# Meshtastic Workshop

Meshtastic is an alternative **communication network** providing resilient **mesh relay** routing, **low power** consumption, and **long-range** capability

# What We're Going to Cover

What is Meshtastic and LoRa?

How to Install Device Firmware

Setting Up and Connecting the App
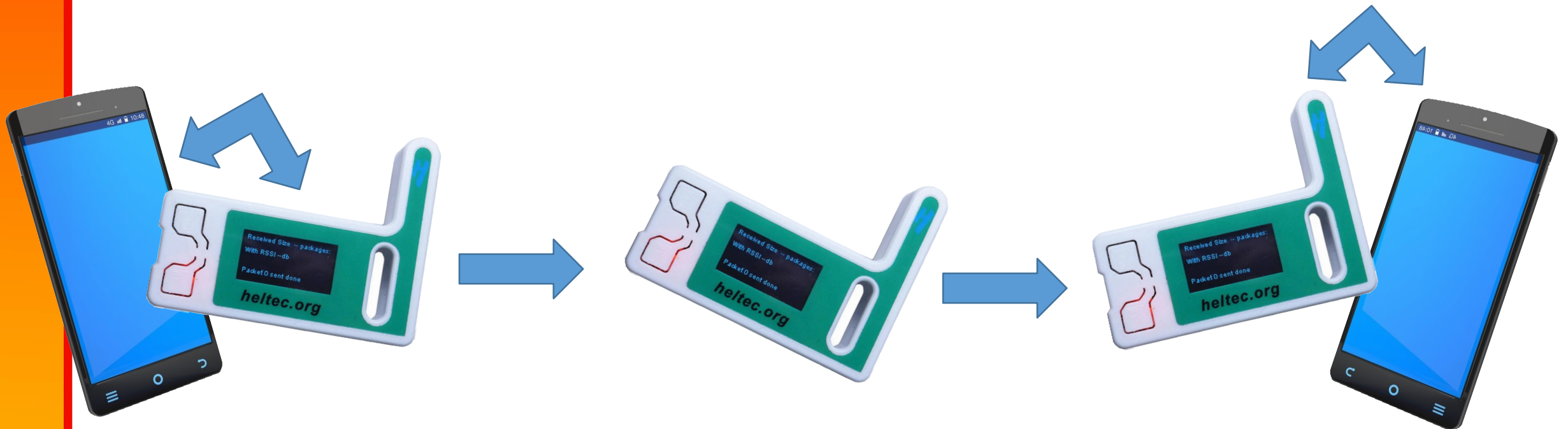
Meshtastic and Encryption

Optimizing the Network

Practical Uses

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2.

The **Importance** of **LoRa** and **Meshtastic** for Alternative Communication

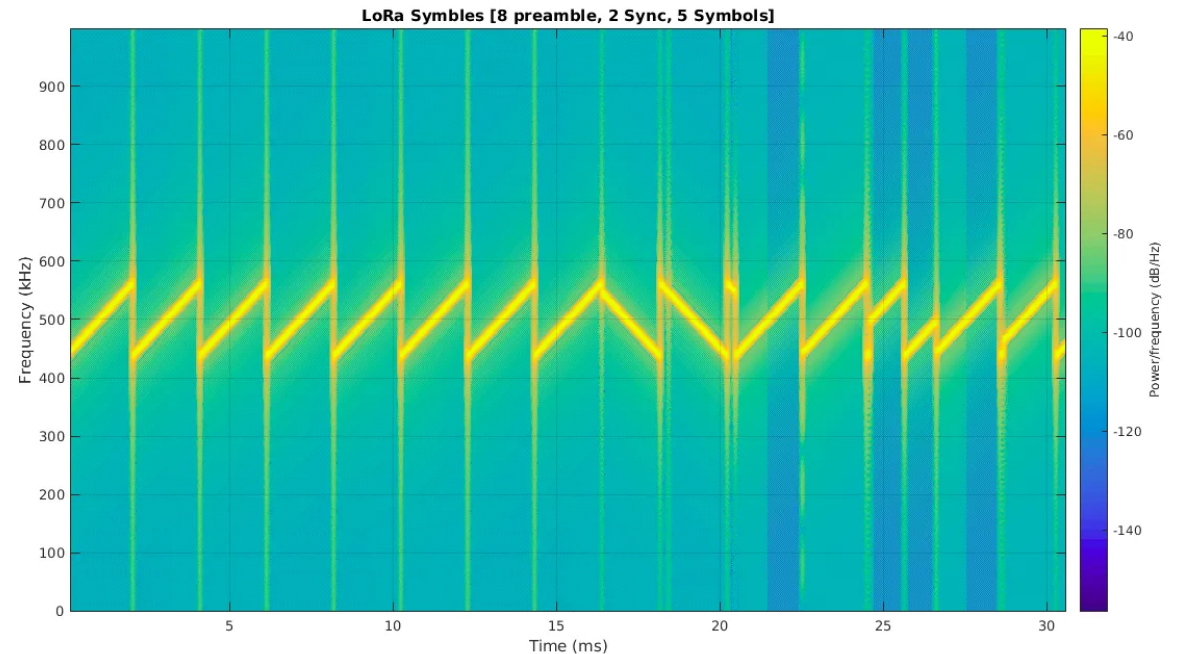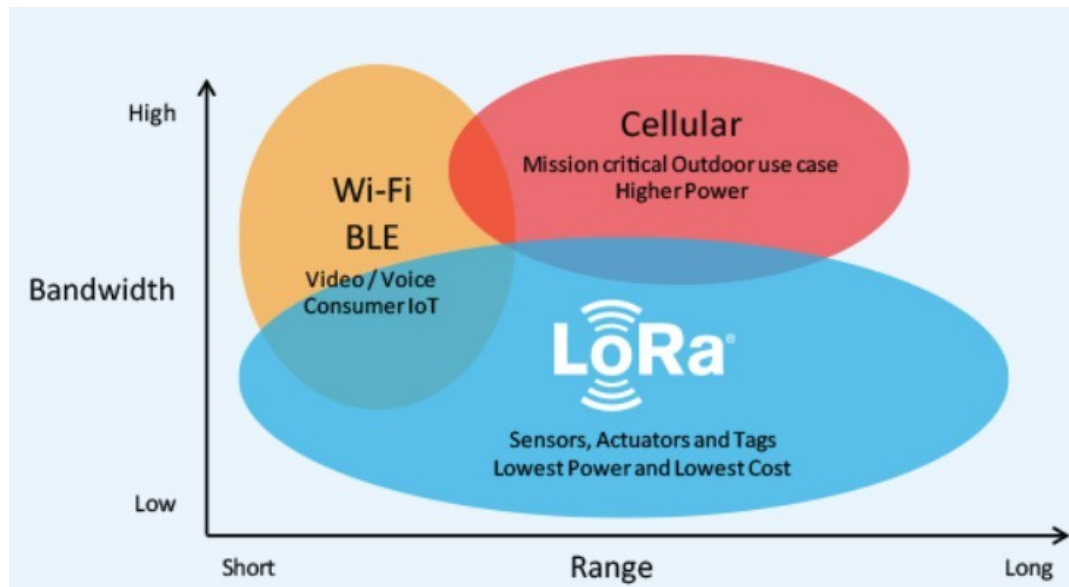**Understanding LoRa**: Long Range, Low Power, Encrypted Communication for IoT and Beyond

**LoRa:** A Key Technology for IoT and Secure Communication

Why Choose **LoRa** Over **Ham Radio's APRS** for Secure Communication?

