Comments of Verizon Business

Regarding the Public Consultation Paper:

Review of Direct and Indirect Interconnection Arrangements Between Telecommunications Licensees

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Introduction

Verizon Business welcomes the opportunity to provide comments on Direct and Indirect Interconnection Arrangements between Telecommunications Licensees in Singapore.

Network interconnection allows carriers to originate and terminate traffic to and from each other's network. In the United States, the Telecommunications Act of 1996 ("Telecom Act") establishes the legal framework for interconnection between local exchange carriers: Sections 251(a) and (b) of the Telecom Act establishes the general obligations of telecommunications carriers to interconnect, including the duty to establish reciprocal compensation for the transport and termination of telecommunications; Section 251 (c) establishes certain specific interconnection obligation to provide interconnection at any technically feasible point within the incumbent local exchange carrier's ("ILEC") network; and Section 252 of the Telecom Act contains the procedures for negotiation, arbitration and approval of interconnection agreements by State commissions.

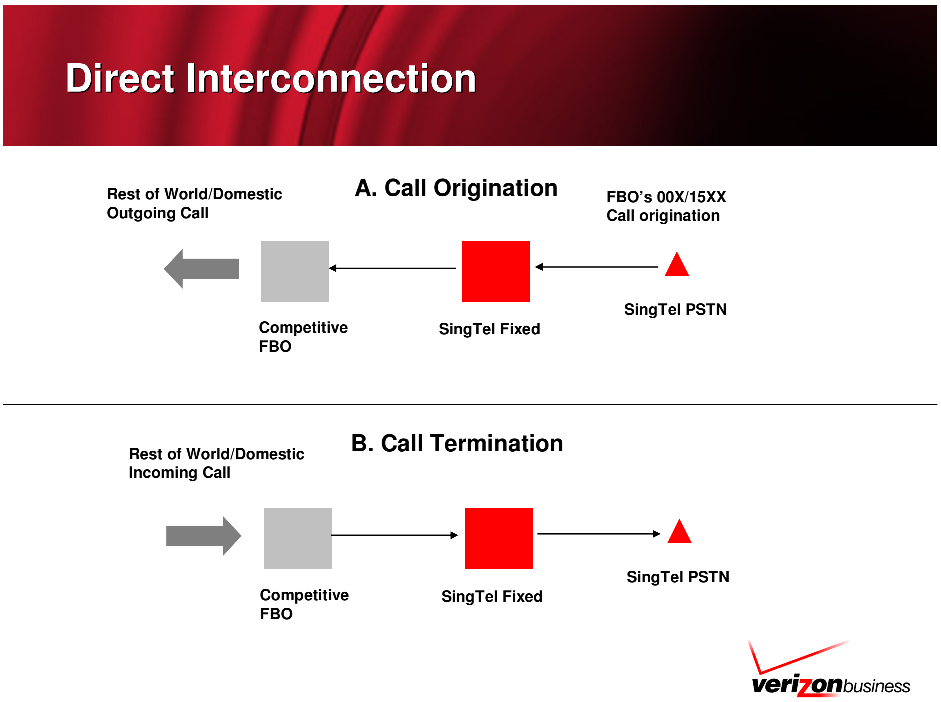
To interconnect a competitive local exchange carrier's ("CLEC") network to Verizon's wireline local exchange network, the CLEC establishes a point of interconnection with its switches and the Verizon network. CLECs generally interconnect with Verizon at offices and/or access tandems that are utilized for the exchange of local traffic to and from end users served by those switches. In accordance with the Telecom Act and Federal Communications Commission ("FCC") rules, CLECs are required to exercise all reasonable efforts to enter into reciprocal local traffic exchange arrangements with other CLECs with which they exchange local traffic. Such arrangements are necessary regardless of whether the CLEC exchanges local traffic directly or indirectly (via Verizon's transit service) with the CLEC.

