CONSULTATION PAPER ISSUED BY THE INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY OF SINGAPORE

PRELIMINARY DECISION REGARDING THE REQUEST OF SINGAPORE TELECOMMUNICATIONS LTD FOR EXEMPTION FROM DOMINANT LICENSEE OBLIGATIONS WITH RESPECT TO THE "INTERNATIONAL CAPACITY SERVICES" MARKET

25 NOVEMBER 2004

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PART I: INTRODUCTION

1 Singapore Telecommunications Ltd ("SingTel") has requested the Info-communications Development Authority of Singapore ("IDA"), pursuant to Section 2.6.1 of the Telecommunication Competition Code ("Code"), to exempt it from the application of most Dominant Licensee requirements contained in the Code for 10 separate categories of services – consisting of 28 separate product offerings – that, collectively, SingTel labels the "International Capacity Services" or "ICS" market.[1] A copy of SingTel's Exemption Request ("SingTel's Request"), together with IDA's First Public Consultation Paper on SingTel's Request, is available on the IDA website.

2 Based on its review of the evidence, IDA has arrived at a Preliminary Decision regarding SingTel's Request. Specifically, IDA has concluded that SingTel's Request should be granted in part and denied in part. This Consultation Paper describes: SingTel's Request; the feedback received in response to IDA's First Public Consultation Paper and through interviews with industry participants and end users; the legal standard and procedures that IDA uses to assess Requests for Exemption; IDA's analysis of SingTel's Request; IDA's Preliminary Decision; and the procedures for submitting comments regarding the Preliminary Decision.

PART II: EXECUTIVE SUMMARY

3 IDA has determined that the 28 product offerings for which SingTel has requested an exemption do not constitute a single market because they are not reasonable substitutes for each other. Rather, most of these product offerings fall within 10 separate markets: Backhaul, Terrestrial International Private Leased Circuits ("Terrestrial IPLC"), International Managed Data Services ("IMDS"), International IP Transit, Leased Satellite Bandwidth, Very

[1] SingTel has not asked to be exempted from the interconnection obligations contained in Section 5 of the Code.

Small Aperture Terminal ("VSAT") Service, Digital Video Broadcast-IP ("DVB-IP"), Satellite TV Uplink, Satellite TV Downlink, and Satellite IPLC.

4 Based on the evidence, IDA has concluded that, 4 years after the full liberalisation of the Singapore telecommunications market, continued imposition of Dominant Licensee regulation is no longer necessary for services that SingTel provides in the IMDS, International IP transit, leased satellite bandwidth, VSAT, DVB-IP, Satellite TV Uplink, Satellite TV Downlink and Satellite IPLC markets. There is little evidence that SingTel has significant market power, or the ability to impede competition, in these markets. IDA, therefore, proposes to grant in full SingTel's Request as applied to its product offerings in these markets.

5 IDA has further determined that, while competition is developing in the Backhaul and Terrestrial IPLC service markets, these markets are only partially competitive. Therefore, IDA proposes to reject SingTel's Request in these markets. However, IDA has taken significant measures – especially the implementation of the LLC and Cable Landing Station decisions[2] – that IDA expects will promote competition in downstream markets, including the Backhaul and Terrestrial IPLC markets. Therefore, IDA is prepared to review the status of these markets in two years and, based on competitive conditions at that time, will determine whether a grant of an exemption is appropriate.

PART III: SINGTEL'S REQUEST

6 SingTel has submitted a Request for Exemption to IDA, pursuant to Section 2.6.1 of the Code, asking IDA to exempt it from the application of Dominant Licensee obligations to services that SingTel provides in the "ICS market", on the basis that the ICS market is "vigorously competitive". SingTel has provided a non-exhaustive list of 10 service categories that it claims are within this ICS market. SingTel has further identified 28 separate product offerings that, it contends, are all within these 10 service categories. **Table 1** identifies the 10 service categories for which SingTel seeks an exemption, and the specific product offerings that SingTel indicated are within each service category. A Glossary, which contains further description of each service category, is attached as **Annex A**.

[2] See IDA's Decisions on Mandating Wholesale of SingTel's Local Leased Circuits (16 Dec 2003) and Allowing Greater Access to Cable Landing Stations (10 Sep 2004) on the IDA website at www.ida.gov.sg.

Table 1 – SingTel's List of Service Categories for Which Exemption is Sought

International Capacity Service Category (SingTel Request)	SingTel Product Offerings
Domestic Backhaul	• Backhaul (to GNCC) • Point-to-Point Backhaul • Standard Point-to-Point Backhaul • Backhaul with Interface Protection • Point-to-Point Backhaul with Interface Protection
International Private Leased Circuits (IPLC)	• ConnectPlus Bilateral IPLC • ACASIA IPLC • ConnectPlus N2N (Node-to-Node) IPLC
International Frame Relay (FR)	• Bilateral FR • ConnectPlus FR • ACASIA FR • Infonet FR
International Asynchronous Transfer Mode (ATM)	• Bilateral ATM • ConnectPlus ATM • ACASIA ATM • Infonet ATM
International Internet Protocol – Virtual Private Network (IP-VPN)	• ConnectPlus IP-VPN
IP transit	• Standard Universal Internet Access service • Prioritised Asia Direct Universal Internet Access service • SingTel EXPAN MyNetwork Service
Leased Satellite Bandwidth (LSB)	• SingTel LSB Service
Very Small Aperture Terminal (VSAT)	• SingTel Global VSAT
Digital Video Broadcast – IP (DVB-IP)	• SingTel DVB-IP Service

Satellite TV uplink/downlink	• SingTel Telecast Local Access Service • SingTel Occasional Telecast Video/Audio Switching (Teleswitch) Service • Permanent Telecast Uplink/Downlink Service • Occasional Telecast Uplink/Downlink Service • Telecast Broadcast Fibre Network Service

7 SingTel requested IDA to exempt it from the application of each of the following specific Dominant Licensee requirements to any service that it provides that falls within the "ICS market":

(a) Section 3.3.1 – Duty to provide service on demand;
(b) Section 3.3.2 – Duty to provide service at just and reasonable prices, terms and conditions;
(c) Section 3.3.3 – Duty to provide service on a non-discriminatory basis;
(d) Section 3.3.4 – Duty to file and provide service pursuant to tariffs;
(e) Section 3.3.5 – Duty to provide unbundled telecommunication services;
(f) Section 5.8.1 – Duty to allow resale of end-user telecommunication services;
(g) Section 5.8.2 – Duty to allow sales agency;
(h) Section 5.8.3 – Duty to tariff and make wholesale telecommunication services generally available;
(i) Section 7.2.1 – Pricing abuses (e.g., predatory pricing, price squeezes and cross-subsidisation); and
(j) Section 7.2.2 – Other abuses (e.g., discrimination and predatory network alteration).

8 In its Request, SingTel contends that the product offerings for which it sought an exemption are all within a single market. SingTel claims that each of these product offerings (other than backhaul) is substitutable, and that backhaul should be included in the ICS market "because it is bundled or clustered with international capacity." SingTel also claims that the geographic market in which it provides ICS is regional or global, and that IDA should not conduct a route-by-route analysis. SingTel further asserts that the ICS market is a "vigorously competitive" market characterised by substantial capacity, multiple competitors, numerous alternative technologies, low entry barriers, substantial price declines and significant product diversity. Finally, SingTel notes that the Hong Kong telecommunication regulator, OFTA, had exempted Reach from dominant licensee requirements applicable to its provision of "external bandwidth" services.

9 IDA released SingTel's Request, along with a Consultation Paper, on 4 March 2004 ("First Public Consultation Paper").

PART IV: FIRST PUBLIC CONSULTATION ON SINGTEL'S REQUEST

10 Eight parties filed comments in response to IDA's First Public Consultation Paper: AT&T, BT, Cable & Wireless, Macquarie, MCI, M1, Reach and StarHub. The comments are posted on the IDA website.

11 Each of the commenters opposed SingTel's Request. Some of the commenters went further, asking IDA to summarily dismiss SingTel's Request. The commenters contended that:

(a) SingTel had not correctly defined the relevant product and geographic markets in which it provides the product offerings for which it seeks an exemption.

(b) SingTel had failed to provide "verifiable data" regarding market shares, market concentration, price trends, international benchmarks and barriers to market entry.

(c) SingTel had not demonstrated why each Dominant Licensee obligation from which it is requesting exemption is no longer necessary to protect end users and preserve effective competition for each service.

(d) SingTel had not adequately addressed the effect of its vertical integration on its ability to act anti-competitively in the provision of the product offerings for which it seeks an exemption.

(e) SingTel had improperly relied on the decision of the Hong Kong regulator, OFTA, to reclassify Reach as non-dominant in the provision of external bandwidth services, despite significant factual distinctions between the two markets and the scope of SingTel's Request.

12 IDA subsequently requested additional information and sought clarifications from SingTel and other major industry participants. IDA also conducted interviews with the parties that filed comments, other significant industry participants, several end users and SingTel.

13 IDA thanks all parties for their active participation. The information and comments that were provided significantly facilitated and assisted IDA to objectively assess SingTel's Request and in reaching this Preliminary Decision.

PART V: IDA'S ASSESSMENT FRAMEWORK

Requirements Under the Code

14 Under the Code, a Licensee that is classified as a Dominant Licensee must comply with certain provisions applicable to Dominant Licensees when it provides any telecommunication service pursuant to that licence. The Code recognises, however, that, over time, a Dominant Licensee's services may become subject to competition in certain markets in which it participates. Therefore, the Code provides that, as competition develops, IDA will cease applying regulations to the Dominant Licensee's services that are no longer necessary to prevent Dominant Licensees from acting anti-competitively.