**Introducing Meshtastic:** The Open-Source Solution for Decentralized Communication

# Meshtastic Workshop

## Choosing the **Right** LoRa/Meshtastic **Device**
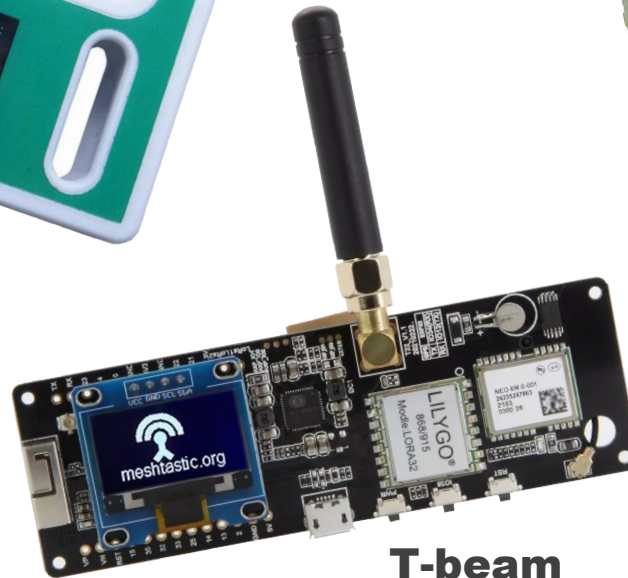
HelTec V3

T-deck

Custom Solar Setup

Custom T-beam

T-beam
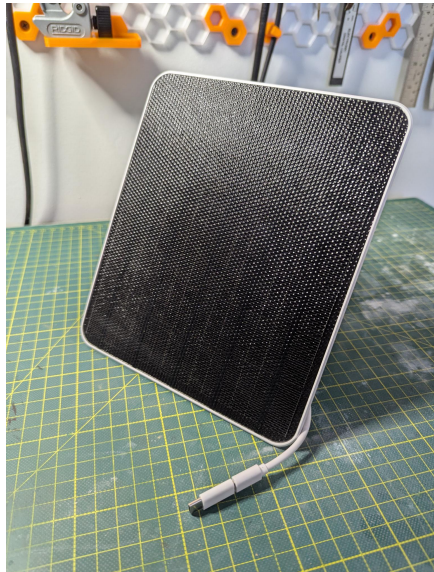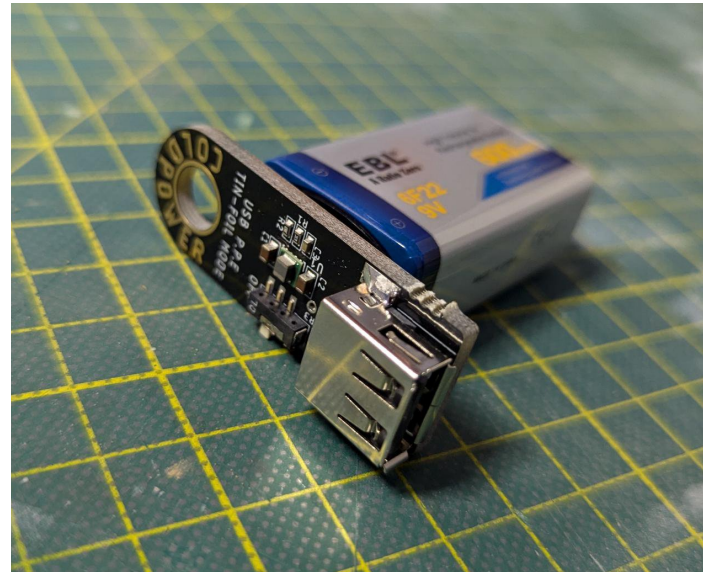
## Setting Up Your Meshtastic Device: Power



