Customer Success: Asset Tracking & Monitoring

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9/11/17

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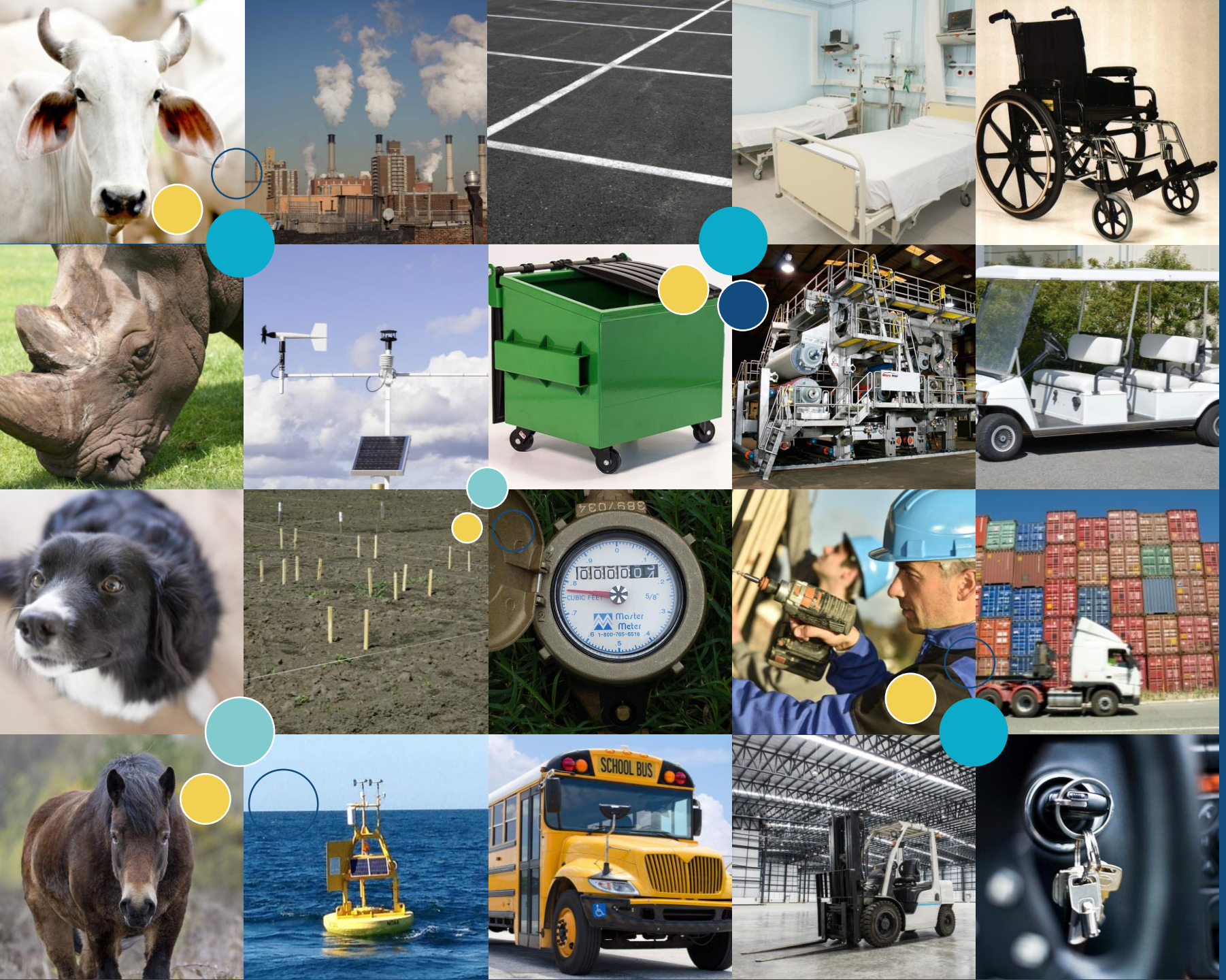
- **IOT Technology Company**
- **Focus on customer ROI through Power and Data Efficiency**
    - **Efficient data transmission** – IOT information via LTE-M *~100x more expensive per MB* than traditional cellular.
    - **Longer device battery life** – Batteries and their replacement cycle are often #1 HW/maintenance cost driver.
- **Architecturally flexible, scalable, and extensible** – LPWAN (LoRa), LTE-M, BLE, Wifi, NB-IOT, etc.



