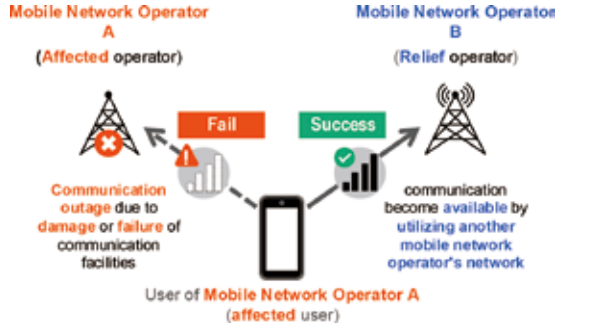
Intercarrier Roaming in Emergencies

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1. Introduction

Mobile communications services are an essential lifeline for daily life and economic activity. It is therefore important to ensure that communications services remain continuously available even in emergencies such as network outages and disasters resulting from natural hazards. In particular, mobile phones account for approximately 60% of emergency calls, underscoring their growing importance. Intercarrier Roaming in Emergencies is a mechanism that enables users to temporarily access another mobile network to make voice calls and use other communications services when the network of their mobile operator becomes unavailable due to a major disaster, communications outage, or other emergency. Since April 1, 2026, Japan's domestic mobile network operators, including NTT DOCOMO, INC., KDDI Corporation, Okinawa Cellular Telephone Company, SoftBank Corp., and Rakuten Mobile, Inc., have been providing Intercarrier Roaming in Emergencies under the service name "JAPAN Roaming™".

Figure 1: Overview of Intercarrier Roaming in Emergencies

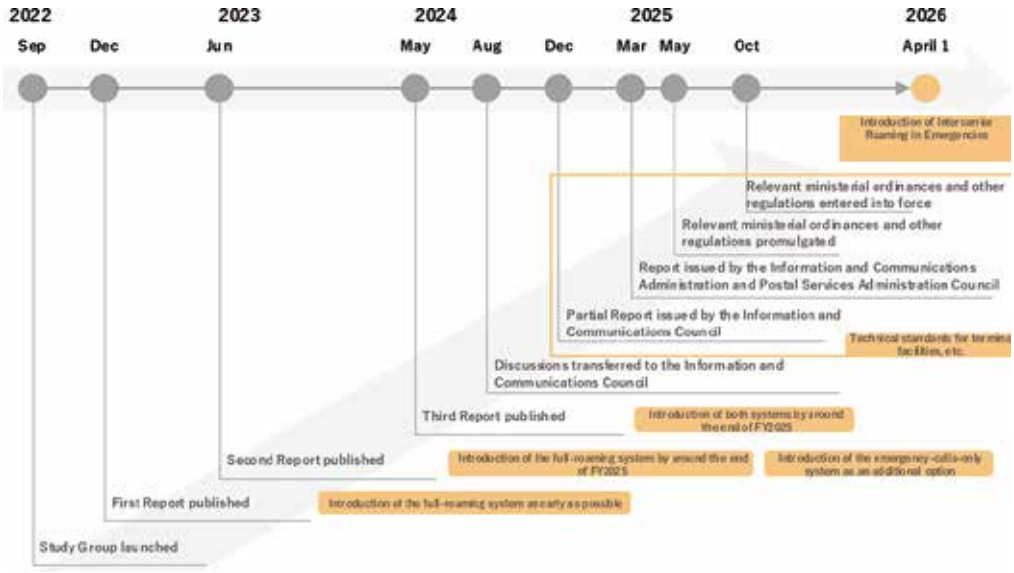


2. Background and development of the initiative

In September 2022, the Ministry of Internal Affairs and Communications (MIC) established the "Study Group on Intercarrier Roaming in Emergencies" (hereinafter, the "Study Group"). The Study Group has examined a broad range of measures to ensure communications during emergencies, including intercarrier roaming for mobile communications and the use of Wi-Fi. In December of the same year, the Study Group compiled and published its First Report, establishing basic policies that included introducing full-roaming intercarrier service in emergencies as early as possible, enabling emergency calls, ordinary voice calls, data communications, and callback calls from Public Safety Answering/Access Points (PSAPs); operating the service within the capacity limits of the relief operator's network; and providing the same roaming service to users of Mobile Virtual Network Operators (MVNOs).

