Emergency Response Support System Overview

23 September 2010

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NATIONAL CENTER FOR FOREIGN ANIMAL AND ZOONOTIC DISEASE DEFENSE

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Farm Foundation

Zoonoses: Understanding the Animal Agriculture and Human Health Connection

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Objective

Make <u>better</u> decisions <u>faster</u>!

- Execute the decision cycle faster through the use of information sharing environments that facilitate shared situational awareness.
- Provide the decision-maker more relevant data/information from authoritative data sources that has been filtered and packaged for the decision-maker and the type of decision being made.

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Background

- The Emergency Management Exercise System (EM✯ES) is a scenario-driven simulation-supported exercise environment that has been used to train more than 6000 responders from around the country for WMD incidents.
- A logical extension was to use this approach to train those involved with large scale animal disease incidents.

Basic Principles

- Simulation for stimulation is very effective in transforming emergency managers into *virtual veterans* of large scale events.
- Proper design supports the development of command and control systems that *blur the line* operations and training.

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Defining the Need

The Emergency Response Lifecycle

- An animal disease outbreak, whether naturally occurring or human-induced, presents a complex response challenge and very quickly involves several levels of decision makers (local, state, and federal).
- A need exists for a consolidated view of the incident being presented to the full array of decision makers with synchronized data being represented from multiple distributed sources.
- Such an integrated view with these diverse data representations provides a useful tool for both training, operational (incident management), and analytical applications.

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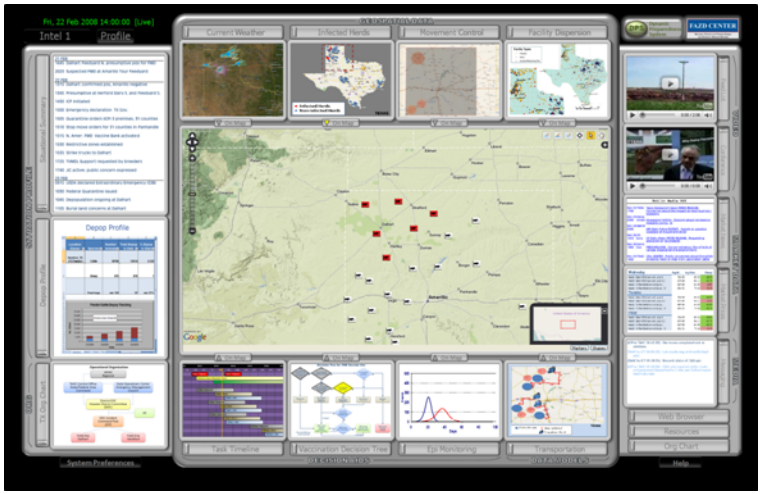
Information Dashboard Framework (IDF)

- The IDF is analogous to a traditional hardware backplane that has circuit boards plugged in to achieve its objective functionality.
- The IDF is a “software” backplane that achieves its objective functionality based upon a collection of diverse software components.



Dynamic Preparedness System

- A “look and feel” prototype with both functional and notional components.
- Used to support requirements elicitation.
  - Prototype-driven requirements vs. requirements-driven prototype

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IDF Description

- The Information the Dashboard Framework (IDF) supports the construction of user-defined operational pictures.
- These common integrated displays are composable and customizable based upon the set of included "pluggable" dashboard components.
- The objective is to define application level protocols and standards to allow third party development of components which support operations, training, and analysis.
- IDF is built upon a service-oriented architecture (SOA) and is oriented on support network-centric environments.
- IDF is web-based.

