 64 kbit per second (where n is typically in the range of 2 – 10) or in units of 2 Mbit per second. The former is basic rate ISDN (or ISDN-2) and later primary rate ISDN (or ISDN-30). ISDN-30 delivers 2 Mbit/s bandwidth at a fraction of the cost of a 2Mbit/s LLC. Further, ISDN-2 bandwidth can be increased to 384kbit/s or more by bonding channels.

⁴ OECD *Communications Outlook 2003*, p 165.

⁵ OECD, Working Party on Telecommunications Services Policies, *Indicators for the Assessment of Telecommunications Competition*, 17 January 2003, pp 13-14

- **Wireless Local Loop (WLL) services:** provide wireless access to circuit and packet based networks or network segments. The most widespread WLL service in Singapore is based on the WiFi standard and provides access at typical bandwidths of 2 – 4 Mbit/s (although the theoretical maximum rate is 11 Mbit/s).
- **Internet Protocol Virtual Private Network (IP VPN) services:** IP VPN provides secure and reliable high speed point-to-multi-point and multi-point-to-multi-point connection through virtual private circuits enabling data, voice, video transmission and internet connectivity.
- **Asynchronous Transfer Mode (ATM) services:** ATM services are managed data services providing secure and reliable high speed point-to-multi-point and multi-point-to-multi-point connection through virtual private circuits with differentiated class of service, enabling data, voice, video transmission and internet connectivity. ATM is able to carry the entire wide area networking requirements of a corporate or government end user. ATM is typically available for bit rates of 2 Mbit/s – 155 Mbit/s.
- **Frame Relay services:** managed data services providing a secure and reliable high speed network providing point-to-multipoint connection through virtual private circuits. Frame relay is able to meet the wide area networking requirements of a small and medium enterprise. Frame relay is typically available for bit rates of 64 kbit/s – 2 Mbit/s.
- **Wavelength Division Multiplexing services:** Fibre optic transmission historically used one wavelength of light as the bearer of data. The introduction of wavelength division multiplexing (WDM) means that a single fibre can carry many times the bandwidth. Currently, WDM can carry between 200Mbit/s to 10Gbit/s.
- **Cable modem services:** Singapore CableVision (SCV) offers a cable modem service with data speeds of up to 3 Mbit/s. .
- **Free Space Optics (FSO):** FSO offers an alternative to wired point to point communication, provided that there is a line of site path between the two points. FSO uses well characterised optical sources (normally lasers) which are then modulated with data. FSO are compact and capable of carrying data rates between 2 Mbit/s and 155 Mbit/s. The flexibility of FSO means that they can be redeployed in the event that an optical path is blocked (for example, by building development).
- **Microwave Links:** Microwave links can be used for point to point line of site communications and are licensed by the IDA for specific FBO needs and on a case by

case basis for others. Microwave links can be used for bandwidth of between 2 Mbit/s and 155 Mbit/s in accordance with ITU-R recommendations.

- **UMTS and GPRS:** UMTS can be used for data transfer at practical rates of 384 kbit/s and GPRS at 64 kbit/s or 128 kbit/s. These services can be established on an ad hoc basis and can be implemented as point to point or point to multipoint services. Typically, UMTS and GPRS data services are Internet Protocol based. That is, as well as providing a specific point to point data service, GPRS and UMTS can be used as part of an IP VPN.

Facilities based operators (**FBOs**) are able to acquire the services set out above, on an unbundled basis, and use their own facilities to create products which compete with LLCs in the LDS market. Service based operators (**SBOs**) can acquire these services and bundle them to create managed data services which compete with LLCs.

The service substitutability of these LDS services is set out in the table below:

Required bandwidth	Possible service
<128 kbit/s	ISDN, Frame Relay, LLC, DSL, IP VPN, UNE/ULL, WLL, GPRS, Cable modem
128 kbit/s – 2 Mbit/s	ISDN, Frame Relay, LLC, DSL, IP VPN, UNE/ULL, WLL, UMTS, GPRS, Cable modem
2 Mbit/s – 155 Mbit/s	ATM, LLC, IP VPN, WLL, WDM, FSO, Microwave, Cable modem

As set out in the above table, SingTel submits there is a vast range of LDS which are substitutable for LLCs as transmission services. As a consequence, SingTel submits there is a larger number of suppliers competing in the LDS market than merely those FBOs providing LLCs and a larger number and variety of competitive LDS service options available to end-users and suppliers than simply LLCs.

3.4 Indicia of competition

Taking into appropriate account the range of LLC service substitutes and competitive LDS suppliers, SingTel submits that there is very strong competition in the Singapore LDS market and thus no basis for imposing further regulation such as that proposed in the Consultation Paper. Even on a narrow and incorrect view that the appropriate sphere of competition is only within an LLC market, there is no evidence of a lack of competition or other substantial market failure that would justify regulatory intervention by the IDA.

In the following sections, SingTel examines, having regard to an appropriate market definition and having regard to international and OECD statements, competition in that market. The IDA has stated itself that these indicia of competition include:

- presence of direct competitors and, as shown above, effective substitutes;
- significant price competition and price decreases;
- low barriers to entry and resulting new entry by infrastructure and services based operators; and
- innovative service offerings.

SingTel provides factual information illustrating each of the above points. SingTel submits that the IDA should closely examine factual information rather than mere assertions when coming to a view about whether market forces are adequate.

3.5 There are competitive providers of LLC and other LDS

SingTel submits that it is clear that there is a number of competitive international and locally based suppliers of LLC and other substitutable LDS in Singapore. SingTel submits that this can only be as a result of flourishing competition in the LDS market. Accordingly, there would appear to be no support for the proposition in the Consultation Paper that regulatory intervention by the IDA is justified on the basis that FBOs and SBOs are unable to effectively compete with SingTel retail LLC service offerings.

There are at least four (4) licensed FBO's in Singapore operating in the LDS market by offering one or more LDS products, namely:

- 1-Net Singapore Pte Ltd offering a local ATM service;
- MCI Worldcom Asia Pte Ltd offering a LLC service;
- Pacific Internet Limited offering a wireless broadband service;

- StarHub Pte Limited offering a range of LDS, including ATM, ADSL, frame relay, ISDN, LLC and wireless broadband services;
- SCV offering a cable modem service with data speeds of up to 3 Mbit/s.