15 Section 2.6.1 of the Code sets out the basic procedures and standards governing requests for exemption from any special provision applicable to Dominant Licensees. Specifically, Section 2.6.1 provides that:

> *"A Dominant Licensee that seeks exemption from any special requirements applicable to such Licensees should submit an application to IDA that identifies the specific provisions (with subsection numbers) of this Code from which the Licensee seeks exemption. The Dominant Licensee must demonstrate that continued application of the provision to a specific facility and/or service is not necessary to protect End Users or promote and preserve effective competition amongst Licensees. The Dominant Licensee must provide verifiable data to support its request."*

16 Pursuant to Section 2.6.1 of the Code, the Dominant Licensee is responsible for providing "verifiable data" that supports its request for an exemption. This evidence must persuade IDA that, if it grants the Dominant Licensee's Request for Exemption, the Dominant Licensee will not be able to act in a manner that harms consumers or impedes competition.

17 In a case, such as the present one, in which the Dominant Licensee seeks to be exempted in connection with specific telecommunication services, the Dominant Licensee generally should submit verifiable data regarding:

(a) the relevant market(s) for the telecommunication services for which the Licensee seeks an exemption;

(b) the participants in the market;

(c) the Licensee's market share;

(d) the level of concentration in the market;

(e) the barriers to entry into the market;

(f) the likelihood of timely and sufficient increases in output (either through new entry or the provision of additional services by current market participants) in response to a significant and non-transitory price increase by the Licensee; and

(g) the likelihood that End Users would respond to a significant and non–transitory price increase by switching to a competing service provider.

Economic Framework

18 In assessing a Request for Exemption, IDA will seek to apply economic analysis to determine whether the Dominant Licensee is subject to effective competition in the market in which it seeks an Exemption, and whether the regulations are necessary to protect end users or competition. Exemption from Dominant Licensee obligations will generally be appropriate when a Licensee does not have significant market power in a market. In some cases in which a market is increasingly competitive, but not yet effectively competitive, it may be possible to remove certain regulations, while retaining those that remain necessary.

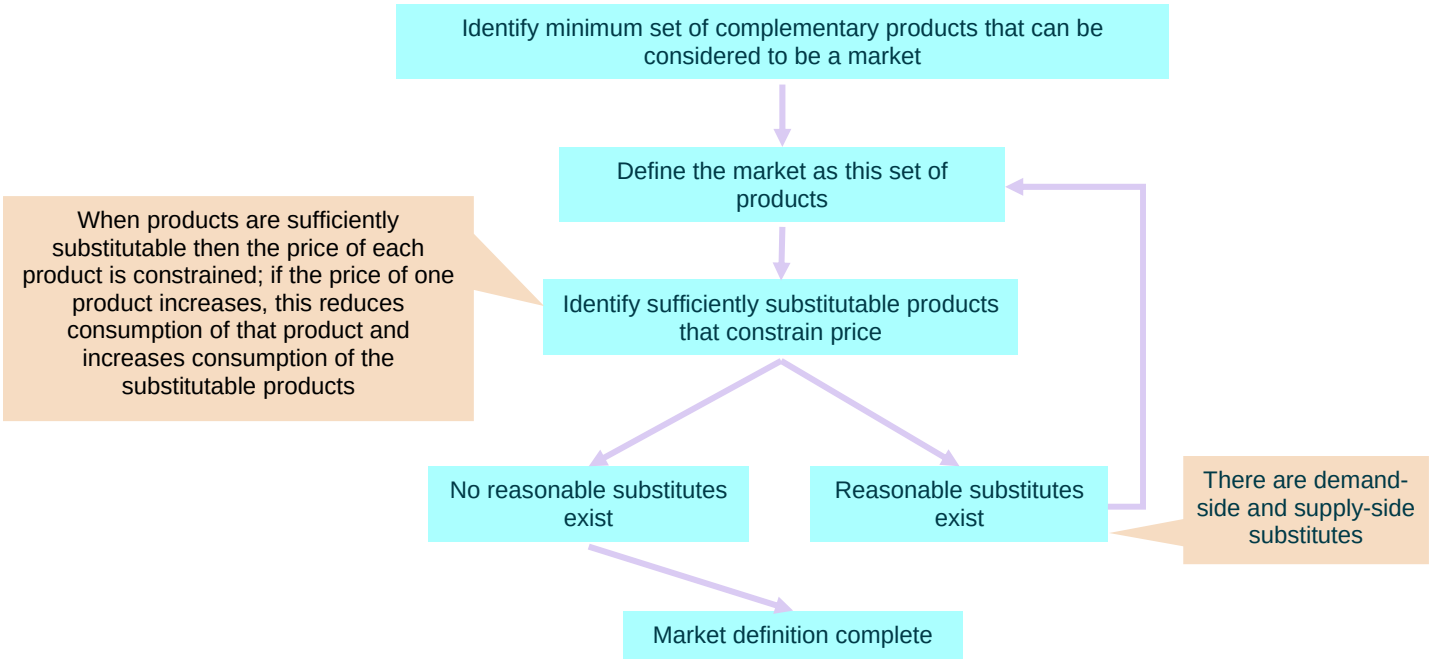
Market Definition

19 To determine if a Dominant Licensee has significant market power for the services for which it has requested an exemption, IDA will first determine the relevant service and geographic markets in which the Dominant Licensee provides the service for which an Exemption is sought, as illustrated below:

(a) The relevant service market for a telecommunication service provided by the Dominant Licensee consists of both the specific telecommunication service for which the Dominant Licensee seeks an exemption and any additional telecommunication service that buyers regard as interchangeable with, or a substitute for, the Dominant Licensee's telecommunication service. IDA will consider which other product offerings customers would switch to if, following the grant of an exemption, the prices charged by the Dominant Licensee for the exempted telecommunication services increased by a small but significant, non-transitory amount. To do so, IDA may consider whether a hypothetical monopoly operator controlling the entire supply of the specific service for which the Dominant Licensee seeks an exemption would be constrained from profitably imposing a small but significant non-transitory increase in price above the competitive level (typically 5 to 10 percent for a year or more) because a sufficient number of consumers of the service would switch to another service, thereby rendering the price increase unprofitable. If the hypothetical monopolist would be constrained, IDA will include the service in the market definition. IDA will repeat this process until no additional

services could constrain the profitability of a price increase by the hypothetical monopoly. IDA may also consider which other telecommunication product offerings have a similar function, characteristic or customer base as the Dominant Licensee's telecommunication product offerings. The market definition process is illustrated in **Figure 1**, below.

Figure 1 – The market definition process



(b) IDA will also consider the relevant geographic markets. The relevant geographic market for a telecommunication service provided by a Dominant Licensee consists of the geographic area in which the Dominant Licensee (and other Licensees that provide substitutable telecommunication services) provides telecommunication services and any additional geographic locations from which customers would obtain those services if prices charged by the Dominant Licensee increase by a small but significant, non-transitory amount. In practice, IDA will consider those areas that have similar competitive conditions to be in the same geographic market.

(c) IDA will also determine whether a service is provided at the wholesale level (*i.e.,* whether the product is provided to other Licensees), the retail level (*i.e.,* whether the product is provided to end users), or both levels. In some cases, there may be significant differences in the service that Licensees offer to wholesale and retail customers. For example, the wholesale service may be offered at a different price, or have different functionality, than the retail service. In some cases, this may reflect regulatory obligations, such as the imposition of a

mandatory wholesale discount. In those cases in which there are material differences between the wholesale and retail services that preclude the two services from being demand substitutes, IDA will consider the wholesale and retail services to be in separate markets. By contrast, in many cases, Licensees will offer similar functionality, at similar prices, to both wholesale and retail customers. In such cases, IDA will consider the wholesale and retail services in to be in the same service market.

Assessing Competitiveness

20 IDA will next analyse the competitiveness of the market by determining the market participants and their market shares.

(a) In seeking to measure market share, IDA may look at revenues, capacity or any other relevant unit of measurement. Where reliable information is available, IDA will seek to use the unit of measurement that best reflects the characteristics of the market. For example, in markets for "upstream" services that could be used as an input for other services, and in which self-supply accounts for a significant portion of the market, capacity may be a more reliable measure than revenue because it is often not feasible to assign revenues to self-supplied inputs.[3]

(b) IDA will not impose an absolute maximum market share above which it will not consider an exemption request. However, all things being equal, a larger Dominant Licensee market share corresponds with a greater potential ability to act anti-competitively and, therefore, a greater need to retain regulation. In particular, IDA will make an initial presumption that a Dominant Licensee that has a market share in excess of 40 percent has significant market power.

21 Besides the market share, IDA will also consider other factors that would increase or decrease the ability of the Dominant Licensee to act anti-competitively. This includes the extent to which:

(a) the market is concentrated (*i.e.,* the number, and size, of participants in the market besides the Dominant Licensee);

(b) other licensees can enter, or expand their participation in, the market – including the possibility of supply substitution (*i.e.,* the ability of a

[3] In general, counting capacity that a Licensee provides to itself is necessary to assess fully the ability of the Licensee to exercise market power. However, where a Licensee provides one service to itself, and a *different service* to other customers, IDA will not consider the two services to be in the same market. For example, in the International Telephone Service (ITS) Exemption Decision, IDA did not consider SingTel's provision of raw international capacity to itself for the provision of retail ITS service to be in the same market as its provision of wholesale international traffic "minutes" to services-based Licensees.

supplier to relatively costlessly shift productive resources from another market into the market under consideration in response to a price increase in the latter market);

(c) the Dominant Licensee's customers can switch service providers;

(d) "strong" customers can exercise countervailing buying power; and

(e) the Dominant Licensee has the ability to leverage market power in vertically integrated markets.

22 Finally, IDA will consider evidence of actual market performance. This includes evidence regarding:

(a) price and/or non-price competition in the market; and

(b) any prior anti-competitive conduct by the Dominant Licensee.

