



Homeland Security Geospatial Data Model

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■ Background

– *April 2006*

- DHS Geospatial Management Office (DHS GMO) launched standards-based development of a Geospatial Data Model (GDM) for homeland security

– *May 2006*

- DHS GMO tasked FGDC Homeland Security Working Group (HSWG) to coordinate public vetting of logical data model

– *June 2006*

- Geospatial Data Model version 1.1 is released
- FGDC HSWG began soliciting comments



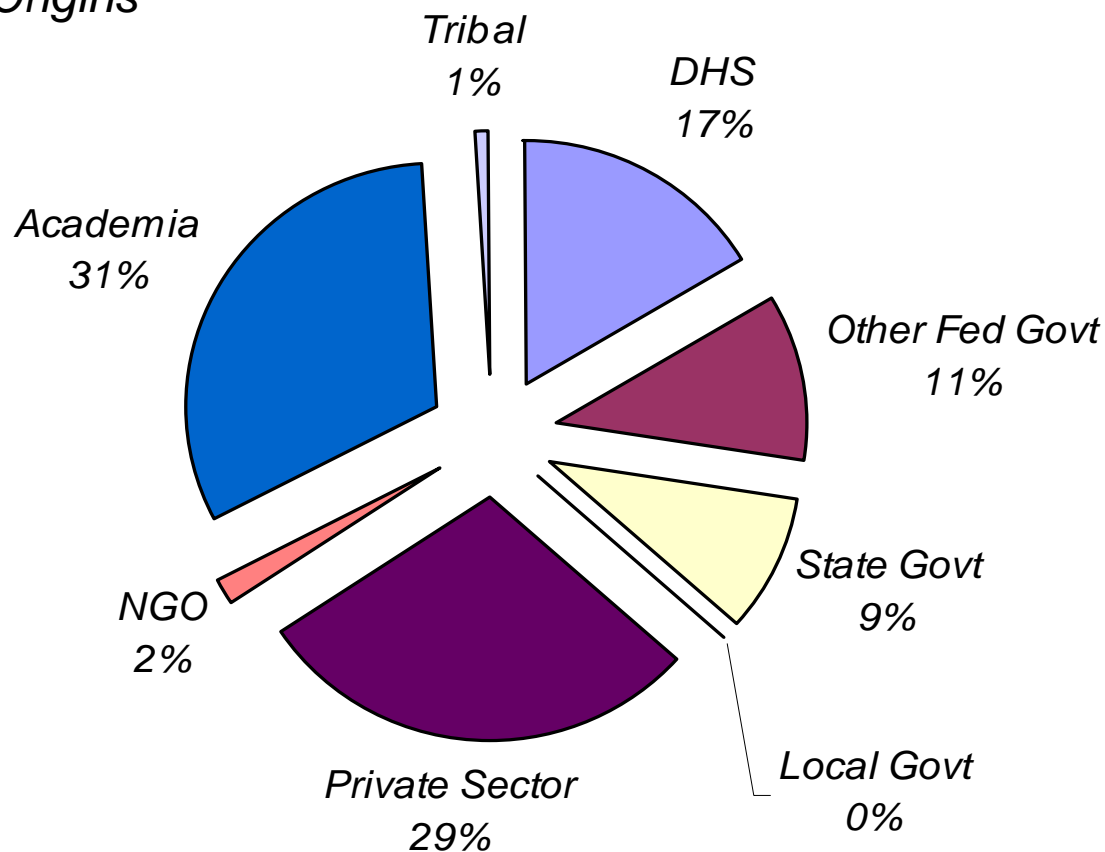
- *Goals of the modeling effort*
 - *The GDM will be adopted by DHS for implementation in DHS geospatial databases and applications (part of DHS Geospatial Enterprise Architecture)*
 - *Standardizes form of, and access to, the Common Operating Datasets*
 - *Ensure the Data Model is made available to allied organizations to promote interoperability and information exchange*
 - *Contributes to a discoverable Homeland Security Enterprise Architecture*
 - *Promotes standards through allied use as internal Model (Implementation)*
 - *Facilitates interoperability as a Data Transfer Model (Exchange Data)*
 - *Helps define data needs and content of interest to DHS (Data Collection)*
 - *Gain non-mandatory FGDC recognition*