In Singapore, telecommunications licensees are required by the InfoComm's Development Authority's ("iDA") Telecom Competition Code to provide interconnection to their networks. When interconnecting with a dominant carrier, a competitive Facilities Based Operator ("FBO") can elect to do so under a regulated set of terms and conditions, known as the Reference Interconnection Offer ("RIO"). Non-dominant carriers, on the other hand, are free to enter into individualized interconnection arrangements with each other. To serve its customers in Singapore, Verizon Business has entered into interconnection arrangements with other carriers for traffic origination and termination.

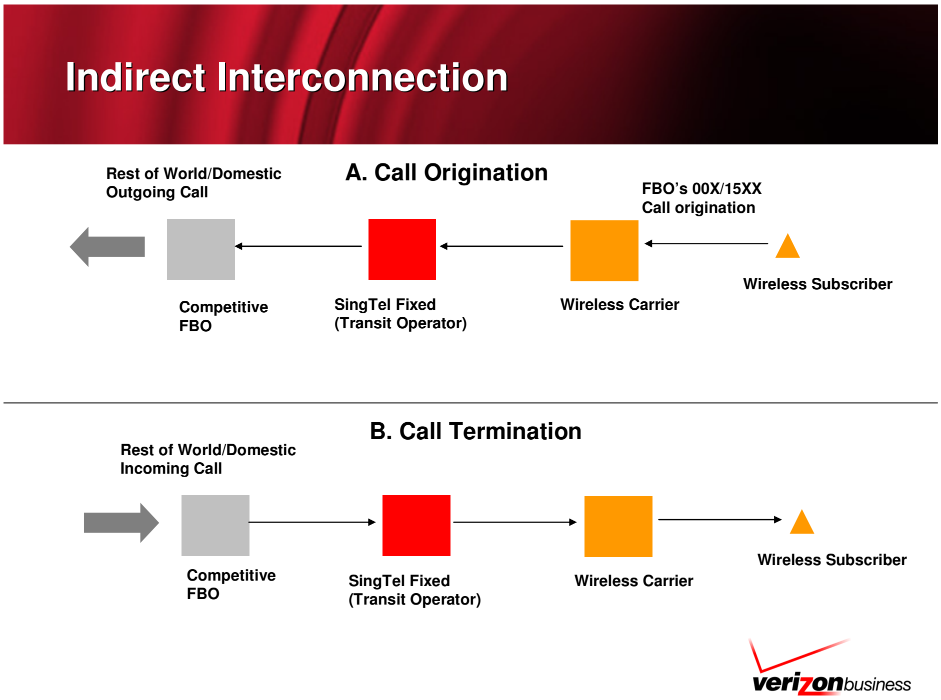
We respond to iDA's specific questions as found in the consultation paper:

1. **<u>What are your views on the current direct and indirect interconnection arrangements?</u>**

Direct interconnection allows carriers to originate and terminate traffic directly to and from each other's network. Transit costs are eliminated accordingly under such an arrangement. Network reliability increases as fewer network elements are involved. An example of a direct interconnection arrangement is depicted in the following diagram. The competitive FBO establishes direct interconnection at SingTel's Interconnect Gateway Switch ("IGS"). The competitive FBO is charged origination fees for calls initiated from the public switched telephone network ("PSTN"). Similarly, termination charges are imposed on the FBO for calls terminating onto the PSTN. The FBO can exercise build or leased options for the physical links required for network access.



An indirect interconnection arrangement on the other hand allows a competitive FBO to originate and terminate traffic through a transit carrier. This arrangement allows the FBO to achieve quick access to networks of other carriers by relying on an incumbent carrier's readily available network facilities.



An indirect interconnection arrangement for international call origination and termination is depicted in the above diagram. The competitive FBO establishes an indirect interconnection via SingTel for the purpose of exchanging traffic with a wireless carrier. Here the wireless carrier imposes origination charges on the FBO for the outgoing calls and also recovers from the FBO, the transit charges paid on its behalf to the transit carrier, SingTel.

