Outline

Why we care about data?

Top Data Management Issues

Data Systems

Real World Implications

Wrap-Up
Why do we care about Data?

Data clearly defines issues and options.

- Data enables us to justify solutions.
- Data creates new answers and solutions.
- Data driven solutions are supportable.
Top Data Management Issues

Data Systems

Vast amounts of potential data

Policies to manage data (Privacy and Access)
The Data Challenge

- More data coming quicker and from an evolving range of sources
- Regional data is becoming more important as populations shift into cities and mega-regions become reality
Data Policies

- Agreements to Share Data Regionally
- Access to Public and Private Data
- Common Data Formats
- Approved Data Usages
2050 US Population Centers
Data Systems - Collection

Traditional Sensors

Vehicle Based

Emerging Technologies

Bluetooth

WiFi

Radar / Lidar

Cameras
Data Systems - Transport

Twisted Copper Pairs

Fiber Optic Cables

Wireless
- Cellular
- Microwave
- WiFi
- P2P Radios
- Satellite

Dedicated Short Range Radio (DSRC)
Data Systems - Use

- **Storage**
  - Local vs Cloud

- **Hardware**
  - Processing Power Needs

- **Software**
  - Management
  - Sorting and Screening
  - Analytics
Real World Implications

Current Uses
- ITS
- Traffic Operations
- Active Monitoring

New Demands
- System Sharing
- Smart Cities
- C/A Vehicles
- TNC’s
New Demands - Sharing the Transportation System

“Transportation Management Networks will provide the fundamental foundation communication layer for Data Sharing, V2X connections, and significant real-time traffic data acquisition and sharing” - USDOT
New Demands - Smart Cities & C/AV

USDOT - Technology convergence will revolutionize transportation, dramatically improving safety and mobility while reducing costs and environmental impacts.

Benefits
• Order of magnitude safety improvements
• Reduced congestion
• Reduced emissions and use of fossil fuels
• Improved access to jobs and services
• Reduced transportation costs for gov’t and users
• Improved accessibility and mobility

Connected Vehicles
Vehicle Automation
Internet of Things
Machine Learning
Big Data
Mobility As A Service (MAAS)

Connected-Automated Vehicles

Smart Cities
Wrap-Up

Real-Times Data Solutions

1. Find Partners
2. Define Policies
3. Build a Strong, Adaptable Infrastructure Solution
4. Know Your Part of the Mission
5. Know What You Have
Want to talk more?

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