U.S. Global Positioning System and the Homeland Security Mission

United States Technical Training Institute (USTTI)

October 23, 2012

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Homeland Security

Outline

- DHS Core Missions
- DHS Common Uses of GPS
- DHS Components Unique Uses of GPS
- Summary

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Five Core Homeland Security Missions

- Prevent Terrorism and Enhancing Security
- Secure and Manage Our Borders
- Enforce and Administer Our Immigration Laws
- Safeguard and Secure Cyberspace
- Ensure Resilience to Disasters




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DHS Common Uses of GPS

- **Timing for Computer Networks**
  - Network Time Protocol (NTP)
- **Communications**
  - Cell Phones, Satellite Comms, Mobile Radios
- **Blue Force/Asset Tracking**
  - USCG, CBP, ICE, FEMA, etc…
- **Natural Disaster/Crisis Management**
  - Hurricanes (Katrina, Rita)
  - Deepwater Horizon

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USCG

- **Aids to Navigation**
  - Placement of Nav Aids
- **Fisheries**
  - Prevent illegal fishing in prohibited areas
- **Search and Rescue**
  - Global Maritime Distress and Safety System (GMDSS).
  - Rescue 21/SARSAT
- **Automatic Identification System**
  - Maritime Domain Awareness
- **Differential GPS**

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Customs & Border Protection

- **Air-Marine Safety of Flight & Navigation**
  - Enhanced Ground Proximity Warning System
  - Electro-Optical/Infra-Red (EO/IR) Sensor turret
  - Area Navigation Systems
  - electronic Automatic Identification System (eAIS)
- **UAV Control**
  - Safety of Flight

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Federal Emergency Management Agency (FEMA)

- **Deploy to Disaster Site**
  - Hurricane, Tornado, Fire, etc…
- **Conduct Damage Assessments**
  - GPS with GIS tools provides timely and accurate damage assessments

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FEMA Mission

- Support our citizens and first responders
- Ensure that as a nation we work together to build, sustain, and improve our capability
- Prepare for, protect against, respond to, recover from, and mitigate all hazards

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Logistics Management Directorate (LMD) Mission

- Effectively plan, manage and sustain national logistics response and recovery operations, in support of domestic emergencies and special events

- Establish national procedures, fostering transparency through collaboration and coordination

- *Focus on **technology enhancements** to expand Region & State level logistics capabilities*.

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Office of Logistic Systems (LS) Mission

- Manage, maintain, and expand FEMA's supply chain technology
- Integrate automated logistics solutions, and modernize FEMA's logistics systems
- Ensure the efficient and effective delivery of critical assets in support of domestic emergencies.

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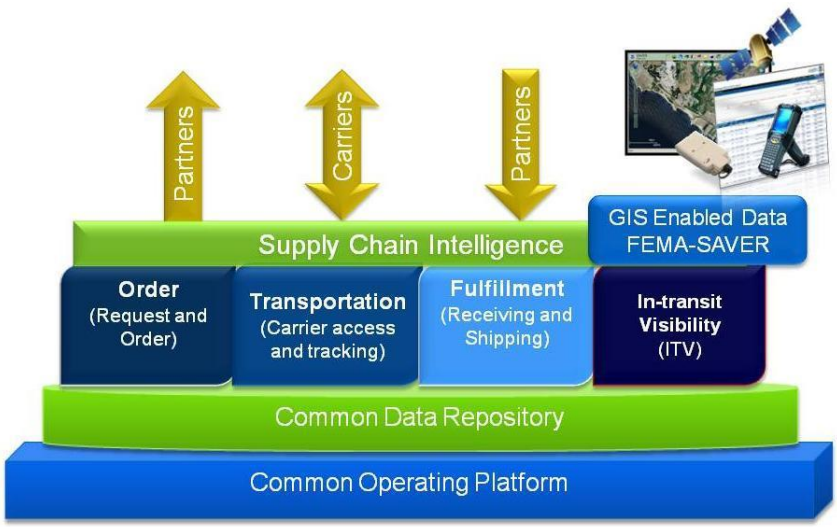
Accomplishing the Mission