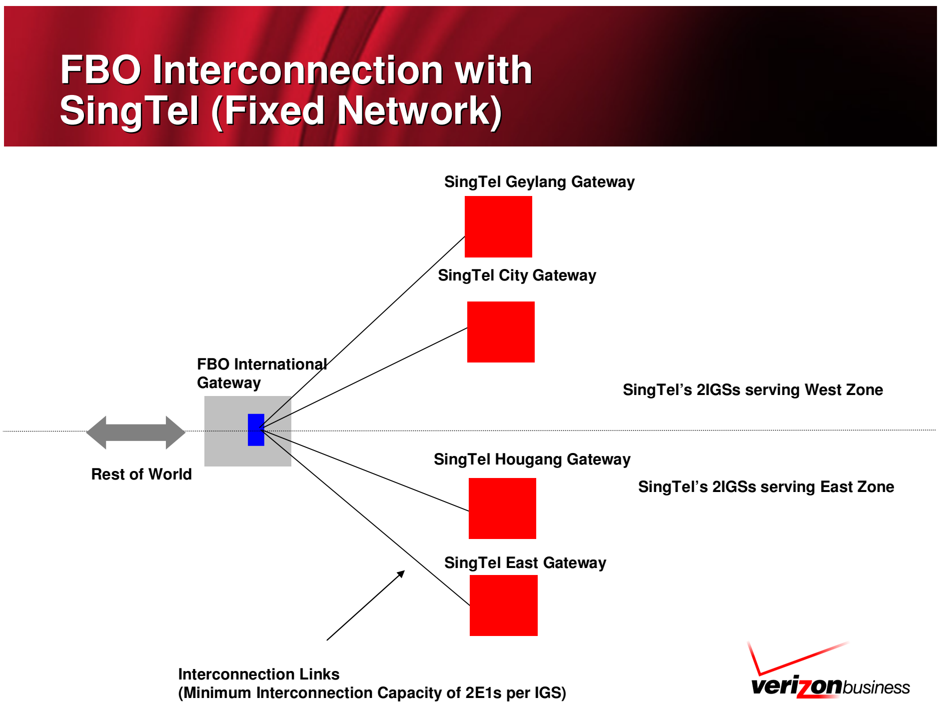
It is important that a telecommunications carrier, guided by its specific network requirements, is able to choose whether to adopt direct or indirect interconnection arrangements with other telecommunications carriers. It is therefore desirable that the iDA continue to feature both arrangements within Singapore's interconnection framework. Network interconnection amongst telecommunications licensees is essential in creating a competitive environment within a telecommunications sector. As such, the iDA should continue with its policy of requiring all telecommunications licensees to satisfy their minimum interconnection duties as found in their licensing conditions. As regards interconnection with a dominant carrier, we believe the competitive safeguards as found in the RIO, should continue to apply.

2. **What is the competitive impact of the current direct or indirect interconnection arrangements?**

Direct Interconnection with Fixed-Line Carriers

In Singapore, Verizon Business welcomes network interconnection at any technically feasible point in the major supplier's network with additional points made available upon request. We note that this is also in accordance with the obligations as set forth in the US-Singapore Free Trade Agreement[1]. It may be instructive that under U.S. law and regulations, network interconnection between the CLEC and the ILEC is allowed at any technically feasible point within the ILEC's local network. ILECs are also obligated to offer a single mutual point of interconnection within a Local Access Transport Area ("LATA").