23 In some cases, IDA may conclude that, even though different product offerings may theoretically be in different markets, it is appropriate to assess the need for continued regulation of these product offerings together because they are subject to similar market conditions.

24 IDA will also consider whether granting the exemption will have any pro-competitive benefits, such as allowing the Dominant Licensee to introduce new services or respond more quickly to changing market conditions.

25 IDA will give special scrutiny to requests by a Dominant Licensee that seek exemption from the prohibitions, contained in Section 7 of the Code, against abusing its dominant position. These prohibitions, which are derived from the general principles of competition law as developed in other jurisdictions, generally do not impose *ex ante* obligations on a Dominant Licensee. Rather, they provide an effective means of enforcement in the event a Dominant Licensee abuses its dominant position. Thus, to the extent that a Dominant Licensee has any reasonable possibility of regaining significant market power in a market, retaining these prohibitions may be necessary to deter potential anti-competitive conduct.

PART VI: IDA'S ASSESSMENT

IDA's Acceptance of SingTel's Request

26 IDA notes the divergence in views between SingTel and the competing operators. After conducting a detailed assessment, IDA does not accept SingTel's contention that all of the service categories for which it has sought an exemption should be considered to be in a single "international capacity services" or "ICS" market. IDA also believes that OFTA's decision to declare

Reach non-dominant in the "external bandwidth services" market is of little relevance to SingTel's Request due to significant differences in market conditions and market structures between the Singapore and Hong Kong.

27 Nonetheless, IDA has determined that it would not be appropriate for IDA to summarily reject SingTel's Request for the following reasons:

(a) SingTel's Request provides an adequate basis for industry to provide meaningful comments. SingTel first submitted the Request to IDA on 27 March 2003. SingTel's submission made broad claims about the competitiveness of the ICS market and lacked sufficient market data and economic analysis to justify the claims. IDA therefore asked SingTel to resubmit its Request. IDA did not initiate the public consultation until SingTel had expanded its Request and provided a significant amount of confidential information in its latest revised Request.

(b) SingTel's proposed market definition does not preclude consideration of its Request. IDA recognises that it is not uncommon for a market participant to define a market in which it participates, and for which it seeks exemption from regulatory obligations, as broadly as it can in order to make the market appears as competitive as possible. However, SingTel's market definition does not bind IDA. Rather, IDA's responsibility is to assess all available information and make a determination regarding the actual level of competition for the specific services for which the Dominant Licensee seeks an exemption.

28 Rather than dismissing SingTel's Request, IDA concluded that it would be more appropriate for IDA to make SingTel's Request public and to seek the industry's views. IDA therefore released SingTel's Request for public comment on 4 March 2004. The comments and information received from the consultation and interviews from the industry and end users have allowed IDA to better assess the appropriateness of SingTel's market definition and the competitiveness of the markets concerned.

Economic Analysis

Market Definition

29 The evidence collected during the First Public Consultation and interview process does not support SingTel's contention that all of the product offerings for which it has sought an exemption should be considered to be in a single "ICS" market. The 28 product offerings that IDA analysed plainly are not all reasonable substitutes for each other. As an initial matter, because of significant price and performance differences, customers do not view cable-based and satellite-based services as substitutes. Even within the cable and satellite segments, some services – such as IPLC and leased satellite bandwidth – are inputs into other services. Other services plainly perform different functions. For example, a customer who wants to uplink content from Singapore will not view downlink services as an acceptable substitute.

30 Consistent with the economic assessment framework described in PART V, IDA has concluded that the product offerings for which SingTel has sought an exemption fall within 10 separate service markets:

(a) Backhaul;
(b) Terrestrial IPLC;
(c) International Managed Data Services ("IMDS");
(d) International IP Transit;
(e) Leased Satellite Bandwidth;
(f) Very Small Aperture Terminal ("VSAT");
(g) Digital Video Broadcast-IP ("DVB-IP");
(h) Satellite TV Uplink;
(i) Satellite TV Downlink; and
(j) Satellite IPLC.

Please refer to **Annex B** for a diagrammatic representation of the various service markets. IDA's assessment of each of the service market is further described below.

The Backhaul Market

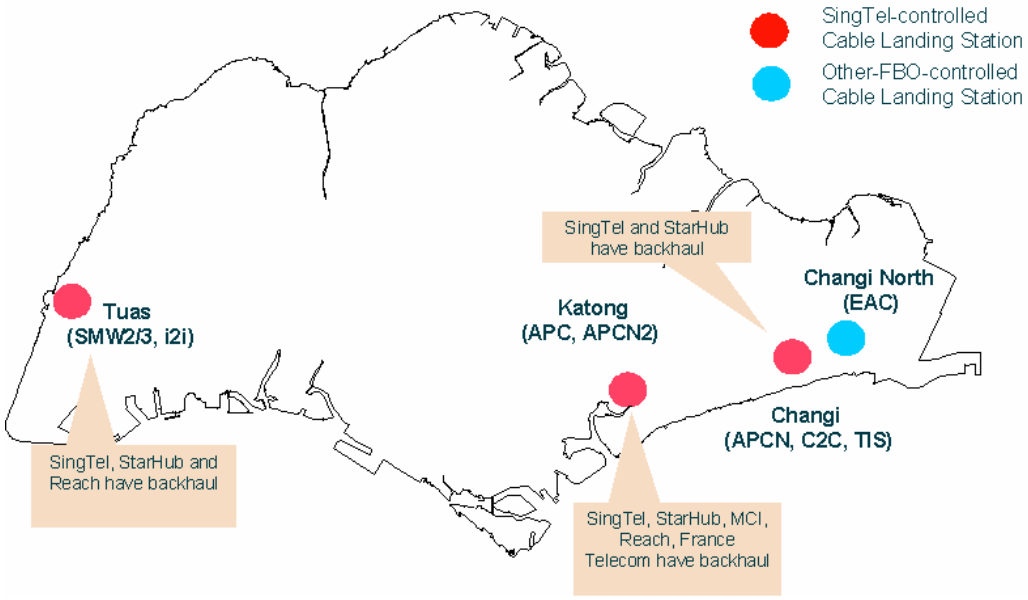
31 The backhaul service market consists of services that use fibre optic links to enable a Licensee that has capacity on an international submarine cable system to transport that capacity from a cable landing station in Singapore to the Licensee's international gateway or point-of-presence ("POP") in Singapore. The backhaul market includes both self-provided backhaul (*i.e.,* the provision of backhaul, by a Licensee, to itself) and third-party backhaul (*i.e.,* the provision of backhaul, by a Licensee, to another Licensee). Both services are in the same market because a Licensee who uses self-provided backhaul would consider third-party backhaul to be a reasonable substitute. There are, however, no other substitutes for backhaul. In particular, due to the remote locations and restrictions on connections at cable landing stations, LLCs – while providing the same functionality – are not a reasonable substitute for backhaul.

32 IDA considered the suggestion, made by several commenting parties, that it define separate markets for backhaul services provided in connection with each cable system. This approach has some theoretical justification. As shown in **Figure 2** below, Singapore has four cable landing stations. IDA recognises that backhaul of capacity on a cable system that lands at one cable landing station is not a substitute for backhaul of capacity that lands at a different cable landing station. However, as discussed further below, each backhaul route on which SingTel provides service is generally subject to similar competitive conditions. Therefore, it is reasonable to assess all routes together.

33 The geographic market in which SingTel offers backhaul is national. Customers in Singapore that require backhaul service must purchase it from a backhaul provider within Singapore.

34 Backhaul is provided exclusively on a wholesale basis. The only customers are Licensees seeking to access capacity on international submarine cables.

Figure 2 – Cable landing stations in Singapore



The Terrestrial International Private Leased Circuit Market

35 The Terrestrial IPLC service market consists of services, provided over submarine cables, that offer customers the exclusive use of a point-to-point, dedicated transparent transmission path for voice, data or video between a location in Singapore and a location outside of Singapore.[4]

36 IDA considered, but rejected, the option of defining a broader service market that includes satellite-based IPLCs, Indefeasible Rights of Use ("IRUs"), and IMDS.

(a) IDA has concluded that there are two separate IPLC service markets: one consisting of IPLCs provided via undersea submarine cables, and the other consisting of IPLCs provided via satellite. Satellite-based IPLCs are not a substitute for Terrestrial IPLCs because satellite-based IPLCs have significantly higher cost and relatively inferior performance characteristics. Customers today typically use satellite-based IPLC only to reach locations that cannot be accessed using Terrestrial IPLC.

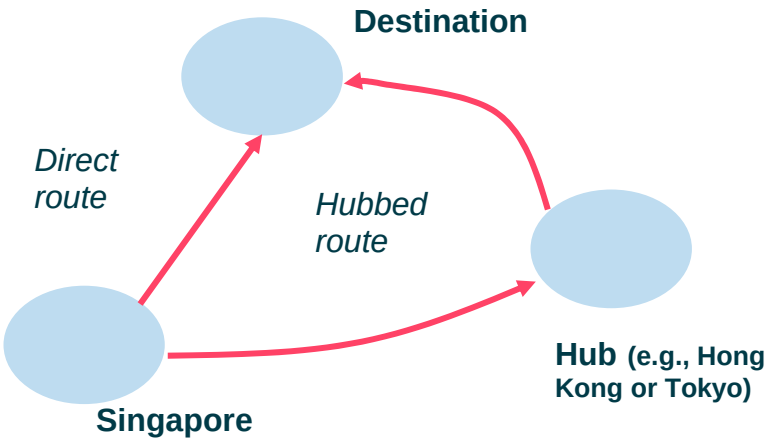
[4] This market includes SingTel's Telecast Broadcast Fibre Network Service, which allows permanent/occasional video/audio transmission through fibre networks for content providers and corporate customers to distribute content between Singapore and overseas.