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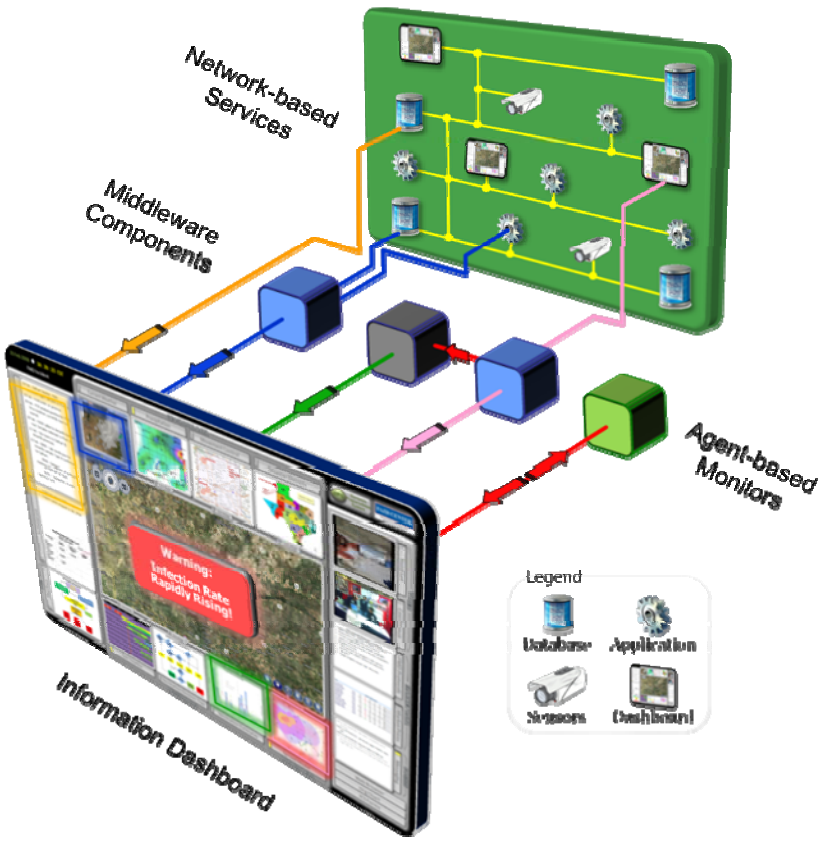
IDF Architecture



- *Presentation Layer* – Implemented as a *thin client* and can be used on mobile devices.
- *Middleware Layer* – Direct presentation from a service, transformation and presentation from two or more services, data routing from one service to another.
- *Network-based Services* – Network services include: data, applications (esp. models and simulations), sensors, and other dashboards.
- *Agent-based Monitors* – Cautions, alerts, and warnings based on threshold values.

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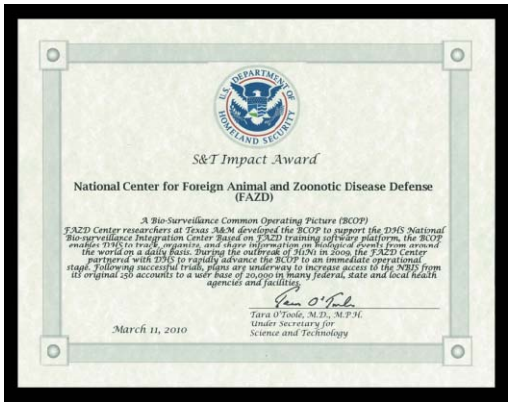
IDF Applications

Bio-surveillance Common Operating Picture (BCOP)



S&T Impact Award

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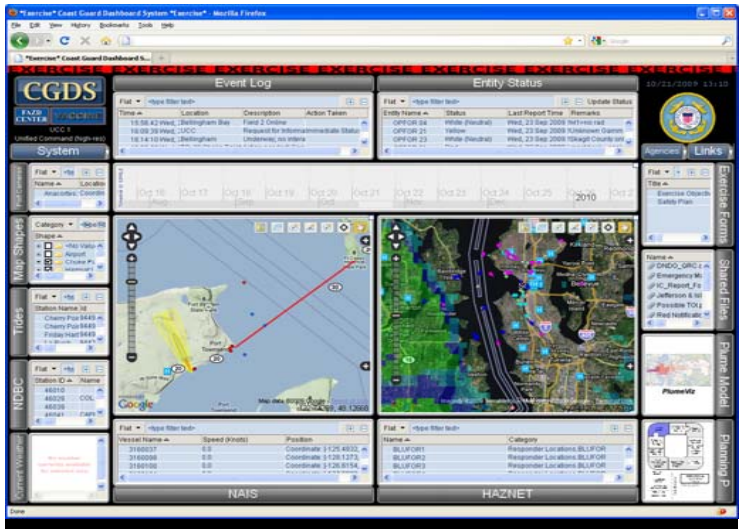
A Bio-Surveillance Common Operating Picture (BCOP)

FAZD Center researchers at Texas A&M developed the BCOP to support the DHS National Bio-surveillance Integration Center. Based on FAZD training software platform, the BCOP enables DHS to track, organize, and share information on biological events from around the world on a daily basis. During the outbreak of H1N1 in 2009, the FAZD Center partnered with DHS to rapidly advance the BCOP to an immediate operational stage. Following successful trials, plans are underway to increase access to the NBIS from its original 250 accounts to a user base of 20,000 in many federal, state and local health agencies and facilities.