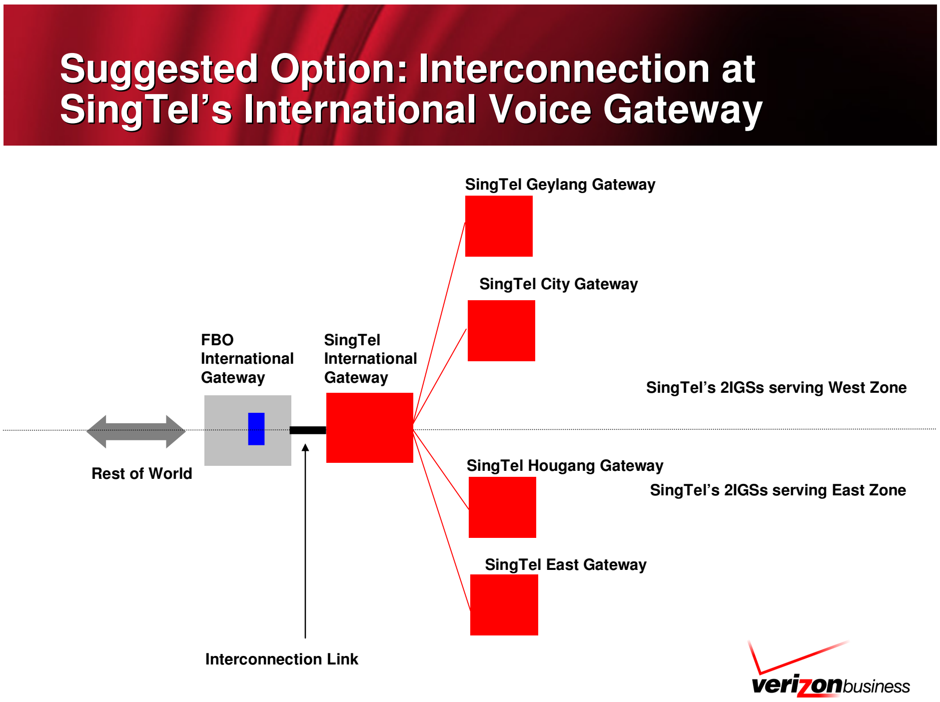
Verizon Business's direct interconnection with SingTel falls under the auspices of iDA's RIO framework. The RIO requires a competitive FBO to interconnect with SingTel's network at Interconnect Gateway Switches ("IGS") as depicted in the diagram below.



[1] Para 8a: Interconnection, Each Party shall ensure that any major supplier in its territory provides interconnection for the facilities and equipment of suppliers of public telecommunications services of the other Party: (i) at any technically feasible point in the major supplier's network; (iv) upon request, at points in addition to the network termination points offered to the majority of suppliers of public telecommunications services, subject to charges that reflect the cost of construction of necessary additional facilities. Page 84, US-Singapore Free Trade Agreement

To ensure a reasonable network performance, the FBO must interconnect at all four IGS with minimum interconnection capacities[2]. Failure to meet the above minimum requirements forces the competitive FBO to accept a lower level of performance on its network. To explain further, an FBO interconnecting at only two IGS, one each in the East and West Zone, risks the possibility of complete call failure in any one zone should a physical link fail. Responsibility therefore falls on the competitive FBO to enable interconnection to all four IGS to avoid such an occurrence. Verizon Business believes that it may be unnecessary to establish multiple points of interconnection with SingTel's network to serve a geographic market the size of a LATA[3]. A single mutual point of interconnection would have been sufficient to assure island-wide access.

We believe interconnection in Singapore could be radically simplified through a single mutual point of interconnection as follows:



The competitive FBO can interconnect at SingTel's international gateway[4] for the purposes of exchanging exchange traffic to and from end users served through SingTel's four IGS. The competitive FBO could be charged reasonable costs for the network access and for any network conditioning costs involved in establishing the single mutual point of interconnection. We recommend the

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[2] SingTel requires a minimum interconnection capacity of 2E1s links or a total of 4Mbps of capacity at each IGS.
[33] A single LATA in the U.S can be as large as a state or may only cover a metropolitan area with a land area not too dissimilar from Singapore's land area of 264 square miles.
[4] Under U.S. law and regulations, interconnection is allowed at any technically feasible point within the ILEC's local network and ILECs are required to offer a single mutual point of interconnection within a Local Access Transport Area (LATA). While this obligation does not apply to international gateways, it is instructive that the U.S. regulatory regime has required a single point of interconnection within the geographic areas that have been of interest for purposes of promoting local competition in the U.S.

inclusion of the single mutual point of interconnection option to iDA's existing interconnection framework. This helps expand the range of interconnection possibilities available to a competitive FBO.