(b) IDA also has concluded that the Terrestrial IPLC service market does not include capacity obtained pursuant to an IRU[5]. IRUs are not substitutes for Terrestrial IPLC because they do not have transmission capability and do not include the "dry" segment (i.e., they do not extend beyond the cable landing station). IRUs also usually do not have the same service level guarantees as Terrestrial IPLC. Rather than acting as a substitute for IPLCs, IRUs can provide the international capacity input used to offer IPLCs.

(c) Finally, IDA has concluded that the Terrestrial IPLC service market does not include International Managed Data Services ("IMDS"), such as ATM, Frame Relay and IP-VPN. While interviews with end users revealed that, as IPLC prices have fallen, some large corporate users have migrated from IMDS to IPLC, these customers would be unlikely to migrate back even if IPLC prices increase because they could not recover the cost of setting up their IPLC networks. In any case, for most IPLC customers, IMDS are not substitutes because IMDS provide a different service: managed network capability among multiple points, rather than pure dedicated connectivity between two points.

37 IDA has considered whether it should treat each Terrestrial IPLC route as a separate market and assess separately the competitiveness of each IPLC route. While some commenting parties support this approach, SingTel contends that route-by-route assessment is inappropriate because a customer in Singapore can access any destination by hubbing through Hong Kong or Tokyo. The difference between direct and hubbed access is illustrated in **Figure 3.**

Figure 3 – Direct versus hubbed access



[5] IRU is the effective long-term lease (temporary ownership) of a portion of the capacity of a submarine cable. IRUs are specified in terms of a certain number of channels of a given bandwidth. IRU is granted by the company or consortium of companies that built the cable.

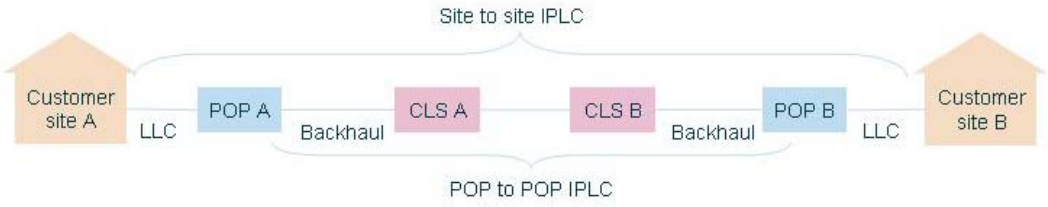
38 IDA has assessed that by-and-large the evidence does not support SingTel's contention. While hubbing is technically possible, evidence gathered during the public consultation and interview process indicates that – as the market develops and where direct connections are available – hubbing has ceased to be an economically or a technically acceptable substitute for a direct connection because of increased latency (delay) and the increased likelihood of service interruption. However, IDA recognises that where no direction connection is available, such as the route between Singapore and Vietnam, hubbing will be used.

39 Nonetheless, IDA does not believe that it is necessary to treat each route as a different market. Although IDA recognises that each route is theoretically a different market and hence, a route-by-route market definition may be appropriate, in the present case, as further described below, it is sufficient for IDA to review the competitiveness of the Terrestrial IPLC market as a whole.

40 The geographic market in which SingTel offers Terrestrial IPLC services is national; it consists of all Terrestrial IPLC purchased in Singapore (so-called "A-end" sales). Some large wholesale customers in Singapore might consider obtaining connectivity to a second country by purchasing an IPLC from that country to Singapore (so-called "B-end" sales). However, the evidence gathered by IDA during the public consultation and interview process indicates that most retail customers in Singapore would not consider this a viable alternative because of the difficulty of managing a facility provisioned by an operator in a foreign country. Therefore, IDA does not believe that B-end sales are in the relevant market.

41 Terrestrial IPLCs may be provided on a wholesale or retail basis. When a wholesale customer purchases an IPLC, it typically buys connectivity between its Point-of-Presence in Singapore and its Point-of-Presence in another country ("POP-to-POP IPLCs"). The wholesale customer will then buy an LLC in each country in order to provide end-to-end service, which can be purchased by its retail customers ("Site-to-Site IPLCs"). This is illustrated in **Figure 4** below.

Figure 4 – Wholesale and retail IPLCs



Note: Diagram for POP-to-POP IPLCs is simplified for illustration purposes. Some POP-to-POP service providers may require domestic connections from their local network to SingTel's POP before reaching the Cable Landing Station ("CLS").

42 Despite the differences between wholesale and retail Terrestrial IPLCs, the evidence indicates that both services are subject to similar competitive conditions. Indeed, in many cases, Licensees provision and price the two services similarly. For example, when SingTel provisions a Terrestrial IPLC to a retail customer, the retail customer must purchase a SingTel LLC between SingTel's POP and the customer location. Similarly, when SingTel provisions an IPLC to a wholesale customer that has not collocated at SingTel's POP, the wholesale customer will have to purchase a SingTel LLC between SingTel's POP and the wholesale customer's POP. Thus, in practice, the competitive conditions applicable to both wholesale and retail are similar. IDA, therefore, has assessed the wholesale and retail Terrestrial IPLCs together.

The International Managed Data Services Market

43 The IMDS market consists of services – such as ATM, Frame Relay, and IP-VPN – that provide managed connectivity among multiple customer sites, at least one of which is located outside of Singapore. These services allow for data to be prioritised, in order to ensure that more time-sensitive data is delivered more rapidly.

(a) IDA recognises that there are certain differences among the 3 services. Frame Relay and ATM provide connectivity by means of a permanent virtual circuit; IP-VPN provides logical connections among sites, either over the public Internet or private networks. Frame Relay, moreover, typically provides service at speeds below 2 Mbps, which is significantly slower than most ATM services. Nonetheless, because customers can substitute between small IP-VPN ports and Frame Relay, and between large IP-VPN ports and ATM, and because providers of Frame Relay can easily provide ATM and vice versa, IDA considers it appropriate to view these services to be in the same market.

(b) By contrast, although there has been evidence of customers switching from Frame Relay and ATM to IPLC as IPLC prices have declined, feedback gathered by IDA during interviews suggests that this is fairly limited and that most customers do not view point-to-point IPLC as a reasonable substitute for a managed data network. Moreover, because service providers could also use IPLCs as inputs to provide IMDS, IPLCs are not a substitute for IMDS. IPLCs, therefore, do not appear to be in the same market as IMDS.

44 The geographic market for IMDS is national; it consists of all sales of IMDS made within Singapore. IMDS are typically purchased on a network basis, which connects multiple customer sites globally or regionally. A company that has its headquarter in Singapore typically will have its network hub in Singapore and, therefore, will purchase IMDS in Singapore (A-end sales).

Such customers are unlikely to locate the network hub in a different country in order to buy IMDS from an operator in that country. Therefore, sales of International IMDS in other countries (B-end sales) are not substitutes for IMDS sold in Singapore.

45 IMDS are typically provided on a retail basis. Indeed, most operators report that they have no wholesale IMDS customers. In principle, however, a Licensee could purchase IMDS on similar prices, terms and conditions as a retail customer.

The International IP Transit Market

46 The International IP Transit service market consists of the provision of a service, for compensation, in which one operator terminates international Internet traffic on its network or transits the Internet traffic for termination on a third operator's network.

(a) The International IP Transit service market includes both carrier-class Internet backbone products (such as SingTel Internet Exchange ("STIX") services), and IP transit services offered to customers who are co-located in data centres (such as SingTel's EXPAN MyNetwork product). While there are qualitative differences between the services (only STIX offers no overbooking), the networks used to provide both services are similar.

(b) By contrast, the International IP Transit service market does not include dedicated Internet access. That service, which ISPs provide to customers, offers dedicated Internet connectivity that would require the customer to subscribe to a domestic LLC.

47 The geographic market in which SingTel offers International IP Transit services is national; it consists of sales of IP transit to customers in Singapore. While some customers in Singapore might be able to purchase service from a provider elsewhere in the region, the customer would have to incur the cost of purchasing an IPLC from Singapore to the provider's location. In general, customers are not likely to do so because the costs of the IPLC would outweigh any savings from purchasing the IP Transit service outside of Singapore.

48 International IP Transit service is sold to both wholesale and retail customers. However, there is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Indeed, most Licensees provide only a single International IP Transit offering, which is used by both wholesale and retail customers. Therefore, both wholesale and retail International IP Transit services are in the same market.

The Leased Satellite Bandwidth Market

49 The Leased Satellite Bandwidth services market consists of the provision of the satellite transmission ("space segment") capacity between Singapore and one or more locations outside of Singapore. Leased Satellite Bandwidth is an input for other satellite services for point-to-multi-point communications or communications to remote locations, for which it is not economical to use terrestrial infrastructure. There is no substitute for this service.

50 The geographic market in which SingTel provides Leased Satellite Bandwidth services is regional. Customers in Singapore that want to send information to, or receive information from, another country can access space segment capacity on any satellite that can "see" both Singapore and the other country. In addition to SingTel's ST-1, other regional/global satellite systems that are accessible from Singapore include those of Apstar, Asiasat, Measat, Palapa, Thaicom, Intelsat, PanAmSat and New Skies. This is illustrated in **Figure 5**.