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Asset Tracking and Monitoring: A “Killer App”

Asset Tracking Architecture

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BLE Asset Tag

BLE Access Points

Connectivity

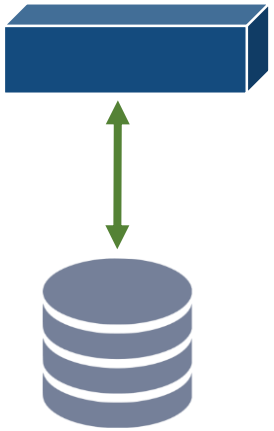
verizon

LTE-M

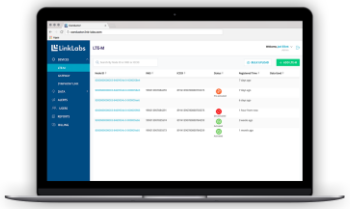
LPWAN

WiFi

Platform



Application



BLE Reference Point (Beacon)

Patented

Architecture Drives System Performance

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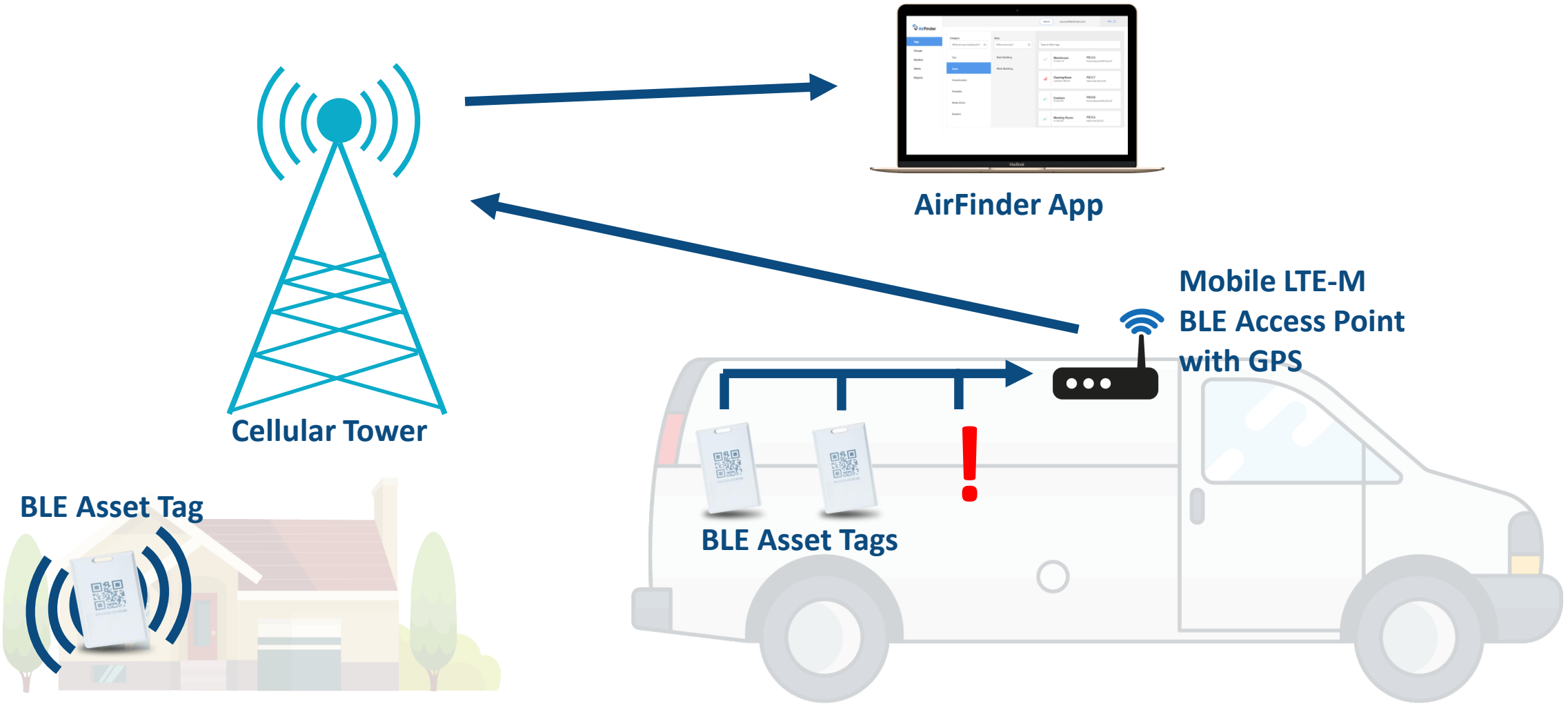
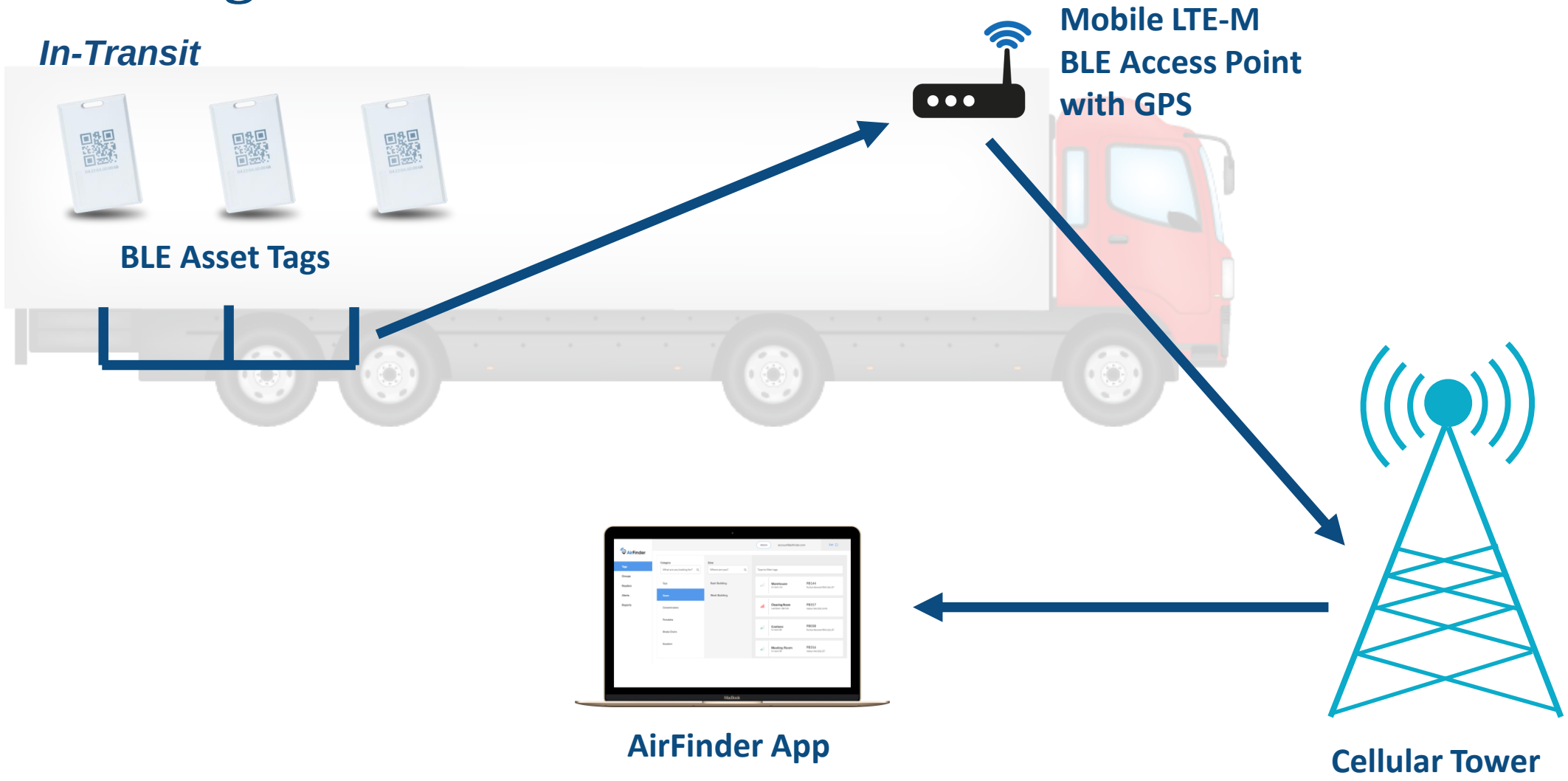
When compared to tags that beacon and no reference points:

