

**Presentation Will  
Begin Shortly**

**4:00**



## LPWAN

- FEB 8<sup>TH</sup> | LPWAN 101 - A look at the Emerging LPWAN Solutions and the Applications They Serve
- MAR 14<sup>TH</sup> | Wi-SUN FAN 1.1 Rollout
- APR 18<sup>TH</sup> | Amazon Sidewalk – New Features and Market Applications
- MAY 23<sup>TH</sup> | Why Sub-GHz?

# Welcome

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## Amazon Sidewalk – New Features and Market Applications

Roberto Sandre – Product Management Lead

tech talks



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# Introduction



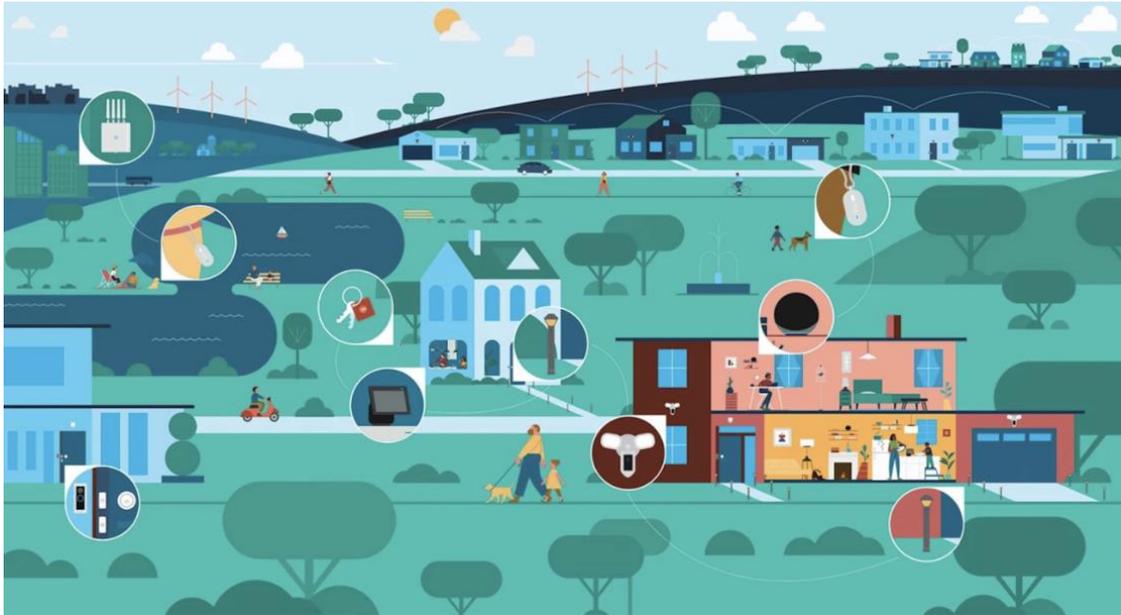
## ▪ Roberto Sandre

- Roberto leads product management at Amazon, focusing on the Sidewalk project. With a diverse background spanning engineering, management, semiconductors, and SaaS companies, he has accumulated over 20 years of expertise, with the last decade dedicated to IoT technologies. Roberto has also held directorial positions in few industry alliances, actively developing and advocating for standards like Thread, Bluetooth, Zigbee, UHF RFID, and 1D/2D barcodes.