Figure 5 – The Leased Satellite Bandwidth market consists of all satellites that can be assessed from Singapore

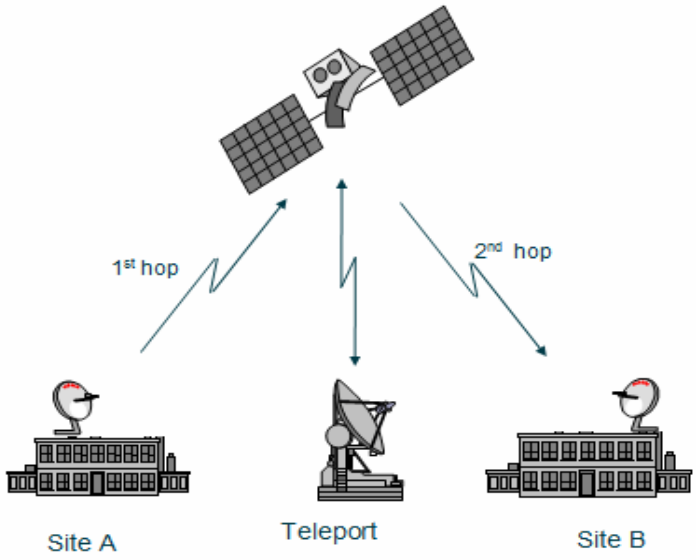
51 IDA considered whether it is appropriate to define separate markets for Leased Satellite Bandwidth on satellites that can be used to communicate with locations for which there is significant demand and those satellites that serve low-volume routes. Based on the feedback during the interviews, IDA concluded that it is not necessary to do so because most satellite traffic can be routed through any satellite than can be accessed from Singapore.

52 Leased Satellite Bandwidth can be sold to both retail and wholesale customers. However, there is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Therefore, both wholesale and retail Leased Satellite Bandwidth services are in the same market.

The VSAT Service Market

53 The VSAT service market consists of the provision of a service that uses Leased Satellite Bandwidth to transmit data or video between or among small-diameter satellite dishes located at multiple customer locations, at least one of which is located outside of Singapore. The VSAT signal typically transits between customer sites via a ground-based central controller. VSAT service is illustrated in **Figure 6**. VSAT service is generally used either for: (a) point-to-multi-point communications or (b) communications with remote locations, for which it is not economical to use terrestrial infrastructure. There are no reasonable substitutes for VSAT service.

Figure 6 – Operation of a VSAT network



54 The geographic market in which SingTel provides VSAT service is regional. Customers in Singapore can obtain VSAT service from any provider that has capacity on a satellite that can be accessed from Singapore.

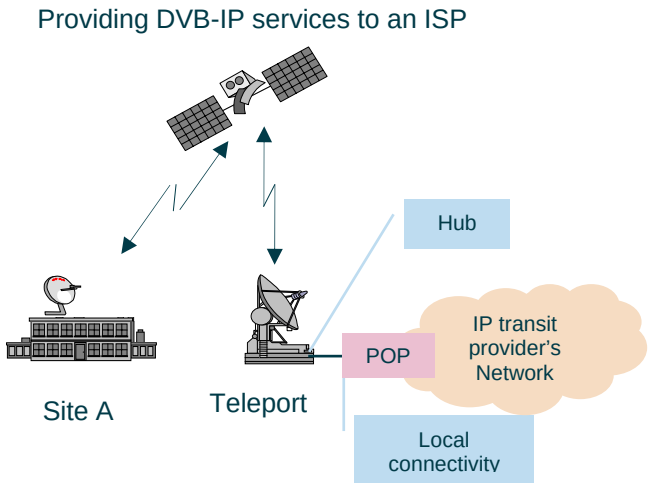
55 VSAT services are typically provided to retail customers, but can be purchased by wholesale customer for resale. There is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Therefore, both wholesale and retail VSAT services are in the same market.

The DVB-IP Service Market

56 The DVB-IP service market consists of the transmission of data or video, in Internet Protocol, between a hub and multiple sites, at least one of which is located outside of Singapore. DVB-IP services are typically used to send content to, or receive content from, remote locations. For example, DVB-IP service can be used to connect Internet cafes in developing countries to an Internet exchange (such as STIX or Equinix) located in Singapore. (To be

able to provide Internet connectivity to these customers, a DVB-IP provider needs to be connected to an Internet gateway for an IP transit connection.) Similarly, a Singapore-based company can use DVB-IP to transmit information to remote corporate offices. DVB-IP service is illustrated in **Figure 7**.[6]

Figure 7 – Operation of a DVB-IP network



57 The geographic market in which SingTel provides DVB-IP services is regional. Customers in Singapore can cost-effectively obtain this service from regional providers, via an IP-based connection, from Singapore.

58 DVB-IP services are provided to both retail and wholesale customers. However, there is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Therefore, both wholesale and retail DVB-IP services are in the same market.

The Satellite TV Uplink Market

59 The Satellite TV Uplink service market consists of the provision of capacity for the transmission of broadcast content from a satellite television earth station in Singapore to a satellite for delivery to a country outside Singapore.

(a) Satellite TV Uplink services are in a separate market from Satellite TV Downlink services. A customer in Singapore that seeks to send satellite TV content to another country cannot use satellite downlink service. Rather, the customer must use a satellite uplink service, which requires different (and more costly) facilities.

(b) IDA recognises that some satellite systems (such as Intelsat and New Skies) use circular polarisation, while other satellite systems use linear polarisation. Although different types of antennas must be used to

[6] Because DVB-IP services different customers, is used for different purposes and is delivered using different equipment and spectrum, it is not a substitute for VSAT services.

uplink signals to each type of satellite, IDA does not believe it is necessary to define separate markets based on the type of polarisation that a Licensee uses. Customers seeking to uplink content to a specific location generally can choose from among multiple satellites, some of which use linear polarisation and some of which use circular polarisation. Therefore, customers generally will consider uplink services that use linear and circular polarisation to be substitutes.

60 The geographic market in which SingTel provides Satellite TV Uplink service is national. A customer in Singapore that wants to uplink its content must use an uplink facility located in Singapore.

61 Satellite TV Uplink services are provided to both retail and wholesale customers. However, there is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Therefore, both wholesale and retail Satellite TV Uplink services are in the same market.

The Satellite TV Downlink Market

62 The Satellite TV Downlink service market consists of the provision of capacity for the transmission of broadcast content that originates in a country outside Singapore, from a satellite, to an earth station in Singapore. For the reasons discussed above, Satellite TV Uplink and Downlink are in separate service markets.

63 The geographic market is national. A customer in Singapore that wants to downlink content must use a downlink facility located in Singapore.

64 Satellite TV Downlink services are provided to both retail and wholesale customers. However, there is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Therefore, both wholesale and retail Satellite TV Downlink services are in the same market.

The Satellite IPLC Market

65 The Satellite IPLC service market consists of services that provide a dedicated transmission path, over satellite, for voice and data between a location in Singapore and a location outside of Singapore. The service provides end-to-end connectivity using an LLC, uplink/downlink and space segment capacity. As discussed above, Satellite IPLCs are not in the same service market as Terrestrial IPLCs. Satellite-based IPLCs have significantly higher cost and relatively inferior performance characteristics. Customers typically use satellite-based IPLCs only to reach locations that cannot be accessed using terrestrial IPLC. They are also used for point-to-multi-point

communications, where using a satellite-based service is more cost-effective than purchasing multiple terrestrial IPLCs.

66 The geographic market is national. A customer in Singapore that wants to purchase a Satellite IPLC from Singapore to a location outside of Singapore must obtain a service that includes an LLC, an uplink and a downlink in Singapore.

67 Satellite IPLCs can be provided to both retail and wholesale customers. However, there is no evidence that Licensees provide different functions, or price services at different levels, for wholesale and retail customers. Therefore, both wholesale and retail Satellite IPLCs are in the same market.

68 **Table 2** provides a summary of the markets defined by IDA and the specific SingTel services that are in each market.

Table 2 – List of Relevant Markets Defined by IDA

Relevant Market	***SingTel Product offerings***
Domestic Backhaul	• Backhaul (to GNCC) • Point-to-Point Backhaul • Standard Point-to-Point Backhaul • Backhaul with Interface Protection • Point-to-Point Backhaul with Interface Protection
Terrestrial International Private Leased Circuits (IPLC) (National)	• ConnectPlus Bilateral IPLC • ACASIA IPLC • ConnectPlus N2N (Node-to-Node) IPLC • Telecast Broadcast Fibre Network Service
International Managed Data Services (IMDS) (National)	• Bilateral FR • ConnectPlus FR • ACASIA FR • Infonet FR • Bilateral ATM • ConnectPlus ATM • ACASIA ATM • Infonet ATM • ConnectPlus IP-VPN
IP Transit (National)	• Standard Universal Internet Access service • Prioritised Asia Direct Universal Internet Access service • SingTel EXPAN MyNetwork Service

Leased Satellite Bandwidth (LSB) (Regional)	• SingTel LSB Service
Very Small Aperture Terminal (VSAT) (Regional)	• SingTel Global VSAT
Digital Video Broadcast – IP (DVB-IP) (Regional)	• SingTel DVB-IP Service
Satellite TV Uplink (National) and Satellite TV Downlink (National)	• Permanent Telecast Uplink/Downlink Service • Occasional Telecast Uplink/Downlink Service
Satellite IPLC (National)	• Bilateral IPLC service (via satellite).

IDA's Assessment of Competitiveness of the Relevant Service Markets

The Backhaul Market

69 Competition has been developing in the Backhaul market. A number of operators have entered the market, and prices have fallen. Besides SingTel, there are other backhaul players in the market such as MCI, Reach and StarHub.

70 However, the evidence indicates that SingTel continues to have significant market power in this market. When both self-supply and the provision of third-party backhaul are considered, SingTel continues to have a market share of around 50 percent. This is sufficient to give rise to a presumption of significant market power. Indeed, while competition has developed on backhaul for cable systems such as SMW3 and APCN2, SingTel remains the only supplier of backhaul for C2C, i2i and TIS cables.

71 A number of other factors demonstrate that SingTel continues to have significant market power in the Backhaul market. SingTel controls three of the four cable landing stations in Singapore and is potentially able to leverage its control over the cable landing stations in a manner that could limit competition in the Backhaul market.