In June 2023, the Study Group's Second Report set out a policy to introduce, alongside the full-roaming system, a roaming system that enables emergency calls even when a failure occurs in the core network (emergency-calls-only roaming). In May 2024, the Third Report outlined the basic concept for Intercarrier

Figure 2: Initiatives leading to the introduction of Intercarrier Roaming in Emergencies



Roaming in Emergencies and a target schedule for introducing both systems by around the end of FY2025. The report also examined measures to simplify user operations when switching between mobile carrier networks at the start and end of roaming. The Second Report had proposed assigning a new common PLMN number (Public Land Mobile Network: an identifier for a telecommunications network) for roaming. Subsequent studies, however, identified cases in which this approach could disadvantage users. The Third Report therefore concluded that, for Intercarrier Roaming in Emergencies, it would be appropriate to assign different PLMN numbers to the emergency-assistance networks of each mobile carrier.

In addition, institutional measures concerning telecommunications business facilities and terminal equipment were examined to enable Intercarrier Roaming in Emergencies. In August 2024, as discussions on policy decisions, including the development of technical standards based on the study findings, were expected to intensify, the Working Group on Intercarrier Roaming in Emergencies was established within the IP Network Facilities Subcommittee under the ICT Subcommittee of the Information and Communications Council. The discussions were thereby transferred to the Information and Communications Council, which examined technical standards and other requirements for terminal equipment. Ultimately, amendments to the relevant ministerial ordinances and notifications concerning technical standards for terminal equipment were promulgated in May 2025 and entered into force in October of the same year.

3. Overview of the full-roaming and emergency-calls-only systems

Intercarrier Roaming in Emergencies provides two service provision methods: the full-roaming system and the emergency-calls-only system.

Under the full-roaming system, data communications (up to 300 kbps for both transmission and reception), SMS (Short Message Service), and voice calls, including emergency calls, are available to users. For emergency calls, the caller's telephone number is displayed on the PSAP's console, enabling the PSAP to call the user back at that number. However, when a failure occurs in the core network, providing service under the full-roaming system may be difficult. Even in such situations, it is highly desirable to ensure that users involved in an incident, accident, sudden illness, or other emergency can reliably make emergency calls. Accordingly, a service provision method that enables emergency calls only was examined, based on the recognition that, despite certain limitations, depending on the location of the core network failure, this may be the only means available for users to make emergency calls from their mobile devices. This is the emergency-calls-only system. In an emergency, even when data communications, SMS, and voice calls are unavailable, emergency calls may still be available under the emergency-calls-only system. However, PSAPs cannot call the user back.

Under the emergency-calls-only system, two scenarios are envisaged: authentication available and authentication unavailable, depending on whether authentication through the HSS (Home Subscriber Server: a subscriber database used for mobile device location registration and user authentication) is functioning. When authentication is available, the caller's telephone number is displayed on the PSAP's console. (However, the PSAP cannot call back that number.) When authentication is unavailable, the caller's IMSI (International Mobile Subscriber Identity) number (subscriber identification number) is provided instead. Intercarrier Roaming in Emergencies is operated within the capacity limits of the relief operator's network. Accordingly, while priority is given to

