

Bringing Innovation to Life



Markus van Kempen

Executive Architect &
Venture Capitalist



E: mvk@ca.ibm.com

T: @markusvankempen



SNP STEAM ACADEMY

<https://www.snpolytechnic.com/steam-academy>



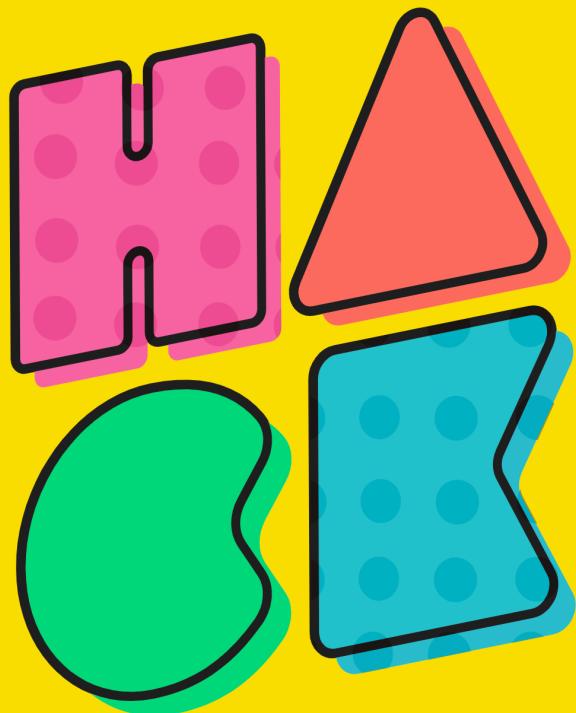
Hackathon?

HACK FOR HUMANITY
HACK FOR YOU
HACK FOR THE FUTURE
HACK FOR FUN

HACK FOR A REASON.

HACKMIT 2019

SEPTEMBER 14-15







My Teams-

<https://www.youtube.com/watch?v=GSeNwVEhf7c>



Objective

Build a Project together from idea to finished solutions



Examples

Argo Pad

<https://www.youtube.com/watch?v=UYVc0TeuK-w>

Lake George

https://www.youtube.com/watch?v=4YIXKWUC_Aw

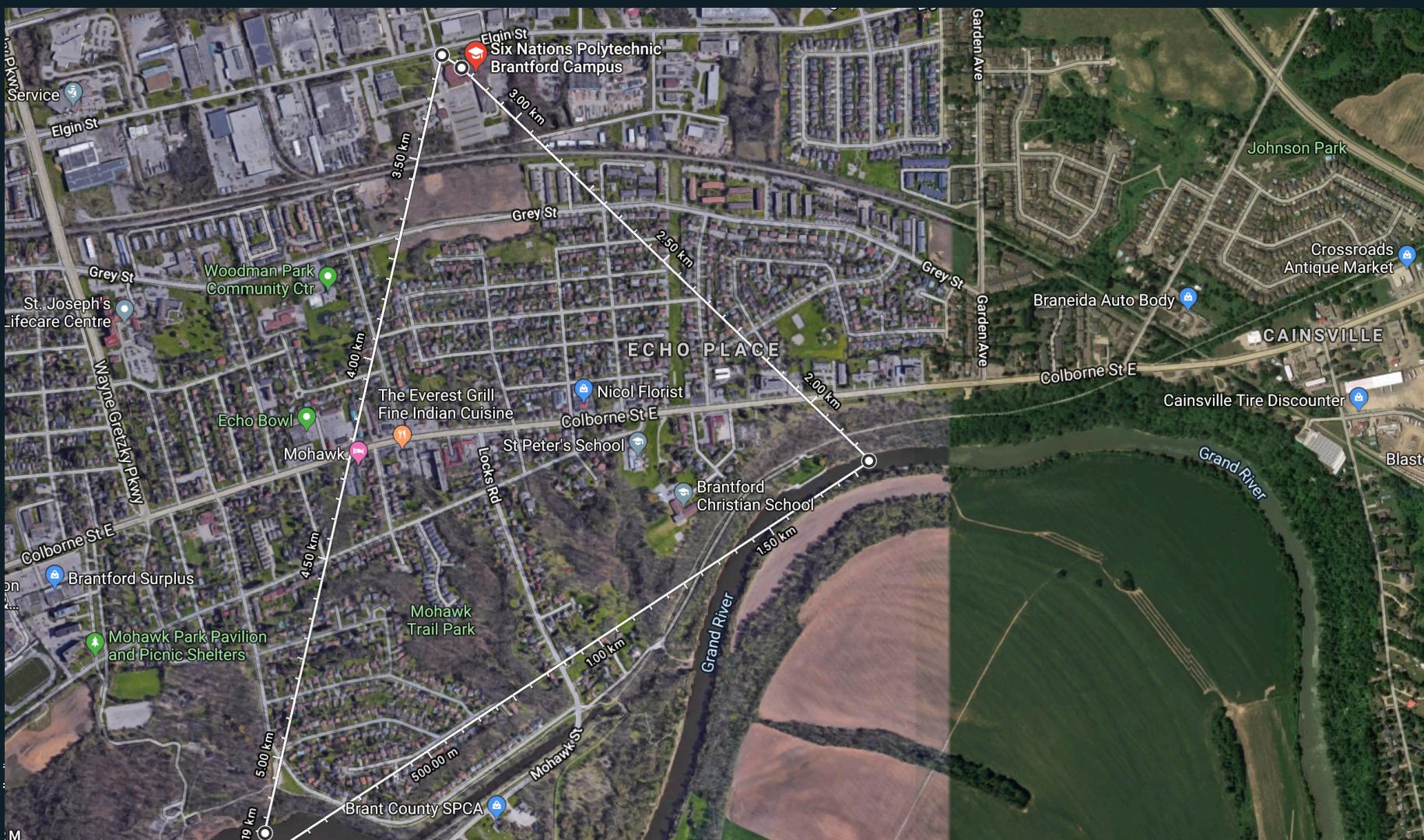
With Big Data, IBM Helps Create A Sustainable Food Supply

