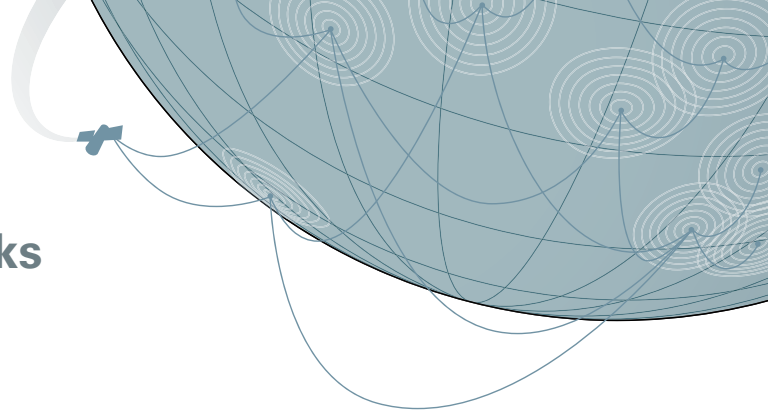


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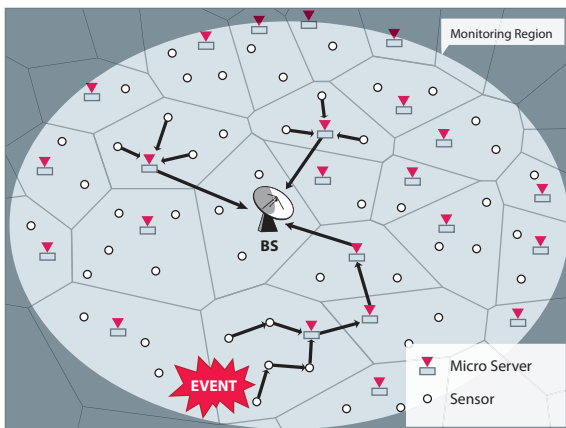
## Sensor Networks Library



QualNet's new Sensor Networks Library is a much awaited feature set that supports the IEEE 802.15.4 standard, otherwise known as Zigbee. Zigbee networks are Wireless Personal Area Networks (WPANs) that are defined by a low data rate, long battery life, and secure networking. Zigbee networks support automation and remote control.

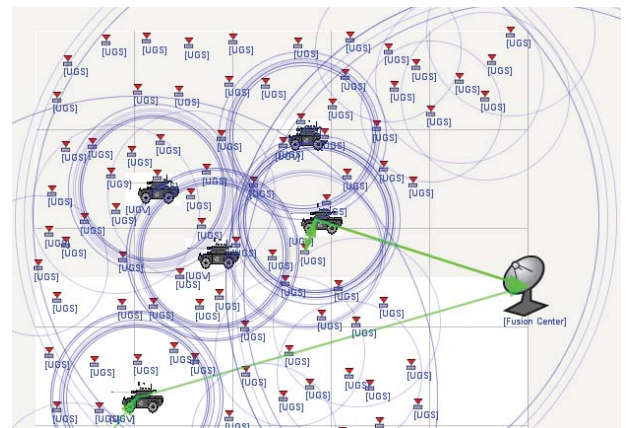
Zigbee exists in QualNet at the PHY and MAC layers. The following are capabilities included in the QualNet 4.5 Sensors Network Library:

- Generating network beacons if the device is a coordinator



Sample organizational scheme for sensor networks. Once an event triggers a sensor, the information is disseminated via a multi-hop route to the base station.

- Synchronizing to the beacons
- Personal Area Network (PAN) association and disassociation
- Carrier Sense Multiple Access with Collision avoidance (CSMA-CA) for channel access
- Energy detection (ED) within the current channel
- Battery model and RF energy consumption model
- Link Quality Indication (LQI) for received packets
- Modulation schemes:
  - O-QPSK with DSSS @ 2.4 GHz, 868/915 MHz
  - BPSK with DSSS @ 868/915 MHz
  - PSSS with BPSK and ASK @ 868/915 MHz



Sensor Network scenario in QualNet for combat networks.