As a result, there are at least 3 FBO providers of LLC services, 3 FBO providers of local ATM services, 1 FBO provider of local Frame Relay services, 3 FBO providers of local IP VPN services, 2 FBO providers of xDSL services and a cable modem service supplier.

3.6 LLC prices in Singapore are already highly internationally competitive and evidencing market driven reductions

(a) Introduction

As has already been acknowledged in the Consultation Paper, SingTel submits that LLC prices in Singapore are already highly internationally competitive. Further, there have already been significant reductions in LLC prices in Singapore as a result of market forces. In SingTel's view, these facts are some of the clearest indicators that competition in the LDS market in Singapore is working effectively to deliver benefits to end-users and enhance Singapore's position as an international info-communications and business hub, and thus that there is no need for regulatory intervention by the IDA.

SingTel is perplexed by the IDA statement in its Consultation Paper that while the IDA believes that SingTel's posted retail prices are generally competitive, the IDA is still considering intervening. SingTel believes that international comparative competitiveness is a stronger indicator that intervention is not required.

SingTel is equally concerned by the statement that the IDA is considering intervening simply because "SingTel has not developed wholesale prices". As discussed below, SingTel commercially develops wholesale products, including for LLCs. But furthermore, the IDA appears to want to intervene to support SingTel's competitors rather than to promote competition. The IDA is effectively saying that while SingTel's prices are competitive, the IDA wishes to intervene to require SingTel to offer below-competitive prices to its competitors. This is not an effective or proper basis to intervene. It will simply foster inefficiency and cream-skimming by SingTel's competitors.

Furthermore, SingTel submits that regulatory intervention such as that proposed in the Consultation Paper will actually dampen LDS price competition and price reductions in Singapore as a result of:

- administrative and regulatory constraints on SingTel’s ability to commercially offer flexible, differentiated and innovative wholesale pricing that is responsive to market needs; and
- retail LLC prices by SingTel competitors that are tied to the cost-structure of the mandated SingTel wholesale LLC price, rather than reflecting the efficiencies that could be gained from competitor infrastructure roll-out and LDS service offerings that are more innovative than simple resale of SingTel LLCs.

We now turn to particular price comparisons to show the competitiveness of the Singapore market.

(b) Illustrations of internationally competitive LLC pricing and LLC price reductions

As reported in the Straits Times on 16 May 2003,⁶ the independent study performed by IDC commissioned by the IDA to assess the competitiveness of LLC prices in Singapore has found that Singapore’s LLC prices are competitive, and in some cases, very significantly cheaper than in other countries such as the United States:

“Retail rates of these circuits [LLCs] were as much as 250% cheaper here compared to the United States, said the Infocomm Development Authority of Singapore (IDA)...retail prices for LLCs in Singapore were generally competitive in markets such as the US, Britain and Hong Kong. The IDC survey found that in three specific LLC products, charges in Singapore were significantly cheaper than in the US and at least 20 per cent lower than the next cheapest country”.

Whilst it is difficult to quantify in absolute terms the average price reduction since April 2000, SingTel supports the recent statement by Mr Lam Chuan Leong, Chairman of the IDA, that local leased circuit prices in Singapore have dropped by up to 35% during this period.⁷ SingTel submits that these price reductions, delivering clear benefits to end-users, have been driven by vigorous retail LDS price competition. For example, SingTel has seen competitors price LLCs at 20% to 40% below the SingTel LLC tariffs.

In response to these market forces, SingTel has reduced its retail prices. For example, in 2001 SingTel introduced a zonal LLC scheme resulting in significant LLC tariff reductions in the CBD – including a 27% reduction in the price of a standard 2Mbit/s LLC, a 25%

⁶ B Lee “SingTel’s Circuit Rates up to 250% cheaper, says IDA”, *Straits Times*, 16 May 2003.
⁷ Speech by Mr Lam Chuan Leong, IDA Chairman, E-Symposium, 4 September 2002.

reduction in the price of standard 45Mbit/s LLC and a 35% reduction in the price of standard 155Mbit/s LLC.

Accordingly, SingTel submits that it is clear that regulatory intervention such as that proposed in the Consultation Paper is not required in order to ensure that LDS pricing in Singapore is and remains internationally competitive, nor to ensure that the market will continue to deliver the benefits of LDS price reductions to end-users.

In SingTel's view, the most effective way for the IDA to truly facilitate further effective competition in the LDS market, lower business costs and enhance Singapore's position as an info-communications and business hub would be to remove the present retail pricing constraints imposed on SingTel through price controls and SingTel's obligations due to designation as a dominant operator.

(c) SingTel has and will continue to commercially develop wholesale products resulting in price reductions

SingTel is concerned that the Consultation Paper disregards the fact that SingTel has already voluntarily and commercially facilitated reductions in wholesale LLC prices as a result of the competitive pressures exerted by market forces.

For example, SingTel notes that it voluntarily introduced a wholesale LLC scheme in 2000 for 2Mbit/s circuits and above offering competitors term discounts, volume discounts and aggregate bandwidth discount for 2Mbit/s circuits and term discounts for higher bandwidths.

This wholesale scheme followed on from an earlier pricing initiative commercially offered by SingTel – being the special LLC scheme introduced in 1999 for ISPs and end-users who require LLCs to connect to ISPs for the purpose of Internet access, e-commerce and Internet content hosting activities.

As the IDA is aware, SingTel was in the process of filing a new and significantly enhanced wholesale LLC scheme to replace its 2000 wholesale LLC scheme which would have resulted in even greater wholesale discounts when the IDA issued the Consultation Paper. With the regulatory and commercial uncertainty arising from the release of the Consultation Paper, this new and enhanced wholesale LLC scheme was withdrawn.

Accordingly, SingTel submits that there is no evidence that the market is not working effectively to ensure that SingTel offers appropriate wholesale pricing such as to justify regulatory intervention by the IDA to attempt to mandate this outcome.

3.7 Competitor LDS sales and market share (including in the LLC segment) is growing strongly

Attached at Confidential Annex B are two tables setting out SingTel's estimates of the LLC sales and tenders it has lost to its competitors over the period 1 April 2002 to 31 March 2003. These lost sales cover LLC both in CBD areas and, increasingly, LLC in non-CBD areas such as industrial parks and business parks (e.g. Loyang Industrial Park and Changi Business Park).

SingTel submits that these figures illustrate the emergence of facilities based LDS competition in Singapore. As key FBO competitors such as StarHub and MCI expand their LDS networks and other local and international FBOs follow their lead in establishing competitive LDS infrastructure, the market will become increasingly competitive.

