

# Intelligent Transportation Systems

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# Introduction

- Present ITS Interoperability Status
- Determine Generic Approaches That May be Proven By Other IT Applications
- Parsons Chairs the ITS America Interoperability Subcommittee (System Architecture Committee)

# Topics of Discussion

- What Are Intelligent Transportation Systems?
- What is ITS America?
- ITS User Services
- What has been done to Promote Interoperability of ITS Services?
- Current Status and Plans
- Q & A's

# Intelligent Transportation

- Application of IT and Control Technologies
- Integration of Many Stand Alone Functions
- Stresses Coordination and Sharing of Information and Capital by All Parties
- A New Way to Participate in and Operate Ground Transportation Subsystems
- Towards Real Time Information/Decisions

# ITS America

- A Non Profit Organization of 1200 Organizations - Users, Operators and Suppliers of Transportation Equipment
- Many Volunteer Committees
- Coordinates and Assists to Integrate and Implement Transportation Services
- An Authorized Advisory Organization to DOT

# ITS User Services

- 30 Specific Transportation Services (attached)
- Collectively, Defines the ITS Requirements
- Formed the Basis for the ITS National System Architecture
- Shifted Transportation Emphasis from Independent Operators (bus companies, traffic org's) to Users (drivers, shippers, riders & service and equipment providers)

# ITS User Services

- Pre Trip Travel Information
- En Route Driver Information
- Traveler Services Information
- Route Guidance
- Ride Matching & Reservation
- Incident management
- Demand Manag't/Operations
- Traffic Control
- Emissions Testing/Mitigation
- Commercial Vehicle Electronic Clearance
- Automated Roadside Safety Inspection
- Commercial Vehicle Administrative Process
- On-Board Safety Monitoring
- Freight Mobility
- Hazardous Material Incident Response
- En Route Transit Information
- Public Transportation Manag't
- Personalized Public Transit

# User Services (cont.)

- Public Travel Security
- Electronic Payment Services
- Emergency Vehicle Manag't
- Emergency Notification & Personal security
- Longitudinal Collision Avoidance
- Intermodal Transportation
- Intersection Collision Avoidance
- Vision Enhancement for Crash Avoidance
- Safety Readiness
- Pre-Crash Restraint Deployment
- Automated Highway System

# Interoperability Efforts

- Developed a National Architecture by Consensus
- Defined Standards Requirements
- DOT Engaged SDO's - 5 funded
- Interoperability Concerns Led to New Subcommittee Activity in 6/98
- Standards/Interoperability Workshop in '98
- Congress Has Decreed ITS Interoperability

# Interoperability Subcommittee

- Reports to Sys. Arch., Telecomm, and Standards & Protocol Committees
- 70 person interested, 40 participating
- “I” Requirements @ User Service Level
- Studied 3 Cases to Develop a “Process”
- Plan to define “I” Testing Approach for 2 High Priority Services - Involving Testing Org’s and User Groups in the Process

# TEA 21 Interoperability Requirements

- By 6/1/1999 Sec. DOT to report to Congress identifying which standards are critical to ensuring national interoperability (of ITS throughout the United States)
- Sec may use SDO's as appropriate, but if balloting on standards is untimely, then Sec. may establish Provisional Standards

# Results After Workshop

1. Agreement that Interoperability is a Function of the ITS Application (User Service) and Performance Considerations.
2. Agreement on Interoperability, Conformity and Interchangeable Definitions
3. Three types of “I” Institutional, Procedural, & Technical Accepted
4. Questions Regarding the Nature and Scope of Interoperability for the ITS Industry
5. Adapted an Overall Administrative Process