# What is Amazon Sidewalk?

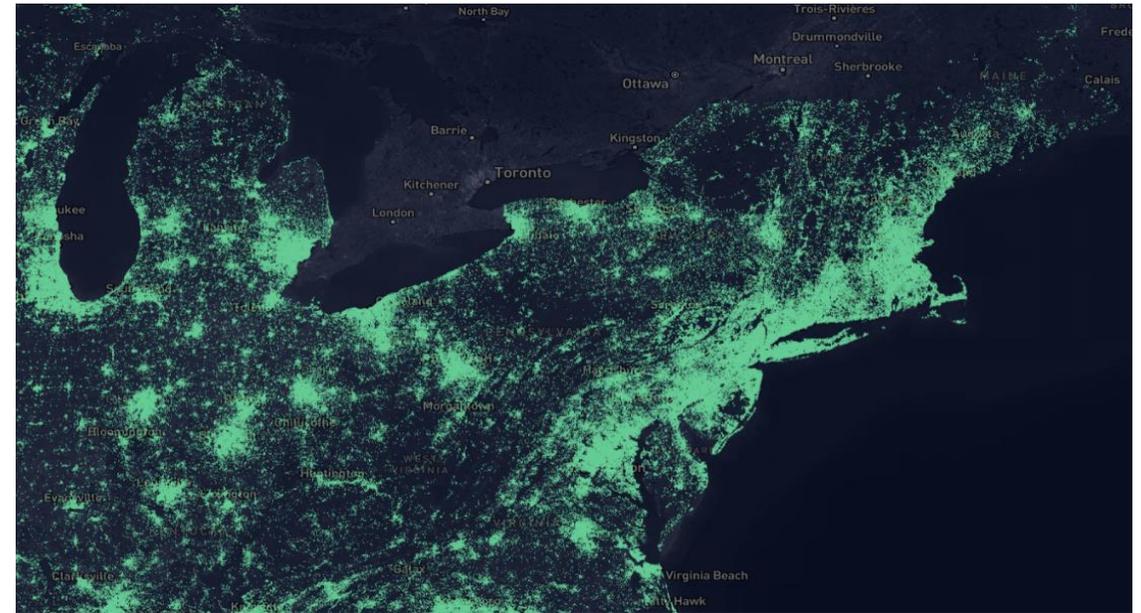
*A network and a technology platform for any developer*

**NETWORK BUILT BY THE COMMUNITY**



*Public and crowd-sourced*

**SAMPLE COVERAGE (US EAST COAST)**



*Over 90% of US population covered*

# Amazon Sidewalk Architecture

## SIDEWALK BRIDGES AND ENDPOINTS



The Amazon Sidewalk network provides cloud connectivity in the US via existing Ring and Echo devices

## SIDEWALK CLOUD AND AWS



The Amazon Sidewalk AWS integration provides access to 200+ services such as Sage Maker, DynamoDB, Lambda

# Amazon Sidewalk Connectivity



## IN HOME

Bluetooth LE for battery and throughput performance

## BEYOND YOUR FRONT DOOR

FSK for any corner of home and beyond

## ACROSS NEIGHBORHOODS

CSS for mobility and wide area networking

# Why Amazon Sidewalk?

NO PAIRING NEEDED



Seamless onboarding  
for end user

IN HOME AND OUTSIDE



Consistent  
connectivity

MOBILE APP OPTIONAL



Friction-less  
experience for users  
to register products

CLOUD NATIVE



Can serve as an  
Internet backup

SECURE CONNECTION



Robust  
communication

# Amazon Sidewalk Use Cases



Location Trackers

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Pet trackers,  
key fobs, asset  
management



Appliances

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Water heaters,  
refrigerators,  
washing  
machines



Home Infrastructure

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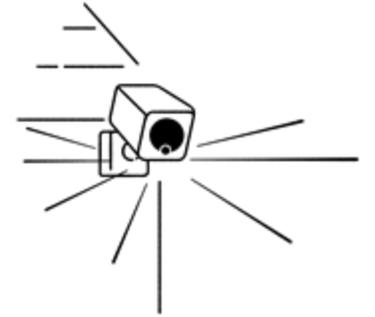
Water meters  
and valves



Telemetry  
Sensing

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Water leak  
detectors, gas  
detectors, PIR  
sensors for  
notifications



Security cameras

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Offline motion  
notifications