SingTel submits that the growing trend of competitor gains in LDS market share and sales demonstrates that competition in the LDS market in Singapore is and will continue to work effectively, and that no regulatory intervention by the IDA is required. Certainly, the IDA should not intervene to support SingTel's competitors in circumstances where competitors are placing very real and considerable constraint on SingTel's prices.

3.8 The threat of entry by new competitive providers of LLC and other LDS providers a significant competitive constraint due to low entry barriers

(a) Introduction

In assessing the competitiveness of a market, SingTel submits that regard must be had not only to the existing competitors in the market, but also to the competitive constraint imposed by the threat of entry by new players. In SingTel's view there are no or very low barriers to entry into the LDS market in Singapore (including into the LLC segment of that market). Accordingly, the threat of entry by new LDS suppliers imposes a very real and strong constraint on the ability of any of the existing LDS suppliers to extract supra-competitive prices for LDS services.

In focusing only on the current state of competition and LLC network roll-out in Singapore, SingTel submits that the IDA has not properly taken into consideration the pro-competitive impact that will be caused by entry of new players into the LDS market in Singapore and also by extended network roll-out by existing competitors. Particularly when the threat of further competitive entry is considered along with the existing state of competition in the LDS market, it is clear that regulatory intervention such as that proposed in the Consultation paper is not required. In fact, as set out in section 4 of this submission, SingTel submits that such

regulation is likely to dampen the incentive for facilities based entry by new providers into Singapore's LDS market and further LDS network roll-out by existing providers.

(b) No regulatory barriers to entry

SingTel submits that the LDS market in Singapore is now characterised by minimal regulatory barriers to entry. In January 2000, direct and indirect foreign equity limits for all public telecommunication services licences were lifted. Additionally, the IDA has established a clear and transparent framework releasing detailed licensing guidelines in which there are no limits on the number of LDS licensees that can be licensed. As a result there are now 33 licensed FBOs in Singapore and 658 licensed SBOs,⁸ with these numbers rapidly increasing each year.

Accordingly, SingTel submits that it is very likely that new providers will enter the LDS market and bring in additional competition in the event that the existing providers were extracting supra-competitive prices, and thus that no regulatory intervention by the IDA is necessary to ensure that LDS prices in Singapore remain competitive.

(c) Low barriers to effective competitive LDS network roll-out

SingTel submits that there are low barriers to competitively effective LDS network roll-out by its competitors. As set out in section 3.3 above, there are many means of providing infrastructure based LDS competitive with SingTel's LLCs, not all of which require the rollout of an LLC network and many of which can be provided using very low cost infrastructure such as switches and routers. Further, SingTel submits that the rapid and extensive LLC network roll-out that has recently been undertaken by non-dominant FBOs such as StarHub and MCI demonstrates that there are no undue hurdles to the competitively effective roll-out of LLC networks that compete with the SingTel LLC network.

So far, SingTel's competitors have predominantly chosen to "cherry pick" where they compete and invest and have thus largely chosen to deploy fibre networks in the CBD and selected industrial and high tech parks in Singapore where access is easiest and commercial returns are initially likely to be the highest. However, SingTel submits that this does not demonstrate that its competitors are therefore necessarily reliant on SingTel's LLC network in other areas in the sense of being unable to extend the roll-out of their networks to those areas and thus that there are barriers to entry which justify regulatory intervention.

The examples discussed below in relation to LLC network roll-out by MCI and StarHub make it patently clear that competitive LLC network roll-out is very feasible, should

⁸ IDA website with statistics as at 15 June 2003

SingTel's competitors be given appropriate incentives not to free-ride on SingTel's LLC network.

- **MCI LLC network roll-out:** on 19 January 2001, MCI reported that it had begun construction of the first phase of its metro network in Singapore and was in the process of laying its fibre-optic network in the Singapore CBD.⁹ By 17 December 2001, despite difficult market conditions for all telecommunications industry participants, MCI reported that it had wired to all the buildings in the CBD in Singapore and had laid enough fibre cable in Singapore to criss-cross the island 251 times at its widest point.¹⁰ SingTel's estimate of MCI's loop locations is set out in the tables in the Confidential Annex C;
- **StarHub LLC network roll-out:** It is clear that StarHub has been able to roll-out an extensive LLC network in Singapore's CBD and also in key non-CBD areas. As at 30 April 2002¹¹ StarHub was already reported to have installed its broadband network in 600 commercial buildings in Singapore's central business district. SingTel's estimate of StarHub's network rollout is illustrated in the map in the Confidential Annex D. As set out in section 3.7 above, the competitive success of this network roll-out is being reflected in SingTel's loss of LLC business to StarHub.

(d) No barriers to customer switching

The IDA has not identified and SingTel submits that there are not any relevant barriers to customers switching service providers in the LDS market. For example, in relation to LLCs SingTel adopts international standards which means that end-users do not need to upgrade or change their equipment in the event that they decide to switch to another LLC service provider. This is equally true of other services in the LDS market such as ATM whereby end-users are connected to the ATM network via a standard ATM interface and, as is the case with LLC, do not need to upgrade or change their equipment in the event that they decide to switch to another ATM service provider.

In fact, LDS services such as LLC are typically acquired by sophisticated large corporate customers and carriers. Such customers have an in-depth knowledge of their own requirements and product specifications, are highly price sensitive, demand the best value for money packages and do not hesitate to "shop around" for the best available deals from service providers. In SingTel's experience, these customers often put their LDS requirements

⁹ "WorldCom lays first fibre-optic network in Singapore" www.zdnet.com.au

¹⁰ "WorldCom claims success in Singapore" IT AsiaOne, www.asiaone.com.sg

¹¹ Steven Irvine "StarHub to mandate loan; Singapore's second biggest telco wants to raise up to \$1.7 billion in a new syndicate loan", FinanceAsis.com

to tender and can ask bidders to amend and resubmit their bids at short notice. Due to its tariff constraints, SingTel is at a distinct disadvantage to its competitors in this environment.

SingTel submits that it is thus clear that ongoing facilities investment by SingTel's competitors and greater use of its UNE's such as ULL and other innovative means of LDS service delivery to produce commercially attractive services competitive with SingTel's LLCs. No regulatory intervention by the IDA such as that proposed in the Consultation Paper is necessary to ensure this outcome.

