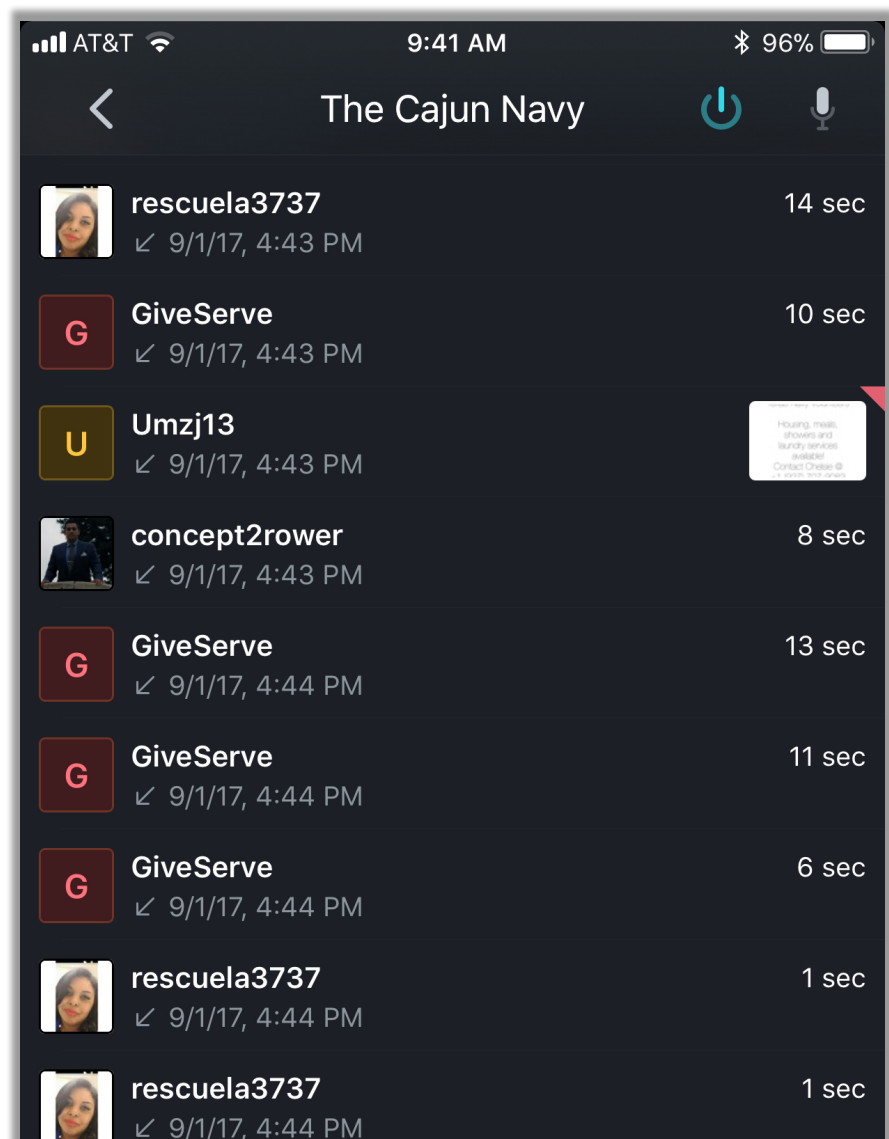# Disaster Response

The Role of Push-To-Talk Apps

Push-to-Talk apps have demonstrated value during emergencies

Push-to-talk apps offer distinct advantages over radios and mobile phones during times of crisis.

Push-to-talk apps (PTT) turn smartphones, tablets and even desktop PCs into walkie talkies. It's a surprisingly popular technology. Over 120 million people have downloaded the Zello app, for example.

But what serves as a fun and convenient way to connect with friends and family in normal times becomes an invaluable lifeline in emergencies. During the hurricanes of September 2017, many millions of people downloaded Zello, and it was the core communication tool used by the armies of search and rescue and disaster relief volunteers who stepped forward in Texas, Florida and Puerto Rico.

This paper briefly explains why PTT solutions like Zello are so popular during times of crisis.

And for those of you who will be involved in search and rescue, dispatch, clean up, etc., the balance of the paper offers some lessons learned and best practices.

Why PTT?

