Coast Guard Enterprise GIS

Presenter: Commander Lane Johnson

U.S. Coast Guard Headquarters
Operations Directorate
Office of Information Resources
Systems Management Division

Email: lane.d.johnson@uscg.mil
Coast Guard Enterprise GIS

- Initially developed to support the MISLE program
- Enterprise Design - Accessible to all CG users

Purpose: Provide GIS data and services to the Coast Guard for a multitude of missions

- Marine Safety
- Port Security
- Port Operations
- Environmental Response
- Incident Management
- Search and Rescue
- Port Intelligence (unclass)
Marine Casualty Investigations

M/V COSCO
BUSAN’s
historic track data
showing
allision site at
Oakland Bay Bridge
resulting in
subsequent
discharge of
petroleum
into
San Francisco Bay –
aerial photography
overlay & navigation
shipping routes
Marine Casualty Investigations

M/V COSCO
BUSAN’s historic track data showing allision site at Oakland Bay Bridge over greater span of time/distance – includes raster nautical chart overlay & track point data
Coast Guard Enterprise GIS IS

- A web-enabled custom thin client, a UDOP (user defined operational picture)
- A Data Warehouse for static GIS data
  - Contains an extensive library of vector and raster data
  - Alleviates need for local storage and maintenance of large or common data sets
- Accessible to all Coast Guard users
- Sensitive but Unclassified (SBU)
Coast Guard Enterprise GIS IS NOT

- THE Common Operating Picture (COP) for the CG
- The CG’s Command and Control system
- Available outside the Coast Guard Data Network
- The solution for all GIS needs in the Coast Guard
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- Typical web client functionality plus
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- Typical web client functionality \textit{plus}
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Enterprise GIS Architecture

- Custom client viewer
  - Developed using Visual Basic and Windows APIs
  - Deployed to users as an ActiveX control through IE

- Web/Map Servers
  - Microsoft IIS
  - ArcIMS 9 (High-availability configuration); ActiveX Connector
  - ArcIMS Image, Metadata, Geo-coding Services

- Data Servers
  - Microsoft SQL Server (Clustered)
  - ArcSDE 9 (SDE C-API adds real-time editing capability)
Future Architecture

- Custom client viewer
  - Develop using C#, .NET Framework, & ESRI Solutions
  - Deployment Method TBD

- Web/Map Servers
  - Microsoft IIS
  - ArcIMS 9.2, ArcGIS Server 9.2
  - ArcIMS Image, Metadata, Geo-coding Services; WMS

- Data Servers
  - Microsoft SQL Server (Clustered)
  - ArcSDE 9.2 (ArcGIS Server adds real-time editing capability)
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- Typical web client functionality **plus**
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- Typical web client functionality *plus*
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- **Typical web client functionality plus**
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- **Typical web client functionality plus**
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Welcome to the Enterprise GIS External Database Connection Wizard. This wizard guides you through the process of creating a connection to an external data source with a spatial (e.g., latitude and longitude) component.

Select a database of a type supported, a table within that database, and data fields that uniquely identify and describe each record in the table.

Name: Suspicious Activity Waypoints
Database: C:\Documents and Settings\Suspicious Activity.xls
Table: 'Suspicious Activity$
Label Field: Title
Id Field: ID

Change Icon
<table>
<thead>
<tr>
<th></th>
<th>Title</th>
<th>Name</th>
<th>Contact Info</th>
<th>Date</th>
<th>Time</th>
<th>Notes</th>
<th>URL</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Waste in river</td>
<td>John Doe</td>
<td></td>
<td>4/13/2006</td>
<td>0400 Z</td>
<td>Caller observed person throw waste (oil?) into Potomac near tidal basin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Man swimming near Natl' Airport</td>
<td>Norman Conquest</td>
<td>(202) 111-2222</td>
<td>4/13/2006</td>
<td>0630 Z</td>
<td>Man observed swimming around Reagan Natl' Airport boundary. Caller thinks it was a fraternity prank</td>
<td>38.88</td>
<td>-77.0405</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Debris from bridge</td>
<td></td>
<td>(703) 222-3333</td>
<td>4/14/2006</td>
<td>0200 Z</td>
<td>Caller observed debris falling off the I-66 bridge (tire?). Said it appeared to be tossed by an individual</td>
<td>38.8628</td>
<td>-77.0385</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Raw sewage spilled into the Potomac River</td>
<td>Maj. Major</td>
<td>(202) 333-4444</td>
<td>5/19/2006</td>
<td>1930 Z</td>
<td>Power failure caused raw sewage to be spilled into the Potomac River. Water/sewer authority suspects disgruntled employee may have sabotaged.</td>
<td><a href="http://www.washingtonpost.com/wp-dyn/content/article/2006/05/19/AR2006051901595.html">http://www.washingtonpost.com/wp-dyn/content/article/2006/05/19/AR2006051901595.html</a></td>
<td>38.8207</td>
<td>-77.02054</td>
</tr>
</tbody>
</table>
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- Typical web client functionality *plus*
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
### List of Open Cases for Commandant (CG-385):

- Case #365343
- Case #346304
- Case #320181
- Case #262518
- Case #269502: SAR Floa (Red/Orange)/ APPROXIMILY 400FT OFF SHORE OF DUNKIRK/1601000Z DEC05
- Case #268500

### Add Entry to Timeline

**Activity:** 3014916  
**Action Type:** Response Communication  
**Date/Time:** [Date and Time]

**Message:**

---

**Activity Type:** Incident Management  
**Activity Status:** Closed - Agency Action Complete  
**Status as of:** 09/07/2007