<https://www.youtube.com/watch?v=bu1wC-hCuC0>

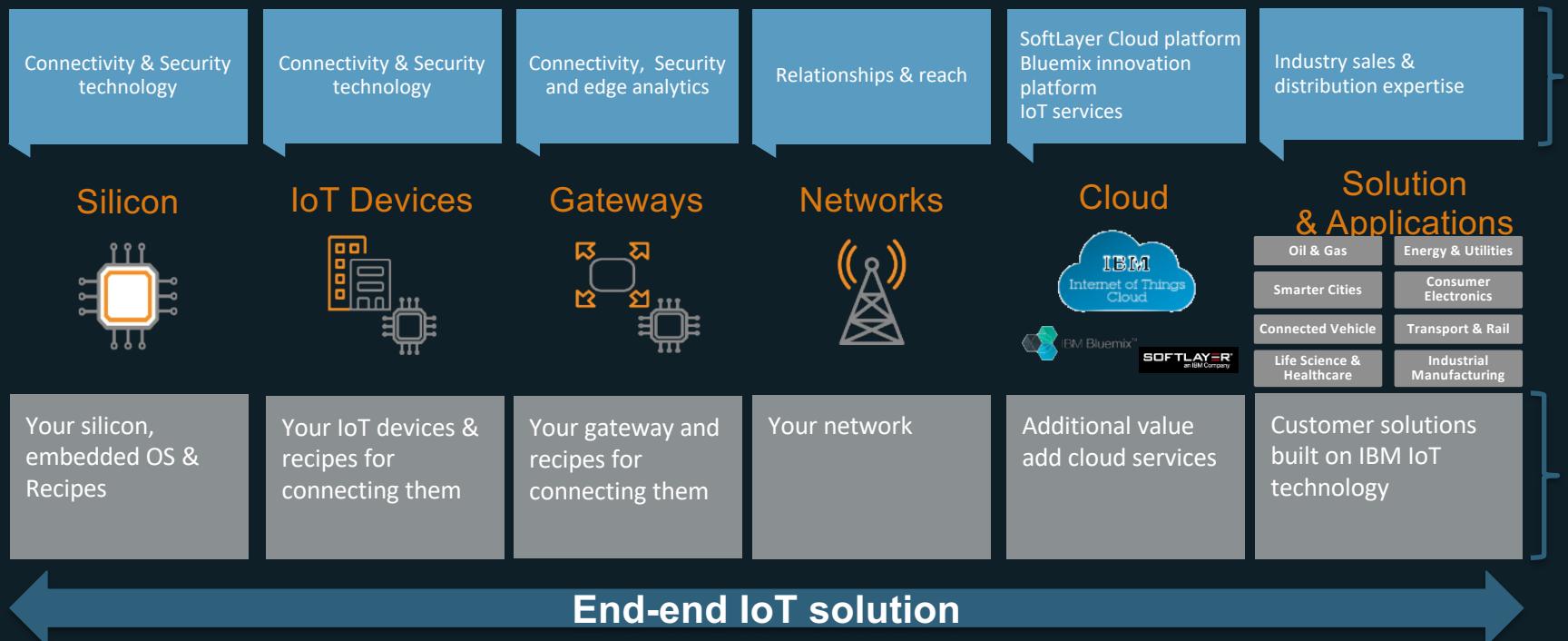


The Idea - IoT Monitoring – environment / things / people

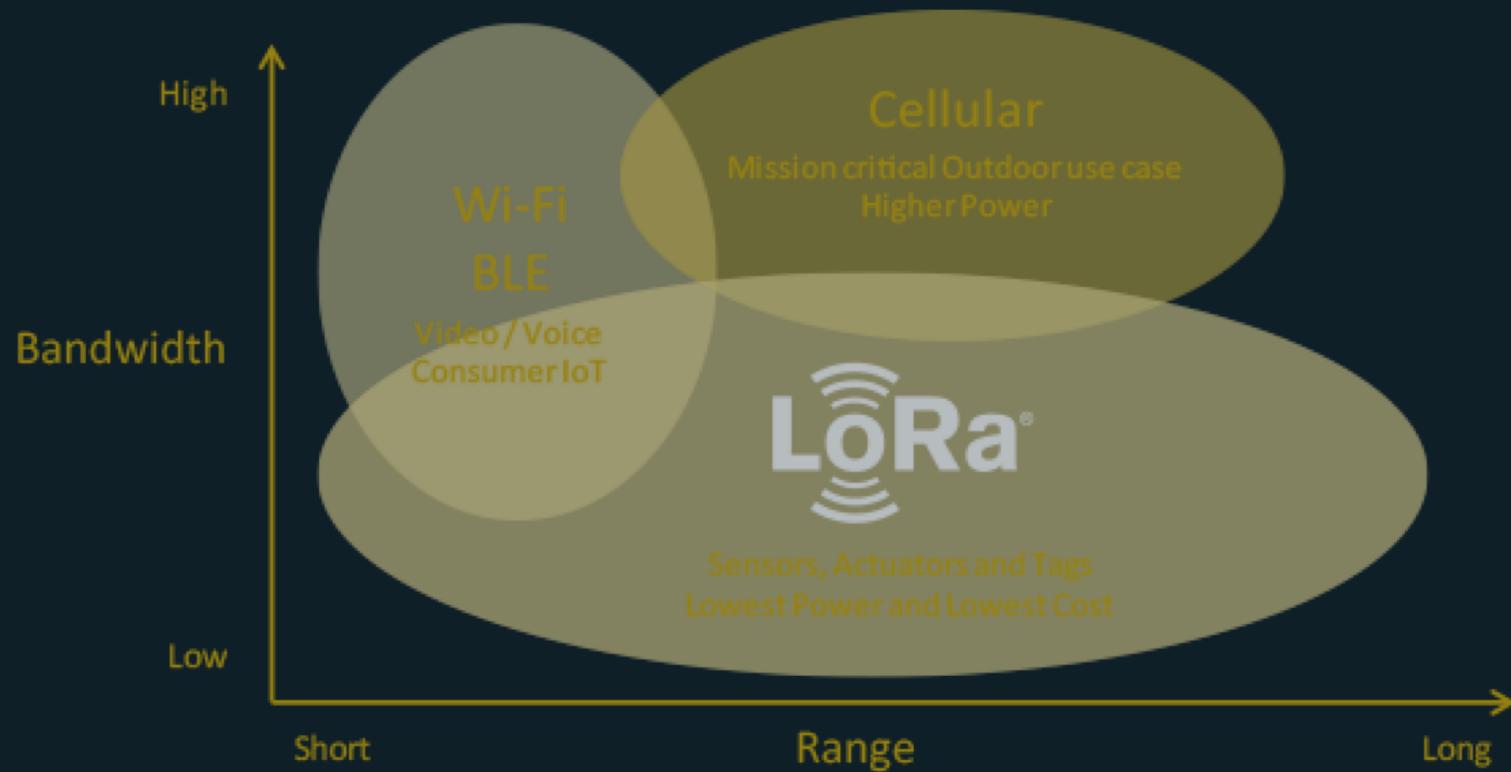




IoT – from Chip to Dashboard

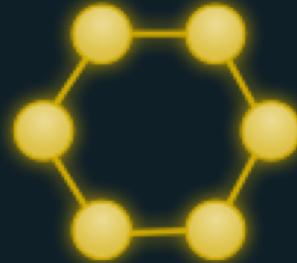


Network Type and Capabilities

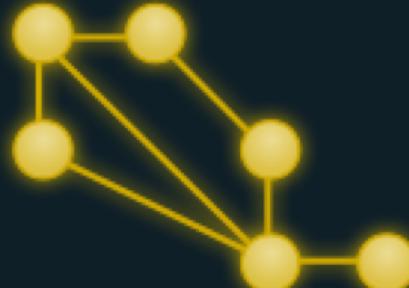


Networks topology

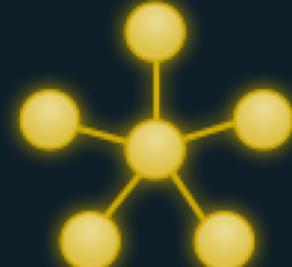
<https://www.youtube.com/watch?v=cYN2poDFiec>