Resource Tracking



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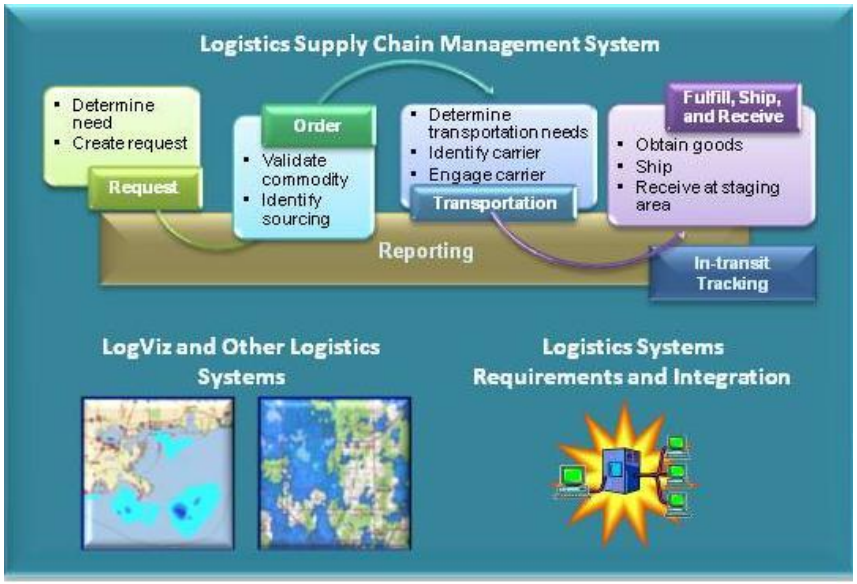

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What is a Transponder?

Fully Self-Contained Device that…

- Communicates with a constellation of 48 low Earth orbit (LEO) satellites
- Internal battery and antennas
- Field programmable
- Integrated motion sensor
- Long-life battery pack

SX1 Model

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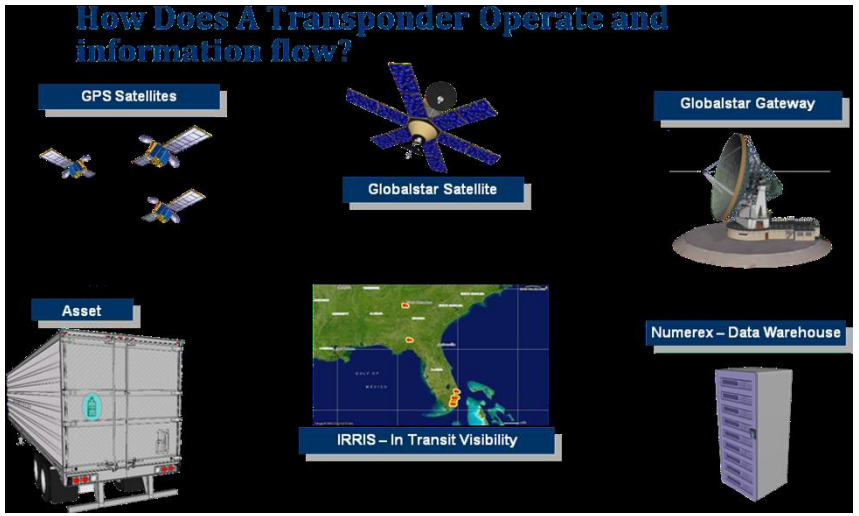
How Does a Transponder Operate?

- The GPS transponder
  - transmits messages to satellites
  - satellites send a return signal to a data collection terminal (Numerex)
  - Information, combined with an integrated software system
  - generates a visual location of the asset which serves as an integral part of the program designated LSCMS.



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Summary

- **GPS is widely used carry out DHS Missions**
- **Most Common applications are**
  - Communications
  - Situational Awareness – Blue Force / Asset Tracking
  - Network Timing
- **DHS Components also have unique uses of GPS**
  - UAV Safety of Flight - CBP
  - Aids to Navigation – USCG
  - Command, Control, Coordination of Natural Disasters- FEMA

QUESTIONS?

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