(a) First, prior to 10 September 2004, only competing Licensees meeting certain conditions were permitted to use facilities located at a SingTel cable landing station to backhaul. Specifically:

(i) Only FBOs that owned cable capacity in the form of an IRU in the submarine cable system landing at SingTel's cable landing station were allowed to obtain Connection Service and Co-location Space at the cable landing station;

(ii) An FBO that co-located in SingTel's cable landing station was required to own IRUs in a submarine cable system before it was allowed to connect a third party FBO's cable capacity in that submarine cable system and provide backhaul service to that third party FBO; and

(iii) An FBO that co-located in SingTel's cable landing station was required to own IRUs in the submarine cable systems before it was allowed to provide transit service between these submarine cable systems to a third party.

As a result of these restrictions, competing Licensees were precluded from providing third-party backhaul and transit services on any cable system that landed at a SingTel cable landing station on which the competing Licensee did not have IRU capacity. Competing Licensees were also precluded from providing backhaul and transit services for non-IRU capacity (such as capacity obtained pursuant to long-term leases) either for themselves or for other Licensees. IDA's decision of 10 September 2004 reduced the restrictions on access to cable landing stations. However, it will take some time for the competitive impact of this decision to be seen in the market.

(b) Second, industry participants expressed concerns that SingTel continues to have the potential ability to impede competition in the provision of Connection Services at its cable landing stations. As the name implies, Connection Services enable a Licensee to connect its domestic backhaul facilities at SingTel's cable landing station in order to access its international capacity. A Licensee that wants to backhaul capacity from a SingTel cable landing station must use SingTel's Connection Service. Pursuant to its Reference Interconnection Offer ("RIO"), SingTel must provide Connection Service within 30 working days of receiving a request from a competing facilities-based Licensee. Industry participants expressed concerns that SingTel may be impeding competition by taking the full 30-working-day period to provide this service to other Licensees, while providing Connection Service to itself in a shorter period of time.

(c) Third, entry barriers to the Backhaul market are high because of the amount of time and investment needed to build the network infrastructure for backhaul.

72 Evidence of actual market performance further supports the conclusion that SingTel retains significant market power in the Backhaul market. Although SingTel reduced its backhaul prices by 80 percent since 2001, evidence gathered during the interviews suggests that SingTel's backhaul prices remain significantly higher than prices charged by other Licensees. SingTel's charges for backhaul are also higher than its charges for LLCs – which provide similar functionality.[7] There is also little backhaul service competition on the SingTel-controlled cables, such as TIS and i2i, on which SingTel declines to sell IRUs. This evidence suggests that SingTel retains significant market power in the Backhaul market and that the market has not yet developed to a stage where IDA can remove any of the dominant licensee obligations imposed on SingTel.

73 Given the above findings, IDA has determined not to grant SingTel's Request for an exemption for the Backhaul market. However, IDA believes that the implementation of Cable Landing Station decision, which requires SingTel to eliminate many restrictions concerning access to its cable landing station, should enhance competition in downstream markets, such as the Backhaul market. IDA, therefore, is prepared to review the competition in the Backhaul services market two years after the effective date of this decision. This should allow for sufficient time to assess the full effect of the cable landing station decision. Based on that review, IDA will remove any regulation that it determines is no longer necessary.

The Terrestrial International Private Leased Circuit Market

74 Like the Backhaul market, the market for Terrestrial IPLC has seen increasing competition. New operators such as Asia Netcom, Cable & Wireless, MCI, Reach and StarHub have entered the market, and prices have fallen. SingTel has also reduced its prices by up to 95 percent since market liberalisation in 2000.

75 However, despite the increasing competition, the evidence demonstrates that SingTel retains significant market power in this market. SingTel's market share remains high both in the aggregate and on selected routes, based on capacity sold to end users and other Licensees.

(a) Overall, SingTel's estimated share of the Terrestrial IPLC market remains in excess of 60 percent, which is well above the significant market power presumption level.

(b) IDA also assessed the level of competition on SingTel's 10 largest routes (where competition would be expected to be most developed).

[7] IDA recognises that, due to the risk of stranded investment, it may be reasonable for SingTel to price backhaul at a level that is modestly higher than its LLC rates. However, SingTel's current backhaul charge which – in some cases, is about twice as much higher than its retail LLC rates – reflects high degree of market power.

Based on information provided by industry players, IDA estimated that SingTel has a market share of less than 40 percent on only two of its top 10 routes – the Singapore-Hong Kong and Singapore-Japan routes. SingTel's estimated market share remains in excess of 90 percent for five of its top 10 routes.

76 A number of other factors demonstrate that SingTel continues to have significant market power in the Terrestrial IPLC market.

(a) SingTel controls the two essential inputs required to provide Terrestrial IPLC. In order to provide a Terrestrial IPLC, a competing Licensee must connect to the capacity at a cable landing station and must backhaul that capacity to its POP within Singapore. As discussed above, for cables that land at a SingTel cable landing station, SingTel is the only provider of Connection Services. SingTel also continues to have significant market power in the provision of Backhaul.

(b) SingTel also has the ability to leverage its dominant position in the provision of LLC when competing in the market for Terrestrial IPLC. A Licensee that wants to provide a Terrestrial IPLC to an end user typically must also provide the end user with an LLC between the Licensee's POP and the end user's premises. Therefore, in most cases, if a competing Licensee wants to provide an IPLC to an end user, the competing Licensee must obtain the LLC from SingTel. According to industry participants, the cost of the Singapore LLC constitutes a significant portion of the total cost of the LLC-IPLC "package". Licensees have expressed significant concern that SingTel could use its dominant position in the provision of LLC to impede competition in the market for Terrestrial IPLC by subjecting competing Licensees to a price squeeze.

77 IDA has already taken action to address the competitiveness of the LLC market. In December 2003, IDA mandated that SingTel offer wholesale LLC to competing FBOs at prices that are discounted by up to 50 percent off the retail prices for up to two years. However, due to SingTel's appeal to the Minister for Information, Communications and the Arts, IDA's LLC decision was not implemented until October 2004. As a result, this decision has not yet had a significant effect on the market.

78 The fact that SingTel has a lower market share on the Hong Kong and Japan routes does not indicate that competition is currently feasible on all routes. Rather, SingTel's lower market share on these routes reflects the fact that they are being served by many cable systems including C2C, APCN2 and East Asia Crossing (EAC) cables. EAC lands at Changi North – the only cable landing station that is not controlled by SingTel. Licensees that have capacity on EAC do not need to use SingTel-provided Connection Service or

SingTel-provided Backhaul. Licensees that seek to serve other routes, by contrast, remain dependent on SingTel.

79 As mentioned earlier, IDA does not intend to define markets, or grant exemptions, on a route-by-route basis. Granting an exemption on certain routes would impose significant burdens on both IDA and SingTel. If IDA were to do so, it would have to impose conditions to ensure that SingTel did not use its market position in the non-exempted routes to impede competition in the exempted routes. For example, IDA might have to require SingTel to: separately offer service on exempted and non-exempted routes; adopt safeguards to prevent provision of preferential treatment to customers that purchase service on exempted routes; and prepare separate accounting separation reports for exempted and non-exempted routes.

80 Given that competition for the Terrestrial IPLC market as a whole is not yet effective, IDA has determined not to grant SingTel an exemption. As noted above, IDA believes that its adoption of the LLC Decision should increase competition in the downstream markets, such as Terrestrial IPLC. However, IDA believes that the full impact of the LLC Decision will only be apparent over time. IDA, therefore, is prepared to review the competition in the Terrestrial IPLC services market two years after the effective date of this decision. Based on that review, IDA will remove any regulation that it determines is no longer necessary.

The International Managed Data Services Market

81 The market for IMDS is effectively competitive. Prices have fallen by more than 90 percent within the last one year period.

82 SingTel is also subject to competition from numerous providers, including AT&T, BT, Cable & Wireless, Equant, MCI, Infonet, Sprint and StarHub, with similar or wider coverage. As explained earlier, the relevant market is the market for sales of IMDS services within Singapore (A-end sales). Based on A-end revenues[8], SingTel's estimated market share is around 30 percent. IDA therefore could presume that SingTel does not have significant market power in the IMDS market.

83 IDA recognises that IMDS providers, like IPLC providers, typically use SingTel's LLCs to provide service to end users. While LLCs still constitute a significant portion of the cost of providing IMDS, IDA believes that SingTel has less ability to use its dominant position in the LLC market to impede competition in the IMDS market than it has in the Terrestrial IPLC market. There are two likely reasons for this. First, because a single LLC can support multiple international virtual circuits, and because IMDS includes significant

[8] Because IMDS is not an input into other services, and because of the availability of reliable revenue information, it is appropriate to use revenue to estimate the participants' market shares.

value added features (such as network management for multi-point communications), the price of an LLC is likely to be a smaller percentage in an LLC-IMDS "package", as compared with an LLC-IPLC package. Second, non-price considerations – such as product differentiation and service competition – appear to be more important consideration for IMDS customers than for Terrestrial IPLC customers, who seek transparent capacity that they typically manage for themselves.

84 Evidence regarding SingTel's market conduct further supports the conclusion that it no longer has significant market power in the IMDS market. During the last year, SingTel's IMDS prices have fallen significantly. SingTel's prices today are generally comparable to prices charged by other IMDS providers.

85 Separately, it is important to note the existence of a large number of multi-national corporations ("MNCs") located in Singapore, who are users of IMDS. A vast majority of them are B-end customers, for which Singapore is a "spoke" in their regional or global IMDS network. The evidence obtained during IDA's review suggests that SingTel is not a significant participant in the provision of IMDS services to MNCs in Singapore because it does not have the geographical reach of the global players.

86 IDA therefore concludes that SingTel does not have significant market power in the IMDS market, and that continued application of Dominant Licensee regulation to services provided in this market is no longer necessary.

