Real-Time Text in Ireland

Transforming Emergency Communication and Accessibility

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Table of contents

Executive summary

Ireland's Real-Time Text (RTT) pilot marks a major step toward inclusive emergency communication ahead of the 2025 European Accessibility Act deadline. RTT enables live, conversational text during emergency calls, ensuring people who are Deaf, Hard of Hearing, or have speech difficulties can communicate with emergency services without delays or special registration. Through collaboration between government, regulators, and mobile network operators led by Vodafone's early implementation of Emergency Calling over IMS, the project adopted a device-native RTT approach to guarantee reliability and accessibility across networks and devices.

Despite technical challenges around network interoperability, device compatibility, and signaling, extensive testing proved RTT could be integrated without compromising emergency call standards. Soft-launched in late 2024 and progressively rolled out across operators in 2025, the service has been well received by target communities. With public awareness campaigns planned and network support expanding, Ireland's RTT pilot demonstrates how standards-based, user-focused innovation can make critical communication accessible to all.

Purpose of the document

- Underline the significance of Real-Time Text in accessibility for emergency services
- Demonstrate the use case of Ireland in providing RRT-enabled emergency calling, the barriers faced, and the impact observed
- Outline the next steps for inclusive, accessible emergency communications

List of acronyms

EAA	European Accessibility Act
ECoIMS	Emergency Calling over IMS
ECS	Electronic communications services
MNO	Mobile Network Operator
PSAP	Public Safety Answering Point
RTT	Real-Time Text
RTToIP	Real-Time Text over IP

Introduction

In an era defined by instant communication, ensuring that everyone—including those with hearing or speech impairments—has equal access to life-saving services is not just a matter of convenience, but of fundamental rights. Ireland's Real-Time Text (RTT) pilot project represents a critical step forward in making emergency and everyday communication more inclusive, ahead of the European Accessibility Act deadline in 2025.

This document explores why RTT matters, how Ireland has approached its implementation, and what lessons have emerged from the pilot project.

1. Understanding Real-Time Text (RTT)

Real-Time Text is a technology that transmits characters instantly as they are typed. Unlike SMS or messaging apps where you type and then send, RTT lets the other person see each letter appear live, much like watching words form on a screen during a face-to-face conversation.

This immediacy makes RTT especially valuable in urgent situations, such as emergency calls to 112/999, and for people who are Deaf, Hard of Hearing, or have speech difficulties. With RTT, a caller can interrupt, clarify, and express urgency in real-time—critical elements in emergency contexts.

The Legal Context: The European Accessibility Act

Under the European Accessibility Act (EAA) 2019/882 and Commission Delegated Regulation 2023/444, all providers of electronic communications services (ECS) in Ireland must ensure that emergency communication is available "in a seamless way, without pre-registration," including the provision of real-time text. By 28 June 2025, voice services were required to fully support RTT.

Why RTT Matters Today

The urgency to adopt RTT has been driven by both legal requirements and real user needs. According to the 2022 Census, 5% of the Irish population has a hearing impairment. In 2023 alone, 1,644 calls were made using the existing text relay service. While the conventional emergency SMS service is useful and indeed widely used by those with communication difficulties as well as callers who are simply not in a position to speak, it does not provide the interactive

experience associated with voice conversation.

A complex interaction using emergency SMS between a member of the public and for example the Ambulance service can take over 10-15 minutes to complete whereas the same interaction using a voice call typically takes less than 2 minutes. While the real-time, 2 way typing capability of RTT is not expected to be as fast as a spoken conversation, it is expected to significantly speed up the interaction.

As a mobile device and network development, implementing Real-Time text obviously relies heavily on support within the mobile networks, this is where strategic development within the MNOs contributed to the realization of RTT. Real-Time Text over IP (RTToIP) is an IMS based standard and while the MNOs in Ireland have been providing standard voice over IMS for some time, in 2024 they had not yet rolled out Emergency Calling over IMS (ECoIMS). The desire within the Irish MNOs to reclaim 3G spectrum by turning off 3G services meant that it was necessary to implement ECoIMS, paving the way for the eventual implementation of peer-to-peer RTT and RTT on Emergency calls.