- ***Lower cost*: 10-100x less data flowing through backhaul (critical if LTE-M)**
- ***Higher accuracy*: location accuracy derived by density of low-cost reference points, vs. density of higher-cost access points**
- ***Better latency*: < 5 seconds vs. ~2 minutes**
- ***Greater scalability*: high density of tags possible—tags acknowledged and then quiet**
- ***Easier to deploy*: tags, reference points, and access points all battery powered**

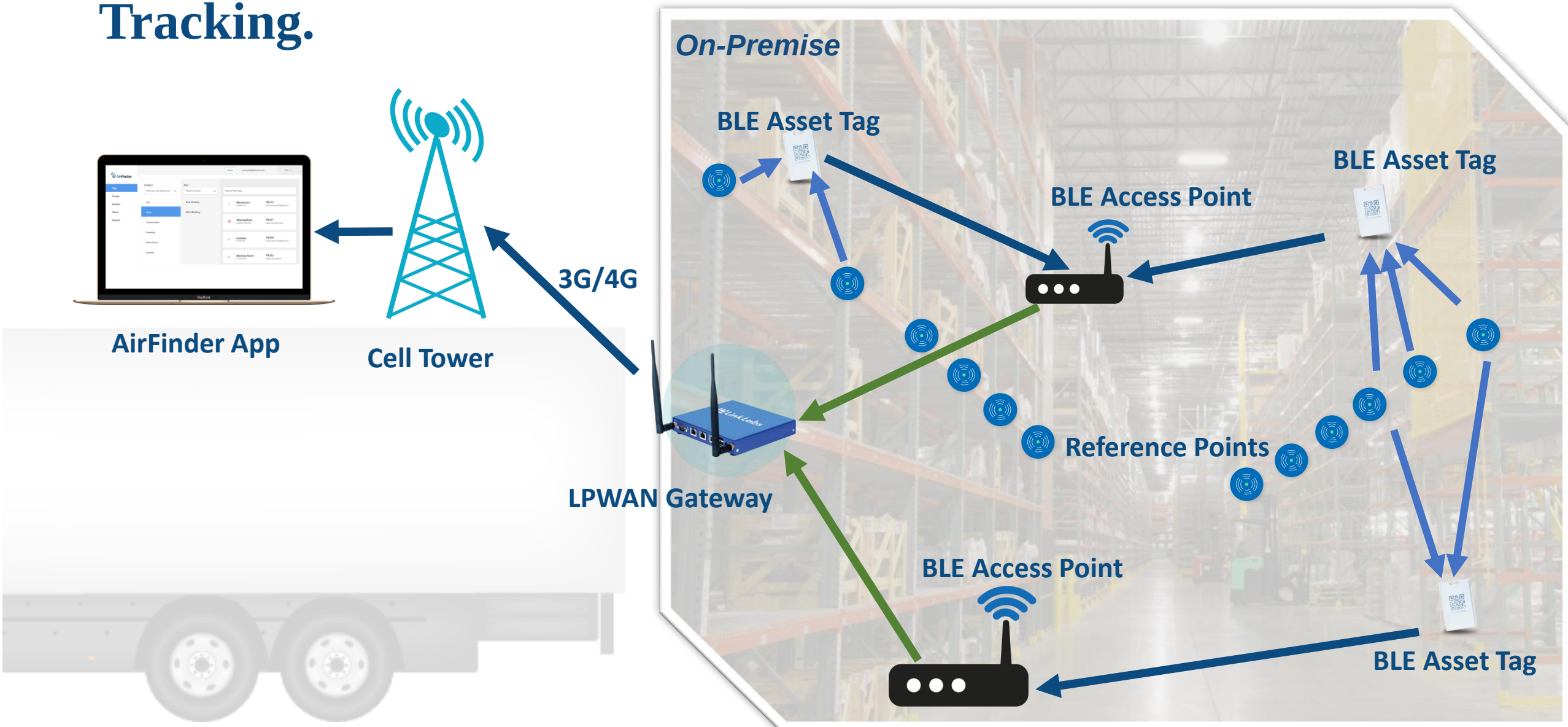
Use Case #1: Fleet Vehicle Equipment Tracking and Loss Prevention.