We believe the above interconnection arrangement is technically feasible and is pro-competitive public policy for the following reasons:

1. The technical requirement for achieving interconnection at SingTel's International Gateway is not dissimilar to their IGS interconnection. Both modes of interconnection involve collocating similar network interface equipment at SingTel's facilities for the exchange of traffic;

2. Encourages economically efficient investment in infrastructure. Verizon Business does not find it cost efficient to interconnect at the IGS level when nationwide access could be more effectively and efficiently achieved by interconnection at the international gateway;

3. Maintains carrier-grade network interconnections. The competitive FBO's interconnection is not degraded by an inability to connect to all four IGS. Carrier grade interconnection is assured as SingTel retains responsibility for performing load balancing functions, as it routes the traffic efficiently across its network.

4. Helps ensure that international incoming calls do not fail on ported numbers. Verizon Business notes the recent review[5] on number portability in Singapore did not clarify SingTel's commitment to ensure no call failures on ported numbers. It is known that international incoming calls on ported numbers fail at the IGSs, requiring specific network conditioning at all four IGS to redirect the traffic. Verizon Business notes that this is inefficient from both a technical and cost standpoint. The preferred solution is to address the porting issue at the international gateway level. Verizon Business expects this problem to become increasingly prevalent for international carriers as IP Telephony Operators begin deploying their 8–digit level "3" number IP Telephony services to the mass markets.

Direct Interconnection with Wireless Carriers

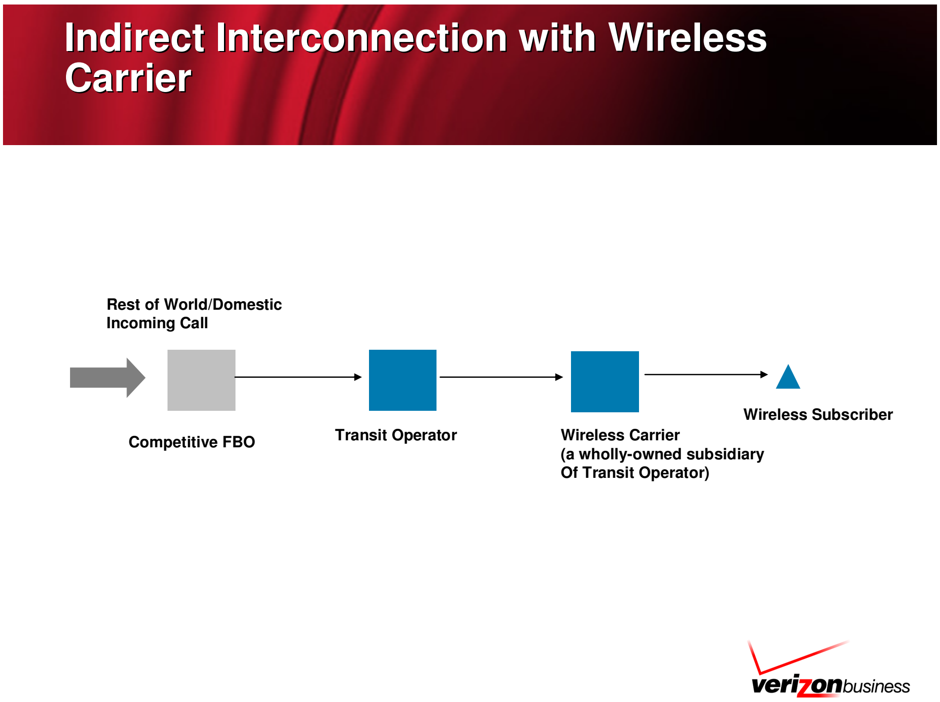
Verizon Business welcomes direct interconnection options with wireless carriers in Singapore[6]. It is worth noting that Singapore's small land area of 264 square miles allows FBOs with an established island-wide network, to interconnect directly with wireless carriers with relative ease. Verizon Business however understands that