Push-to-talk apps overcome many of the limitations of radios and cell phones, particularly during times of crisis

Issue	PTT advantage
Few people actually have radios	PTT apps typically run on devices people already have, like smartphones and tablets
Coordinating radio use after the fact is hard	PTT channels dedicated to search and rescue or disaster response are easy to find once a person is in the app
Radios have range limits	PTT apps rely on carrier data service. Carrier-independent apps like Zello can use any data service in the world.
Radios often suffer from uneven sound quality	PTT connections are less vulnerable to meteorological or environmental degradation, and do not have radio's issues with channel users stepping on each other
Radios and phones can't retrieve or replay messages	PTT apps like Zello store messages locally in each user's device. If a message is missed or misunderstood the user can replay it when it is safe or convenient to do so.
PTT works under conditions when phones don't	PTT apps typically rely on carrier data signals. Zello even works on ultra-reliable 2G networks. While even these networks were knocked out in Puerto Rico, Zello did not go down during Harvey or Irma.

Issue	PTT advantage
Group conversations with phones are challenging	PTT apps like Zello support channels, which is an ideal vehicle for group communication.
Radios typically have limited channel capacity	Most PTT apps support unlimited group channels
Phones are 1-to-1. Radios are 1-to-many.	PTT can be either, and importantly users determine which mode is advantageous in a given situation.
Groups with radios have range limits	Many of the Harvey and Irma search and rescue channel moderators worked from their homes in faraway states

PTT channel strategy

With virtually unlimited channels, think about how to make communication clearer and more efficient

Zello channels, like other PTT app's channels, are the equivalent of channelized radio frequencies. But where most radios support only a handful of channels for a region, there are no limits to the number of Zello channels you can create.

You can't run out of channels. With unlimited "frequencies" at your disposal, channel conservation isn't a concern for you. Rather, you should think about the kinds of groups you will be interacting with, and the degree to which you need to keep groups on separate channels.

Avoid this unfortunate Hurricane Harvey strategy:

> A volunteer search and rescue team set up its own channel. It was a single channel, shared by rescuers, dispatchers and people needing rescuing. The result was a lot of confusion and disrupted operations.

Consider a different channel strategy, where you create **two** channels. In one, rescuers talk only with dispatchers. In the other, people seeking help call into dispatchers.

Select your channel names with care. Think, too, about how you name and describe your channels. Zello lets you add a description to each channel profile. And the channel name should clearly describe its purpose.

Andrew Grant has proposed this channel naming architecture, for example:

> **Hurricane nameH17Channel descriptor**, where
>
> **H17** represents Hurricane season 2017.
>
> **Hurricane name** is the NOAA-assigned storm name, and
>
> **Channel descriptor** indicates what the channel is for
>
> **MariaH17animals**-would be a channel meant for animal rescue resources during Hurricane Maria

Other examples could include:

MariaH17chat	MariaH17dispatch
MariaH17info.PR	MariaH17info.VirginIslands
MariaH17triage	MariaH17rescue
MariaH17mapping	MariaH17supplies.medical

Take advantage of channel properties options. Zello is a mature app, with configuration options that reflect years of experience in a variety of environments. Zello's flexible channel properties let you think about

what each channel is for

who will be using it

what kinds of message volume you anticipate, and

what security and user management considerations are important

Setting the right channel **type** will help you ensure the integrity of channel communications. Zello channel types include

> ANYONE CAN TALK - Least protected.
>
> ZELECT - New users can listen and talk after they've been "trusted" by a Moderator or Administrator
>
> ZELECT+ - New users can only hear moderators until they've been "trusted" by a Moderator or Administrator
>
> LISTEN ONLY - Only the Owner, Moderators and Administrators can talk, everyone can listen.

If **identity verification** is important you can turn on one or both of these options

> PHONE VERIFICATION REQUIRED
>
> EMAIL VERIFICATION REQUIRED

When confidentiality and exclusivity are priorities consider locking a channel down with this option

PASSWORD REQUIRED

You can distribute the channel password via email, Twitter, Facebook or some other private means. You can change the password as needed.