# Interoperability Status/Plans

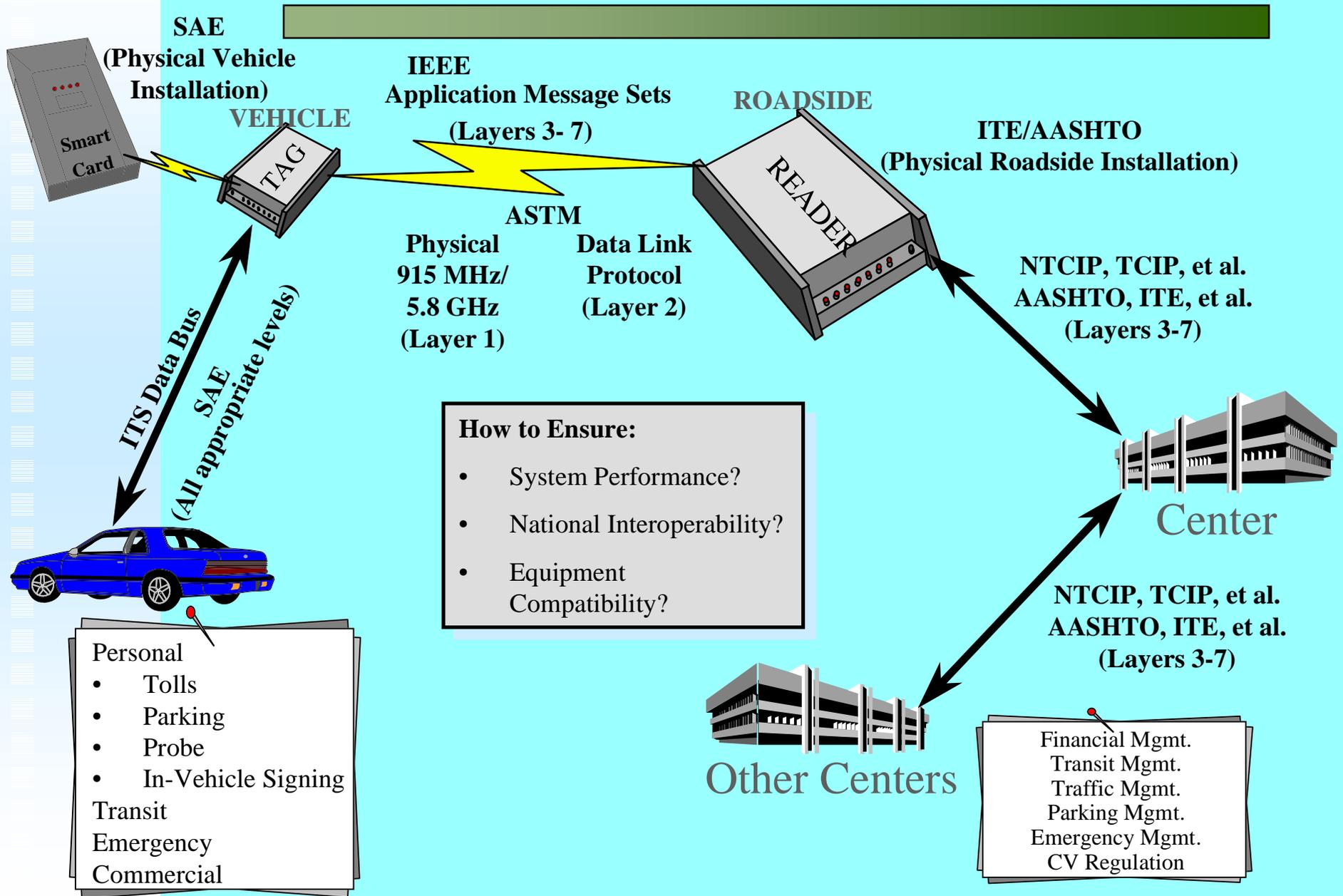
- ETTM and EMS Test Planning Under Development per attached Concept
- Interoperability Policy Paper Developed and being Discussed
- HITECH and NIST Interested in Testing Scenarios
- Session Planned at April ITS America Annual Conference In Washington

# Interoperability Test Concept

(with User/Provider/Testing Groups Involved)

- Prepare End-to-End Transaction Diagram
- Perform Requirement Analysis @ Interfaces to Define Attributes Saf., Sec, Speed, etc..
- Determine Testing Needs at Each Interface
- Define Responsibilities Who, What, When
- Define Funding Approach
- Determine Intellectual Property Rights
- Conduct Baseline Testing for Service

# ETTM Application Operational Concept



# Possible Tests Related to ETTM

- Tag to reader ( speed, # lanes, Sec. level)
- Messages - multiple handling issues
- Hardware tests of components
- Software compliance testing
- Interoperability of device (smart contact & non-contact cards and tags/readers)
- Total ETTM Interoperability Tests

# Real Life

- Acid Test is Tolling - Regional Vs. national in Scope - How about Truckers?
- More Political than Technical Issues Regarding Implementation
- Other User Services are More Complicated
- Only a handful Will be Deemed Critical

# What This Means

- Only a Few ITS Services Will Probably be Selected for National Interoperability
- Major Issues of Who Tests, Certifies Testing or Endorses Products Still lie Ahead
- Goal - Minimize US Gov't Involvement in Process - Use Incentives to Encourage Implementation

# Summary

- Congress Has Decreed National ITS Interoperability
- Consensus Being Developed on What Should be Interoperable
- ITS Community Endorsed User Service as Level to be Interoperable
- Institutional Interoperability Will Be more Difficult than Technical Aspects