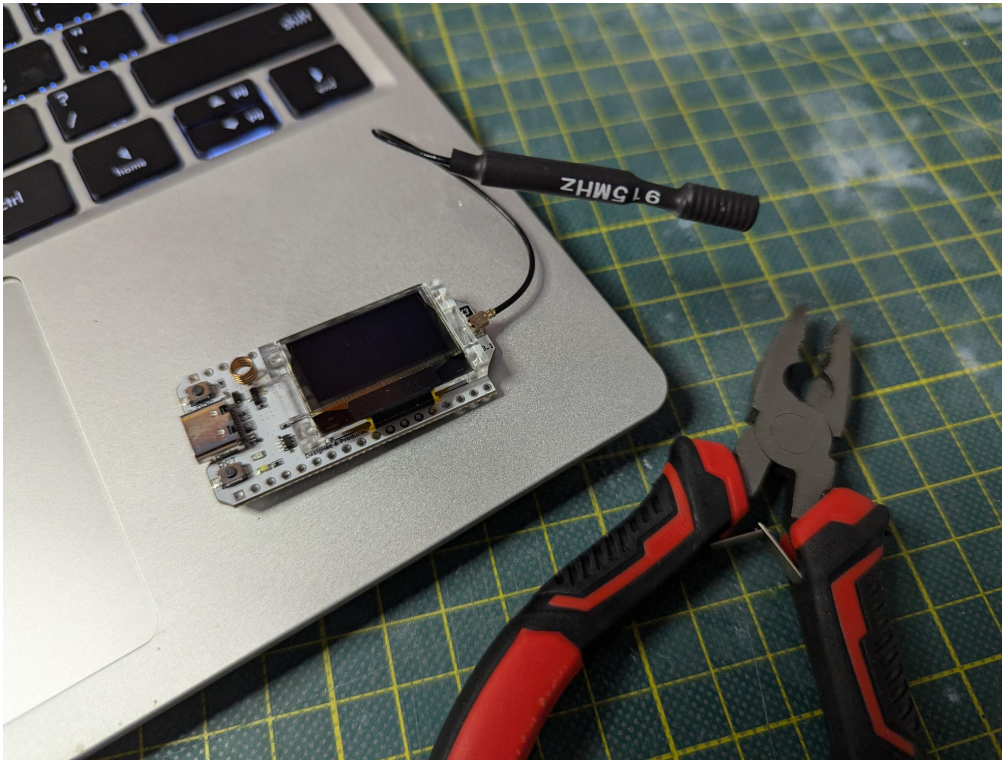**LiPo Battery**



**Small Solar Panel**



**Coinkite ColdPower**



**USB battery bank**

# Meshtastic Workshop
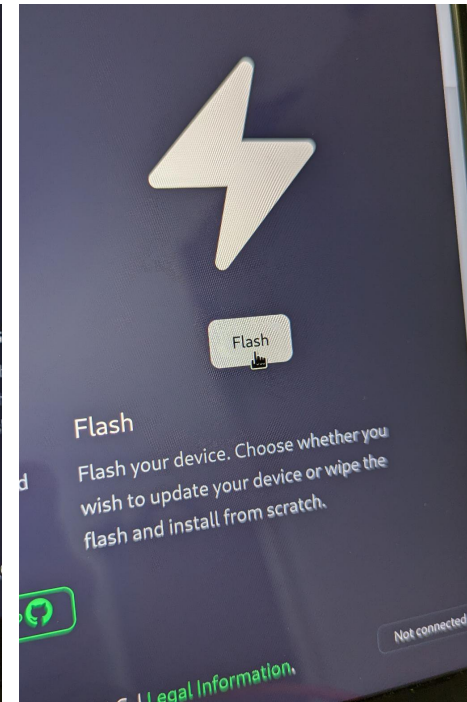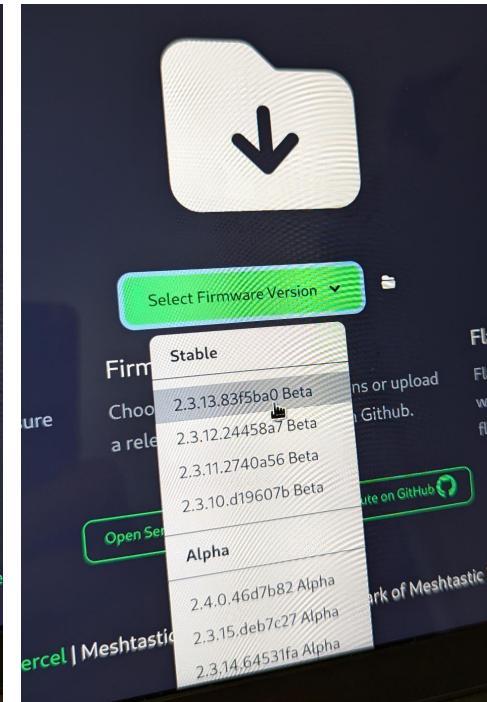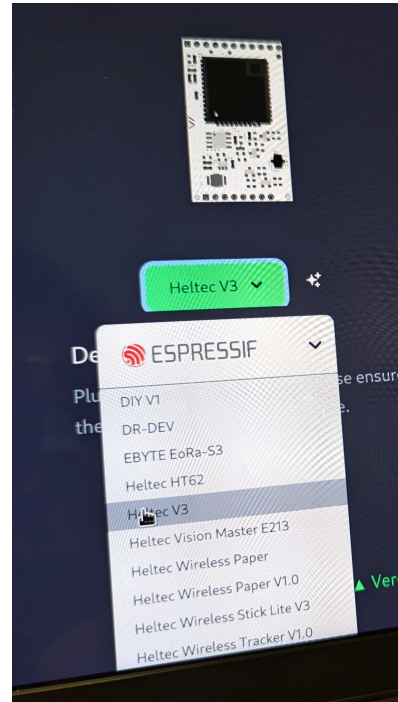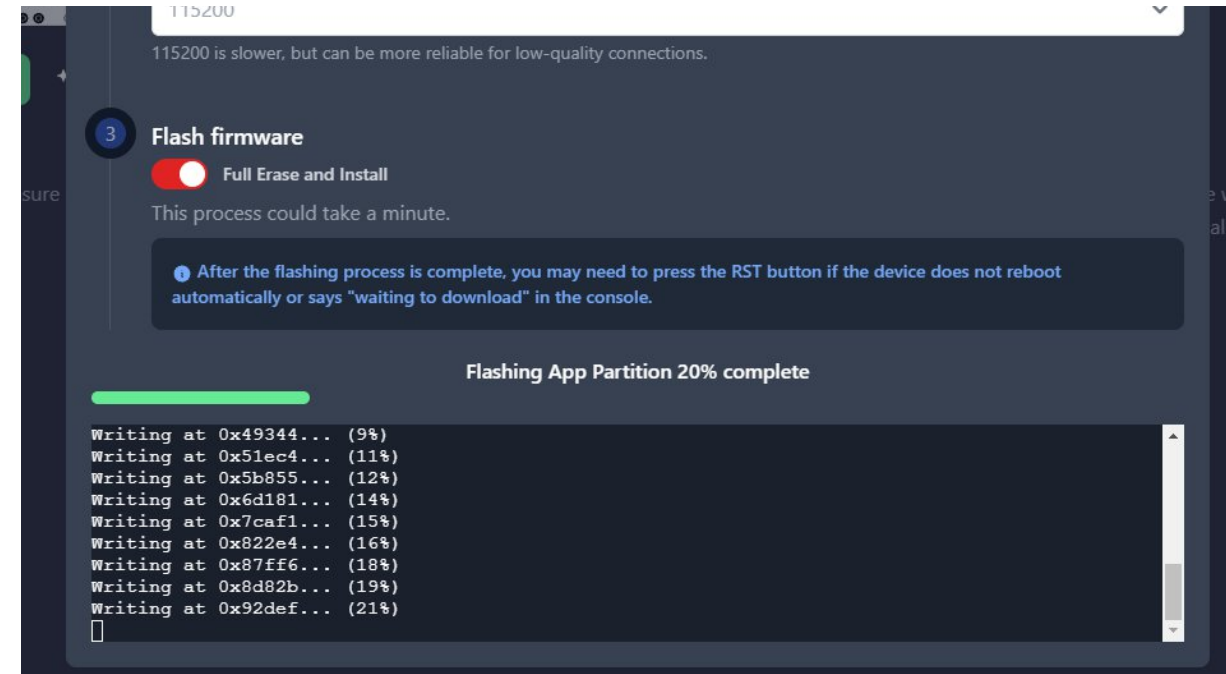
## Setting Up Your Meshtastic Device: Firmware Install

