

Mobile Crowdsensing Framework Over Low-Power Wide Area Network



Dr. Morgan Vigil-Hayes

Ryan Wallace : Benjamin Couey : Mohammed Alfouzan : Brandon Salter

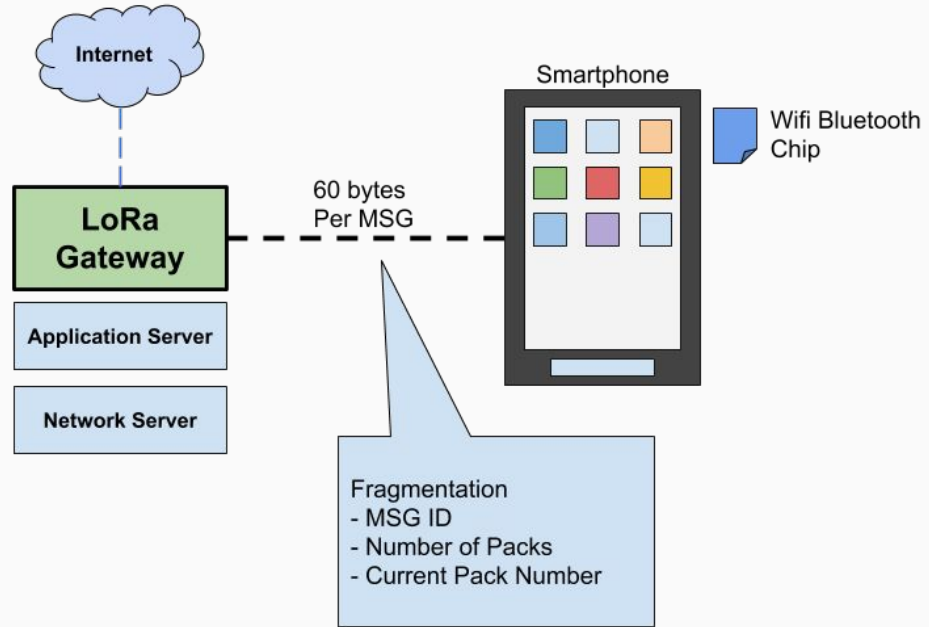
Our Client

- Dr. Vigil-Hayes
- Her research lab
Community Aware
Networks & Information
Systems (CANIS)
- CANIS lab has been
working on LoRa for
about a year now



Our Clients Goals

- Enable Internet of Things and crowdsourcing
- Provide connectivity in rural areas
- Connect many devices to LoRa Gateway

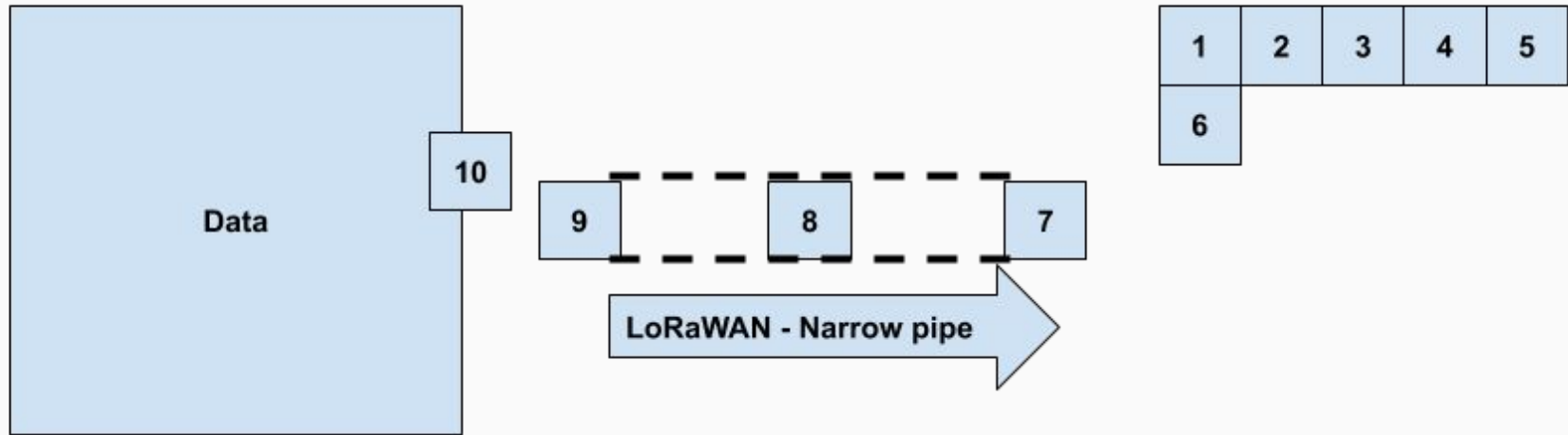


Introduce problem

- LoRa connection has very little throughput ~ 60 Bytes
- Traditional protocols too big
- No generic API to transmit data over LoRaWAN
- Need libraries to allow devices to communicate over stripped down LoRaWAN protocol

Introduce Our Solution

- Create modular library to encapsulate HTTPS over LoRaWAN
- Fragmentation
- Break big message into many smaller messages that 'fit through' the LoRa connection



Plans Going Forward

- Plan to meet with Dr. Vigil-Hayes and her lab
 - Work is still being done to find practical limits on LoRaWAN throughput
 - Existing architecture put in place by CANIS
- Challenges
 - Space is tight, need a low overhead solution
 - Fragmenting metadata can be helpful; but it can cause many issues

Closing

Summarize what we are doing, what value it provides to the client, and potentially wider applications