Connecting Vehicles

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The Goal

- Real-time maintenance data, vehicle location, vehicle trouble codes, fuel usage, emissions

- Get real-time weather data, CAN bus, on-board vehicle sensors, third-party weather sensors

- Feedback to the driver, treatment recommendations, weather forecasts

Choosing System Components

- Single Board Computer or Mini Systems
  - Found in many AVL systems
  - Similar resources as a desktop computer
- Telematics Platforms
  - Small form factor
  - Purpose built equipment
- Off-the-shelf

Single Board Computers

- Lots of inputs, good for interfacing with spreaders, sensors, etc. Best for heavy duty equipment
- On board storage, good for logging high resolution data
- Reliable, full operating system allows for solid software and long-term operation, easy to attach display
- If there is an existing AVL system, it may be possible to extend, add sensors
- Expensive compared to telematics platforms
- Larger footprint

Telematics Platforms

- Small footprint, can ease installation and maintenance

- Less expensive than full systems

- Few inputs, best for light duty vehicles

- Fewer computing resources, limitations to frequency of data

- May not have data storage

- Larger development costs

Off-the-shelf

- Sometimes available as a package with service
- May ease initial deployment
- May not interface with other equipment
- May come bundled with service contracts
- May have functional limitations
- Data may be proprietary

Data Services

- Cellular
  - Cheap
  - Fast
  - Service may be spotty
  - Pay per KB or monthly subscriptions
- Satellite
  - Expensive
  - Slow
  - Unreliable at times
  - Pay per KB
- Packet Radio

Challenges

- Implementation
  - Few off-the-shelf options
  - Custom development for interfacing with third-party systems (spreaders, sensors, etc.)
- Deployment
  - Custom installations
  - Field testing
  - Data flow, getting real-time data into MDSS or VDT, getting data back to driver

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