



**CONSULTATION PAPER ISSUED BY  
THE INFOCOMM MEDIA DEVELOPMENT AUTHORITY  
ON  
SINGAPORE TELECOMMUNICATIONS LIMITED'S  
REFERENCE INTERCONNECTION OFFER  
FOR  
IP-BASED INTERCONNECTION  
FOR VOICE SERVICES**

**28 JULY 2025**

## INTRODUCTION

1. On 1 March 2021, the Infocomm Media Development Authority (“**IMDA**”) issued a public consultation to seek comments on IMDA’s broad proposals and preliminary views on the implementation of IP-based interconnection in Singapore (“**Public Consultation**”) for voice services. IMDA had also engaged industry players separately to discuss specific technical-related issues.
2. Subsequently, on 6 January 2023, IMDA published the following decisions on the key proposals and approach for implementing IP-based interconnection as consulted in the Public Consultation (“**Decision Paper**”):
  - (a) IMDA noted that industry was generally supportive of the proposal to replace the existing Signalling System No. 7 (“**SS7**”) signalling protocol with an Internet Protocol (“**IP**”)–based signalling protocol at the domestic Points-of-Interconnection (“**POIs**”). As such, IMDA would be working with industry to implement IP-based interconnection in Singapore;
  - (b) IMDA would convene a task force under the Telecommunications Standards Advisory Committee (“**TSAC**”) to study the standards to be implemented at the domestic POIs for IP-based interconnection;
  - (c) After the finalisation of the abovementioned standards by the TSAC task force, IMDA would conduct a separate consultation with the industry to finalise the Reference Interconnection Offer (“**RIO**”) for establishing IP-based interconnection with the designated dominant licensee, Singapore Telecommunications Limited (“**Singtel**”);
  - (d) As for IP-based interconnection implementation between non-dominant licensees, IMDA would allow these licensees to continue with the current interconnection regime where operators mutually agree on the most appropriate interconnection configurations and arrangements that best fit their network deployments;
  - (e) For the changes to the Fixed Number Portability (“**FNP**”) solution when migrating to IP-based interconnection, IMDA convened the FNP working group who agreed to adopt “SIP 410 GONE” as the “Release” message for the solution. For further technical details and changes (including any optimisation of the solution), the FNP working group would discuss and submit to IMDA the revised technical solution guidelines and commercial agreement;
  - (f) IMDA had also finalised the mandatory set of baseline network security requirements that all licensees would have to implement at the domestic POIs when establishing IP-based interconnection. Furthermore, for IP-based interconnection that would not involve Critical Information Infrastructure (“**CII**”), IMDA had allowed the use of public Internet for interconnection between two Non-CII owners, as long as both parties

secure their use of the public Internet with the mandatory set of security requirements as published in the Decision Paper. IMDA would effect these two sets of mandatory security requirements via changes to licence conditions when migrating to IP-based interconnection; and

- (g) IMDA would engage the industry on the detailed migration plans after IMDA's finalisation of the various technical and commercial aspects of the IP-based interconnection framework (including for RIO and for FNP).
3. In relation to paragraphs 2(b) and 2(c), on 28 November 2024, IMDA issued a public consultation to seek views and comments on the proposed set of baseline standards developed by TSAC which would be mandatory for industry adoption. Following the close of the consultation, IMDA published on 14 February 2025, the mandatory set of baseline standards to implement at the domestic POIs for IP-based interconnection.