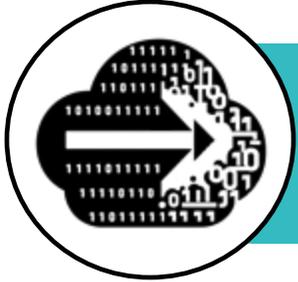
# Q&A

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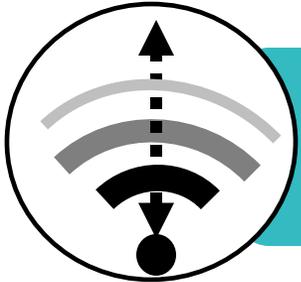


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# New Features



**CODE FOOTPRINT OPTIMIZATION**



**AUTOMATIC MULTI LINK**

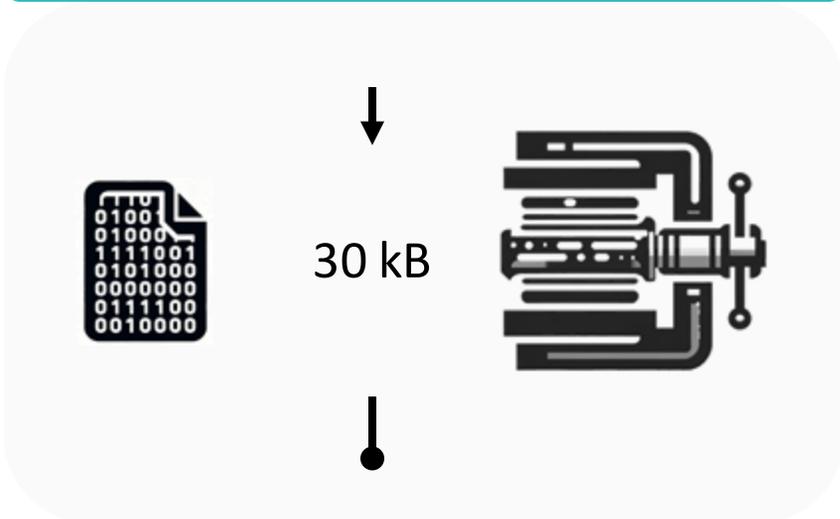


**DOWNLINK FILE TRANSFER**

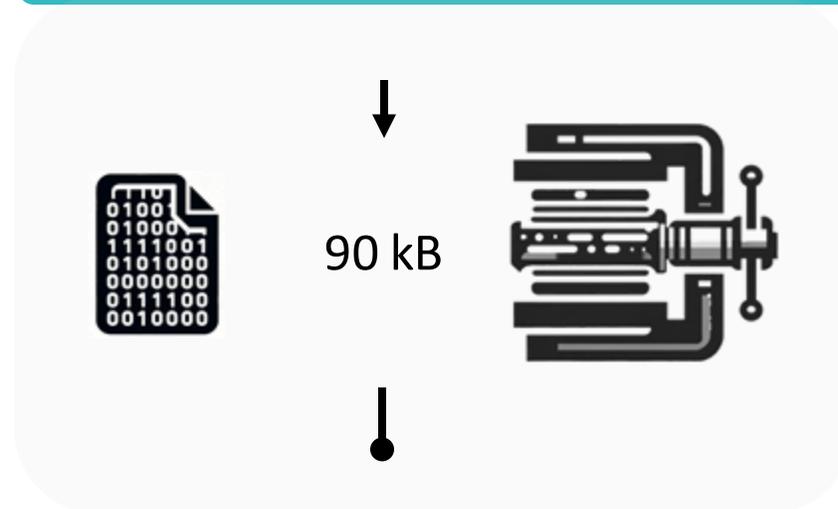
*Sidewalk SDK 1.16 available as extension of Silabs Gecko SDK 4.4.0*

# Code Footprint Optimization

BLUETOOTH LE SDK ~ 90 kB



CSS AND FSK SDK ~ 130 kB



## APPLICATIONS

- Use of Sidewalk in alternation with existing applications for higher security
- Multiprotocol (e.g. Sidewalk and LoRaWAN)
- Large memory applications (e.g. trackers) with multiple Bluetooth LE connections