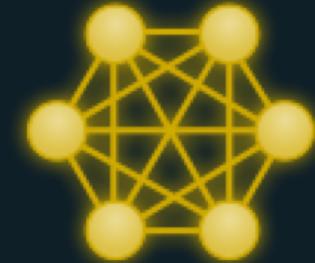
Ring



Mesh



Star



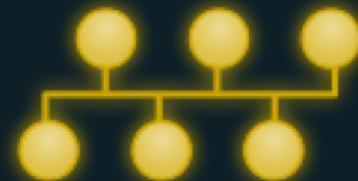
Fully Connected



Line



Tree



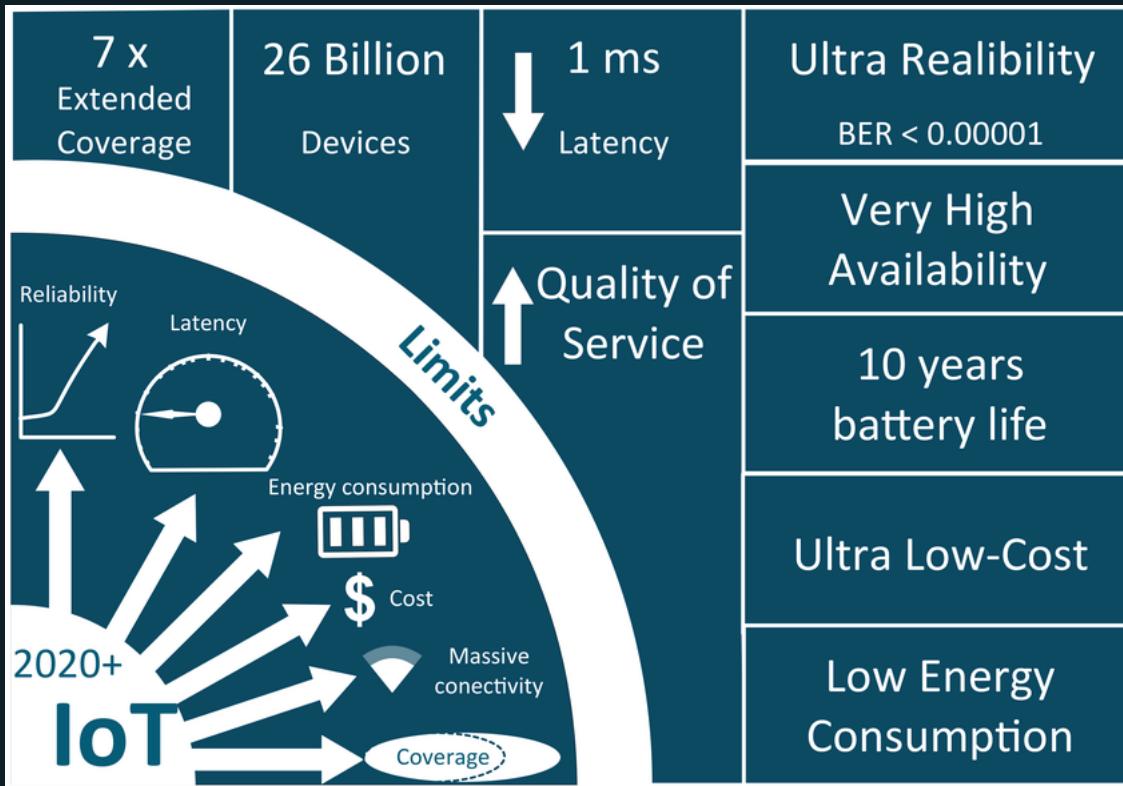
Bus

What should we monitor and for what Reasons