3.9 End-users have and will continue to enjoy the benefit of a plethora of market driven innovative new LDS service offerings

As noted in sections 3.3 and 3.5 above, Singapore's end-users enjoy a range of different LDS service offerings from a range of different LDS FBO service providers. SingTel submits that Singapore's LDS market is characterised by new and innovative products and services bringing ever increasing benefits to end-users. In terms of SingTel's contribution to this range of LDS products and services, SingTel notes that, since liberalisation, it has developed and offered services such as IP VPN through its MegaPOP suite of services (such as Directlink, Ethernetlink, I-link, Bizlink, Megalink), WDM services such as Gigawave and GigawaveLite, DSL enabled ATM and Ethernet enabled ATM, wholesale ADSL such as wholesale B-Access and other customised services. Similarly, 1-Net provides a local ATM service and has been offering the service since 1997 and competitors such as StarHub have entered the LDS market offering not only LLCs but also local Frame Relay, local ATM, local IP VPN, ISDN etc.

SingTel accordingly submits that there is no justification for regulatory intervention by the IDA in order to ensure that competition in the LDS market delivers a world-class range of innovative LDS products and services to end-users. In fact, as set out in section 4 of this submission, SingTel submits that the regulatory intervention proposed in the Consultation Paper will tend to limit the range and diversity of LDS products available to end-users in the future, by encouraging SingTel competitors to simply resell SingTel LLCs rather than developing more innovative and creative LDS products based on their own infrastructure and SingTel's UNEs.

4. REGULATORY INTERVENTION WILL UNDERMINE FACILITIES INVESTMENT AND COMPETITION

4.1 Summary of this section

In this section, SingTel submits that the effect of IDA's proposed regulatory intervention will be to discourage investment of SingTel and of new entrants to the clear long term detriment

of end-users in terms of lost investment in new and innovative technologies, services and infrastructure, loss of real competitive choice of services and higher prices.

4.2 Core principle – facilities investment and facilities based competition is critical to delivering long term benefits to end-users

SingTel submits that encouraging infrastructure based competition has been a key tenet of Singaporean regulatory policy since the earliest decisions to liberalise the Singaporean telecommunications market:

“By liberalising as fast as our market can bear so that competition can be effective and sustainable, we aim to harness the full benefits of competition for consumers, businesses and the economy...”

*Our approach also means that we install facilities-based competition first. We believe that continued upgrading and development of our telecommunication infrastructure is critical and fundamental to enhancing further our economic competitiveness. If we were to allow any player to simply enter our market, market forces will surely compel operators to focus on short term profits rather than long term gains. New entrants may merely concentrate on cream-skimming the profitable market segments. Further, non-facilities based players may not have sufficient incentive to invest in new technologies or to develop extensively their own networks if they are able to "free-ride" on the networks of others”.*¹²

The fundamental government policy of encouraging infrastructure based competition and not merely free-riding through resale competition is reflected in the Code, which provides that the provision by a dominant licensee of mandated wholesale services and key Interconnection Related Services (**IRS**) is *“intended to facilitate new entry, whilst providing incentive for new entrants to invest in infrastructure”* (Appendix 2, cl 1.6).

This approach was reaffirmed in the Consultation Paper with IDA stating that it *“has taken the policy approach of encouraging facilities-based competition to achieve sustainable and effective competition, and to ensure that Singapore maintains its position as an info-communications hub”* (Page 3, Paragraph 2.1).

SingTel submits that the benefits for end-users of facilities based competition are clear, and notes that have been acknowledged not only by IDA but also by leading telecommunications regulators all over the world. For example, SingTel notes that FCC Chairman Michael

¹² Speech by Ms Ng Cher Keng, Director (Policy), TAS, Asia Telecom 1997 Strategies Summit Beyond Privatization: Regulatory Challenges, "Competition In Telecommunications: The Regulators' Challenge", 10 Jun 97

Powell, has recently commented that facilities based competition offers a number of compelling benefits including:

- greater product differentiation;
- greater infrastructure investment, stimulating the downstream market for equipment suppliers, like Lucent and Nortel, as well as promoting more jobs;
- greater network redundancy.”¹³

Accordingly, SingTel strongly supports the comments in the Consultation Paper that the IDA does not wish to adopt regulatory measures that “*distort the economic incentive for FBOs to deploy their network infrastructure to their customers in the longer run.*” However, for the reasons set out below, SingTel submits that the regulatory proposals in the Consultation Paper will necessarily have an adverse and extremely detrimental impact on the growth of facilities based competition in Singapore by distorting appropriate market driven build-buy signals.

4.3 Mandatory wholesale LLCs will result in free-riding resale based competition in place of facilities based competition

SingTel submits that the ability for non-dominant FBOs to acquire SingTel’s LLC at wholesale rates without incurring the expense and risk associated with rolling out infrastructure of their own will act as a very strong incentive for FBOs to rely on SingTel LLCs rather than in rolling out their networks.

Although, as set out above in section 3.8, the barriers to LDS infrastructure roll-out are not prohibitive, there are not insignificant costs and risks associated with the roll-out of LDS infrastructure such as an LLC network. Given the choice between engaging with these risks and costs or taking the risk free option of “free-riding” on SingTel’s LLCs with possibly up to a 40% margin indicated by IDA, it is clear that very few FBO’s will choose to engage in infrastructure based competition.

Accordingly, SingTel submits that there is a very real risk that the proposals in the Consultation Paper will have the effect of putting all current FBO plans for LLC network roll-out and expansion on hold whilst ever it looks like the significantly easier and cheaper option of free-riding on SingTel’s LLC network is available. In SingTel’s view, there is accordingly no way that the proposals in the Consultation Paper could be regarded as

¹³ Refer to “Competition Issues in the Telecommunications Industry”, Written Statement of Michael Powel, before the Committee on Commerce, Science and Transportation, United States Senate, 14 January 2003.

encouraging facilities based roll-out, which is the only form of sustainable competition in the long term interests of end-users.

4.4 Mandatory wholesale LLC rates will deter SingTel from further LLC network investment and roll-out

Mandated wholesale discounts (particularly if they are in the order of the 40% discount currently referred to in the Consultation Paper) will fundamentally undermine the incentive for SingTel to invest in upgrading and extending its LLC network, as they will increase the cost of raising capital, reduce the commercial returns necessary to justify the risk involved in this type of investment.