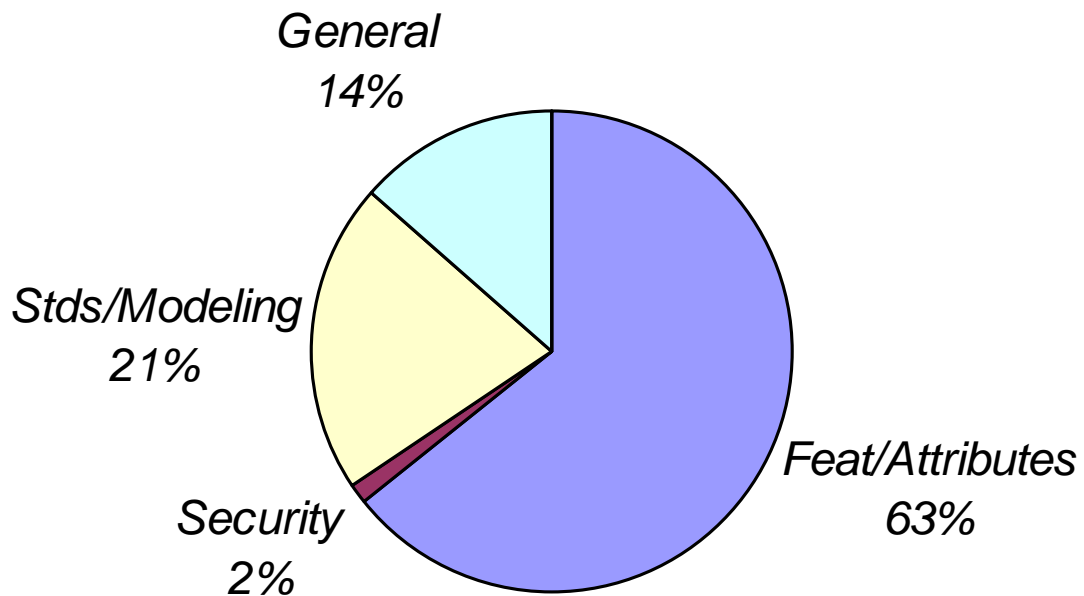
- *FGDC HSWG Facilitation – June 2006 to present*
 - *Established website for download of data model documentation*
 - *Developed a comment resolution matrix*
 - *Gathered comments and posted to FGDC website*
 - *131 comments received*
 - *Coordinated adjudication meetings with HSWG Content Subgroup, others*
 - *103 comments resolved*
 - *28 comments unresolved*
 - *Posted results to FGDC website*



- Comment Origins



- *Nature of Comments*



- *Next Steps – Spring 2007*
 - *Homeland security GDM version 1.2 Released May 2007*
 - *UML, XMI, HTML for modeling professionals*
 - *V 1.2 Implementation releases July 2007*
 - *Oracle Spatial 10g*
 - *Users Guide*
 - *Data Dictionary*
 - *ESRI Geodatabase*
 - *Users Guide*
 - *Data Dictionary*



- *Next Steps – Summer 2007*
 - *Homeland security GDM version 1.2 review and comment*
 - *Engage FGDC Framework Theme Subcommittees*
 - *Emphasize Outreach to State and Local stakeholders*
 - *Comment period closes August 17, 2007*
 - www.fgdc.gov/dhsgdm
 - *Interactive HTML tool should ease review process*
 - *Comment Matrix Download*



- *Next Steps – Fall 2007*
 - *Homeland security GDM version 2.0*
 - *Slated for release October 2007*
 - *Federal implementations begin*
 - *Begins yearly release cycle*



- for *whom* are we doing this?
 - *the homeland security community*
- but *why* build a new model?
 - *new requirements, new models*
- *where* will the model be used?
 - *across the geospatial community...*
- technical things
 - *standards-based & open*

- and perhaps most importantly, *how* will the model be used?