### Connect to your computer via USB

# Setting Up Your Meshtastic Device: Firmware Install



## https://flasher.meshtastic.org/

## Setting Up Your Meshtastic Device: Firmware Install



# https://flasher.meshtastic.org/

## Setting Up Your Meshtastic Device: **Firmware Install**



## https://flasher.meshtastic.org/
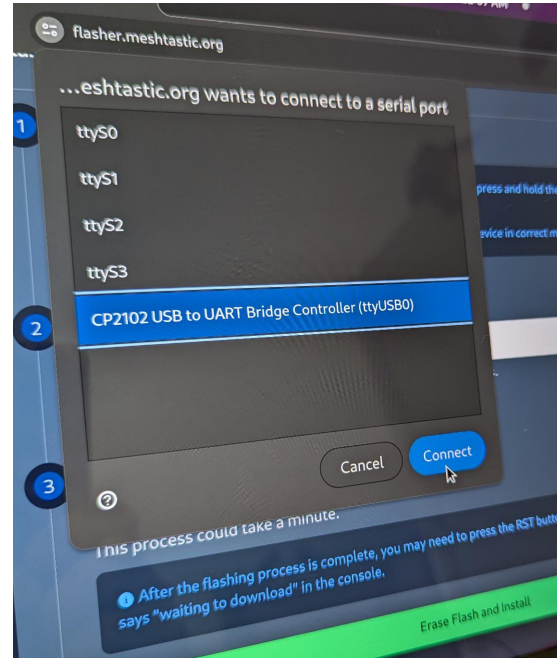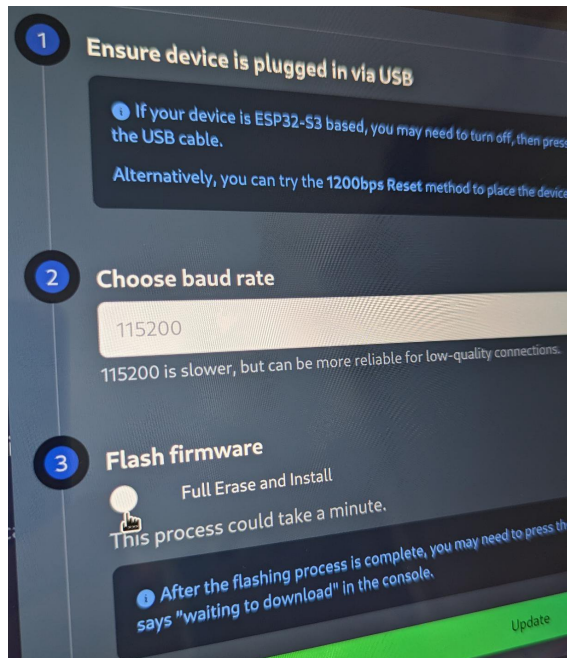
## Setting Up Your Meshtastic Device: **iPhone Software**
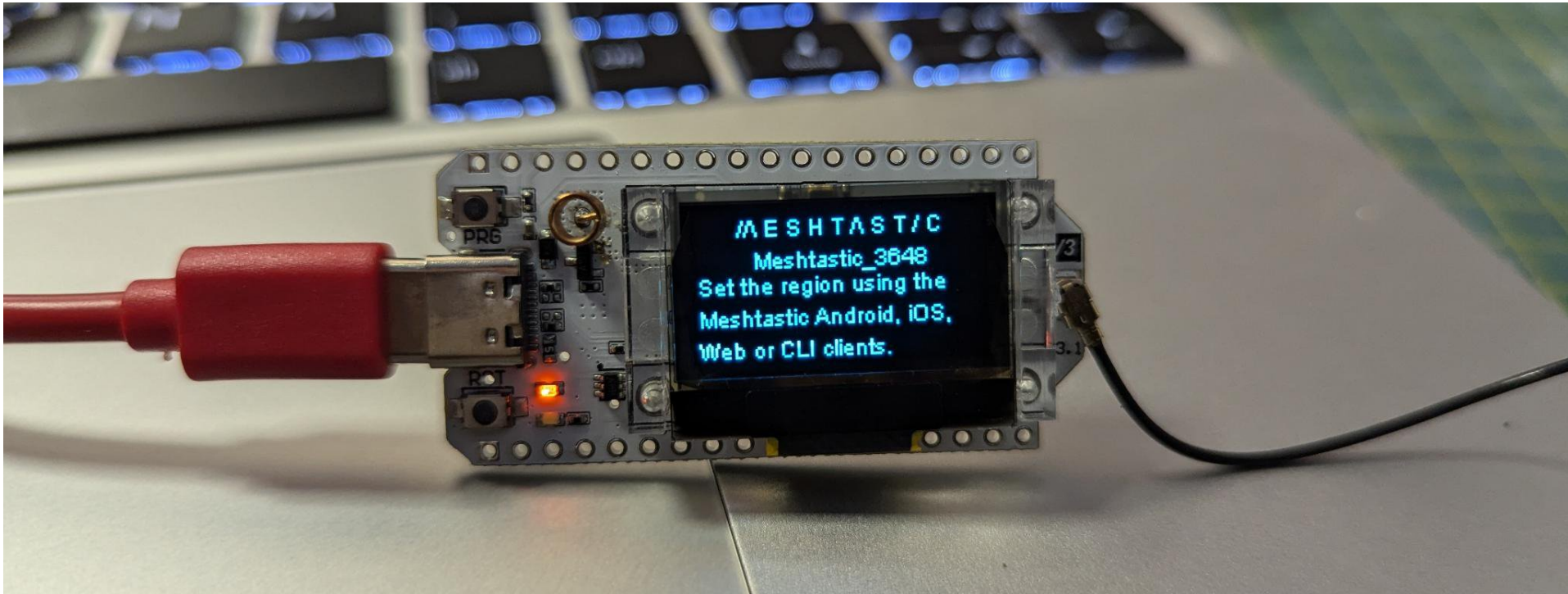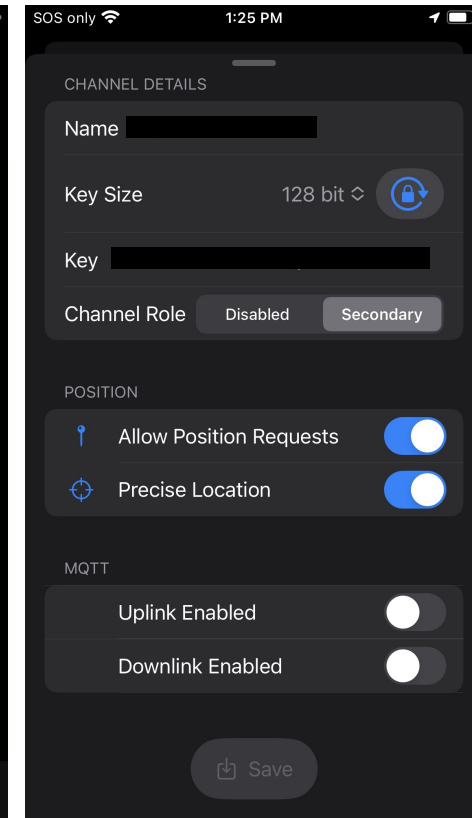
# Meshtastic Workshop