These risks associated with mandated access to existing infrastructure have been acknowledged by telecommunications regulators in many overseas jurisdictions. For example, in the UK, Oftel has noted:

“Mandating open access could lead to a number of costs being incurred. Perhaps most importantly, requiring open access can reduce incentives to invest and innovate by raising the risk (at the margin) that the costs involved in these activities will not be fully recovered. It may also increase the cost of raising capital for the operator concerned which could hinder investment. The cost of this incentive effect is likely to be greater in new and rapidly developing communications markets which are characterised by high levels of innovation and investment, than in more established communications markets. If open access to a particular network were to hamper investment and innovation then consumers could ultimately encounter less choice of services and face higher prices”¹⁴

Clearly, further investment in and roll-out of SingTel’s LLC network is likely to be of benefit to end-users in extending the accessibility of LDS services and reducing end-user costs by enabling the realisation of efficiencies gained from the latest technology developments. It is regrettable that the proposals in the Consultation Paper will result in reduced incentive for SingTel to invest in upgrading and extending its LLC network.

4.5 Mandatory wholesale LLCs will undermine government policy in facilitating regulated access to SingTel’s Unbundled Network Elements (UNEs)

Many of the alternatives discussed above in section 3.3 for providing end-user LDS open to FBO’s (rather than simply free-riding on SingTel’s LLCs) are generated by making use of

¹⁴ “Open Access: Delivering Effective Competition in Communications Markets”, Statement issued by the Director General of Communications, April 2001, p 9.

SingTel's UNE's such as ULL, which SingTel is already required to provide on request at IDA determined cost-based rates. FBOs may acquire ULL and offer LLC services at bandwidths up to and including 2Mbit per second or deploy other technologies such as xDSL.

For example, Pacific Internet Ltd is deploying DSL based networks and has already sought, and obtained, access to co-location space in requested SingTel local exchanges and access to SingTel's ULL at IDA determined cost-based rates under SingTel's RIO.

SingTel understands that the IDA's policy grounds for requiring it to provide access to its UNEs to non-dominant FBOs was, similar to the IDA's rationale in encouraging full facilities based competition, so that FBOs could use UNEs to build new and innovative products addressing end-user needs in flexible, new and innovative ways. In either case (full facilities based competition or competition based on use of SingTel's UNEs), the consumer benefits more substantially than if FBO's simply resell existing SingTel retail offerings.

SingTel submits that requiring it to provide its wholesale LLCs at mandated wholesale rates will remove any incentive for FBOs to provide innovative service offerings to end-users based on use of their own facilities or on SingTel's UNEs. What will result is much more limited derivative offerings based on SingTel's retail LLC products, rather than innovative and truly competitive LDS service offerings bringing additional benefits to end-users. This will be to the clear detriment of end-users, and an abrupt departure from the IDA's previous policy stance.

5. KEY ISSUES FOR CONSIDERATION IF THERE IS TO BE DESIGNATION

5.1 Introduction

Notwithstanding SingTel's submissions above that the IDA should not designate its LLC service as a mandatory wholesale service, SingTel submits that the IDA should carefully consider the configuration and capacity of the LLC service if (which SingTel disagrees with) the IDA decides to designate the service. This is consistent with Regulatory Principles under the Code which state that IDA *"will seek to impose regulatory requirements that are carefully crafted to achieve the IDA's stated goals. Such requirements will be no broader than necessary to achieve the IDA's stated goals"* (cl 1.5.3).

SingTel submits that the availability of any mandatory LLC service should be limited to Qualifying FBOs which qualify according to transparent LLC network investment criteria set by the IDA in order to avoid blatant free riding by SingTel's competitors. Qualifying FBOs should also be subject to performance bonds which may be forfeited in the event that they fail to meet the commitments.

There are also a number of technical issues that SingTel submits should be considered by the IDA as follows, for the reasons expressed further below:

- the mandatory wholesale LLC service should only be designated between a end user location and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location. Qualifying FBOs would be provided with co-location space at the SingTel local exchange in order for the Qualifying FBOs to perform aggregation, grooming or other network related tasks concerning the LLC terminated at the network location;
- the mandatory wholesale LLC service should be for the 2Mbit/s bandwidth only given the substitutes for and competitiveness of alternative bandwidths. ULL can be acquired under the RIO to offer bandwidths up to and including 2Mbit/s. Furthermore, the majority of LLCs acquired by FBOs are at the 2Mbit/s bandwidth;
- the mandatory wholesale LLC service should not apply to connections to end user locations in CBD areas, where the supply of LLC is highly competitive with multiple LLC networks including StarHub and MCI;
- the mandatory wholesale LLC service should not cover end-to-end end user to end user circuits entirely through the SingTel LLC network because to do so would mean that the Qualifying FBO provides no part in, and adds nothing to, the LLC service. The Qualifying FBO simply free-rides on the SingTel LLC network thereby requiring no investment and eliminating any incentive to build infrastructure in Singapore in direct contradiction to the IDA's stated intention of facilitating facilities based competition as a priority in Singapore;
- the mandatory wholesale LLC service should not cover end-to-end end user to end user circuits not via the SingTel LLC network because it would not be an efficient use of SingTel's network if SingTel was required to build end user-end user links without passing through SingTel's network;
- the mandatory wholesale LLC service should not cover connections to Qualifying FBOs network sites whether at one end or both ends because to do so would mean that the LLC is delivered to the Qualifying FBOs "doorstep" thereby eliminating any incentive to roll-out infrastructure in Singapore in direct contradiction to the IDA's stated intention of facilitating facilities based competition as a priority in Singapore;
- the mandatory wholesale LLC service should not require SingTel to be responsible for value-added services such as grooming or aggregation as this is most efficiently

provided by the Qualifying FBO at the physical co-location point made available by SingTel at the SingTel local exchange as described above; and

- the mandatory wholesale LLC service should not cover capacity between the co-location space at the SingTel local exchange serving the end user location and the Qualifying FBOs own network location site because this capacity can be provided by the Qualifying FBO or acquired at a wholesale price filed and approved by the IDA.

SingTel has described the relevant mandatory wholesale LLC service if the IDA chooses to designate such a service (despite market evidence which shows regulatory intervention is unwarranted and unjustified) in sections 5.3 and 5.4. SingTel also describes possible approaches to pricing principles and the duration of any such designation.

5.2 Availability of designated service

SingTel notes that mandatory wholesale services required to be provided under section 5.3.5.7 of the Code are only available to requesting licensees who are FBOs. Further, in order to reduce the distortion of incentives for FBOs to roll-out their own infrastructure that will necessarily result from any designation of a mandatory wholesale LLC service, SingTel submits that it is essential that access to such a service is limited to Qualifying FBOs which qualify according to transparent LLC network investment criteria set by the IDA and should be subject to performance bonds.