[5] Decision issued by iDA on the review of number portability in Singapore, dated 2 August 2006

[6] In the U.S, wireless carriers are not required to establish direct interconnection with local exchange carriers or other wireless carriers. They are free to select the most beneficial way to interconnect with other carriers.

wireless carriers continue to demand indirect interconnection through their fixed-line parent entities. The requirement for indirect interconnection permits their fixed-line parent entity to impose a transit charge on the competitive FBO when a direct interconnection with their wireless subsidiary appears more suitable. Verizon Business believes that telecommunication carriers should not be restrained from seeking direct interconnection arrangements with wireless carriers.

Singapore adopts a Mobile-Party-Pay ("MPP") charging regime. In this environment, wireless carriers are not permitted to recover termination charges for fixed-mobile interconnection. Sufficient compensation has been received by the wireless carrier from retail air-time fees payable by their subscribers. Nevertheless, wireless carriers in Singapore continue to levy an additional 30% recurring fee on the applicable transit charges as a pure "administration settlement charge". We believe there should be greater transparency on how this administrative charge is derived**.** The "administration settlement charge" should not be substituted for Fixed-to-Mobile termination charges.



3. **Would the current direct and/or indirect interconnection arrangements be appropriate for emerging players, services and industry trends, such as IP telephony, new mobile data offerings etc?**

Verizon Business is aware of the concerns raised regarding the interconnection framework for IP Telephony operators and the PSTN operators. To address the issue, the iDA has introduced an interim solution while a final framework for IP telephony services is being developed. Verizon Business can respond accordingly in the forthcoming public consultation exercise.

4. **What are the specific criteria that you would consider in deciding whether to establish direct and indirect interconnection arrangement with another licensee?**

A carrier-grade network is one that is technically resilient and cost efficient, and it underpins a telecommunications carrier's ability to deliver cost effective services to its end-users. The ability to enable network interconnection in a similar cost effective manner therefore also becomes a competitive advantage for the telecommunications carrier. In deciding on the various interconnection arrangements, Verizon Business would take the following factors into consideration:

- Network Design
- Traffic Volumes
- Costs for Interconnection
- Ability to negotiate mutually acceptable Interconnection Agreements

5. **In your negotiation with other licensees for direct or indirect interconnection arrangements, were there difficulties encountered in reaching an agreement?**

Verizon Business would like the iDA to review the practice of imposing forecasting penalties as found in Schedule 1 (Physical and Virtual Interconnection) of the RIO and of wireless carriers seeking to impose similar conditions in their interconnection agreement proposals.

The current regulations require competitive FBOs to supply SingTel with a 36-month forecast for interconnect capacity in intervals of six (6) months for the first twelve (12) months, and yearly thereafter. Failure to utilize forecasted capacity invites an over-forecast charge. An under-forecast, on the other hand, could possibly lead to a barring in the provision of capacity.

Verizon Business believes traffic forecasts when provided in good faith can provide sufficient guidance to SingTel for purposes of capacity planning. Verizon Business disagrees with the practice of penalizing for over-forecasts and a possible barring of service provision if the competitive FBO under-forecasts. Verizon Business informs that this is not a practice adopted by other carriers in Singapore. Neither is also consistent with Verizon's experience in the United States where it does not impose penalties when the CLEC's forecast fails to accurately reflect the traffic volumes and the associated need for trunks.

The requirements imposed by SingTel regarding trunk forecasting appear harsh. We believe an approach that would allow for ongoing exchange of information in good faith and without penalties would be more beneficial for the industry.

6. **Should iDA harmonise the requirement for all licensees to be responsible for the provision and costs of interconnection links on their side of the point of interconnection?**

   Verizon Business believes that the regulatory framework while promoting competition should also be conducive to investments in telecommunication infrastructure. Verizon Business agrees that telecommunications carriers should remain responsible for costs on their side of the point of interconnection.