**Activity No:** 3014916  
**Activity Title:** MS Irregular Navigation Incident/ 00 00.0 S 000 00

**MISLE Case #:** 365343  
**Incident Type:** MS: Irregular Navigation Incident

**Activity Start Date/Time:** 012130Z AUG 07  
**SMC:** District 8  
**Originating Unit:** SEC UpperMissRvt

**Activity Owner:** SEC UpperMissRvt  
**Controlling Unit:** SEC UpperMissRvt

---

#### Timeline

<table>
<thead>
<tr>
<th>Start Date/Time</th>
<th>Unit</th>
<th>Action Type</th>
<th>Message</th>
<th>Location</th>
<th>Subject Name</th>
<th>Details Filed</th>
</tr>
</thead>
<tbody>
<tr>
<td>012130Z AUG 07</td>
<td>SEC UpperMi</td>
<td>Response Communication</td>
<td>Initial Notification - NRC INCIDENT DESCRIPTION</td>
<td></td>
<td>ALLISON, MST2</td>
<td>Notification</td>
</tr>
<tr>
<td>012330Z AUG 07</td>
<td>SEC UpperMi</td>
<td>Response Communication</td>
<td>Rcvd call from ALX Weinstein rptg that he was watching FOX News and that he was seeing rpts of the collapse the</td>
<td></td>
<td>&lt;no subject&gt;</td>
<td></td>
</tr>
<tr>
<td>012345Z AUG 07</td>
<td>SEC UpperMi</td>
<td>Response Communication</td>
<td>MSD St Paul I/O rpts that a reserve boat crew has been recalled and a 25' RBS should be getting u/w in approx 1</td>
<td></td>
<td>&lt;no subject&gt;</td>
<td></td>
</tr>
<tr>
<td>012345Z AUG 07</td>
<td>SEC</td>
<td>Response</td>
<td>Sector CC initiated CIC conference call with CC#01, 00, 00 and ANT Area A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FOR IMMEDIATE RELEASE

Press Release

COAST GUARD RESPONDS TO MINNESOTA INTERSTATE BRIDGE COLLAPSE

MINNEAPOLIS - The Coast Guard is responding to the Interstate 35 bridge collapse in Minneapolis, today to assist local fire and police departments, emergency medical services and the state emergency operations center with search and rescue operations.

A 25-foot smallboat crew from the Marine Safety Detachment from St. Paul, Minn., is on scene. An HH-65C Rescue Helicopter crew from Coast Guard Air Station Traverse City, Mich., along with and the Coast Guard Auxiliary in St. Paul, Minn., have been deployed to the scene to conduct search and rescue operations.

Due to the bridge collapse, the Mississippi River has been closed between mile markers 848 to 857.

All media inquiries concerning Coast Guard operations should be directed to Lt. j.g. Anastacia Visneski at (618) 610-6855.

###

U.S. Coast Guard, Saving Lives Since 1790
Enterprise GIS Custom Client

Client Requirements

- Web-enabled, thin client architecture
- Typical web client functionality plus
  - Real-time editing capability
  - Ability to display all layers stored in data catalog
  - Extend Identify, Query, Filter, Draw, Find functions
  - Ability to connect to non-spatial GIS data sources
  - Briefing tool
- Enterprise design - Allow for multiple Coast Guard access points & customized views into the GIS client
Programs Interfacing with Enterprise GIS
Programs Interfacing with Enterprise GIS

WebCOP MAGNET

Enterprise GIS

CGBt, CAMP, NAIS, NAVCEN, NRC, MISLE, SARUPS
MISLE – Marine Information for Safety and Law Enforcement
CG Business Intelligence
Capital Asset Management Portal
NAIS
NAVCEN’s SOCMON
National Response Center
Enterprise GIS Data Warehouse

National Data Coverage

- Relevant vector data sets from federal government and industry providers
  - Focus: Homeland Security Infrastructure Program (HSIP) vector data sets
- Coast Guard data
  - Jurisdictional/CFR data
  - Program-specific data
- NOAA Raster Nautical Charts
- Aerial Imagery
Enterprise GIS Data Warehouse

National Data Coverage

- Relevant vector data sets from federal government and industry providers
  - Focus: Homeland Security Infrastructure Program (HSIP) vector data sets
- Coast Guard data
  - Jurisdictional/CFR data
  - Program-specific data
- NOAA Raster Nautical Charts
- Aerial Imagery
NOAA ENC Vector Data
Enterprise GIS Data Warehouse

National Data Coverage

- Relevant vector data sets from federal government and industry providers
  - Focus: Homeland Security Infrastructure Program (HSIP) vector data sets
- Coast Guard data
  - Jurisdictional/CFR data
  - Program-specific data
- NOAA Raster Nautical Charts
- Aerial Imagery
Enterprise GIS Data Warehouse

National Data Coverage

- Relevant vector data sets from federal government and industry providers
  - Focus: Homeland Security Infrastructure Program (HSIP) vector data sets
- Coast Guard data
  - Jurisdictional/CFR data
  - Program-specific data (MISLE, SAROPS, etc.)
- NOAA Raster Nautical Charts
- Aerial Imagery
Raster Nautical Charts
Enterprise GIS Data Warehouse

Local Data Coverage

- Collected with focused input from local Coast Guard user bases
- Vector and raster data sets relevant to a region/AOR
District 13 Spill Response Layers
Coast Guard Enterprise GIS

Presenter: Commander Lane Johnson

U.S. Coast Guard Headquarters
Operations Directorate
Office of Information Resources
Systems Management Division

Email: lane.d.johnson@uscg.mil