

xxRFP-2022-005

Push to Talk

This xx foundation request for proposals will fund creation of a Push to Talk feature, an open source tool to implement a push-to-talk service. This will allow two users to securely talk to each other in real time.

The xx foundation is offering a competitive bidding process to complete this work, with independently compensated phases. The [selection process](#) will analyze each phase individually according to the response contents, the proposed compensation, and the proposed final deliverable dates and contents. Proposers are expected to propose for all phases.

Requirements

This service should allow users to initiate a push-to-talk conversation with any of their contacts, either manually or by sending an invitation via the xx Messenger. A connection should be established between the users, allowing secure streaming of audio between the two parties. A user should be able to press a button to start a stream, and the stream should continue until the button is released. Users should be able to simultaneously stream and receive audio with another user. The audio streams, when received, should be played to the recipient in real time.

The application should present a detailed understanding of the UX of push to talk and describe how the various issues are dealt with and overcome.

Note that due to the way the network handles messages reception, the app could also allow rewinding or storing of audio messages. This will be left to the discretion of the developers.

Architecture

We recommend that this app use [connections](#) to facilitate secure transfer between users. The connection should be established by a link sent via the xx Messenger. This RFP will require an additional streaming layer, to facilitate the streaming of audio over the connection. We recommend that the developers of this RFP coordinate with those working on the Pirate Radio RFP [\[link here\]](#) when developing streaming protocols. These will require significant compression, and protocols should discuss which compression methods will be suitable for allowing voices to be both discernable and audible while remaining within the bandwidth limitations of the network. Also take into consideration network failures (rate of 0.05%) and discuss methods of including redundancy in the audio transmission. Finally, proposals should discuss the issue of latency, and investigate methods of reducing latency as much as possible.

Phases

You may propose your own phases, but the following three phases are desired:

Phase 1: Proof of Concept—Implement the basic version of your proposed design and submit a final design. This should include final versions of any cryptographic primitives (if applicable) and fully explained versions of all data structures and sub-protocols as well as a final user interface design.

Phase 2: Core Implementation — A functionable demonstration of the proposal, which will have two connected milestones:

- **Command Line Tools** —Fully functional command line tools which fully exercise your proposed system without a user interface. This is the final library used by the Android and iOS apps, with test coverage of at least 85% of the code base and an accompanying continuous integration/continuous deployment (CI/CD) styled testing script. do

Phase 3: User Facing App— Final version of a mobile application using the tools developed in phase 2 to initiate and sustain voice message conversations with other users. Should allow invitations to be sent directly or via the xx Messenger.

Submission Instructions

Proposers should submit their proposals, in English, to the following website:

- <https://xxfoundation.org/archive/xx-foundation-announces-the-xx-dapps-grant-program>

Note that proposals are divided into 2 parts: An anonymized technical proposal and a staffing proposal. The technical proposal will be posted online and should not contain any identifying information about your organization or staff. The staffing proposal will contain resumes and additional evidence for why you and your team are qualified to do the work you propose.