## Setting Up Your Meshtastic Device: **Android Software**
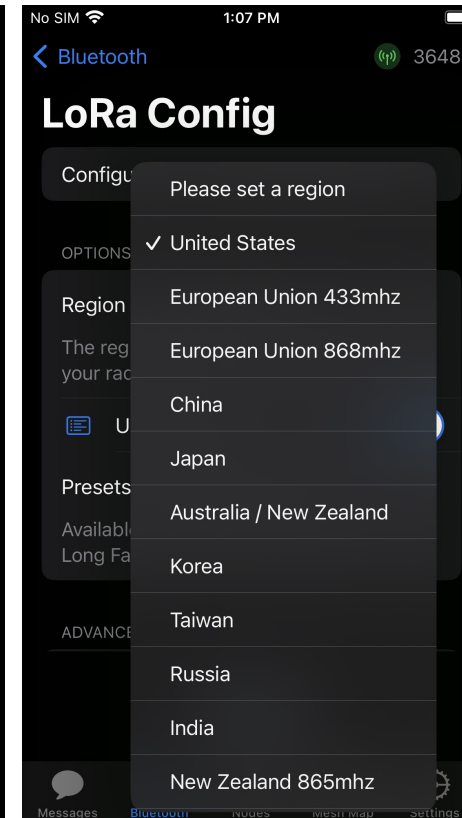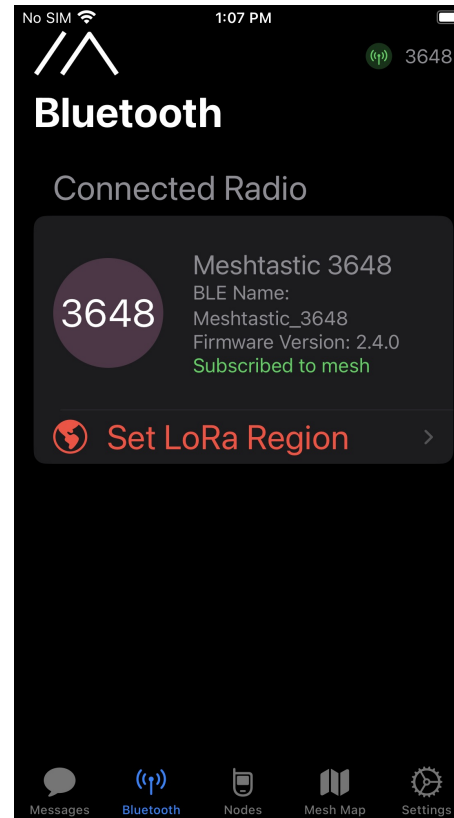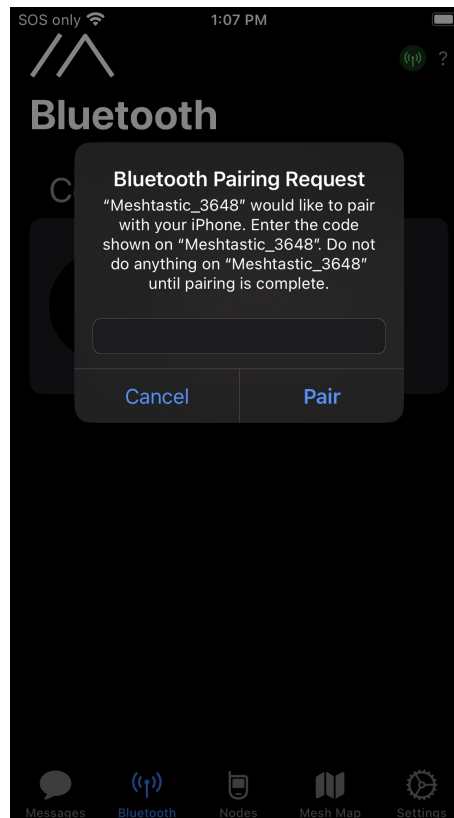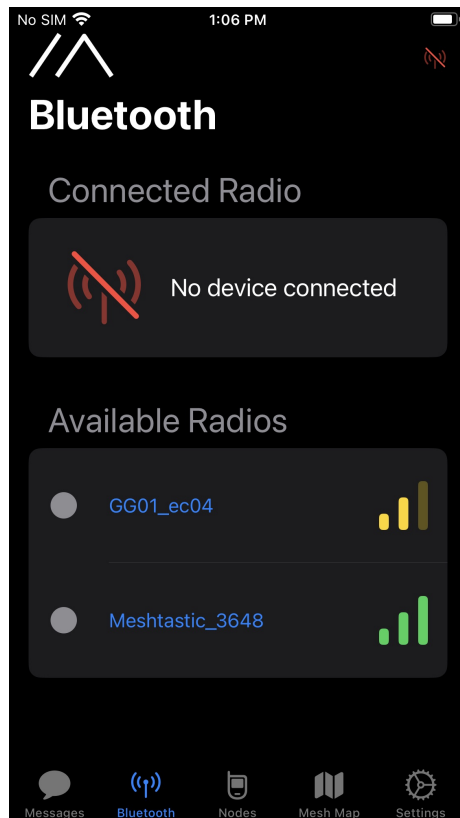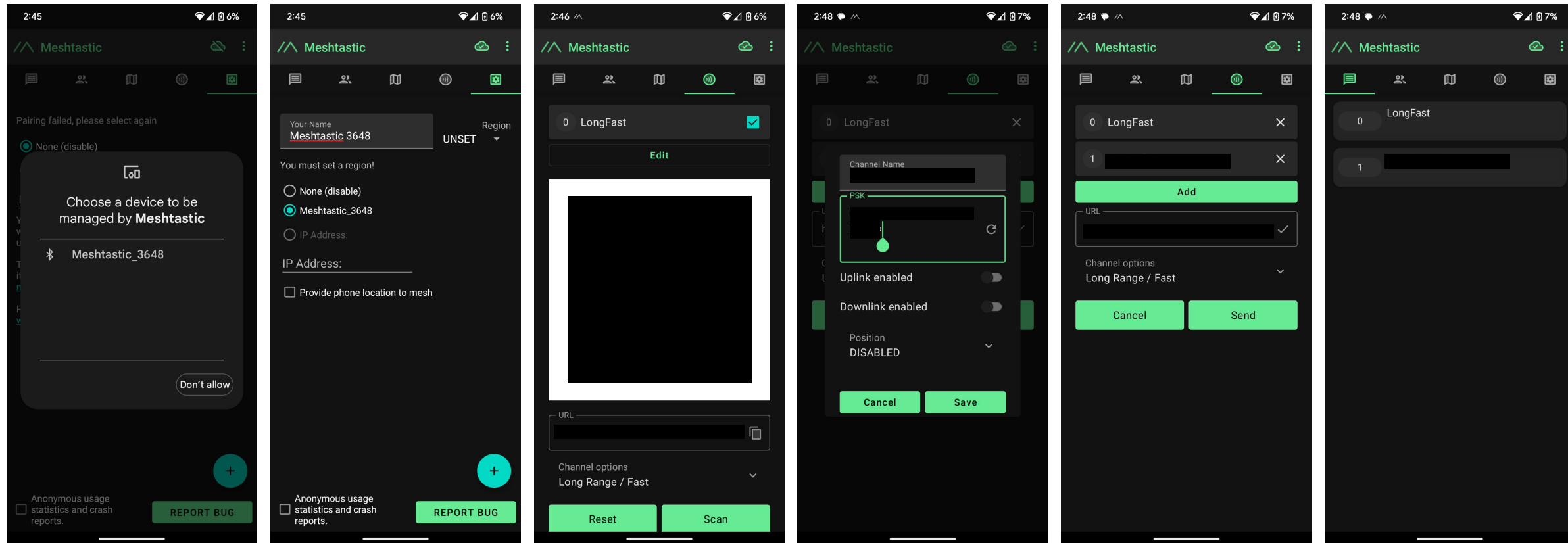
# Join Us On The Mesh!

**BTC Conference Meshtastic Channels**

**0** Primary Channel

**1** B V Citadel

**2** btc.chat

**3** ecash.chat

**4** p2p.market

**5** /politics

**6** events.news

**7** nostr&npubs

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Understanding Meshtastic Concepts: **A Multi-Layer Approach**

