

# Big Data in the Global Nuclear Detection Architecture

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# Data Provenance: Radiation Portal Monitors

- **The Global Nuclear Detection Architecture (GNDA) was mandated in HSPD-14 (2005) and in the SAFE Port Act (2006)**
- **As part of the GNDA, Customs and Border Protection (CBP) scans incoming cargo, vehicles, and pedestrians, for radiological and nuclear (rad/nuc) threats.**
- **Result: a substantial amount of data is collected, analyzed, and stored**



# Data Usage

- **The data are used in a variety of ways:**
  - Studies in support of the continued development of the GNDA
  - Analyses in support of the resolution of detection events
  - Development of scenarios used to test new equipment or new CONOPs
  - ...
- **The data are used by many users:**
  - Federal
  - State and local
  - Tribal
- **This leads to both technological challenges and policy issues.**

# Technological Challenges

- **Huge amounts of data that need to be: assembled, stored, retrieved, processed, queried, exchanged**
  - Even subsets are large
  - Querying often involves additional processing (e.g., extracting content from an image)
- **Interoperability and data exchange standards needed to enable use by a broad user base**
- **Mechanisms for enforcing policy-mandated controls**
  - Authorization and authentication
  - Data integrity
  - Authorized usage

# Policy Issues

- **Infrastructure development**
- **Information sharing agreements**
- **Jurisdictional limits**

# Questions?