The International IP Transit Market

87 The market for International IP Transit is effectively competitive. Prices have fallen by more than 60 percent since March 2004.

88 SingTel has been subject to intense competition from numerous competitors, including Asia Netcom, Equant, MCI, Reach, Sprint and StarHub. Competition continues to grow; during the last two years, significant additional Internet capacity has been deployed between Singapore and other major hubs, such as the United States, Japan, and India. SingTel's estimated market share, based on capacity, is less than 30 percent.[9]

89 While comments from interviews suggest that SingTel's prices still appear relatively high compared to prices in other regional hubs such as Hong Kong, this appears to reflect factors unique to Singapore – such as its small market size and its distance from key Internet destinations like the United States, to which a substantial portion of Singapore's Internet traffic is sent.

[9] Because a significant portion of SingTel's and StarHub's sales of IP transit are to their affiliates, SingNet and StarHub Internet/SCV respectively, IDA believes that capacity, rather than revenue, is the appropriate unit of measurement in this market.

90 IDA therefore concludes that SingTel does not have significant market power in the International IP Transit market, and that continued application of Dominant Licensee regulation to services provided in this market no longer necessary.

The Leased Satellite Bandwidth Market

91 The market for "space segment" capacity is effectively competitive.

92 Customers in Singapore can obtain capacity directly from numerous regional providers or through the London Satellite Exchange. SingTel is a very small participant in this market. It owns one satellite, ST-1, and is an investor in the Hong Kong-based APT Group, which has several transponders on the Apstar satellite system in the region. Given that SingTel uses Leased Satellite Bandwidth to provide downstream services, IDA believes the most appropriate unit of measure is capacity. Based on information provided by SingTel, IDA estimates SingTel's share of the market is below five percent. Comments received from interviews also confirm that SingTel has no significant market power in this market.

93 IDA therefore concludes that SingTel does not have significant market power in the Leased Satellite Bandwidth market, and that continued application of Dominant Licensee regulation to services provided in this market is no longer necessary.

The VSAT Service Market

94 The market for VSAT service is effectively competitive.

95 Customers in Singapore can obtain VSAT service from numerous providers located both in Singapore (such as ST Teleport, Ascent Media and WebSatMedia) and within the region. End users can also choose to self-provide VSAT for intra-corporate use. There are no significant market entry barriers.

96 SingTel is a very small participant in this market. Based on estimated regional satellite capacity, and additional information provided by SingTel, IDA estimates that SingTel's share of the regional VSAT market is less than 5 percent.[10]

97 SingTel's control of local connectivity does not enable it to impede competition in the VSAT market. Generally, VSAT service provides for connectivity from

[10] Because reliable information regarding revenues cannot be obtained, IDA chose to base its estimate on capacity. Regional satellite capacity estimates were provided by SingTel, based on a Euroconsult 2002 report.

a satellite dish, via a controller, to another satellite dish, thereby completely bypassing the terrestrial local access network.

98 IDA therefore concludes that SingTel does not have significant market power in the VSAT services market, and that continued application of Dominant Licensee regulation to services provided in this market is no longer necessary.

The DVB-IP Service Market

99 The market for DVB-IP services is effectively competitive.

100 Customers in Singapore can obtain service from SingTel, two Singapore-based competitors (Ascent Media and ST Teleport) and numerous other providers within the region. At the present time, however, most – and, possibly, all – customers appear to be located outside of Singapore. SingTel is a very small participant in the regional market. Based on information provided by SingTel on the number of DVB-IP sites in the region, SingTel's share of the regional market is less than 5 percent.[11]

101 Singapore customers that want to use DVB-IP service to send or receive content typically must purchase a local access connection between their premises and a teleport. However, IDA does not believe that SingTel could use its control over local access to impede competition in the DVB-IP market. If SingTel sought to do so, Singapore-based providers of DVB-IP could use their existing international IP transit connections to obtain connectivity to a DVB-IP hub in another country, thereby bypassing SingTel's local access network.

102 IDA therefore concludes that SingTel does not have significant market power in the DVB-IP services market, and that continued application of Dominant Licensee regulation to services provided in this market is no longer necessary.

The Satellite Television Uplink and Downlink Markets

103 The satellite television uplink and downlink markets are effectively competitive. Prices have fallen by more than 40 percent over the last one year.

104 SingTel is the largest provider of Satellite Television Uplink services in Singapore. However, based on SingTel's share of total satellite uplink dishes in Singapore, its estimated market share is below 40 percent. SingTel is subject to competition from at least two significant Singapore-based

[11] This estimate is based on Singapore's percentage of all regional DVB-IP sites. This estimate was derived from a global estimate compiled by Broadband Satellites Markets, which IDA adjusted to reflect the estimated portion of the total sites that are in the Asia/Pacific region.

competitors – ST Teleport and Ascent Media. In addition, because the cost is relatively low, end users, including major broadcasters such as Disney and ESPN, often self-provision uplink capacity.

105 The satellite downlink market is even more competitive, with at least 40 satellite downlink dishes in Singapore. As the cost of the necessary facilities is less than the cost of the facilities required to uplink content, self-provisioning is even more common in the Satellite Downlink market. As a result, more entities hold downlink-only licences than uplink/downlink licences. Based on this, IDA believes that SingTel's market share is even lower in the Satellite Downlink market than in the Satellite Uplink market.

106 Given that customers are able to self-provision uplink and downlink services, SingTel cannot use its control over local access facilities to impede competition.

107 IDA therefore concludes that SingTel does not have significant market power in the Satellite Uplink and Satellite Downlink services markets, and that continued application of Dominant Licensee regulation to services provided in these markets is no longer necessary.

The Satellite IPLC Market

108 SingTel has near 100 percent market share of the Satellite IPLC market in Singapore. Nonetheless, given a unique set of conditions, SingTel does not appear to have the ability to exercise significant market power. First, given the competitiveness of the Leased Satellite Bandwidth market, other providers could easily enter this market in response to a small, but significant, price increase by SingTel. This imposes a significant constraint in SingTel's market conduct. Second, satellite IPLC is a declining market, with customers increasingly migrating to Terrestrial IPLCs as such facilities become available in additional countries. This trend is likely to continue. SingTel's ability to exercise of market power in satellite IPLC is constrained by the possibility of new entry in the terrestrial IPLC market. Finally, no industry participant raised any concerns regarding this market.

109 Based on the above findings, IDA concludes that continued application of Dominant Licensee regulation to services provided in this market is no longer necessary.

Miscellaneous Services

110 SingTel has also sought an exemption for two services: Telecast Local Access and Occasional Telecast Video/Audio Switching (Teleswitch) Services, which SingTel introduced only recently in May and June 2004 respectively under the satellite uplink/downlink suite of services. These appear to be local connectivity services, rather than international connectivity

services. SingTel's Occasional Telecast Video/ Audio Switching (Teleswitch) Service allows customers, such as content providers, to exchange content among multiple sites within Singapore, using SingTel's local connectivity service. SingTel's Telecast Local Access service is a local connectivity service used to connect a customer site to a SingTel earth station[12]. This is very similar to a LLC or SingTel's Videosonic service[13]. IDA has previously found that the market for LLC is not yet effectively competitive, given the lack of effective facilities-based competition in the local infrastructure.

111 Given SingTel's dominance in local connectivity services, IDA's has decided to reject SingTel's request to be exempted from the application of Dominant Licensee regulation to these services.

PART VII: IDA'S PRELIMINARY DECISION

Clarification Regarding Section 7

112 Section 7.2.1.2 (Price Squeezes), Section 7.2.1.3 (Cross-subsidisation), and Section 7.2.2.1 (Discrimination), each contains 2 distinct prohibitions. First, each provision prohibits a Dominant Licensee from using its market power to engage in a specified form of conduct, such as discriminating in favour of an affiliate. Second, each provision prohibits *any* Licensee from being the beneficiary of this type of conduct by another entity (whether or not a Licensee) that has market power. For example, a Non-Dominant Licensee that is affiliated with an entity that has market power in a non-telecommunication market cannot accept cross-subsidisation from its non-licensed affiliate. The "second prohibitions" are not special provisions applicable to Dominant Licensees. Therefore, the Section 2.6.1 exemption procedures are not applicable to these provisions. Thus, to the extent that IDA grants SingTel an exemption from these provisions, it applies only to the "first prohibition". SingTel, like all Licensees, remains subject to the prohibitions against benefiting from anti-competitive conduct by affiliated entities that have market power.

[12] SingTel's Telecast Local Access service provides point-to-point connectivity similar to SingTel's Videosonic service, but only to be used to connect a customer site to a SingTel earth station. The customer must also be its Telecast (Satellite Uplink/Downlink) customer in order to be able to subscribe to this service.

[13] Videosonic service is an example of the specific local connectivity service that SingTel provides for its satellite uplink/downlink customers. SingTel VideoSonic service provides a dedicated video channel circuit to transmit analogue video signals from one location to another location instantly within Singapore. VideoSonic service offers SQ (Studio Quality) link which supports 6MHz or 12MHz input signal for use in broadcasting. It can be seen as a video-grade LLC

Preliminary Decision

113 The following paragraphs set out IDA's Preliminary Decision regarding SingTel's Request for Exemption.

114 IDA will deny SingTel's Request for Exemption from the application of Section 3.3.1-3.3.5, 5.8.1-5.8.3 and 7.2.1-7.2.2 of the Code to its provision of services under the following markets:

(a) Domestic Backhaul; and

(b) Terrestrial IPLC.

In addition, IDA will also deny SingTel's Request for Exemption from the application of Section 3.3.1-3.3.5, 5.8.1-5.8.3 and 7.2.1-7.2.2 of the Code to its provision of Telecast Local Access Service and Occasional Telecast Video/Audio Switching (Teleswitch) Service.