SingTel notes that this was the approach adopted in relation to its previously designated mandatory wholesale dark fibre and wholesale international private leased circuit services. Furthermore, if such privileges were to be extended to foreign affiliated FBOs, SingTel would also expect that this would be matched by a reciprocal obligation upon the FBO in its home country.

5.3 Service configuration

- (a) **LLC between an end user location and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location**

SingTel submits that any designation of a mandatory wholesale LLC should be for LLC provided between an end user location and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location only. As discussed above, the IDA needs to carefully balance the incentives to invest in infrastructure and the facilitation of competition in the Singapore telecommunications

market. As SingTel has submitted above, SingTel does not believe that any regulatory intervention is necessary.

If regulatory intervention does occur, SingTel strongly believes that this intervention should be targeted. The IDA should not intervene to prop-up the profitability of competitors or to allow competitors to free ride on SingTel's infrastructure investment.

The most appropriate way in which the IDA can target regulation in such a way that does not completely compromise investment incentives is to target the designation of mandatory wholesale LLCs where such circuits connect to end user locations. That is, the service description for mandatory wholesale LLC should connect, at one end, an end user location and the other end to the Qualifying FBO's equipment physically co-located at co-location space within the SingTel local exchange serving the end user location .

End user locations are those valid legal locations of end users located in Singapore where the site is genuinely occupied by the end user and the LLC is to be used for their own purposes and not to be used for resale or free riding off SingTel's network.

Qualifying FBOs would be provided with physical co-location at the SingTel local exchange serving the end user location. Qualifying FBOs would be able to perform aggregation and grooming at this point and would also be able to co-locate network equipment related to the termination of the mandatory wholesale LLC at the co-location site in the SingTel local exchange serving the end user location.

Therefore, and for the further reasons expressed below, the designation should not provide for direct end-user-to-end user connections nor connection of Qualifying FBO network locations.

(b) Bandwidth limitation to 2Mbit/s

SingTel submits that any designation (which it does not support) should be limited to bandwidths to an end user location of 2Mbps. At lower bandwidths, there are many substitutes available as discussed above in section 3.3. These substitutes include ISDN, Frame Relay, DSL (including through the use of SingTel ULL acquired under the SingTel RIO), ATM, IP VPN, UNE/ULL and WLL.

At higher bandwidths, economies of scale enable many providers to provide high bandwidth capacity to large customers. These customers are also often multi-national companies with links to foreign service providers and hence it is likely that foreign service providers have an advantage over SingTel in relation to the supply of leased capacity to these providers.

So far as 2Mbit/s capacity is concerned, SingTel believes that there are low barriers to entry and that service provision of 2Mbit/s LDS is highly competitive. However, if SingTel is to be required to provide LLC on a mandated wholesale basis, SingTel believes that any such regulation should be confined to this bandwidth capacity level, as this is the bandwidth of LLC that is overwhelmingly currently being acquired from SingTel by its competitors.

We would also note that such a limitation is commensurate with the market demand for LLCs. The vast majority of LLCs acquired by FBOs are at the 2Mbit/s bandwidth. Accordingly, limiting the designation to 2Mbit/s bandwidths would target regulation where there is currently demand.

(c) Geographical limitation to non-CBD end user locations

In addition to the requirement specified above about connectivity between an end user site and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location, SingTel believes that any designation should be limited to end user sites located outside CBD areas. End user connectivity in the CBD areas of Singapore is clearly competitive and should not form part of any designation.

Singapore's small geographic size and its clearly defined CBD/Metro areas and industrial, science, business and technology parks mean that cost and time associated with deploying network infrastructure is not a significant barrier. This is demonstrated by the speed with which StarHub and MCI have been able to deploy extensive LLC networks in Singapore.

Accordingly, SingTel submits that any designation of a mandatory wholesale LLC service should not cover LLCs in CBD and other areas where there are already two or more LLC infrastructure suppliers, or where competitive supply of LLC infrastructure is very likely to develop in the near future. Not only is designation clearly unnecessary to stimulate competition in such areas, it is also likely to be highly detrimental to prospective infrastructure-based competition as it will provide a strong incentive for ongoing reliance on resale based competition and a disincentive to infrastructure investment.

(d) No end-to-end end user-to-end user links entirely through SingTel's network

SingTel is concerned to ensure that any mandated LLC service does not allow for free riding off the SingTel network by allowing Qualifying FBO's to connect LLC circuits between end user sites without passing through Qualifying FBO equipment or infrastructure. The mandating of an LLC service should be seen as a stepping-stone towards Qualifying FBO's investing in their own infrastructure. By allowing Qualifying FBO's to resell an end-to-end customer link through SingTel's network but without using the Qualifying FBO's equipment

or infrastructure would severely undermine infrastructure based competition and is contrary to the IDA's stated objective.

SingTel therefore submits that any designation of the LLC service should be between an end user location and equipment installed by the Qualifying FBO at the technically feasible SingTel local exchange serving the end user.

(e) No end-to-end end user-end user links

SingTel strongly submits that any designation of a mandatory wholesale LLC should not cover direct end-to-end end user links which do not pass through a SingTel local exchange.

SingTel's position is supported by the analysis performed by the ACCC on this issue when examining the market for data services. As part of that enquiry, the ACCC supported the following positions of Telstra and Optus and reached the following conclusions:

“Optus submitted that the proposed amendments to the service description may result in a transmission service which does not connect to or in any way intersect with an access provider's network. Similar concerns were expressed by Telstra in its submission.....

Optus argued that the declaration of an end-to-end service is inconsistent with the [long term interests of end users]. ‘In particular, it would not be an economically efficient use of infrastructure to require Access Providers to provide isolated bits of transmission capacity which are in no way linked to the telecommunications network of the Access Provider’ (Optus submission at page 20)...

Based on evidence gathered during the public inquiry it is the Commission's view that access providers should not be required to provide transmission capacity between points which do not connect with or intersect with their networks.”¹⁵ (emphasis added)

It is important for the IDA to note that Qualifying FBOs could still connect up multiple customer locations by acquiring different designated LLCs. End user to end user links via the SingTel network could be provided by the Qualifying FBO if the Qualifying FBO connected up two or more LLCs via the Qualifying FBO's network.