# Dynamic Multi-link

## BENEFITS

Trading off latency and power consumption depending on network availability

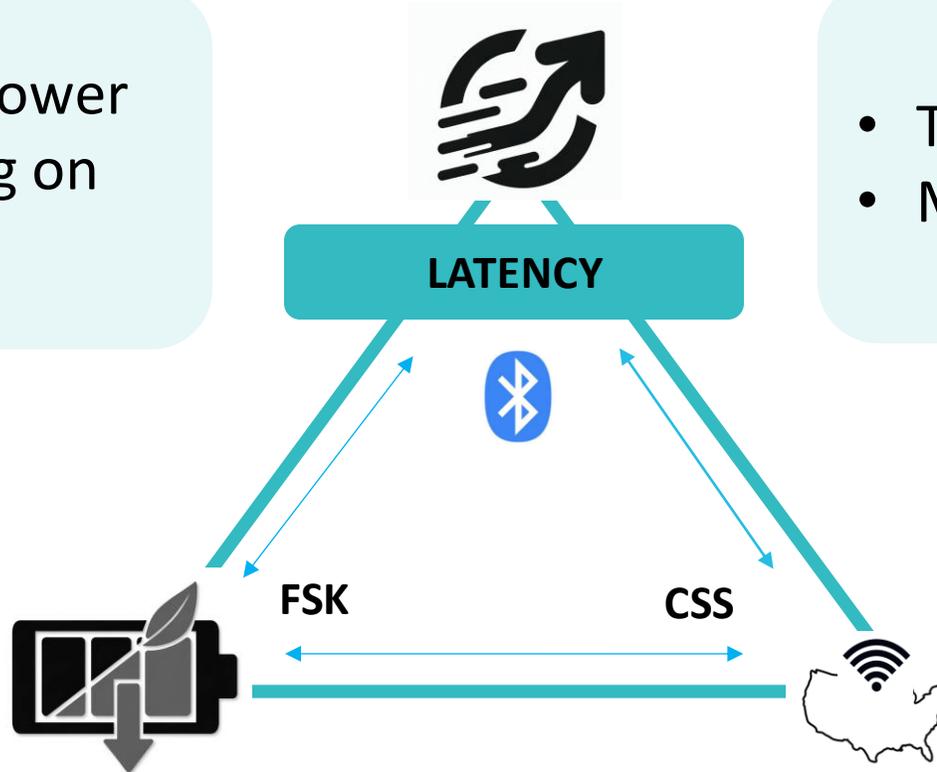
## APPLICATIONS

- Trackers
- Mobile Telemetry Sensing

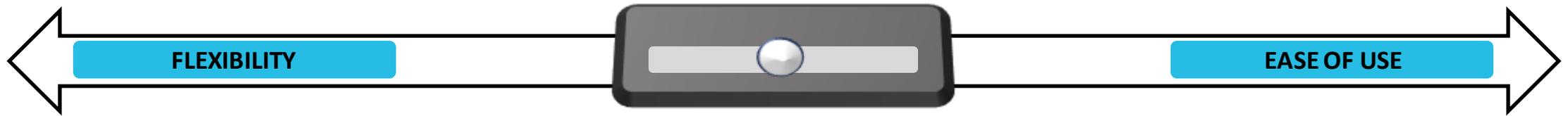
## POWER

## LATENCY

## COVERAGE



# Multi-link Options



## AUTO-CONNECT

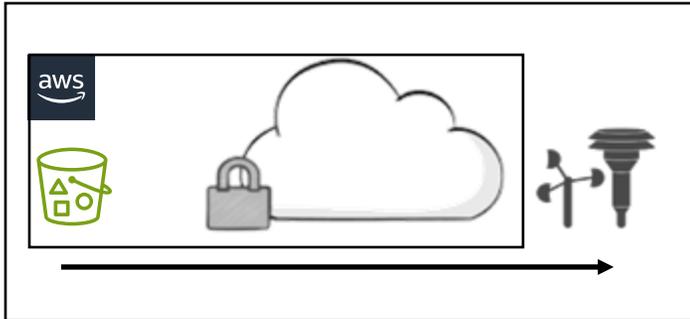
- Data plane attributes (e.g. time to live, retries, acks)
- Connection attributes (e.g. timeout, link priority)