Exercise



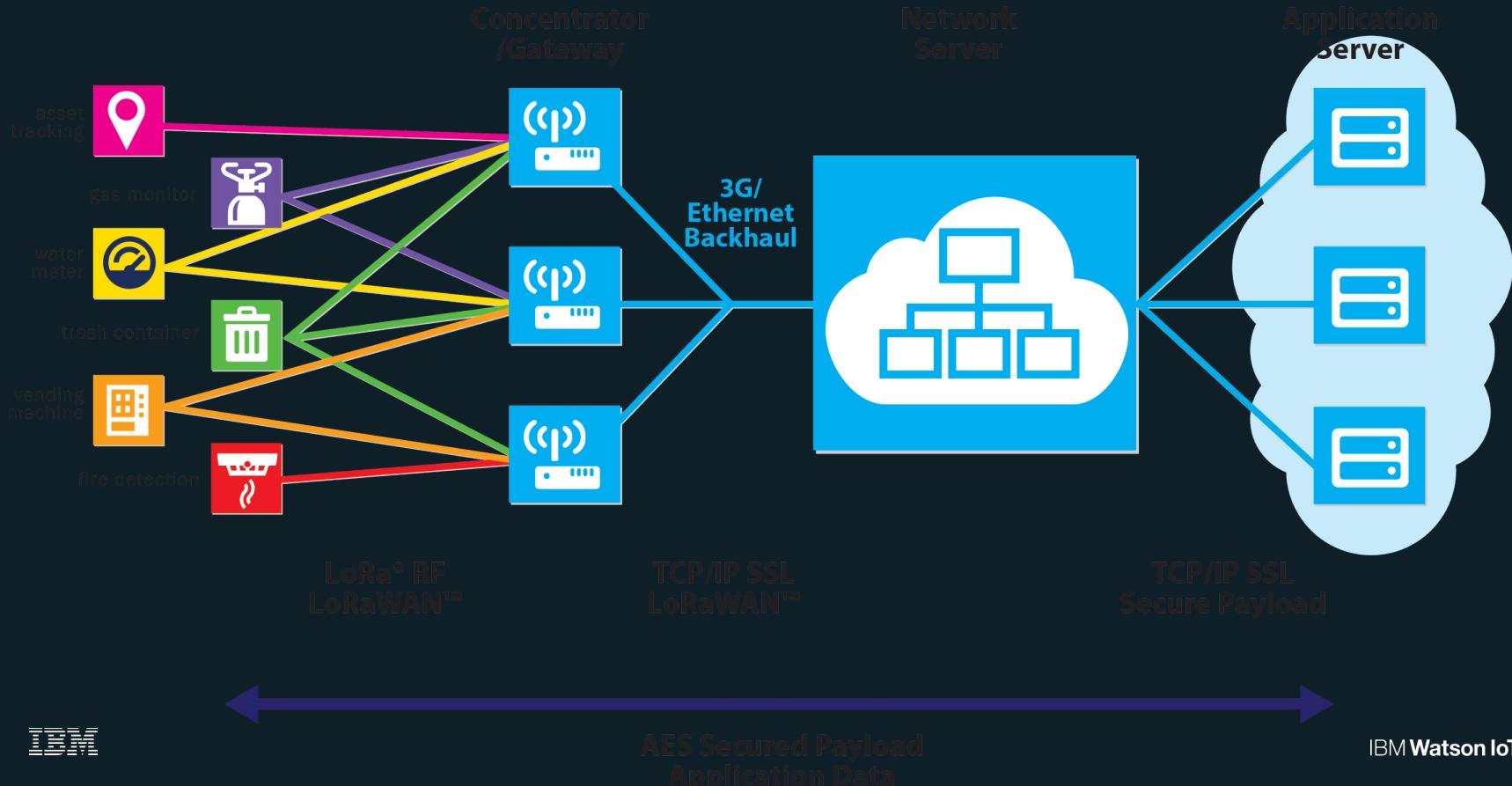
Common challenges



What are Common IoT/Network Challenges for our Idea

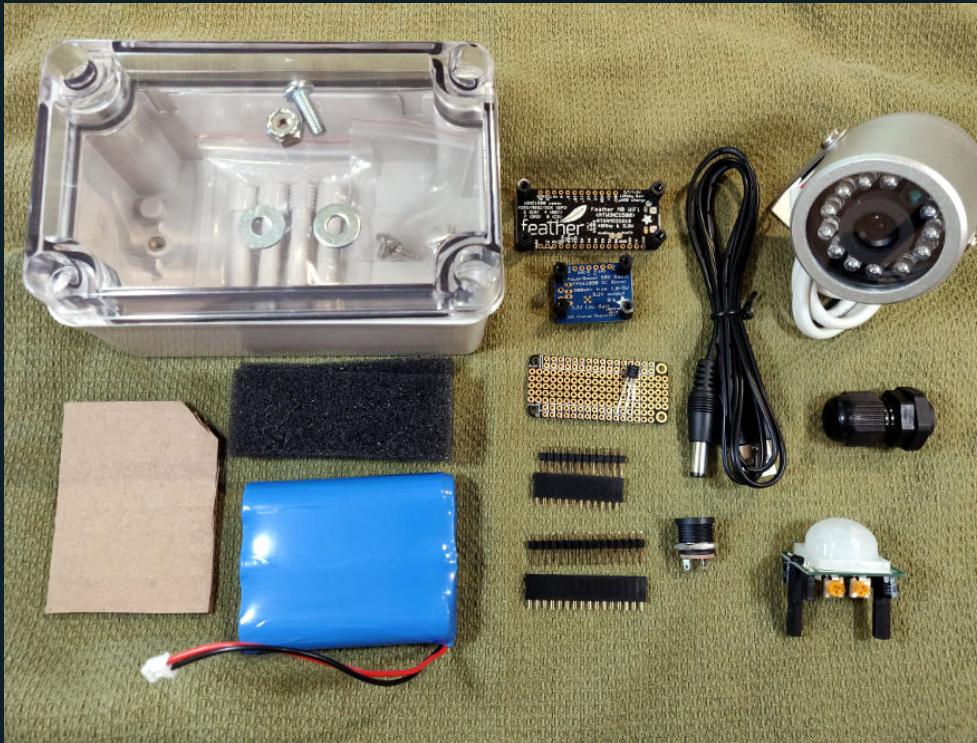


How could this work



Example kit-

<https://blog.adafruit.com/2018/06/04/building-a-solar-powered-remote-environmental-monitor-with-adafruit-materials/>



Device options

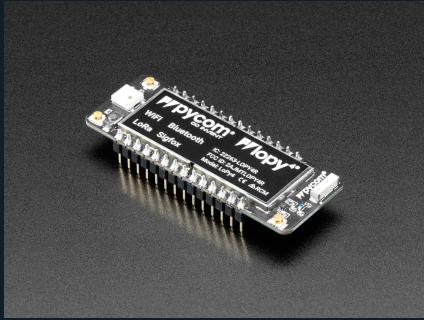
Arduino

Pycom

Dragino

PI

...