Most Zello channels dedicated to emergency response will need one or more Admins or Moderators. The channel Owner – the person who created the channel – should assign enough Admins and Moderators to effectively monitor the channel and block any disruptive users. Obviously, powerful roles like Admin and Moderator should only be assigned to people who have demonstrated their reliability and competency.
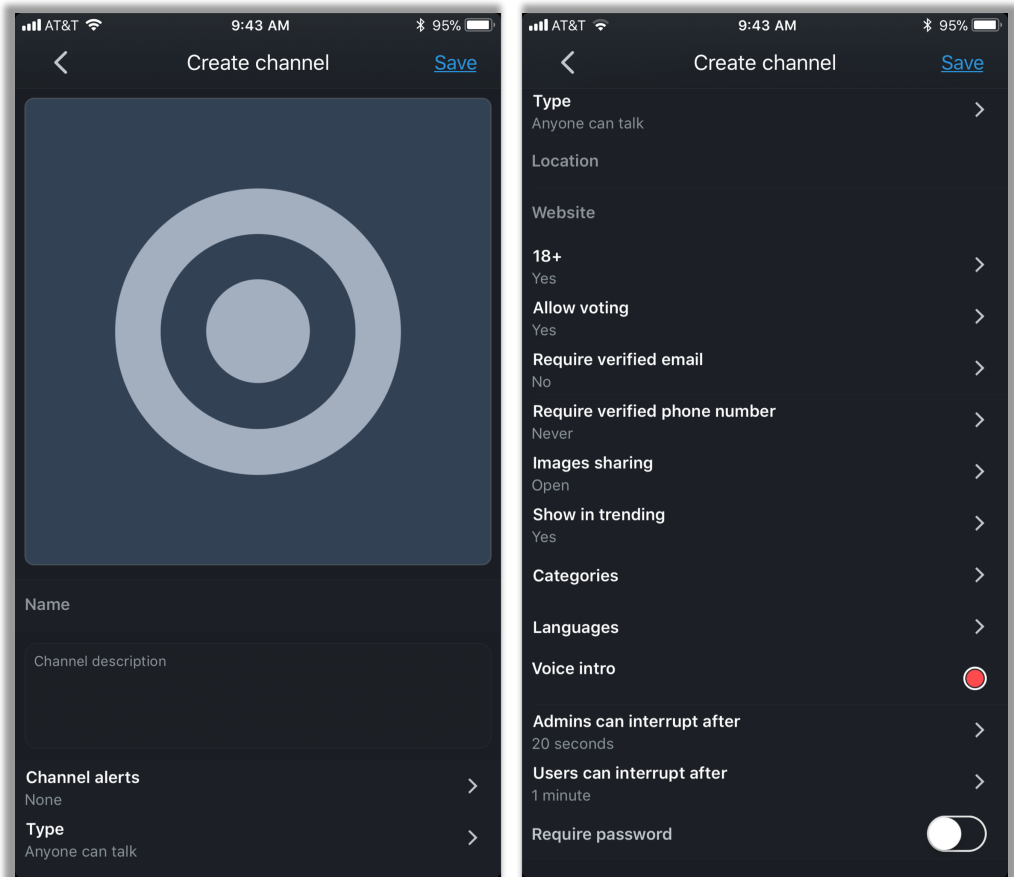

Finally, there will be times when particular channel members are a problem. Zello has **blocking tools** that let the channel Owner, Admins and Mods temporarily bounce, block and mute disruptive members. Repeat offenders should be reported to support@zello.com to be blocked by Zello.

Other useful Zello features

Status tools. In emergency settings, you can easily be connected to multiple channels with a non-stop volume of messages that feels like a fire hose.