However, IDA is prepared to review the level of competition in the Backhaul and Terrestrial IPLC markets two years after the effective date of this Decision.

115 IDA will grant SingTel's Request for Exemption from the application of Section 3.3.1-3.3.5, 5.8.1-5.8.3 and 7.2.1-7.2.2 of the Code to its provision of services under the following markets:

(a) International Managed Data Services;

(b) International IP Transit;

(c) Leased Satellite Bandwidth;

(d) VSAT;

(e) DVB-IP;

(f) Satellite TV Uplink and Satellite TV Downlink; and

(g) Satellite IPLC.

116 IDA is currently completing work on a revised version of the Code ("Code 2004"). Although IDA does not expect that Code 2004 will significantly alter the special requirements applicable to Dominant Licensees, IDA expects to substantially reorganise and clarify the relevant provisions. In the event that IDA issues Code 2004 prior to the release of the final decision regarding SingTel's Request, IDA proposes to grant any exemptions based on the

provisions of Code 2004 that are analogous to the provisions of the current Code for which SingTel has requested an exemption.

117 **Table 4** summarises IDA's Preliminary Decision regarding SingTel's Request:

Table 4: Summary of IDA's Preliminary Decision

Market	Section Three	Section Five	Section Seven
	Consumer Protection	**Cooperation With other Licensees**	**Abuse of Dominant Position**
Backhaul	Deny	Deny	Deny
Terrestrial IPLC	Deny	Deny	Deny
International Managed Data Services	Grant	Grant	Grant
IP Transit	Grant	Grant	Grant
Leased Satellite Bandwidth	Grant	Grant	Grant
VSAT	Grant	Grant	Grant
DVB-IP	Grant	Grant	Grant
Satellite TV Uplink	Grant	Grant	Grant
Satellite TV Downlink	Grant	Grant	Grant
Satellite IPLC	Grant	Grant	Grant
Miscellaneous Services*	Deny	Deny	Deny

* Telecast Local Access Service and Occasional Telecast Video/Audio Switching (Teleswitch) Service.

Implementation Procedures of IDA's Final Decision

118 IDA will adopt the following procedures regarding the implementation of its Final Decision.

(a) The Exemption will become effective upon publication in the Government Gazette. IDA intends to publish the Exemptions in the Government Gazette within 14 days from the date of its final decision.

(b) The Exemption will remain in effect permanently, unless IDA determines that re-imposition of any requirements is necessary to protect end users or preserve and protect competition amongst telecommunication.

(c) The Exemption will apply to any new product offering that SingTel may, in future, offer that is in the same service market as a product offering for which IDA has granted an Exemption. However, SingTel must obtain prior confirmation from IDA that the new product offering is within a service market for which IDA has granted an exemption. To do so, SingTel must submit a detailed description of the product offerings – including pricing, functionality and expected customer base.

IDA will find that a new product offering is in the same service market as one of SingTel's existing product offering if the evidence demonstrates that the new product offering is a reasonable substitute for the existing product offering.

(d) In the event IDA imposes any additional provisions applicable to Dominant Licensees, IDA will determine, at that time, whether SingTel should be exempted from the application of that provision to product offerings in any market in which IDA has granted SingTel an Exemption.

PART VIII: SECOND PUBLIC CONSULTATION ON SINGTEL'S REQUEST

119 After a significant review, including careful consideration of the inputs from operators and end users, IDA has made a Preliminary Decision regarding SingTel's Request for Exemption. However, given the importance of the issues involved, IDA believes that it would be beneficial to provide interested parties with the opportunity to submit comments regarding IDA's analysis in the Preliminary Decision, before IDA finalises its decision. IDA reserves the right to modify any aspect of this Preliminary Decision based on the comments received during the Second Public Consultation.

120 Parties who submit comments should organise their submissions as follows: (a) cover page (including the information specified in paragraph 122 of this Consultation Document); (b) table of contents; (c) summary of major points; (d) statement of interest; (e) comments; and (f) conclusion. Supporting material may be placed in an annex. All submissions should be clearly and concisely written, and should provide a reasoned explanation for any proposed revisions to the Preliminary Decision. To the extent feasible, parties should make clear the specific markets and requirements that they are addressing. The parties should not repeat the comments submitted during the First Public Consultation. If a party believes that IDA should alter any aspect of its Preliminary Decision, the party should explain with specificity why it believes IDA's proposed decision is not correct and should indicate how it believes IDA should alter its decision. Alternatives may include imposition of conditions.

121 All submissions should reach IDA **before 12 noon on 23 December 2004**. Comments must be submitted in both hard and soft copy (Microsoft Word format).

122 Parties submitting comments should include their personal/company particulars as well as the correspondence address, contact numbers and email addresses on the cover page of their submissions. All comments should be addressed to:

Ms. Aileen Chia
Director (Competition & Market Access)
Infocommunications Development Authority of Singapore
8 Temasek Boulevard
#14-00 Suntec Tower Three
Singapore 038955
Fax: (65) 6211 2116

AND

Please submit your soft copies via e-mail to: tan_poh_ling@ida.gov.sg

123 IDA reserves the right to make public all or parts of any written submissions and to disclose the identity of the source. Commenting parties may request confidential treatment for any part of the submission that the commenting party believes to proprietary, confidential or commercially sensitive. Any such information should be clearly marked and placed in a separate annex. If IDA grants confidential treatment it will consider, but will not publicly disclose, the information. If IDA rejects the request for confidential treatment, it will return the information to the party that submitted it and will not consider this information as part of its review. As far as possible parties should limit any request for confidential treatment of information submitted. IDA will not accept any submission that requests confidential treatment of all, or a substantial part, of the submission.

ANNEX A

GLOSSARY

International Capacity Services ("ICS") provided by SingTel include those that are listed below. The general descriptions below are provided as a reference and may not be exhaustive.

(a)	**Terrestrial International Private Leased Circuits (IPLC)**	A terrestrial IPLC is a point-to-point dedicated private line via submarine cable systems used by an organisation to communicate between offices that are geographically dispersed throughout the world. An IPLC can be used for Internet carriage, business data exchange, video conferencing, and any other form of telecommunication.
(b)	**Satellite International Private Leased Circuits (IPLC)**	An IPLC service provided via satellite.
(c)	**Frame Relay**	Frame relay is a managed network connectivity service, using packet-switching technology, designed for cost-efficient data transmission for intermittent traffic between local area networks (LANs), and between many end-points in a wide area network (WAN). Frame relay complements and provides a mid-range service between ISDN, which offers bandwidth at 128 Kbps and Asynchronous Transfer Mode (ATM), which operates in somewhat similar fashion to frame relay, but has higher speeds from 1 Mbps or 622 Mbps.
(d)	**Asynchronous Transfer Mode (ATM)**	ATM is a managed network connectivity service, using packet-switching technology, that has high speed transportation capability (1 Mbps and above), network manageability and network accountability. It is able to meet point-to-point, point to multipoint as well as multipoint-to-multipoint connectivity needs. ATM is suited to handle real-time traffic, as well as bursty applications. With the ability to define jitter, delay, cell/packet loss ceilings, bandwidth on an application, ATM technology is able to deliver quality of service by allocating resources to traffic which have the highest priority.
(e)	**Internet Protocol Virtual Private Network (IP-VPN)**	A virtual private network (VPN) via Internet Protocol (IP) is a managed network connectivity service to provide remote offices or individual users with secure access to their organization's network. It is used to meet enterprise networking requirements such as Intranet, business-to-business Extranet, and remote access. A virtual private network can be contrasted with an expensive system of owned or leased lines that can only be used by one organization. The goal of a VPN is to provide the organization with the same capabilities, but at a much lower cost. A VPN works by using the shared public infrastructure while maintaining privacy through security procedures and

		tunneling protocols. IP is the method or protocol by which data is sent from one computer to another on the Internet. IP VPN is therefore an Internet Protocol based VPN, which harnesses the strength and reach of IP networks.
(f)	**Backhaul (of undersea capacity)**	High capacity circuits which enable carriers with capacities in submarine cable systems to "carry" these capacities from cable landing stations to their points of presence (gateway) usually within the same country.
(g)	**Satellite TV Uplink/Downlink**	A service catered to satellite broadcast television. It provides the transmission link from an earth station to a communications satellite (uplink), and the transmission link from a satellite to an earth station (downlink), for the transmission of broadcast content.
(h)	**Very Small Aperture Terminal (VSAT)**	VSAT is a satellite communications system that could be used to serve home and business users. It refers to receive/transmit terminals installed at dispersed sites, connecting to a central satellite, using small diameter antenna dishes. VSAT handles data, voice, and video signals. VSAT offers a number of advantages over terrestrial alternatives. For private applications, companies can have total control of their own communication system without dependence on other companies. Business and home users can also get higher speed reception than if using ordinary telephone service or ISDN.
(i)	**Digital Video Broadcast Internet Protocol (DVB-IP)**	DVB-IP is an IP Broadband via satellite solution which receives packets of data, voice, video and multimedia and other content in the form of IP. These content are encapsulated into MPEG-2 transport stream (DVB stream) to be subsequently multiplexed and modulated by their receiving audience at the remote sites.
(j)	**Leased Satellite Bandwidth**	Leased satellite bandwidth refers to the satellite transmission component of any satellite communications system, the "space segment" between the satellite and the earth station. It can be used as a basic input to all satellite services including DVB-IP, VSAT and satellite TV uplink/downlink.
(k)	**IP Transit**	International IP transit is an arrangement whereby one (often smaller) operator pays another (often larger) operator to either terminate Internet traffic on its network, or to transit Internet traffic for termination on a third operator's network. IP transit service providers compete by providing extensive peering arrangements and access to a large number of routes and content sources, performance, reliability and value.

ANNEX B

ILLUSTRATION OF SINGTEL'S ICS MARKET