- The DHS' component agencies
 - *a standards-based geospatial data model to execute on internal programs*
 - facilitates collaboration between disparate communities inside the Department

- The DHS' external partners in Homeland Security
 - *Federal allies*
 - *Tribal, State, Regional & Local governments*
 - *Commercial entities & NGO's*



but why build a new model?

- The homeland security community needs a common standard
 - *Remember, this is a model built from existing solutions...*
 - it's not so much a “new” model as it is a merger of “established” models
- Technical evolution compels a new approach
 - *The community is moving toward a Service-Oriented Architecture (SOA)*
 - Centralized warehouses with standardized datasets that serve multiple missions
 - Leveraging mission-specific data marts
 - Requires standard reference layers to leverage queries
 - Building a Metadata Registry Repository
 - ISO & related metadata standards reflected in new model
 - *Standards mandates*
 - National Information Exchange Model
 - NIEM addressing construct
 - Federal Geographic Data Committee
 - FGDC framework standard
- Without a common standard, SOA doesn't work and people can't share



where & how *will the model be used?*

- The geospatial standard inside the DHS
 - *baseline reference for a geospatial Metadata Registry*
 - *template for sharing geospatial datasets*
 - *cost-reduction driver to eliminate duplication*
 - *standardized acquisitions & outsourcing guidelines*
 - *template for common operating views & standard reference*
- The geospatial standard (?) for the homeland security community
 - *Federal partners*
 - ‘move-to’ baseline for collaborative geospatial programs
 - Round-trip consistency of content for disaster & general operations
 - *Tribal, Regional, State & Local governments*
 - Extract, Transform & Load template for content aggregation in data
 - Standard view for SOA connection to DHS
 - data “up” and information “down” the pipeline
 - *NGO’s and commercial entities*
 - Extract, Transform & Load template for content aggregation
 - Standard view for SOA connection to DHS
 - data “up” and information “down” the pipeline



- General approach:
 - *At all times, use National standard-based data constructs over proprietary constructs*
 - Select semantic rich data constructs
 - *Use UML (Unified Modeling Language) for the logical model*
 - Follow UML Practices in the FGDC Framework Standard, e.g. use <<stereotype>> as a semantic extension mechanism for existing UML concepts.
 - *Follow ISO 19103 (Conceptual Schema Language) guideline*
- Build the logical model with a “package of packages” hierarchical structure
 - *following FGDC best practices.*
- Task approach:
 - *Build the model in UML*
 - *Produce associated documentation*
 - UML model
 - Data dictionary following FGDC guidance and ISO 11179-3
 - Model description document



