Section 1: Research

Comms system for Pods.

Initial thoughts:

- Cannot be hardwired connection
- Reliable
- Redundancy

Possible Solutions

- Satellite (slow/unreliable)
- Radio
- Mobile Router 3G/LTE

Selecting Mobile Router

- High Speed digital design like this would be impossible to create just for the hyperloop so the best option is a vendor like Nokia or Cisco.
- Possible to also use another system like radio for redundancy?
- Uses 3G/LTE for a robust connection that can connect to the internet, servers at the basestation, and webapps via IP/MPLS Packet routing

FULL SCALE APPLICATION

Good option is the Nokia SAR HM 7705 Router

-Brings IP/MPLS networking to the pods

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Solution for Paradigm's Pod

-Obtain this router on from sponsorship from Nokia (I worked under lead designer for this router) or buy one.

-Or to use a simpler model for testing to save on cost and implementation time.

- Can plug directly into the beagle bone black's RJ45 port

Overall:

Pros:

- Robust
- Easiest solution to Implement
- Can interface with the current webapps being used on the pod
- Large data throughput
    - Sensors
    - Location
    - Status
    - Alarms
    - Contact

Cons:

- Needs SIM card and data plan
- May require separate redundant system in full-scale app.
- Expensive
- Relies on network connectivity

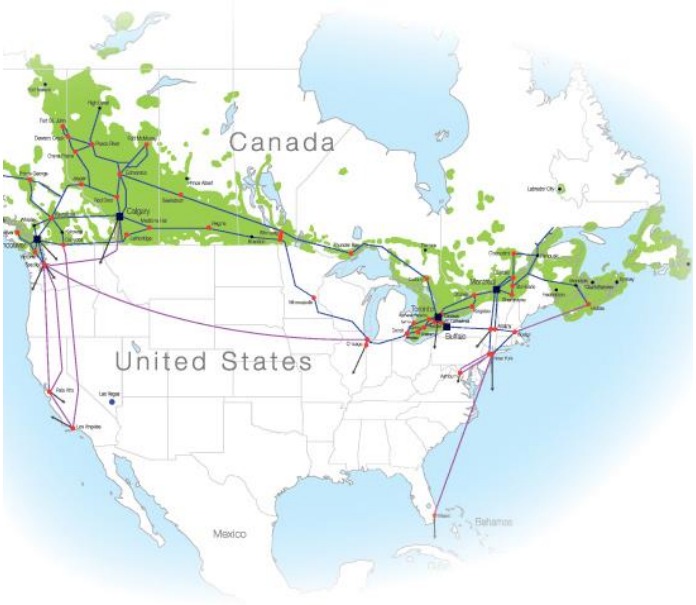

Figure 1: Telus Network in Canada