Figure 3: Overview of the full-roaming system

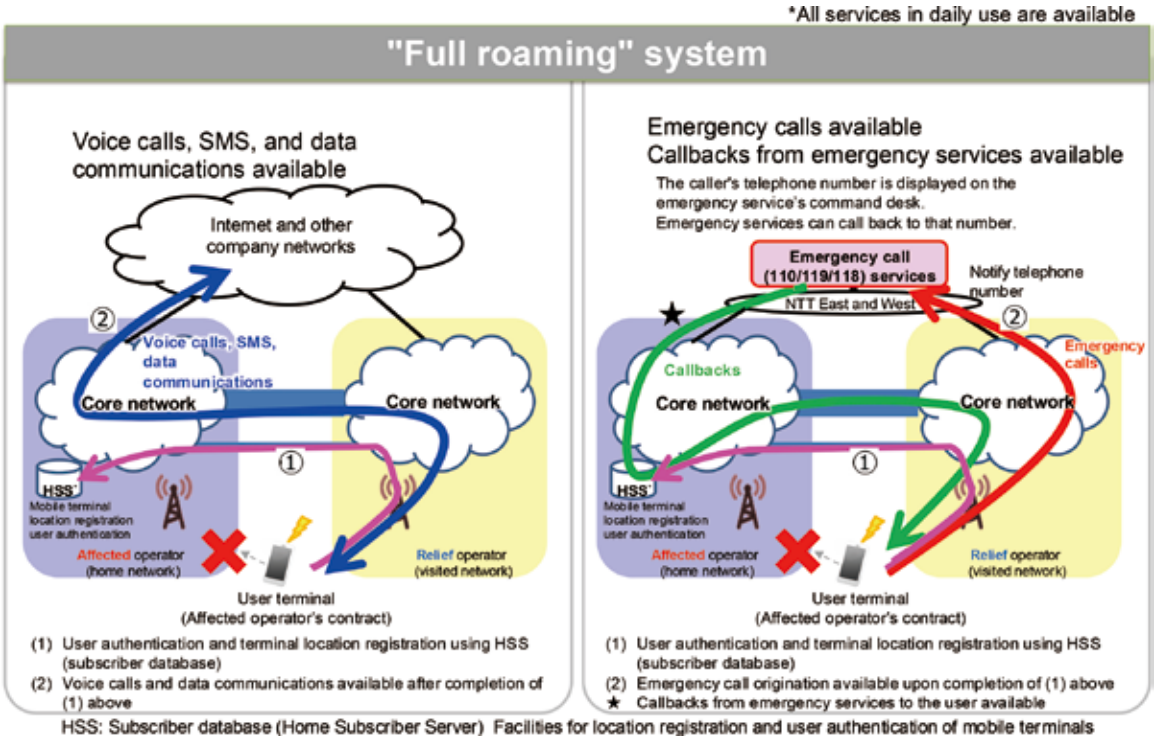
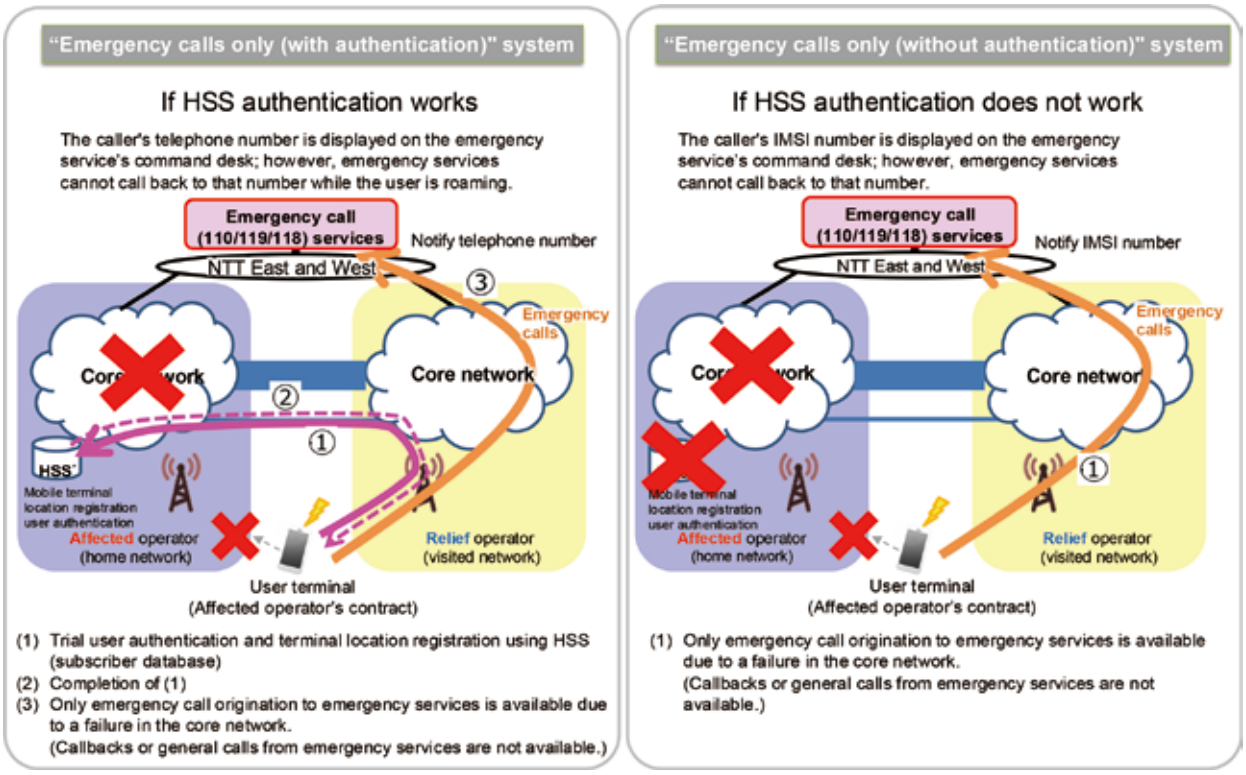


Figure 4: Overview of the emergency-calls-only system



ensuring sufficient network capacity for the relief operator's own users, capacity is also allocated to users of the affected operator. The service therefore does not guarantee connectivity for all users.

For MVNO users, SMS and voice calls (including emergency calls) are also available. However, data communications are limited to users subscribed to certain MVNO services.