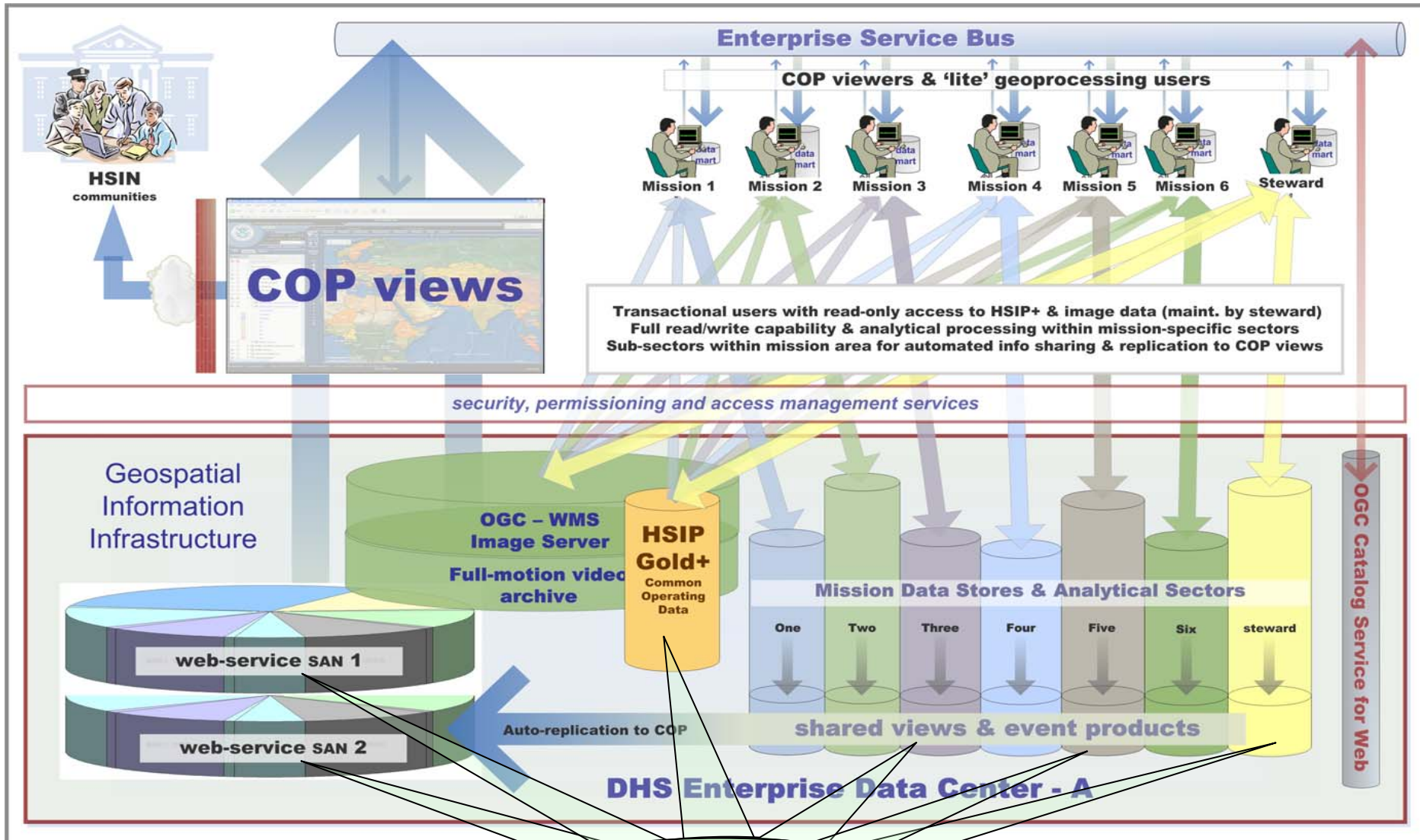
- Harmonized & removed principal items of duplication and overlap
 - USGS Bluebooks + FEMA MultiHazard + FGDC + NIEM + HSIP content*
 - *minus duplicative entries and overlapping feature codes*

= DHS Geospatial Data Model 1.2 “the Harmony Sessions”

- Built in connections to external standards and support for key sources
 - *Connections for infrastructure-related standards*
 - connections to allow ingest of LandXML and IFC-XML
 - *Connections for emerging OASIS standards*
 - EDXL geometries and protocols for:
 - Asset Tracking, Resource Management, Emergency Management, etc.