**Naive Flooding for Multi-Hop Messaging**

**Reliable Zero Hop Messaging**

**Unreliable Zero Hop Messaging**

**LoRa Radio**

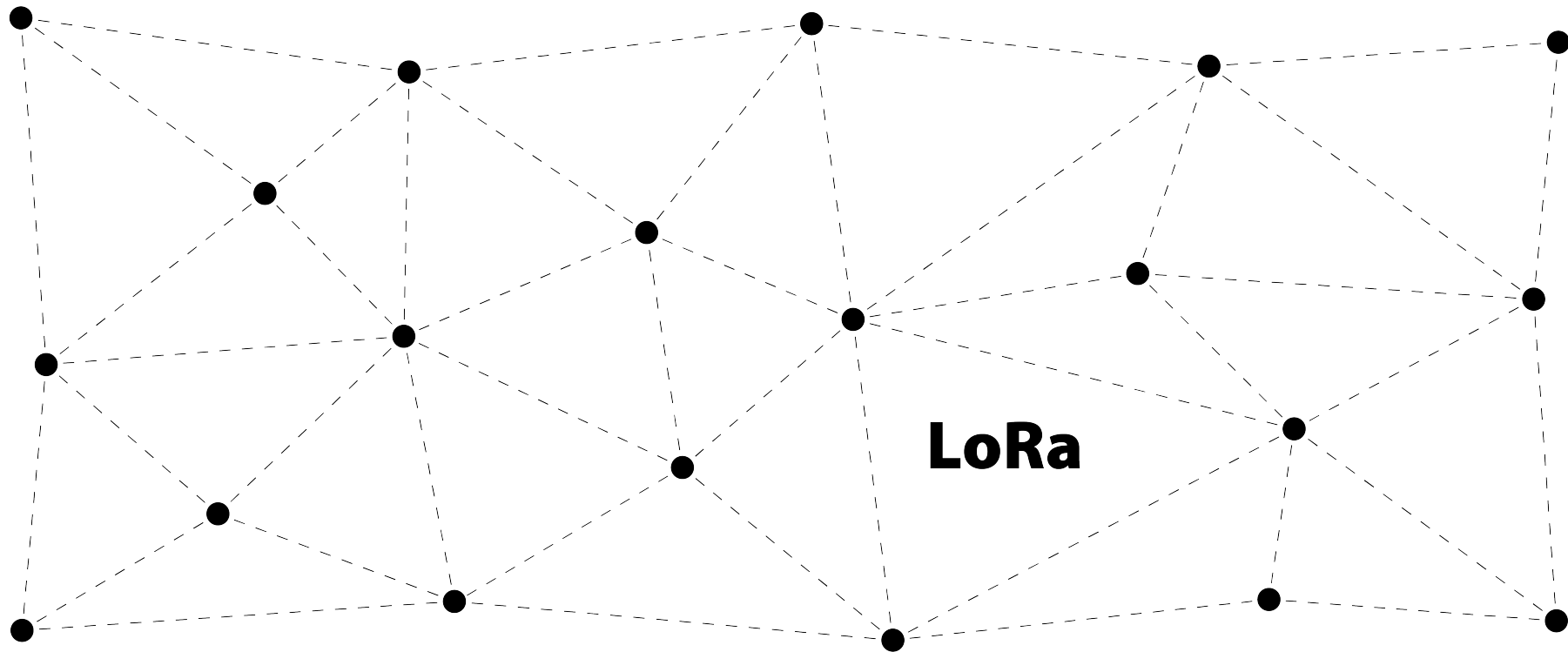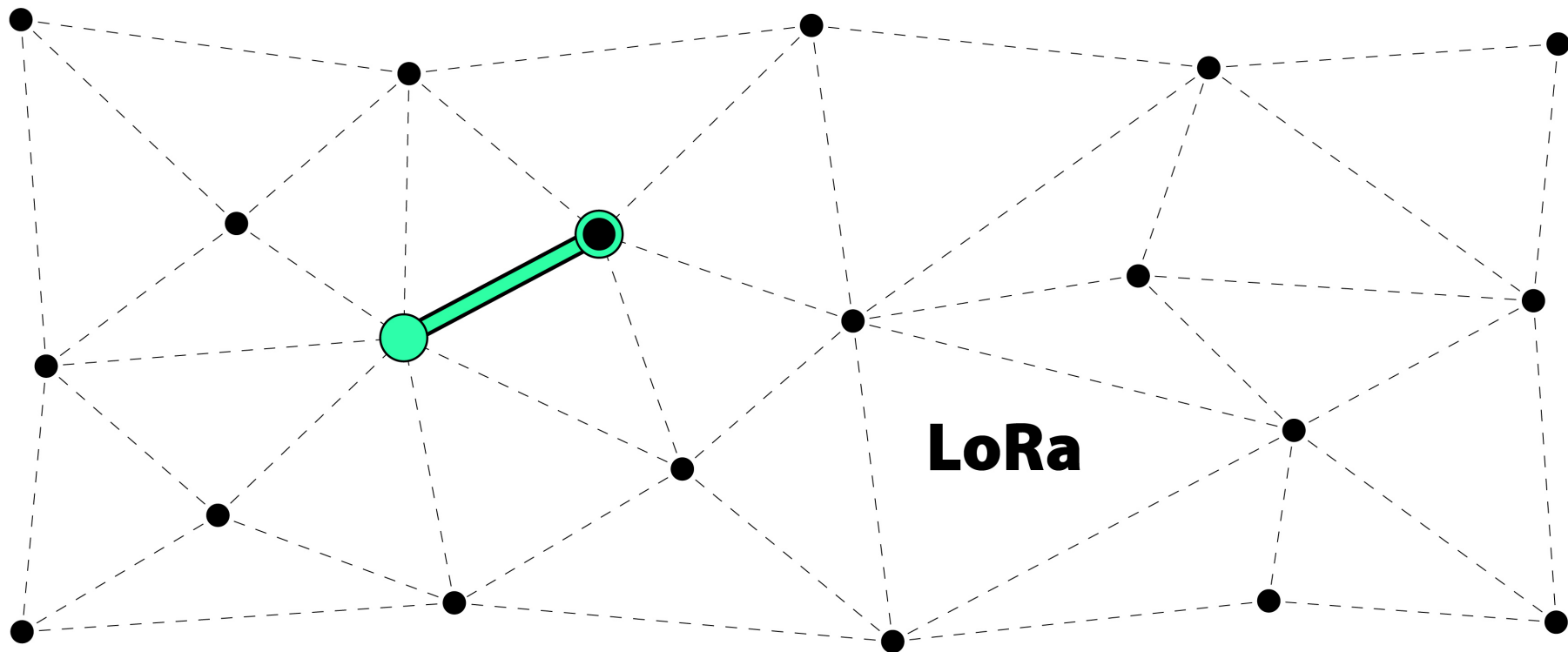## Layer 0: LoRa Radio - The Foundation of Meshtastic Communication

## Layer 1: Unreliable Zero Hop Messaging -
Conventional Packet Transmission



LoRa

## Layer 2: Reliable Zero Hop Messaging - Ensuring Message Delivery



WantAck

Ack

Node with Lowest Signal/Noise Ratio



ACK ACK! ACK ACK! ACK ACK! ACK ACK! ACK ACK!

