

**CONSULTATION ON IMPLEMENTATION OF IP-BASED INTERCONNECTION IN
SINGAPORE**

SUBMISSION TO

INFOCOMM MEDIA DEVELOPMENT AUTHORITY

BY

Verizon Communications Singapore Pte Ltd

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Attention: Ms Aileen Chia
Deputy Chief Executive (Connectivity Development & Regulation)
Director-General (Telecoms & Post)

Subject: Consultation on Implementation of IP based Interconnection in Singapore.

Dear Madam,

Verizon Communications Singapore Pte Ltd (“**VCSPL**”) welcomes the opportunity to provide comments on the Consultation on Implementation of IP based Interconnection in Singapore issued on March 1 2021.

IMDA has rightly taken note of the technology and market developments for fixed-line voice termination, wherein it has proposed to review the case for IP-based interconnection in the Public Consultation. As highlighted in the Public Consultation, given the growing volume of IP-based and Voice over LTE (“VoLTE”) calls, IMDA is considering interconnection at the IP-level to be the new default going forward, replacing the existing SS7 signaling. IMDA also notes as a long-term policy consideration, migrating the interconnection of all domestic networks in Singapore to IP-based ones would also serve to increase the overall efficiency of voice communication in Singapore. VCSPL is broadly supportive of the regulatory approach proposed by the IMDA.

Background:

By way of background VCSPL is a unit of Verizon Communications Inc (“**Verizon**”) a Global Telecommunication services provider with a broad portfolio of ICT solutions enabling its customers to communicate and collaborate across the enterprise, with quick and easy access to the information and resources they need thereby creating a more agile, collaborative enterprise. Verizon offers a broad range of IP-enabled features that help enterprises control costs, increase productivity and improve the customer experience. We are engaged and share innovative and sustainable ideas in a number of the government policy inquiries across the globe on policy matters and hope that our input will be helpful in this context. In line with our presence in Singapore as a provider of communication products and enterprise solutions, predominantly to large business, enterprise and government customers, we have focused our response pertinent to our activities.

Response to Questions raised in the consultation

Question 1: IMDA invites views and comments on whether operators should follow a standardised set of technical requirements to implement IP-based interconnection at the domestic Points-of-Interconnection across all operators' networks that are interconnected to provision voice services.

Response: VCSPL agrees that all operators should follow a standardized set of technical requirements to implement IP based interconnection at the domestic POI across all operators' networks that are interconnected to provision voice services.

Question 2: IMDA invites views and comments on whether the Proposed SIP, based on IETF and 3GPP specifications, is appropriate and suitable to be implemented at the Points-of-Interconnection.

Response: VCSPL definitely prefers to use pure SIP based on RFC 3261 for interconnect, which is pretty much an industry norm. Even though we do not believe there is a need to use SIP-I, we can support SIP-I (based on Q1912.5 Profile C) if required. Supporting any other SIP-I variants will require a new design/lab testing/possible SW development, which will be a lengthy, time consuming and costly process. We would therefore highly recommend IMDA to stick to the industry standard in the implementation process.

Question 3: IMDA invites views and comments on the proposed approach to finalise the offerings of the RIO services related to IP-based interconnection, before commencing the migration to IP-based interconnection.

Response: VCSPL in general, supports the proposed approach to finalize the offerings of the RIO services related to IP-based interconnection and that IMDA to provide regulatory oversight for the offerings to RIO services related to VoIP interconnect to ensure nondiscriminatory, transparent access. We would also request proposed RIO be suitably reviewed and subject to a consultation for the best policy outcomes

Question 4: IMDA invites views and comments on the feasibility of IMDA's proposals to revise the technical implementation of Fixed Number Portability service in an IP-based interconnection environment.

Response: We support and agree with IMDA's view to conduct a thorough review of technical implementation of FNP services in an IP-based interconnection environment. The current FNP technical implementation model has been developed quite a long time ago based on TDM technology and SS7 interconnection regime and we are of the view that it is the right time to review it together with the implementation of the migration of IP-based interconnection environment and new SIP signaling environment to ensure the long term cost reduction and efficiency of FNP implementation.

VCSPL has adopted an All-Call-Query method and we wish to continue to do it

Question 5: IMDA invites views and comments on IMDA's preliminary views on network security and Quality of Service under an IP-based interconnection environment.

Response: VCSPL agrees and fully supports the idea of establishing direct physical interconnection with eBGP authentication and using SBC for topology hiding for security.

Question 6: IMDA invites views and comments on IMDA's preliminary views on the broad migration approach.

Response: VCSPL prefers a phased migration to be on a safe side. A coordinated Industry wide trial migration can be supported to ensure the service providers can continue to provide uninterrupted and seamless customer experience.

Summary:

1. We would request IMDA to expeditiously implement IP based interconnection regime to align the regulation with new technology trends and promote competition in the VoIP market for a sustainable growth and the right policy outcome.
2. International experience in other markets clearly supports the proposed migration to IP-based interconnection to align with the technology and market realities.
3. The revised RIO agreement needs to be flexible, future proof & promote competition.
4. We encourage IMDA to continue to provide regulatory oversight and periodically review the RIO from time to time to ensure adequate competition and level playing field.
5. We hope that IMDA adopts a robust and forward looking policy approach in its review and considers our comments in order to ensure that IP interconnection regime supports competition and growth in the infocomm sector.