Automotive GPS Applications:
Enhancing Safety, Security and Peace of Mind

Next Generation GPS Public Media Forum

January 25, 2006

Automotive GPS Applications

- **Current Applications**
  - **Navigation**
  - **Telematics**
- **Future Applications**
  - **Vehicle to Vehicle Safety**

Automotive GPS Applications

- **Current Applications**
  - **Navigation**
    - **Screen-based**
  - **Telematics**
- Future Applications
  - Vehicle to Vehicle Safety

Telematics Background -Technology

Combines and integrates directly into the vehicle's electrical architecture

- **Cellular technology**

- **GPS positioning capability**

- **Sophisticated voice recognition technology**

Telematics Background - Services

Call center-based services

    – **Safety, security and peace of mind**

    – **Routing and point of interest**

Optional one button hands-free cellular calling

Telematics Availability – 5 Million Vehicles

OnStar - 4.0 million

- **General Motors**
  - **50 of 54 models**
  - **Standard in 2008**
- **Acura**
- **Lexus**
  - **Lexus Link**

- First year included in the price of the vehicle

- Spanish and French also available
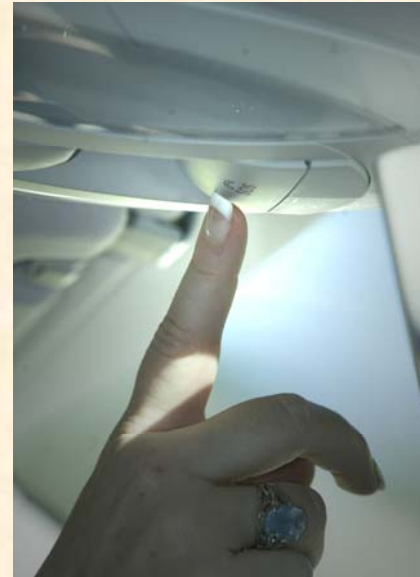
- Selected TTY services launched in 2005