ACK ACK! ACK ACK! ACK ACK! ACK ACK!
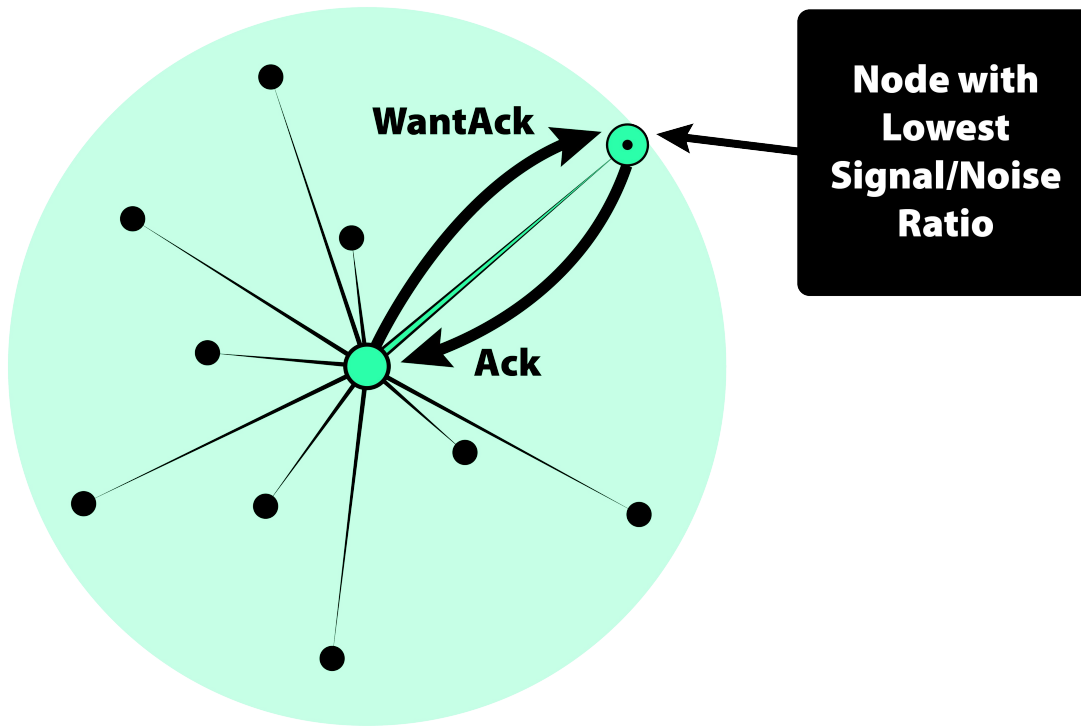
## Layer 3: (Naive) Flooding for Multi-Hop Messaging - Extending Message Range
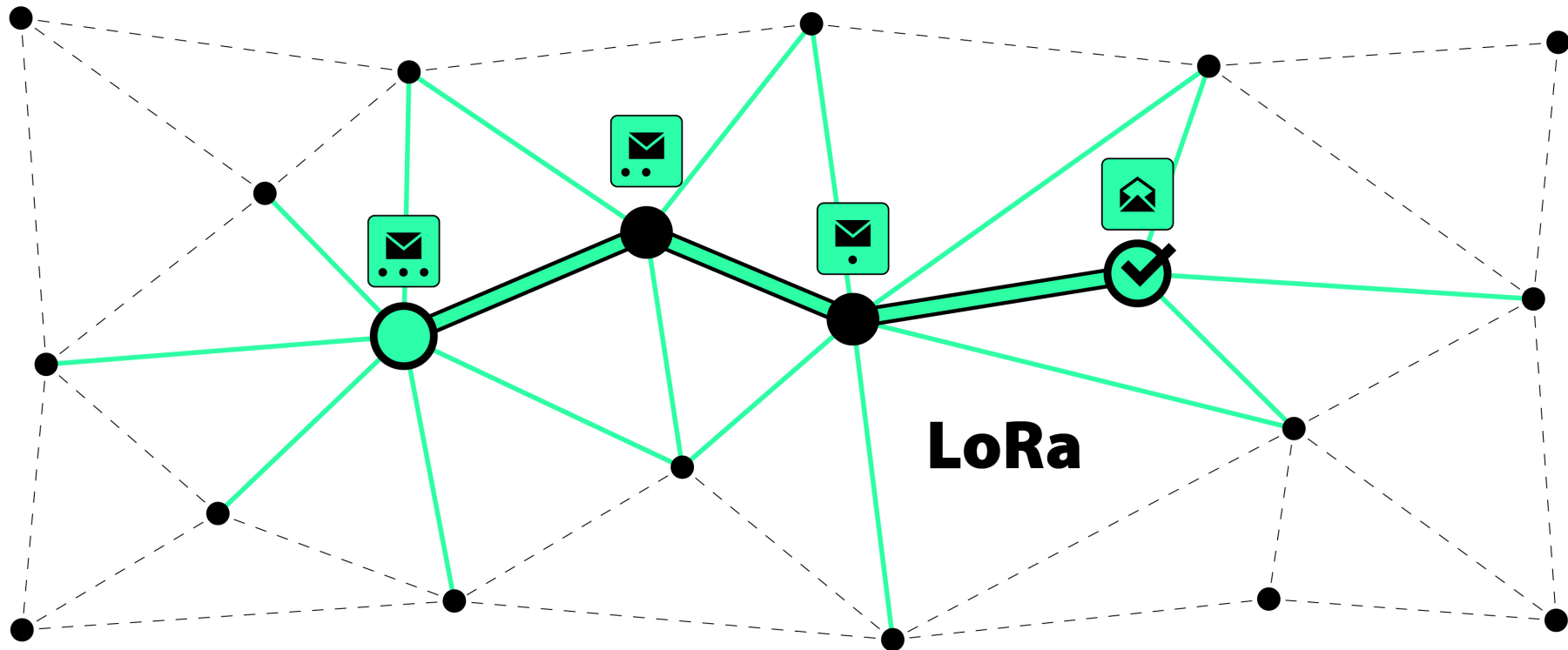