4. Regulatory framework for Intercarrier Roaming in Emergencies

To promote Intercarrier Roaming in Emergencies, MIC amended the Ordinance for Regulating Terminal Facilities, and related notifications, and the Ordinance for Regulating Telecommunications Business Facilities. The amended ministerial ordinances and notifications were promulgated on May 29, 2025, and entered into force on October 1, 2025.

4.1 Amendments to the Ordinance for Regulating Terminal Facilities

Additional functional requirements for terminal equipment to support Intercarrier Roaming in Emergencies were examined from the following perspectives:

- The functions must be essential to providing Intercarrier Roaming in Emergencies.
- The functions must not interfere with the operation of telecommunications business facilities (i.e., must not place excessive load on the relief network).

Table: Additional functional requirements for terminal equipment to support Intercarrier Roaming in Emergencies

#	Function name	Function outline	Target system
1	Emergency Attach	Function to enable emergency calling via the relief network in the absence of location registration	Emergency calls only
2	IMSI Transmission	Function to send IMSI at the time of emergency calling	Emergency calls only
3	Attach to Home Network after Emergency Call	Function to return to the home network after emergency call termination	Emergency calls only
4	Non-detectable / Detectable Emergency Calls	Function to enable emergency calling with Local Break Out even if a prefix such as 184 is attached	Full Roaming
5	Cell Reserved	Function to prevent connection to the relief network during normal times	Both systems
6	ACB per PLMN	Function to control presence so as not to overload the relief network	Full Roaming
7	SSAC per PLMN	Function to control connections on a service-by-service basis so as not to overload the relief network	Full Roaming
8	Carrier Indicator	Ability to display and select the presence in a relief network	Both systems
9	Excessive Retransmission Suppression	Function to avoid overloading the relief network	Full Roaming

Based on these considerations, nine additional functional requirements were established. Beginning in August 2024, the IP Network Facilities Subcommittee under the ICT Subcommittee of the Information and Communications Council deliberated on the technical standards and other requirements for terminal equipment. In December 2024, the Information and Communications Council issued a partial report on technical standards and other requirements for terminal equipment. The Ordinance for Regulating Terminal Facilities was subsequently amended to require these nine functions to be incorporated into VoLTE (Voice over LTE) terminals, such as smartphones (IP mobile telephone terminals), and LTE-based data communication terminals. For data communication terminals, only certain of the nine functions are required.

4.2 Covered terminals, exemptions, and transitional measures

For VoLTE terminals, such as smartphones, and LTE-based data communication terminals, such as mobile routers, the new technical standards will apply to both voice and data communications when technical standards compliance certification or equivalent certification is obtained on or after October 1, 2025 (the effective date). Such terminals will therefore be required to support roaming functionality. However, as described below, certain terminals are exempt from the requirements, while others are subject to transitional measures providing a two-year exemption. Existing smartphones can continue to be used without modification (Figure 5).

4.3 Amendments to the Ordinance for Regulating Telecommunications Business Facilities

In the course of examining measures to implement Intercarrier Roaming in Emergencies, it was determined that, when providing intercarrier roaming during emergencies, mobile carriers may in some cases be temporarily unable to comply with the technical standards for emergency calls stipulated in the Ordinance for Regulating Telecommunications Business Facilities. Accordingly, a regulatory framework was developed to account for such situations, and the Ordinance for Regulating Telecommunications Business Facilities was amended to permit the following technically unavoidable limitations in emergency calling when Intercarrier Roaming in Emergencies is provided. (Article 35-20 of the Ordinance was amended.)

The telecommunications number (telephone number or IMSI number) and location information may not be transmitted when making an emergency call. (Related to Article 35-6, Item 2 of the Ordinance.)

A callback from PSAPs (police, Japan Coast Guard, or fire department) may not be possible. (Related to Item 3 of the same Article.)

5. Conclusion

This article has provided an overview of Intercarrier Roaming in Emergencies, including the background to its development and the regulatory framework established to support its implementation. Although the development of Intercarrier Roaming in Emergencies has involved numerous technical challenges, solutions have been identified through coordination among the many stakeholders involved, including mobile carriers, terminal equipment vendors, and chip vendors. Going forward, it is hoped that Intercarrier Roaming in Emergencies will be fully utilized and that further progress will be made in establishing an environment that ensures communications during emergencies, including through the use of communication means other than Intercarrier Roaming in Emergencies, as well as in strengthening cooperation among the relevant industry stakeholders.

Figure5 : Examples of covered terminals, terminals subject to transitional measures, and exempt terminals