What are Common IoT/Network Challenges for our Idea

- Distance -> Need to test
- Cost / Network / Sensors -> What is minimum we have measure
- Battery -> Solar ?
- Water resistant enclosure
- Secure case
- Losing data packets

Search for some Sensors

- PH for Water ?
- Do we need a camera ?

Battery Life / Charging options

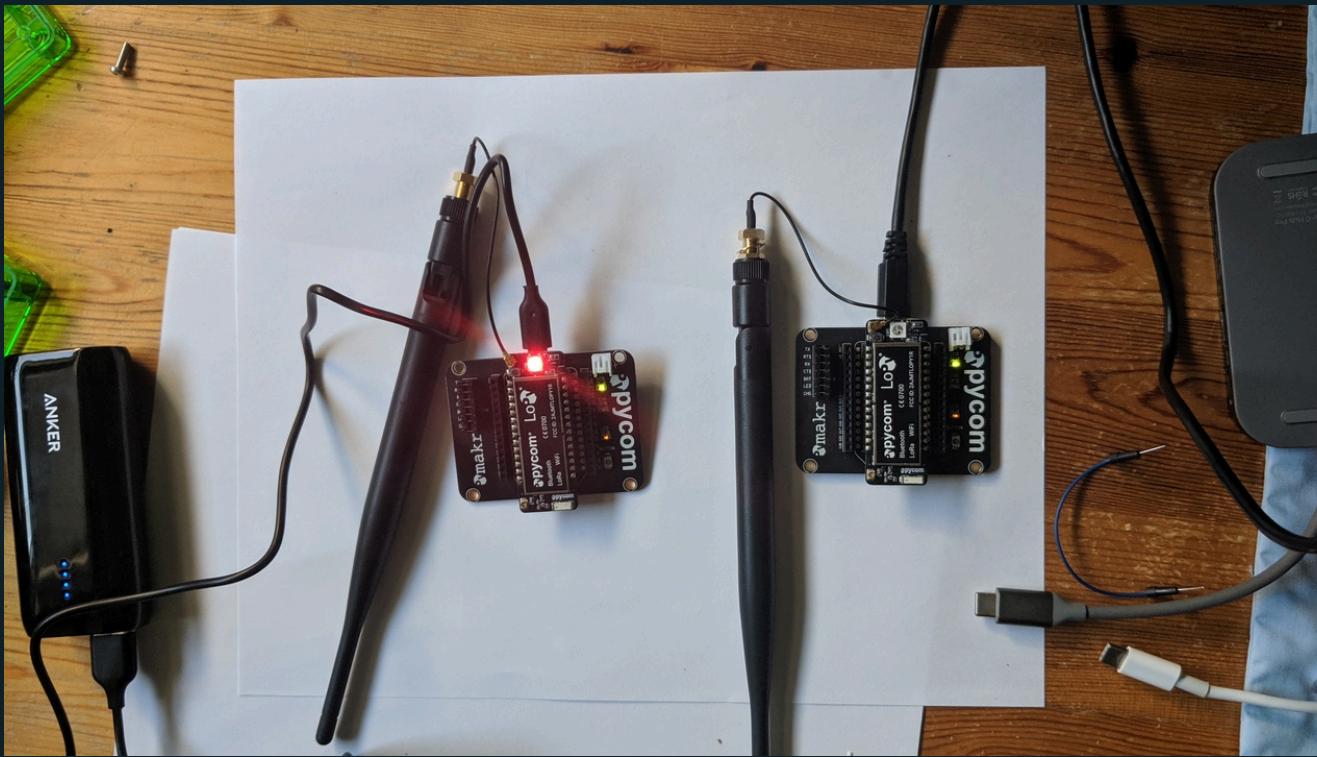
?



Field Test

- We need to validate how far our device can send data

Equipment Setup



Solar and Battery