LoRa

## Optimizing Network and Landscape Topology for Reliable Coverage

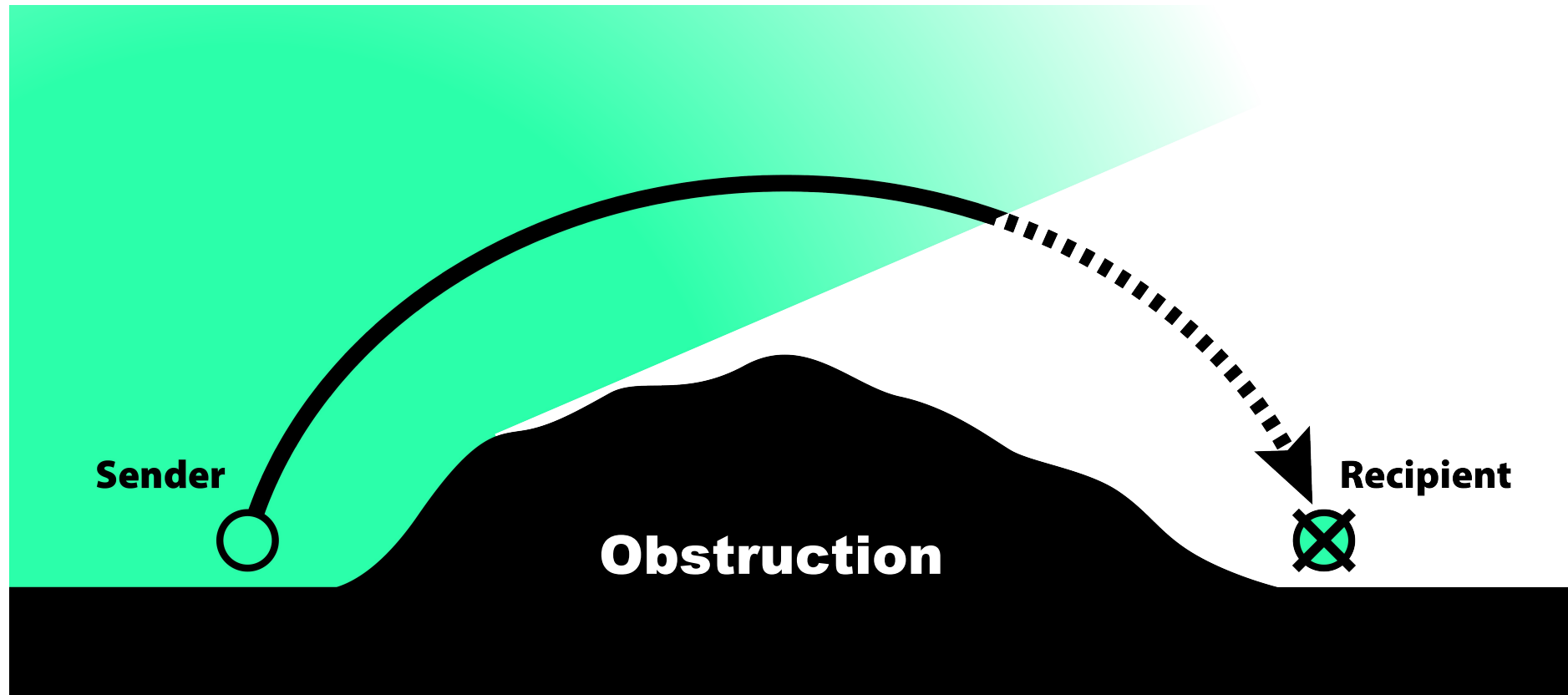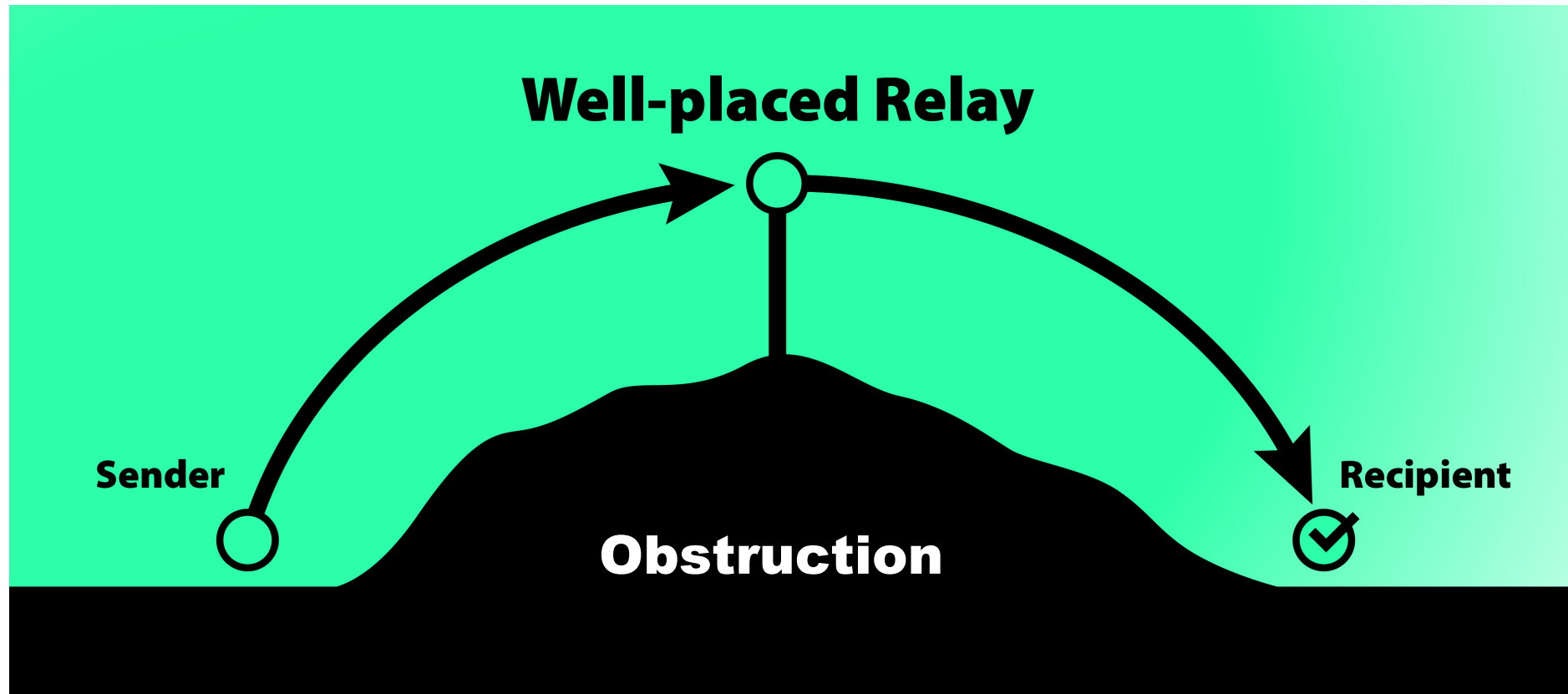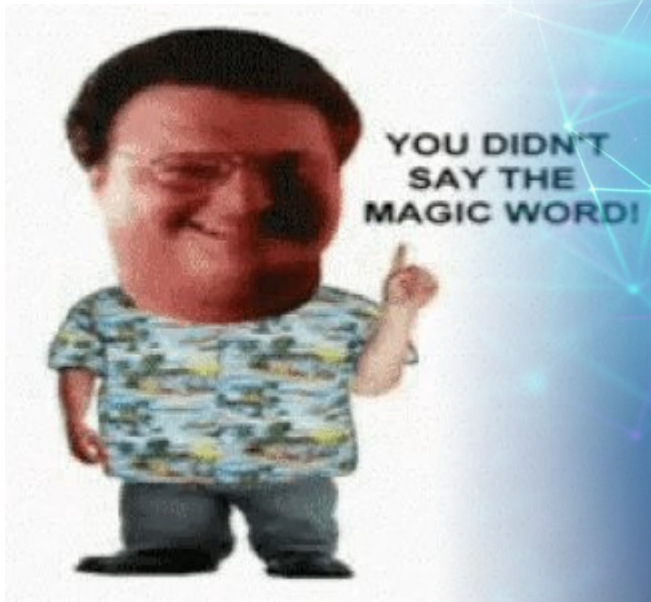## Optimizing Network and Landscape Topology for Reliable Coverage

## Security Considerations for Meshtastic Users
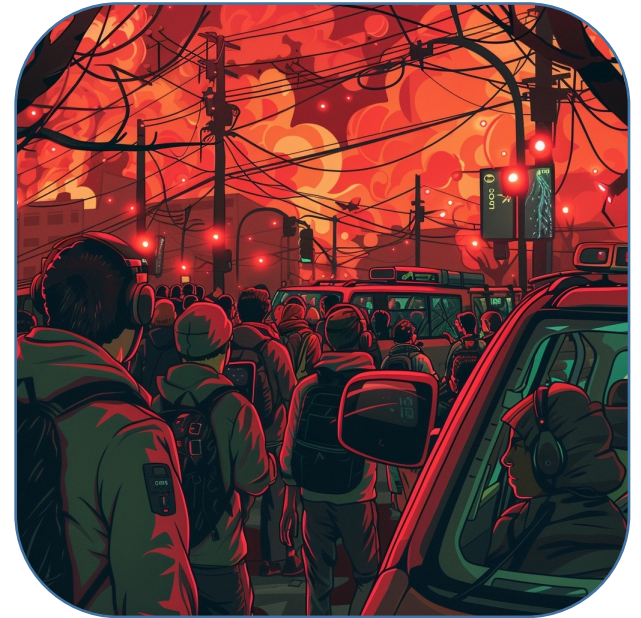
AQ==?

## **Practical Use Cases** for Meshtastic and LoRa



**Rural Area Connectivity**



**Outdoor Adventures**



**Disaster Response**
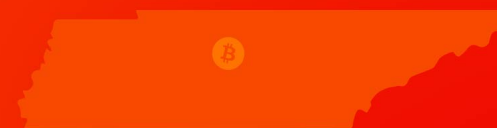
Shout out to

# The Comms Channel

https://www.youtube.com/@The_Comms_Channel

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#artist #designer

Hi! I'm

# Adam Malin

**thePR0M3TH3AN**

npub15jnttpymeytm80hatjqcvhhqhzrhx6gxp8pq0wn93rhnu8s9h9dsha32lx

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27.

# Key Takeaways

**Meshtastic and LoRa:** Decentralized, off-grid chat app with phone and LoRa radio.

**Encryption:** Uses encryption for secure messaging. Channel keys ensure privacy.

**Network Topology:** Clear lines of sight and strategic placement of nodes enhance reliability.

**Practical Use Cases:** Ideal for emergency communication, and community or mobile networks in remote areas.

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**QUESTIONS?**

# Thank You!

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0 Primary Channel
1 B V Citadel
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**/\ESHTAST/C**

Open Source Presentation



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