¹⁵ ACCC, *Competition in data markets: Final Report*, October 1998, at pp 38-39.

(f) No connections to Qualifying FBO network sites or other locations

As submitted above, SingTel believes that any designation (which SingTel does not believe is warranted) should only extend to connections between an end user location and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location. SingTel strongly believes that any designation should be focused on providing customer benefits rather than simply allowing Qualifying FBO's to acquire SingTel's LLC services at cheaper prices in order to cream skim or to free-ride off the SingTel network. To this end, SingTel does not believe that connections to Qualifying FBO's network locations should be required as part of any designation of the mandatory wholesale LLC service.

That is, SingTel would not support a requirement where the designated mandatory wholesale LLC service required SingTel to provide connectivity to or between Qualifying FBOs network locations. SingTel has discussed above in section 4 the likely impact of designation of the mandatory wholesale LLC service on the efficient use of and investment in network infrastructure in Singapore. SingTel has also discussed in section 5.2 limiting the LLC service to Qualifying FBOs in order to protect infrastructure based competition.

If designation of the mandatory wholesale LLC service is extended to requiring SingTel to connect Qualifying FBOs network locations then the very essence or heart of a Qualifying FBOs roll-out responsibility could be usurped and passed on to SingTel. Qualifying FBOs would have no incentive to build infrastructure in Singapore if they could lease lines from SingTel and connect all of their network locations in this way.

The ultimate outcome of a designation of mandatory wholesale LLC service which covers connectivity to Qualifying FBOs network locations would be that Qualifying FBOs would only install their own switches and connect these network locations using SingTel's network. In other words, SingTel's network would become the principal or only network infrastructure in Singapore, with Qualifying FBOs devices connected to it. Use of SingTel's network infrastructure in this way would result in "cream-skimming" and would clearly eliminate any incentives to invest in infrastructure.

Therefore, SingTel does not support any designation of a mandatory wholesale LLC service which would require SingTel to connect Qualifying FBOs network locations.

(g) Connections between SingTel Co-location site and Qualifying FBOs network location

From the above discussion, SingTel submits that any designation (which it does not support) should be limited to connectivity between an end user location and a Qualifying FBO's

equipment physically co-located at a technically feasible SingTel local exchange serving the end user location. As also described, Qualifying FBOs may then request physical co-location at the SingTel local exchange.

SingTel strongly submits that connectivity from the SingTel local exchange (eg where the Qualifying FBOs has co-location space to terminate mandatory wholesale LLCs) to the Qualifying FBOs network location should not be regulated. The Qualifying FBOs can, and should be expected to, build its own infrastructure between the SingTel local exchange and the Qualifying FBOs own network location site or lease a wholesale service already filed and approved by IDA from SingTel in order to do so.

It is likely that connectivity between the co-location site at the SingTel local exchange and the Qualifying FBOs network location would be at higher bandwidths than the end user connection due to aggregation by the Qualifying FBOs at the co-location site. Higher bandwidth capacity between the co-location site at the SingTel local exchange and a Qualifying FBOs network location should not be regulated because the Qualifying FBO can self-build or acquire a filed and approved wholesale connection service.

(h) Grooming and aggregation as the Qualifying FBOs responsibility

As discussed above, if a mandatory wholesale LLC service is designated (which SingTel does not support), then such connectivity should be limited to connections between end user locations and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location. Qualifying FBOs would physically co-locate at this SingTel local exchange. At this location, Qualifying FBOs are able to manage their network in such a way as they see fit and are able to aggregate/groom traffic. Such network management is the Qualifying FBOs responsibility and they may do so at the SingTel co-location space. In any case, grooming is a valued added service that even end users are able to perform or their system integrators can perform by using standalone equipment.

5.4 Service description

As stated above, SingTel does not support designation of the mandatory wholesale LLC service. If SingTel's position is not accepted, SingTel believes that such designation should be defined by reference to the following parameters:

- the LLC service is a point-to-point digital clear channel transmission service provided over lines with bandwidth of 2 Mbit/s on a permanent basis between an end user location (excluding CBD, industrial park and business park locations) and a

Qualifying FBO's equipment co-located at a technically feasible SingTel local exchange;

- the mandated LLC service excludes connectivity to or between Qualifying FBO network locations, whether at one or both ends;
- the mandated LLC service excludes end-to-end end user-to-end user connectivity where such connectivity passes through neither a Qualifying FBO network location or a SingTel local exchange.

5.5 Pricing principles

The Consultation Paper refers to a range of options for determining mandated rates for any designated SingTel LLC Service, including a cost-based approach, a “retail-minus” approach, and a “retail minus avoidable cost” approach.

In keeping with the IDA's stated regulatory approach of placing primary reliance on market forces, SingTel remains of the view that the most appropriate pricing of mandatory wholesale LLCs will result not from adopted any of these regulated pricing approaches, but rather by allowing SingTel to commercially develop and offer a wholesale tariff. As the IDA is aware, SingTel has previously voluntarily developed and offered wholesale LLCs and was in the process of filing a wholesale tariff for its wholesale LLC service when the IDA issued the Consultation Paper.

In the event that the IDA adopts regulated pricing approach, SingTel submits that the discount of around 40% off SingTel's published retail LLC prices suggested in the Consultation Paper is both unreasonable and unworkable. The IDA has not provided any analysis or basis as to how it arrived at the proposed 40% discount figure as one which “*could be possible*”. Even more importantly, the IDA has provided absolutely no analysis or basis as to why a wholesale price that is “significantly below SingTel's proposed retail prices” – such that in the order of the 40% discount proposed - would in any way be necessary in order ensure the competitive outcomes proscribed in the Code.

Given the current state of market pricing for LDS services both in Singapore and overseas, and the importance of adequate commercial returns to provide appropriate incentives for ongoing infrastructure investment, in the event that mandatory wholesale LLCs were designated, SingTel would support a retail-minus approach to wholesale prices, rather than a cost-based approach. This will ensure that wholesale prices remain appropriately tied to competitive developments and provide the least distorting impact on incentives for infrastructure investment. On the same basis, SingTel submits that the level of wholesale discount mandated should be tiered, based on factors including the Qualifying FBOs volume

of capacity acquired, overall spend and term commitments, as such a discount structure most closely replicates market-based pricing.

Accordingly, SingTel strongly believes that SingTel's prices should be assessed at the time SingTel notifies the IDA of its price ranges according to the process under the SingTel RIO. The IDA should not, in particular, set an expectation in the marketplace of a particular discount at this point in time.