### **SINGTEL'S PROPOSED RIO FOR IP-BASED INTERCONNECTION**

4. With the publication of the mandatory baseline standards, Singtel will next be required to submit its proposed RIO for IP-based interconnection to IMDA, which IMDA will subsequently put up for a public consultation. In this regard, Singtel has submitted a proposed preliminary RIO offer<sup>1</sup> for IP-based interconnection, which may be further adjusted later, as Singtel is currently in midst of upgrading its interconnection equipment to IP-based systems that comply with the mandatory standards published by IMDA. Once Singtel has set up its IP-based network, Singtel will submit to IMDA, the finalised Schedule 1 Annexures containing the details of the technical, operational and testing requirements to establish IP-based interconnection with the Singtel's network.
5. As the prompt implementation of IP-based interconnection in Singapore is important to support IP-based solutions to combat scam calls, IMDA issues this public consultation to seek views and comments on Singtel's proposed preliminary RIO offer for IP-based interconnection, with the aim for industry's phased migration to IP-based interconnection with Singtel, to start in early 2026. As proposed in the preliminary RIO offer, Singtel will give priority to migrate RIO Requesting Licensees who have existing SS7-based interconnection with Singtel. Once Singtel has set up its IP-based network, it will review the migration schedule with IMDA, and notify the existing Requesting Licensees accordingly to conduct a phased migration from early 2026, providing sufficient time to allow industry to prepare for the migration with Singtel.

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<sup>1</sup> The schedules submitted by Singtel are: Main Body; Schedule 1 Physical and Virtual (Distant) Interconnection; Schedule 2A Call Origination Service; Schedule 2B Call Termination Service; Schedule 2C Call Transit Service; Schedule 4A Emergency Call Service; Schedule 8A Co-location for Point-of-Interconnection (POI); Schedule 8 Attachments; Schedule 9 Charges; and Schedule 12 Dictionary.

6. IMDA will make practical adjustments to the steps to implement IP-based interconnection as set out in the Decision paper to focus on migration of interconnection links with Singtel, recognising that the rest of the industry have made or are making arrangements to establish IP-based interconnection amongst themselves.
7. Following the close of this consultation, IMDA will give careful consideration to all views and comments received, in implementing IMDA's decision on the matter. IMDA may issue a direction and/or make the relevant changes to the specific regulatory instruments as may be necessary, to effect the same.

## OTHER RELATED ISSUES

8. As for the optimisation of the FNP solution as mentioned in the Decision Paper, IMDA had held discussions with the FNP working group and has the view to optimise the FNP solution after the completion of the industry's migration to IP-based interconnection. The current FNP framework will continue in the meantime.
9. IMDA will also conduct a review of the prices of RIO services affected by the IP-based interconnection after Singtel has completed the setting up of its IP-based network. Accordingly, the current published prices for RIO will remain unchanged until after such review.
10. As for the Bill-and-Keep ("**BAK**") regime for fixed call termination, to recap, in IMDA's 18 April 2022 Closing Note for the public consultation on the review of the Telecom and Media Competition Code (the "**TMCC**"), IMDA had required BAK to come into effect once IP-based interconnection is fully implemented by operators in Singapore. IMDA also clarified in the Decision Paper that BAK regime will be implemented only between domestically originated and terminated voice traffic. In this regard, IMDA will reflect the BAK regime for fixed call termination in the RIO after Singtel has completed its migration to IP-based interconnection with all its existing Requesting Licensees.

## INVITATION TO COMMENT

11. IMDA invites interested parties to submit written comments to this consultation on the proposed preliminary RIO offer for IP-based interconnection with Singtel.
12. All respondents are requested to keep their comments clear and succinct. All views and comments should be submitted in soft copy (in both Adobe PDF and Microsoft Word format) via email to [Consultation@imda.gov.sg](mailto:Consultation@imda.gov.sg) with the email header "Consultation on RIO offer for IP interconnection".

13. All submissions should reach IMDA by **12 noon, 26 August 2025**. All views and comments should be addressed to:

Ms Aileen Chia  
Director-General (Telecoms and Post)  
Deputy Chief Executive (Connectivity Development & Regulation)  
Infocomm Media Development Authority  
10 Pasir Panjang Road  
#03-01 Mapletree Business City  
Singapore 117438

14. In its submission, the respondent should include the following:
- (a) Respondent's statement of interest in the consultation;
  - (b) Summary of the respondent's submission; and
  - (c) Specific comments on Singtel's proposed preliminary RIO offer.
15. IMDA reserves the right to make public all or parts of any written submission made in response to this consultation, and to disclose the identity of the respondent. Any part of the submission which the respondent considers to be commercially sensitive must be clearly marked and placed as a separate annex to the comments raised. IMDA will take this into consideration when disclosing the information submitted.