## MULTI-LINK PROFILES

- Choose a design target (e.g. latency, battery life)
- SDK automatically selects link transitions for target

# Sidewalk File Transfer

## WHAT



Transfers from S3 to a device

## FEATURES

- Bluetooth LE
- Files up to 1 MB
- Beta Preview

## BENEFITS



Devices can move during file transfer



Background task reduces user friction



Relieves development tasks

## APPLICATIONS



Over the Air Firmware Upgrade



Attributes reconfiguration

# File Transfer Workflow



## DEVELOPERS AND AWS

- Uploads the file into an S3 bucket
- Configures FUOTA task

## AMAZON SIDEWALK NETWORK

- Interfaces with AWS IoT (FUOTA)
- Segmentation and reassembly
- Acknowledges and retransmits
- Selects routes

## BULK DATA TRANSFER

- Communication protocol
- Runs on the embedded SDK
- Handshakes with network
- Adapts to physical layer

# Configure the File Transfer Service



**Create FUOTA task**, specifying transfer and file attributes  
(e.g. file type, S3 link, fragment size)



**Add the devices** to the task  
(can have multiple devices)

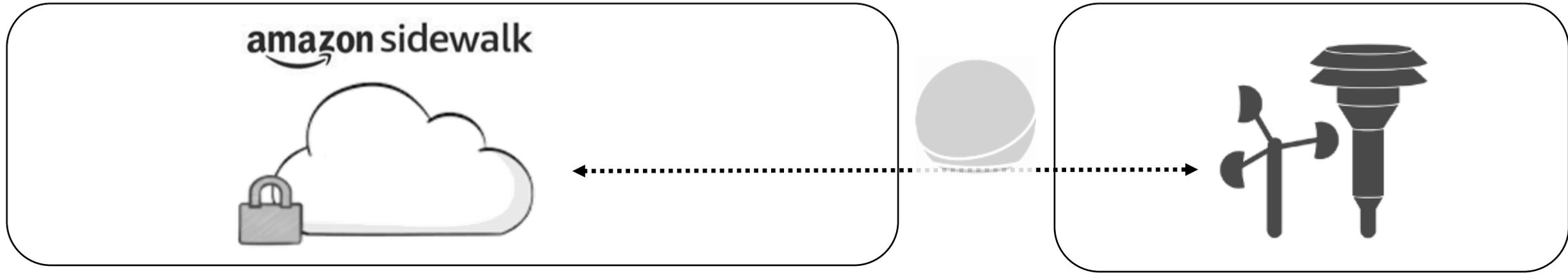


**Schedule the start** of the FUOTA session  
(now or later)



**Check the status** of the session

# Sidewalk Bulk Data Transfer Protocol



## SIDEWALK NETWORK BACKEND

### CONTROL PLANE

- Manages the transfer
- Start/Cancel/Finalize

### DATA PLANE

- Ack and retransmissions
- Two-level partition
  - Fragments and chunks
- Fragment notification

## EMBEDDED DEVICE

### TASKS

- SDBT callback registration
- SDK manages chunks
- Accept/Reject file transfer
- Copy fragments onto storage
- Verify file integrity

# Call to Actions



**Download** the latest Gecko SDK 4.4.0  
(with Sidewalk extension)



**Contact** Silabs support or Amazon to access the File Transfer Service (Beta view)



**Check out** SBDT and multi-link API in [docs.sidewalk.amazon](https://docs.sidewalk.amazon)



**Check out** the application note and user guides  
(multi-link and AWS FUOTA for Sidewalk)

# Q&A

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# Thank You

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Watch **ON DEMAND**