When the message flow is overwhelming, or when you want to take a break without missing anything, Zello's Status modes can help.
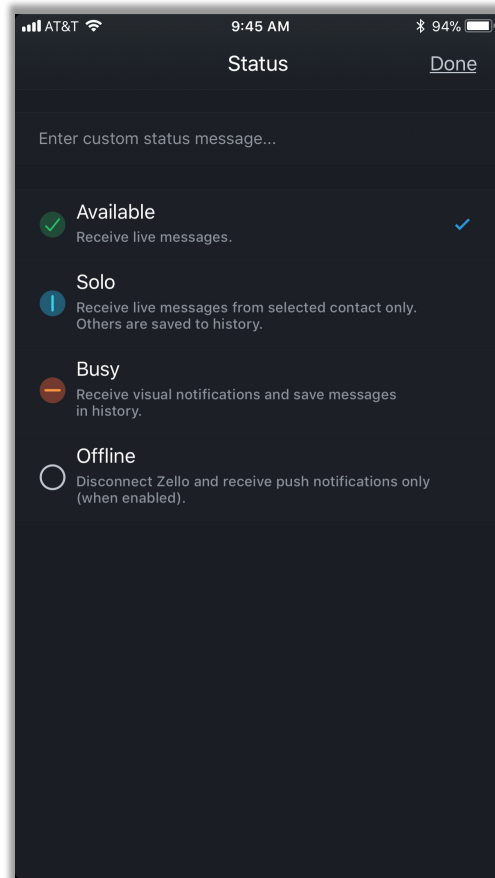
If you want to take a break without missing out on the message flow, place yourself in **Busy** mode. Busy mode routes all incoming messages into your History for playback when it's safe or convenient. And your Recents screen clearly marks messages you have received but not heard.

When you need to focus on a single user or channel for live communication, but still capture messages coming from other sources, put yourself in **Solo** mode. Dispatchers do this, for example, when they need to focus on an assigned channel. Communication with the chosen contact remains live. Other messages can be found in History.
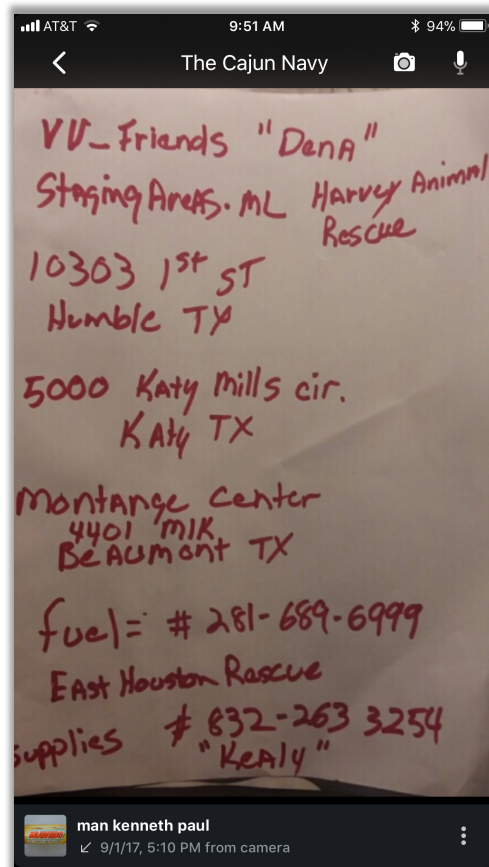
Photos and images. It's not unusual in crisis situations for information communicated vocally – addresses or phone numbers, for example – to be misunderstood or misplaced. Zello saves every message in your device, of course, so you can always retrieve and replay a message that contains information you need.

But if you have no time to write things down, or have no hands free, a photo of that information is a big help. Photos, like voice, are stored in your device.

Photos of local conditions sent by people needing rescue can also be a help to search and rescue teams. And because disasters attract people with bad intentions, photos can provide a way of verifying the identity of a message sender.
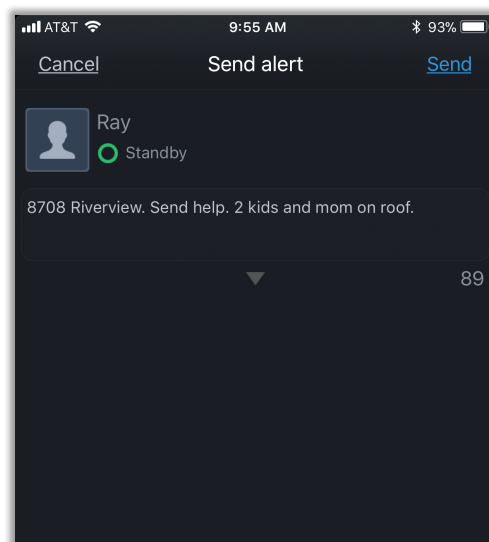

Text alerts. Zello lets you send text alerts to both contacts and channels. Note that the channel owner has to enable text alerts under channel options before that feature is available to channel members.