Vodafone Ireland led the way and were first to implement ECoIMS (and subsequently turn off 3G voice services) in mid-2024. The other physical mobile network operators in Ireland have since also implemented ECoIMS.

2. Launching the Pilot: Collaboration and Strategy

In mid-2023, with the requirements of the Accessibility Act in mind, we began to consider our approach to providing RTT-enabled Emergency calling. In consultation with Government, Regulatory and Mobile network stakeholders we reviewed the available technologies and standards. The available options were relatively few, either build and implement a mobile App based RTT solution as were currently available in many countries or use "device native" RTToIP as was indicated as being available on both IOS and Android in the US market. The availability of device native RTToIP was further reinforced by an FCC mandate indicating that US providers had to make either RTToIP or legacy RTT available to consumers.

We concluded that an App based solution would not meet the equivalence requirement of the Accessibility Act as:

- Apps require preparation (installation) and pre-registration. Experience tells us that most users do not plan or prepare to make an emergency call. Device native RTToIP is expected to be directly available in the phone dialer interface on the device (although it may need to be enabled by the user in settings).
- Apps require a data connection that may not always be available. By contrast, the data transmission path for RTT over IMS on an emergency call even when the device is in limited-service state (Emergency calls only) is catered for in the standards through the use of the emergency APN.
- Apps complicate routing to the correct Public Safety Answering Point (PSAP), especially during roaming. When using RTT in a device native emergency call, the requirement for routing to the correct PSAP is the responsibility of the serving mobile network operator and the correct routing will already be in place for emergency calls.

Having considered the available options in the context of the requirements of the Act and following discussions with all stakeholders, the Ministry responsible (DCCS) decided to proceed with a native RTT solution.

By April 2024, the first device-to-device RTT call had been successfully placed over Vodafone's network and in December 2024 RTT Emergency calls to the ECAS were live and available. Given the completely new nature of RTT communications and initially limited device and network support, it was chosen not to publicly announce the capability until later in 2025. The decision to take the "soft launch" approach allowed all parties to fully evaluate and test the capability in the live environment as well as consult more widely with stakeholders including disability groups prior to any public announcement.

With native RTT over IP, the text as an integral part of the phone call—just another communication channel within a standard phone session. In the same way as conventional voice emergency calls, RTT also relies on a "chain" of communication and support. The links in the chain of support for RTT are:

- **The calling Device.** The originating device or handset must support RTT and the relevant standards. User information material aimed at the US market indicated RTT was already available for both IOS based and Android devices.
- **The Mobile Network.** RTT Communication requires support in the Mobile network operator and depends on Emergency Calling over IMS. Vodafone Ireland being the first Irish mobile network operator to migrate to ECoIMS was keen to support the rollout of RTT both for Emergency communications as well as person-to-person calls.
- **PSAP Interconnection**. National PSAP implementation and integration with the public telephone networks vary. The interconnection and any intermediate networks or carriers between the Mobile network IMS and the PSAP must also support RTT.
- **The PSAP Application.** In this case Ireland's Stage-1 PSAP – ECAS – needs to support RTT and provide the required functionality to answer and communicate with callers using RTT.
- **Emergency response organization.** In Ireland's model, these are the stage-2 emergency services who each operate their own communication systems. Extending RTT to each of these organizations would have required major upgrades and instead it was decided to use the same "voice relay" process as is used for emergency SMS where the stage-1 call-taker reads and responds under the direction of the stage-2 call-taker.

3. Overcoming Technical Barriers

While the core standards for RTToIP have existed for years, and in initial review seemed relatively straightforward, implementing them within Ireland's specific telecoms environment and the Interconnection to the PSAP presented challenges.