Use Case #2a: Seamless In-Transit/On-Premise Tracking.



Use Case #2b: Seamless In-Transit/On-Premise Tracking.



Use Case #3: Industrial Tool Carts (Asset Grouping); Equipment Monitoring

- Group of tools and calibration equipment need to be kept on same cart
- Cart reference beacon used to determine if tools on/off the cart
- Cart itself also tagged and tracked
- Equipment is also monitored via BLE equipped sensors; backhauled using same Access Point infrastructure

Use Case #4 And Beyond

- **Low-Cost hospital Real-Time Location System (RTLS)**
- **Tools, people, and material flows on construction sites**
- **Desk-level tracking of car keys at auto-dealers**
- **People tracking for space utilization/optimization in office buildings**
- **Pallet and commercial food container tracking**

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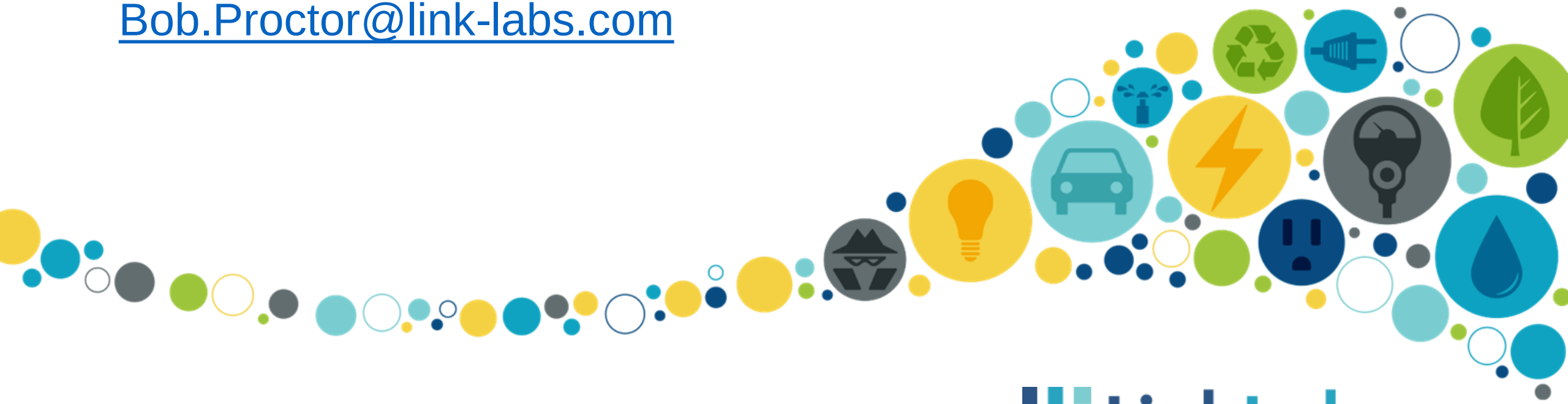

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