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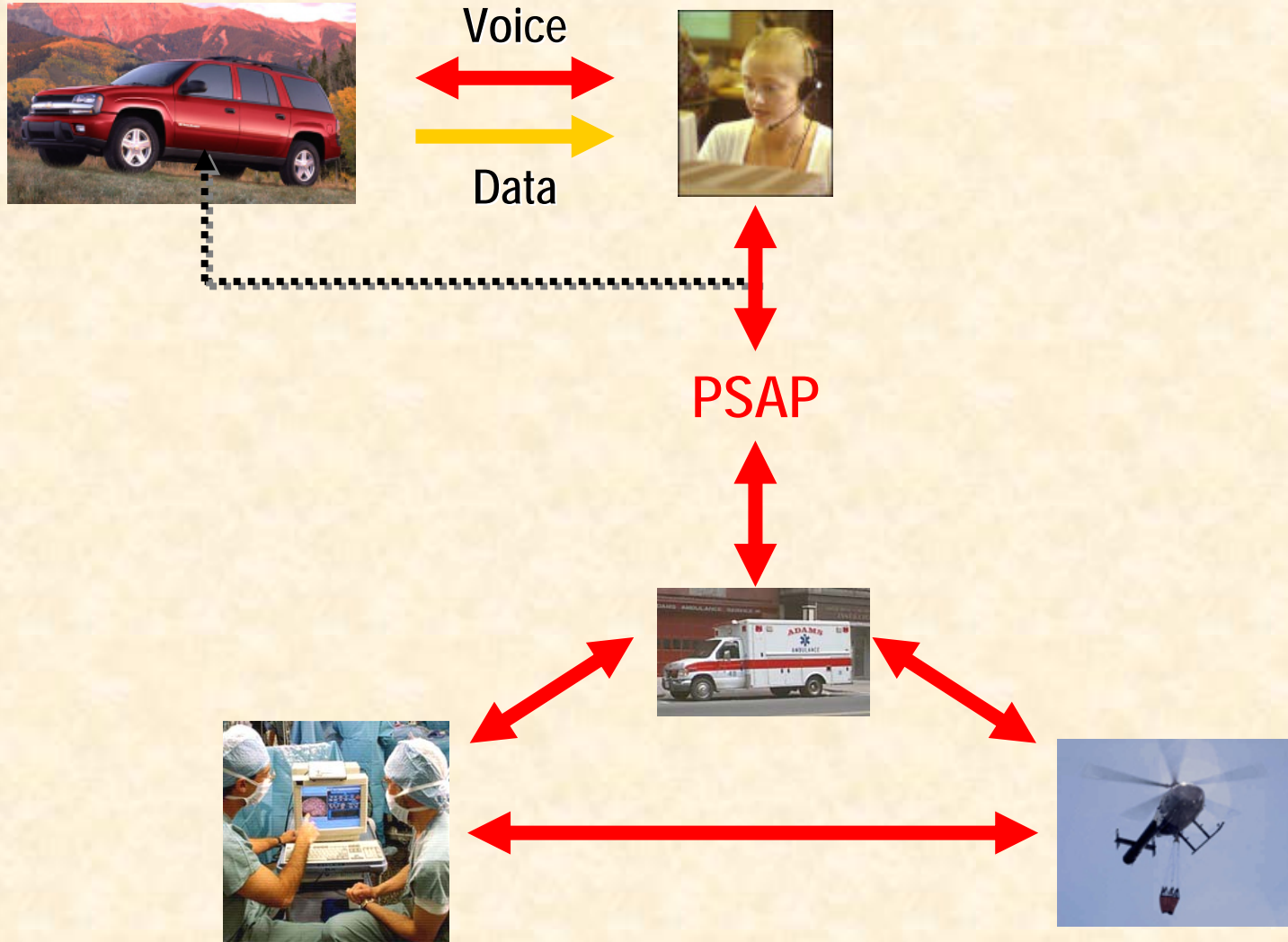- **Lexus**
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ATX – 700,000

- **Mercedes - Teleaid**
- **BMW - Assist**

GPS-Based Services - Core

- **Automatic crash/airbag deployment notification**
- **Emergency services**

Crash Notification Today

GPS-Based Services - Core

- Automatic crash/airbag deployment notification
- Emergency services
- **Roadside assistance**
- **Stolen vehicle location**
- **Remote door unlocks**

GPS-Based Services-Premium

- Automatic crash/airbag deployment notification
- Emergency services
- Roadside assistance
- Stolen vehicle location
- Remote door unlocks
- **Routing and point of interest**
- **Weather**
- **Real time traffic**

Making a Distinctive Difference

Monthly, telematics forward to PSAPs approximately:

- **2,000 automatic airbag/crash notifications; and**
- **15,000 emergency calls.**

As well as

- **27,000 requests for roadside assistance;**
- **46,000 door unlocks;**
- **600 stolen vehicle location requests;**
- **Over 350,000 requests for routing;**

And among non-GPS based services

- **30,000 remote diagnostics.**

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Vehicle to Vehicle(V2V) Safety Use Cases

- **V2V Localized Broadcast Warnings**
  - **Crash notification to other vehicles**
  - **Electronic emergency brake**
  - **Slow/disabled vehicle ahead**
  - **Road condition notification**
- **Map assisted**
  - **Curve speed warning**
- **Cooperative Applications**
  - **Blind spot detection (Passive)**
  - **Collision avoidance and mitigation (Active)**

Challenges and Promises

- **Current Challenges**
  - **Availability and performance degradation in urban canyons and other challenging environments**

- **Future Promises**
  - **Improved reliability, accuracy, availability**
  - **Lane level V2V safety applications**

- **Critical Transition Imperatives**
  - **Maintaining existing performance for the installed legacy fleet**
  - **Achieving cost levels required for price sensitive consumer applications**