Text-alerts have a lot of uses. Zello users can send their address to a dispatcher via text alerts, for example. They are also helpful for quick confirmation messages.

Location reporting with Zello. Zello users can send a map view of their current location. This feature has a lot of usefulness for search and rescue efforts. Not only can it pinpoint the location of a person in distress, it can help dispatchers to send the most appropriate team.

Location sending can only be done one-to-one, and not in a channel. Sharing locations can help with marking a rescue team safe, or out of a rescue mission. You can implement procedures that require rescue teams to send their location before and after a they are safe.
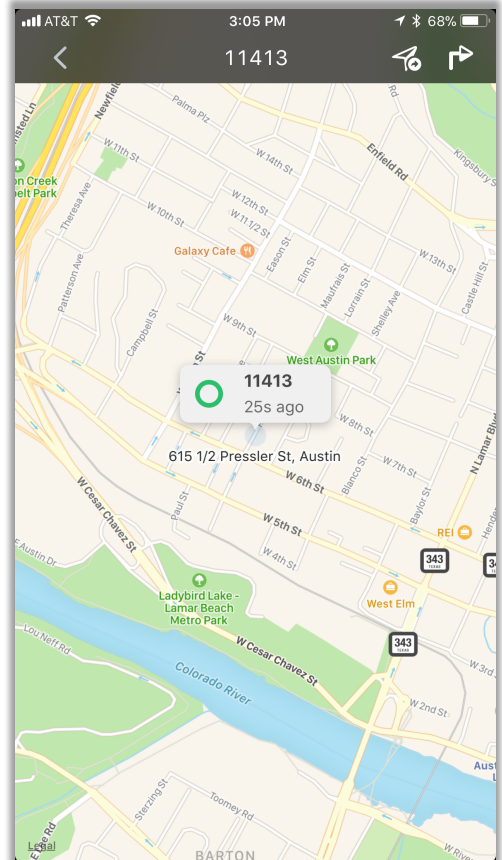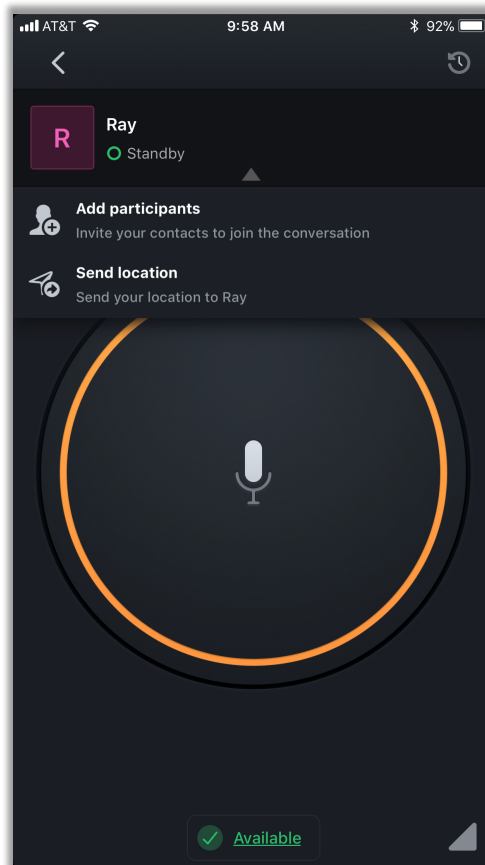
About Zello

Zello provides the world's most popular push-to-talk apps.

We're an Austin, TX based company with a passion for technologies that give people exciting, new and accessible ways to talk to each other anywhere, on any device.

Zello for friends and family is free and has over 120 million registered users worldwide.

ZelloWork is our commercial app. Like Zello, ZelloWork is an easy-to-use push-to-talk app that is available for virtually any popular device and operates on Wi-Fi and carrier data networks.

ZelloWork also has features and safeguards that industries like transportation, hospitality and retail demand. ZelloWork offers centralized message archiving, administrative and management controls, and integration with relevant hardware accessories, software applications and security and safety protocols.

To learn more, go to zellowork.com.

While you're there, click on Start Your Network for a free ZelloWork trial.

If you want to connect with a helpful, enthusiastic human, email us at learnmore@zellowork.com.