10 Peaks Brecon Beacons

✓ 58 kilometres
✓ 24 hours
✓ 3000m of ascent
✓ …and 10 peaks (obviously)
✓ (very) random tech

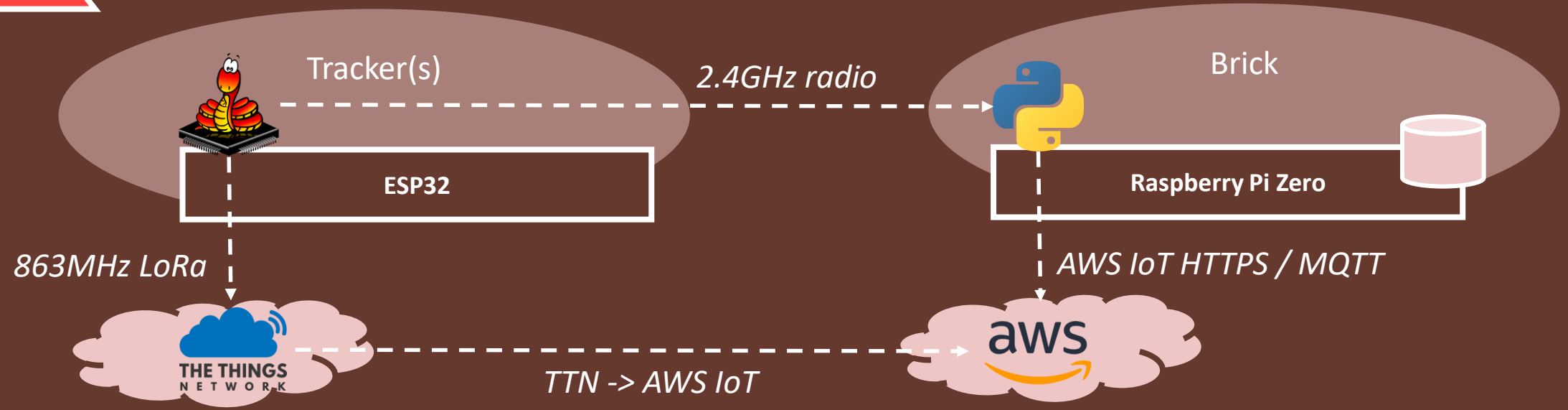
Priority 1.0

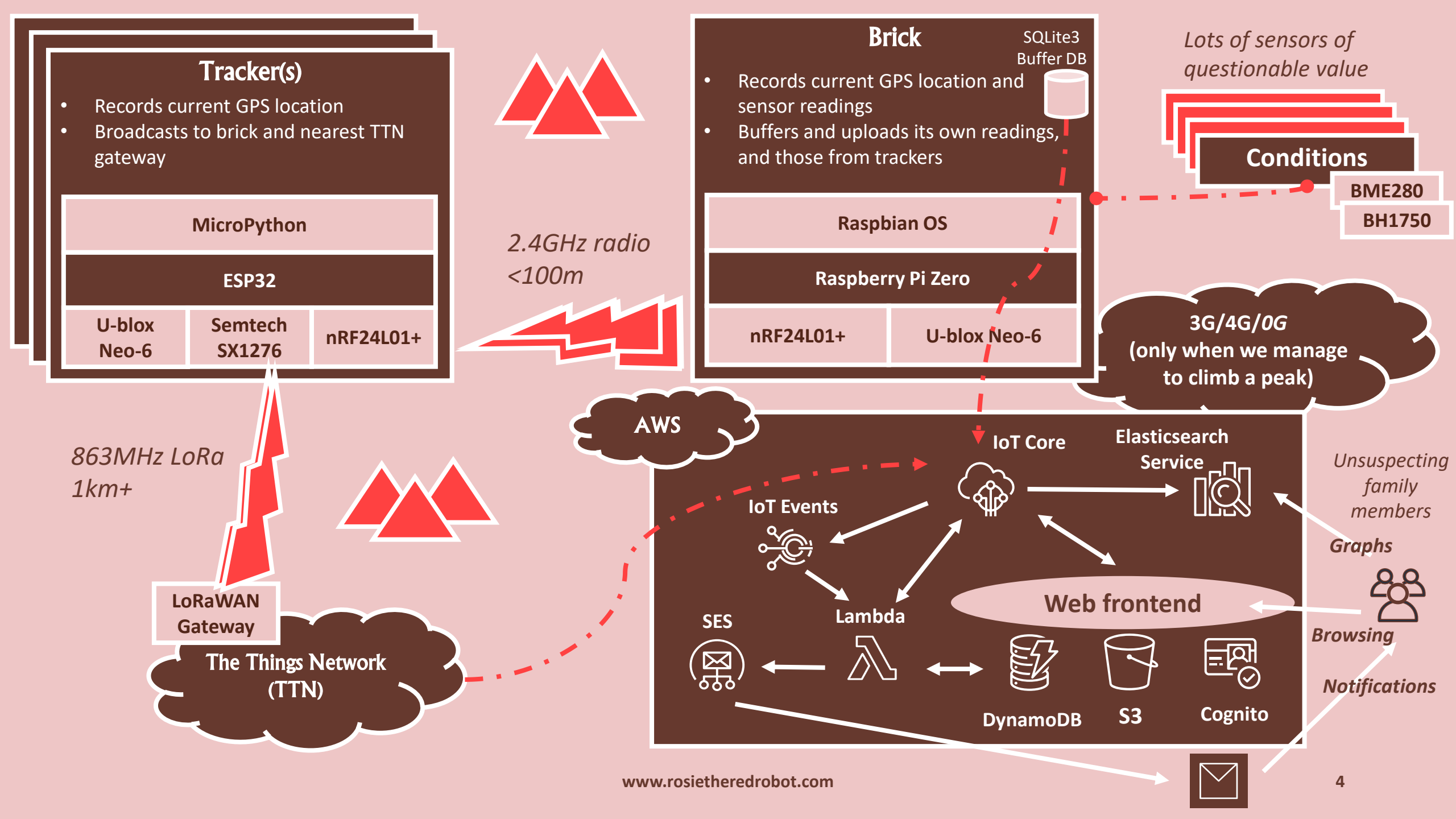
✓ B.A.R.F. ™ = Begin > Attempt > Regret > (But hopefully) finish

Priority 2.0

✓ Convince family to track progress and race conditions
✓ Collect bucket loads of data that we'll probably never ever need
✓ Prove that true geekery can coexist with nature, outdoors
✓ Raise a few quid for charity

This DIY tech explained in 4 dotted lines




Tracker(s)
Records current GPS location
Broadcasts to brick and nearest TTN gateway
MicroPython
ESP32
U-blox Neo-6
Semtech SX1276
nRF24L01+
2.4GHz radio <100m
Brick
SQLite3 Buffer DB
Records current GPS location and sensor readings
Buffers and uploads its own readings, and those from trackers
Raspbian OS
Raspberry Pi Zero
nRF24L01+
U-blox Neo-6
Lots of sensors of questionable value
Conditions
BME280
BH1750
3G/4G/0G (only when we manage to climb a peak)
863MHz LoRa 1km+
LoRaWAN Gateway
The Things Network (TTN)
AWS
IoT Core
Elasticsearch Service
IoT Events
Lambda
SES
Web frontend
DynamoDB
S3
Cognito
Unsuspecting family members
Graphs
Browsing
Notifications

What on earth is going on in…

IoT Core

- Device (*thing*) management
- Message ingestion and processing
- Shadow document

IoT Events

- Device state monitoring (responding / not responding / lost)

Web frontend

DynamoDB

- Custom data storage (locations)

S3

- Static website hosting

Cognito

- Web frontend user identity store

SES

- Spamming family members with updates

Lambda

- General event processing (shadow document updates, notification emails, etc)

Elasticsearch Service

- General dumping ground of data (Elasticsearch)
- Data visualisation (Kibana)

Identity and Access Management

- Role, policy and permissions management

Check out the project in our GitHub repository:-
https://github.com/fantasticdonkey/rIoT

Follow us on Twitter for updates:-
@rosie_red_robot

Thanks!