If the IDA were truly minded to stimulate further LDS competition that would be in the immediate and long term interests of end-users, then SingTel submits that the proposal in the Consultation Paper should be abandoned in favour of allowing SingTel greater flexibility to price its LDS according to market driven commercial imperatives. SingTel should also be exempted from the dominant licensee obligations in respect of local leased circuits because these obligations impose inflexible and costly tariffing arrangements on SingTel which mean that end users do not receive the full benefit of competition for such services.

5.6 Duration of designation and mandated wholesale prices

The Consultation Paper proposes to set prices for any designated mandatory wholesale LLC service for a period of 2 to 3 years. It is not entirely clear from the Consultation Paper, but SingTel presumes that it is proposed that designation will have effect for the same period. As the LDS market in Singapore is a dynamic and rapidly evolving one, and given that it is the IDAs intention to further stimulate competition and innovation in this market, SingTel submits such a lengthy designation period with wholesale prices set so far in advance is likely to distort the competitive development of the LDS market in Singapore. It is also clear from the speed with which MCI and StarHub have been able to roll out their LLC networks that extensive and competitively effective LLC infrastructure can be developed by non-dominant FBO's in periods significantly less than 2 to 3 years.

SingTel accordingly submits that any decision to designate mandatory wholesale LLCs and any level of mandated wholesale pricing should be effective for a period of no longer than 12-18 months. Designation for any longer will be both unnecessary and unduly harmful to the development of infrastructure-based competition in the LDS market. A designation period of 12-18 months would also be consistent with the periods for which SingTel has been required to offer other designated mandatory wholesale services under its RIO.

6. RESPONSES TO IDA QUESTIONS

In Annex A, SingTel summarises its responses to the IDA's questions, together with references to the relevant sections of this submission which elaborate upon those summarised responses.

7. CONCLUSION

In conclusion, SingTel submits that the LLC service should not be designated by the IDA. LLCs form part of a larger LDS market which is highly competitive in terms of price, quality and number of offerings and competitors, is subject to low barriers to entry and has been the subject of significant investment since liberalisation. The designation will cause significant detriment to existing and future investment in infrastructure in Singapore. If the LLC service is designated, it should be limited in the manner suggested in this submission in order to protect, to the extent possible, infrastructure based competition in Singapore.

ANNEX A – SINGTEL’S RESPONSES TO THE QUESTIONS IN THE CONSULTATION PAPER

- (a) 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.**

SingTel submits that LLCs are part of a broader, highly competitive LDS market. The substitutability of LLC with one or more other LDS products is widely recognised. Both the LDS market and the LLC segment of that market are highly competitive. There are at least 4 FBOs in Singapore offering one or more LDS products. There are low barriers to entry in the LDS market and prices of LDS in Singapore are cheap by international standards. SingTel faces significant competition in the LDS market and since liberalisation has lost LLC sales to its competitors in CBD/Metro and non-CBD areas. [see sections (3) and (4)]

- (b) 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?**

The IDA’s proposed measures would not be effective in stimulating network roll-out by competing operators in the longer term. Market forces are more effective than regulation in promoting competition. [see sections (3) and (4)].

The proposed additional regulation will undermine genuine infrastructure competition, reducing incentives for operators to invest in rolling out network across Singapore and risks significantly devaluing the investment in infrastructure that operators have made to date.

The ability for non-dominant FBOs to acquire SingTel’s LLC at wholesale rates and sell them without incurring the expense and risk associated with rolling out infrastructure on their own will act as a strong incentive for FBOs to rely on the resale of SingTel LLCs rather than in rolling out their own networks.

The most effective way for the IDA to facilitate further effective competition in the LDS market, lower business costs and enhance Singapore’s position as an info-communications and business hub, would be to remove the present retail pricing constraints imposed on

SingTel through price caps and SingTel's obligations due to designation as a dominant operator. [see section (5)]

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

Should the IDA designate mandatory wholesale LLCs, designation should be limited to bandwidths of 2Mbit/s. [see sections (5.1) to (5.4)].

- (d) **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.**

A mandatory wholesale LLC service should only be available to Qualifying FBOs who have committed to investing in infrastructure according to a transparent process established by the IDA.

LLCs should only be designated between an end user location and a Qualifying FBO's equipment physically co-located at a technically feasible SingTel local exchange serving the end user location. The designation should not apply to connection in CBD areas because supply of LLCs in the CBD is highly competitive with at least three (3) competing alternative networks.

The mandated LLC service should not allow for free riding off SingTel's network and should not therefore permit Qualifying FBO's to require SingTel to provide an end-to-end end user-to-end user service without passing through a Qualifying FBO's network or the SingTel network.

The designated service should not cover connections to the Qualifying FBOs network sites because to do so would remove any incentive to build infrastructure in Singapore. Designation should not require SingTel to be responsible for grooming or aggregation as this is most efficiently provided by the Qualifying FBOs. Designation should not cover capacity between the SingTel co-location site at the SingTel local exchange and the Qualifying FBOs network location as this can be provided by the Qualifying FBOs or acquired at IDA filed and approved tariffs [sections (5.1) to (5.4)]

- (e) **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.**

An appropriate pricing of mandatory wholesale LLCs would not result from either a cost-based, a “retail-minus” approach or a “retail minus avoidable cost” approach. The most appropriate pricing of wholesale LLCs is to allow SingTel to commercially develop and offer a wholesale tariff. The discount of around 40% off SingTel’s published retail LLC prices is unreasonable and unworkable. In the event that mandatory wholesale LLCs were designated, SingTel would support a retail-minus approach to wholesale prices, rather than a cost-based approach. The level of wholesale discount mandated should be tiered, based on factors including the FBOs volume of capacity acquired, overall spend and term commitments, i.e., a discount structure that would most closely replicated market-based pricing.. [see section 5.5]

- (f) **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. 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.**

As the LDS market in Singapore is a dynamic and rapidly evolving market, and the IDA’s intention is to further stimulate competition and innovation in the market, a lengthy designation period of 2 to 3 years is likely to distort the competitive deployment of the LDS market in Singapore. Furthermore, LLC infrastructure can be developed by non-dominant FBOs in periods significantly less than 2 to 3 years. Any decision to designate should not be for a period longer than 12-18 months. A designation period of 12-18 months would also be consistent with the periods for which SingTel has been required to offer other designated mandatory wholesale services under its RIO. [see section (5.6)].