The majority of the mobile network operators route emergency calls to the ECAS via an intermediate fixed-line type wholesale carrier, BT Ireland Voice Network which in-turn maintains multiple, redundant and highly available interconnection to the ECAS. This makes sense for the Mobile network and other voice service providers both commercially and in terms of the required availability of this interconnection however it introduced an additional layer of complexity and challenges for RTT communication.

3GPP/ETSI standards support RTT communication and as a result the Mobile network systems

already had much of the required functionality for RTT available in terms of codec support, signaling etc. While some work was required to support RTT on the Vodafone Ireland network and extensive Lab testing was carried out, mobile to mobile RTT was made available on the live network relatively early.

The non-3GPP focus of the predominantly fixed-line oriented national wholesale carrier of BT Ireland did however present a number of challenges around signaling and codec support. Considerable investigation, testing, tracing and configuration was required to resolve these issues which were predominantly in the areas of Codec support and RTP transmission.

The use of media gateways in large carrier networks ensures compatibility between disparate networks, devices, and types of calls where transcoding may be required. With the Introduction of RTT and the t.140 text codec however, it was necessary to bypass the media gateways.

In IP communication, the voice or indeed text is transmitted as RTP data streams, i.e. streams of packets containing sampled audio. This can take a different path to communication that manages the call (the SIP signaling) and sometimes uses less reliable transmission methods for efficiency. This introduces the risk that the audio stream could break down which the call stayed up resulting in dead air. To address this risk, voice networks will typically implement RTP Timeout features so that if the RTP stream stops, the call is ended. This works well for voice/audio communication which is expected to be a constant stream of sampled audio RTP packets regardless of whether someone is speaking at the time or not. RTT on the other hand is a more simple transmission method, it simply sends the characters as typed from one side to the other (with redundancy for typically 2 missed packets in a row). With RTT if someone stops typing, the packets stop and this resulted in the RTP timeout being triggered and the call being ended.

This presented a significant challenge to the implementation, as the RTP Timeouts provided valuable protection to voice calls however they could not be turned off just for RTT (the RTP stream was considered just a stream of data regardless of what codec was being used, whether it was audio or text). The solution was to use RTCP Timeouts which are required in any case to monitor the call to detect dead calls as RTCP must be sent for all RTP streams on a regular and detectable basis.

Device support also presented some challenges. We hade incorrectly assumed based on the US targeted user information, that RTT on both IOS and Android devices was in use and had been thoroughly tested. This turned out not to be the case. As a PSAP we do not have a direct relationship with device manufacturers, and such a channel or engagement does not seem to exist within the Mobile device manufacturers. We did however have close engagement with Vodafone Ireland and subsequently the other Irish MNOs as they started to test RTT. The mobile network operators do have a support an testing model in place with the major device manufacturers and they took the lead on testing and resolving device functionality concerns.

While there were some minor technical issues encountered with individual devices, the majority of the discussions with mobile device manufacturers was around simply enabling the RTT capability on their devices, which devices, OS versions, software updates, and timescales.

Mobile network operators have device testing teams responsible for ensuring existing and new devices work correctly on their network. Typically, this will involve functional testing under various scenarios including voice calls, call features, data access, messaging including RCS and also emergency calling. Previously the emergency call related testing will have involved, normal emergency call, inbound roaming emergency call, limited Service state, Emergency call over WiFi, AML transmission etc. Now there is a new set of RTT tests to be added to that list for existing and new devices. These tests include a variety of RTT scenarios on both person to person and emergency calls including mid-call media changes as well as mid call bearer changes. All of this increases the MNO effort associated with supporting emergency communications.

Operating a PSAP service, we tend to focus on what we need to do to make something work for

our system and generally don't tend to consider what needs to happen to make a change or make something new happen on potentially millions of user's personal devices even in a small country like Ireland. This is a major operational challenge for mobile network operators and mobile device manufacturers and while they have teams in place that are responsible for this work, the effort involved should not be underestimated.

