Homeland Security Master’s Program

January 14, 2008
DHS S&T Conference
SDSU Visualization Center

Example of Data Fusion for Making Decisions

Sensor Networks, Wireless / Optical Communications, Remote Sensing, Imaging, Data Fusion, Data Visualization, and Decision Support
Homeland Security Master’s Program

Two Co-Directors, Eric Frost and Jeff McIlwain for academic program tied to Homeland Security research effort, Co-Directed by Eric Frost and Bob Welty.

Started in 2004 as Interdisciplinary Studies: Homeland Security major, blossomed into fully standalone program, entitled simply “Homeland Security Master’s Program”

36 units, 4 core classes, strongly interdisciplinary, primary motivation for students is Public Service
Homeland Security Master’s Program

Spring, 2008, approximately 130 graduate students, including from FBI, TSA, Federal Air Marshals, Border Patrol, Fire, Law Enforcement, industry, Public Health, Coast Guard, Army, Navy, Marines, students

Approximately 40 Faculty from across the University, including Physics, Chemistry, Information and Decision Systems (Business), Geography, Religious Studies, Life Sciences, Tourism, Criminal Justice, Languages, Communications, Public Health, and numerous others.
Homeland Security Master’s Program

Four Core Classes:

- Introduction to Homeland Security
- Science and Technology in Homeland Security
- Emergency Management in Homeland Security
- Law and Ethics in Homeland Security

Critical Infrastructure Protection, Terrorism and Counter-terrorism, Transnational Crime, GIS and Imaging, Information and Decision Systems, Chemistry and Physics Imaging, Study Abroad, and classes in several dozen departments
The Gating Factor to Improved Operational Efficiency and Financial Performance is the Rate at which Information is Consumed and Transformed into Knowledge and Action = Expert Bandwidth!

Scenario
- Capital: Plenty
- Opportunities: Plentiful but Immature
- People: Bandwidth Limited

Insight Velocity --- Connecting Technology and Policy for Homeland Security
Delivering Data and Voice and Location Globally, Homeland Security Real Training

1993
100- MB
10% viewed
2-3 maps
12 months
800KB/month

2004
400+ GB
100% viewed
Volumes
1 month
400GB/month

400,000 fold productivity improvement
SDSU Viz Center in ShadowBowl
http://www.shadowbowl.sdsu.edu

What could WE do now, in 2008?
Mash-up Example: Missing People (icon on image)
Using GeoFusion Imagery as Underlayer for any SQL Database
Disconnectedness defines danger.
Dr. Tom Barnett, The Pentagon’s New Map, 2004

Comms first.
Dr. Sheryl Brown, CIO, United States Institute of Peace
MODIS imagery for Tactical Fire Response

Vulcan Example:

The Devastating Southern California Fires of October 2003
- Over 660,000 acres burned
- Over 2500 homes burned
- 24 Deaths

What can WE do For Rapid Fire Response?

Satellite: Terra
Sensor: MODIS
October 26, 2003
University of Texas at Austin
4.5m TeraScan X-Band System
What could WE do with phones as millions of people threatened by fire?