- A ready-to-go beta copy of an Oracle10g Spatial implementation model

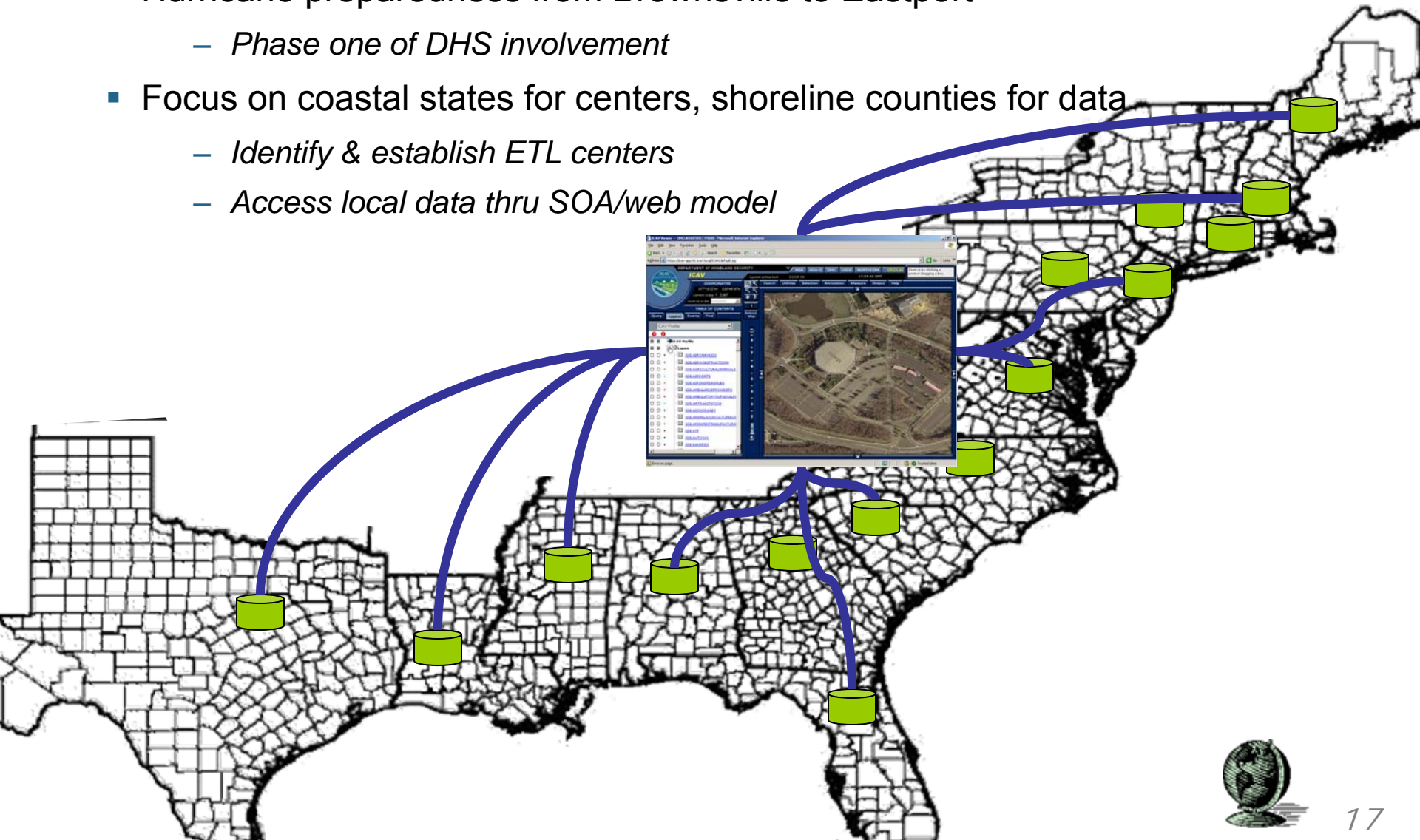




Homeland security geospatial data model



- Hurricane preparedness from Brownsville to Eastport
 - Phase one of DHS involvement
- Focus on coastal states for centers, shoreline counties for data
 - Identify & establish ETL centers
 - Access local data thru SOA/web model



- For all questions or comments, please contact:
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notional homeland security data flow

