

Requirements for a Telephone-equivalent Telecommunications Relay Service

Network

Hearing-oral telephone users enjoy high availability of the public telephone network. Communications disabled persons should receive the same high level of availability. This has not been the case to date with several interruptions to service since NZ Relay began in 2003. The longest lasting outage was due to the Auckland Convention Centre fire that required closing of the NZ Relay centre for several days.

The central infrastructure should be duplicated in two data centres located at least 100 km apart to mitigate the effects of natural disasters.

With duplicated infrastructure only business hours support is required, not 24/7 support, reducing costs.

Availability should be 99.98% or better measured on an annual basis. This equates to an unavailability of 1.7 hours per year or less.

The relay centre should be supplied with two fibre connections with standard measures taken to prevent both building entry cables rupturing in the event of an earthquake.

Strong network perimeter security shall be installed and configured at the relay centre and network datacentres.

Relay Centre for Deaf

Deaf require call centre services provided by minimum DipSLI qualified interpreters.

Booked video calls shall be supported by NZSL/English interpreters that preferably have a post-graduate diploma in NZSL or a Bachelor degree in NZSL interpreting to handle educational, legal and medical calls. The relay centre provider shall match the best available interpreter to the requirements of a booked call.

PC workstations that support HD video (H.264 or Google VP9), audio preferably using the Opus audio codec, and Real Time Text in accordance with ITU-T F.703. Peripheral devices such as a mouse and QWERTY keyboard shall be wired, not wireless.

Workstations should support three or preferably six people in a conference call supporting audio, video and RTT. Workstations supporting a conference call must be able to disconnect any party that wishes to withdraw from the conversation and have visual confirmation that the party has disconnected when video is not enabled or the participant has joined via the PSTN.

Call queuing shall be used with a caller's position in the queue to be shown by video, captioning and audio.

Noise cancelling microphones must be used. Microphone muting must be possible with one click. Unmuting with one click.

Muting of received audio must be possible with one click. Unmuting with one click.

Calls to the relay emergency number must be prioritised through the network and presented to all Relay Assistant positions even when all Relay Assistants are busy so that an existing non-booked call can be put on hold while the emergency call is processed. The caller put on hold shall be placed at the front of the queue.

Emergency calls shall be recorded at the Relay Centre and retained for a period of 30 days or otherwise agreed so that they can be reviewed by emergency services or the coroner on request.

RTT messaging during a video/audio call shall be initiated simply by typing that automatically opens sent and received text panes.

The font, font size, background and font colours must be user selectable for each of the incoming and outgoing RTT panes.

RTT must be exportable to a Braille pad using Bluetooth. Non vocal DeafBlind users shall use a QWERTY keyboard to type any RTT required.

The speed at which text is transferred to a user's Braille pad shall be controllable by the user.

PINs for e.g. telephone banking or utility services must not be disclosed to the call centre agent aurally or visually. When a PIN is requested, the caller shall enter it using a dial pad in the app.

Transport Layer Security (TLS) must be used whenever the other party or parties terminal(s) supports it.

The call centre shall produce reports in hourly increments in hourly increments on electronically capturable data to be agreed but at a minimum:

- Call count
- Call duration (minimum, average, maximum)
- Abandoned call count
- Average wait before answering
- Drill down ability to individual user level

In addition, monthly reports shall be produced for the above metrics plus:

- Report listing users app numbers that have been inactive for 2 months
- Relay centre efficiency by day and by month. This is a calculation of:

$$\text{Efficiency} = \frac{\text{Total hours of calls processed}}{\text{Total interpreter hours logged in}} * 100\%$$

- Pie chart of types of calls made (count and %):
 - a. Audio only
 - b. Video (no chat)
 - c. Video and chat

Annual reports shall also be produced with a comparison to the previous year.

The call information database must not be able to be altered, only queried and reports generated.

End-user apps

There shall be two end user apps, both of which shall operate with direct dialling to the desired person in both directions:

- An app with a unique national phone number that supports ITU-T F.703 audio, video and RTT for Deaf and Deafblind users who need the services of a relay centre and that automatically connects a Relay Assistant into the call before the B party is called; and
- An app with a unique national telephone number that supports ITU-T F.703 audio, video and RTT for users that require AI speech to text, AI text to speech or both services and do not need a relay centre with human intermediaries. (Video is not normally used in such calls but should be available in case a user wishes for whatever reason to communicate via the relay centre or to call another relay user directly). Because this app is designed not to primarily need a human intermediary no automatic inclusion of an interpreter need be included

Users must be able to select whether or not to save their chat history.

Apps must automatically register and authenticate with the appropriate network Session Border Controller when launched. Logging in by entering a password, fingerprint, faceprint or passkey each time the app is launched is unacceptable.

Apps must be available for both iOS and Android to run on smartphones and tablets. Any limitations of the Android app offered compared to the iOS app must be declared, for example whether parties on a conference call can be individually identified and labelled. The user must be able to edit the labels from e.g. "Speaker 1" to "Jane Doe".

Apps must support call history, be editable and be able to be cleared.

Apps must support contacts from e.g. Outlook.

Apps should support summarisation or the full transcript of speech to text calls.

All apps must be Push enabled. This means that calls will be notified even if the app has not been launched by the end user.

When a call is placed to an organisation such as MSD that can have long queue wait times, e.g. 1 hour, and offer the caller a call-back option the app shall automatically forward its telephone number to enable the callback. Forwarding of the app number, not the native telephone number of a smartphone is essential.

The app for speech impaired users who use the text-to-speech function shall support at least three saved messages for quick and easy use, e.g.:

- The caller's home address that may be needed in emergencies;
- A message to the effect that the caller has a speech disability, is using a synthesizer to articulate some words, to please be patient and do not hang up. It is not a crank call; and
- Other

The rate at which text to speech is read out must be adjustable down from normal conversational speed. This is important for emergency call takers.

Speech impaired users must be able to select a male or female voice to read out their text.

End-user apps shall support a Bluetooth connection to an external alerting device with bright LEDs, vibration or both.

People with intellectual disabilities should be provided with a locked down iPad giving them calling access to predetermined numbers only. This builds on the accessibility of the iPad.

Help Desk

The service provider shall provide a help desk to support users with:

- Brochures
- User Guides
- Advice on choice of hardware
- Logging, categorisation and resolution of complaints

The help desk must process postal mail (many potential users will not have internet or email), email and telephone inquiries.

Monthly summary reports shall be compiled and any recurring user issues highlighted with recommended or already actioned mitigations.

National Support Network

The service shall be supported by a national network of NGOs with staff familiar with and empathetic to the needs of their communities. Services to include:

- Assistance with making application for software, devices, installing software and testing operation.
- Assistance with arranging the installation of a broadband connection and setting up of secure Wi-Fi.
- Initial setup including frequently called contacts using one touch dialling.
- Assistance with making and receiving the first few calls to build confidence when the user has not previously had a device such as a PC, Mac, tablet or smartphone. This is essential to overcome the fear of technology present among many older users that can quickly be alleviated by apps having an intuitive user interface.