Despite these hurdles, the pilot demonstrated that a standards-based RTT service could be built without compromising emergency call reliability and extensive testing was key to the success of the pilot.

4. A Service with Impact

While the initial "soft-launched" status of the service in early 2025 with limited device support was technically considered a pilot, the service has been live since December 2024 and device support/availability continues to increase.

Earlier this year Vodafone carried out user information and consultation sessions with target user communities and the capability was very well received. Vodafone Ireland officially launched the service on their network in July of this year and other mobile networks in Ireland have subsequently launched the service on their networks also.

The most compelling outcomes of the pilot were not technical but human. For the first time, people with hearing or speech disabilities could communicate in a conversational, interruptible, and natural way, even in an emergency. For example, callers can interrupt correct details without waiting for a turn and call takers can respond immediately, reducing confusion and saving time.

One of the PSAP concerns sometimes raised around RTT is that it would increase call volumes and lead to longer call handling times. We don't believe this will be the case and it certainly has not been the experience to date. We consider it a replacement communication channel for our existing SMS service and that there will eventually be a substitution effect. If a caller has the option to use RTT instead of SMS we believed they would use it and that instead of handling a 20-30 minute SMS interaction, we would be dealing with a 5 minute RTT Interaction.

To date however, this has not been our experience volumes of calls received with RTT has been very low and many of those calls received with RTT enabled do not actually contain and RTT communication. We believe this is simply down to the user pressing the wrong button when making the emergency call and adding RTT to the call when they don't intend using it. We also continue to receive the normal volume of SMS communications and we believe there are a number of reasons for this.

- Apart from the Vodafone launch and associated social media, there has yet to be a coordinated public information campaign. This is planned for later this year.
- RTT is being made available gradually across devices and networks. It will take time for it to become available on the majority of devices and for users to understand the use cases (not just for people with communication differences but also for people who are not in a position to speak or may be in a noisy environment).
- Any new technology or communications channel will take time to trickle into community knowledge. When we first launched the emergency SMS service in 2012, we could go days without receiving any SMS, to the extent that our service tested SMS periodically throughout the day to "check it was still working"! Today we receive hundreds of SMS communications every month and the majority are genuine requests for assistance.

- A review of the SMS communications received by our service suggests that there is a certain type of caller who uses emergency SMS, not because they *cant* communicate verbally but because they chose not to. This can be for a variety of reasons including not wanting to divert their attention to a conversation at the time but also because they do not want others around them to know they are communicating with the emergency services. Examples of such communication include passing confidential information to the police or making a noise complaint.

5. Next Steps: Scaling and Awareness

With the pilot and initial launch deemed a success, our focus will shift to:

- Communicating Benefits: Making sure consumers know RTT exists and understand how to activate it on their devices. Users need clear information on how to enable and use the capabilities. It is the preference of the MNOs that new functionality such as RTT, while being made available in the devices does not get turned on by default. Generally speaking changing default functionality does not work well for users and so while many users now have this feature on their device, they are not aware of it.
- Ongoing stakeholder engagement: Regulators, Emergency Services, and operators are collaborating on user experience, issues encountered and user experience.
- In-life management: All major vendors working with Irish Mobile Network operators are now engaged to ensure RTT capability is available and easy to configure. Mobile network operators are building RTT into their test operations and user support processes.

6. Conclusion: Toward an Accessible Future

Ireland's Real-Time Text pilot has demonstrated that with collaboration and a user-centered approach, truly inclusive communication services can become a reality. RTT is not just a legal requirement but should also be an everyday expectation—one that ensures no one is excluded from the most essential of conversations.

For those in the industry and advocacy communities, the lessons are clear: build standards-based solutions, test extensively, and prioritize user experience over technical shortcuts. Only then can we deliver on the promise of communication without barriers.