March 11, 2010

Tara O'Toole, M.D., M.P.H.
Under Secretary for Science and Technology



Coast Guard Display System (CGDS)

- Supported large-scale Coast Guard exercise in the Puget Sound.
- Exercise involved 70 watercraft and more than 300 people.

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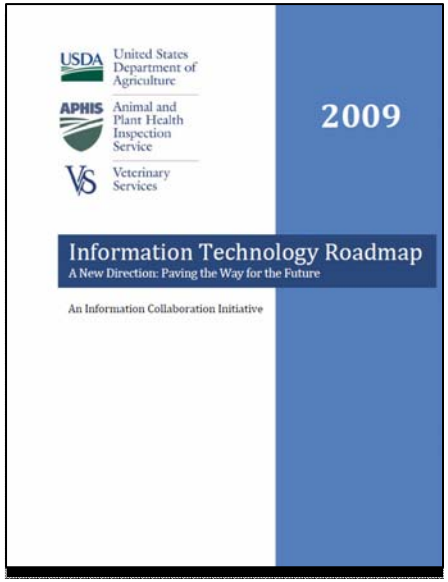
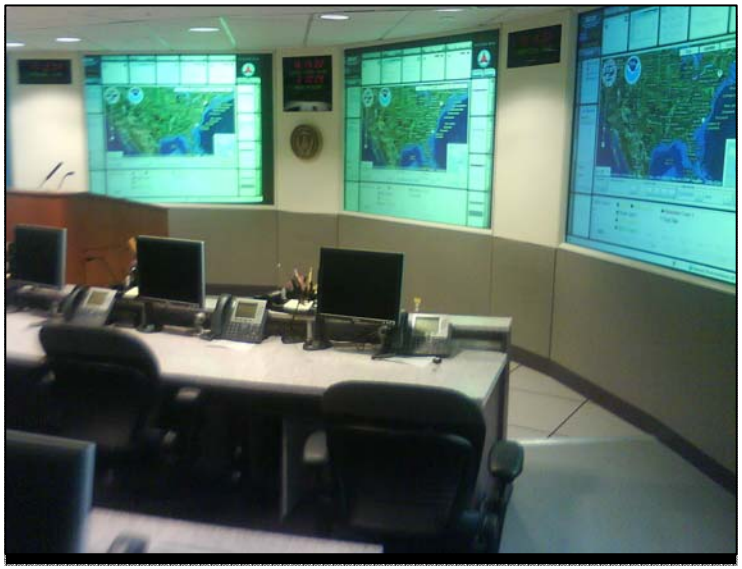
Emergency Response Support System (ERSS)

- Information Dashboard variant to support the command center located at the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) in Riverdale, MD.
- Establish information sharing environment (ISE) between USDA and state points of contact.





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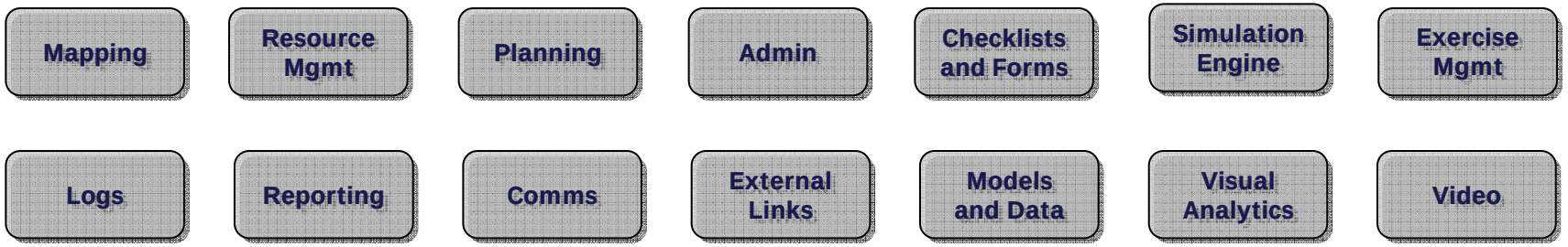
Dashboard Components

- Dashboard components are implemented as middleware which allows third party interfaces without compromising proprietary material.
- Components have embedded code that permits them to pass data among themselves.
- Permissions are managed at the component level:
  - Global Data – Data that is shared by all participants at all levels
  - Shared Data – A subset of global data where only selected sites share data
  - Local Data – Data that is locally displayed at a particular dashboard



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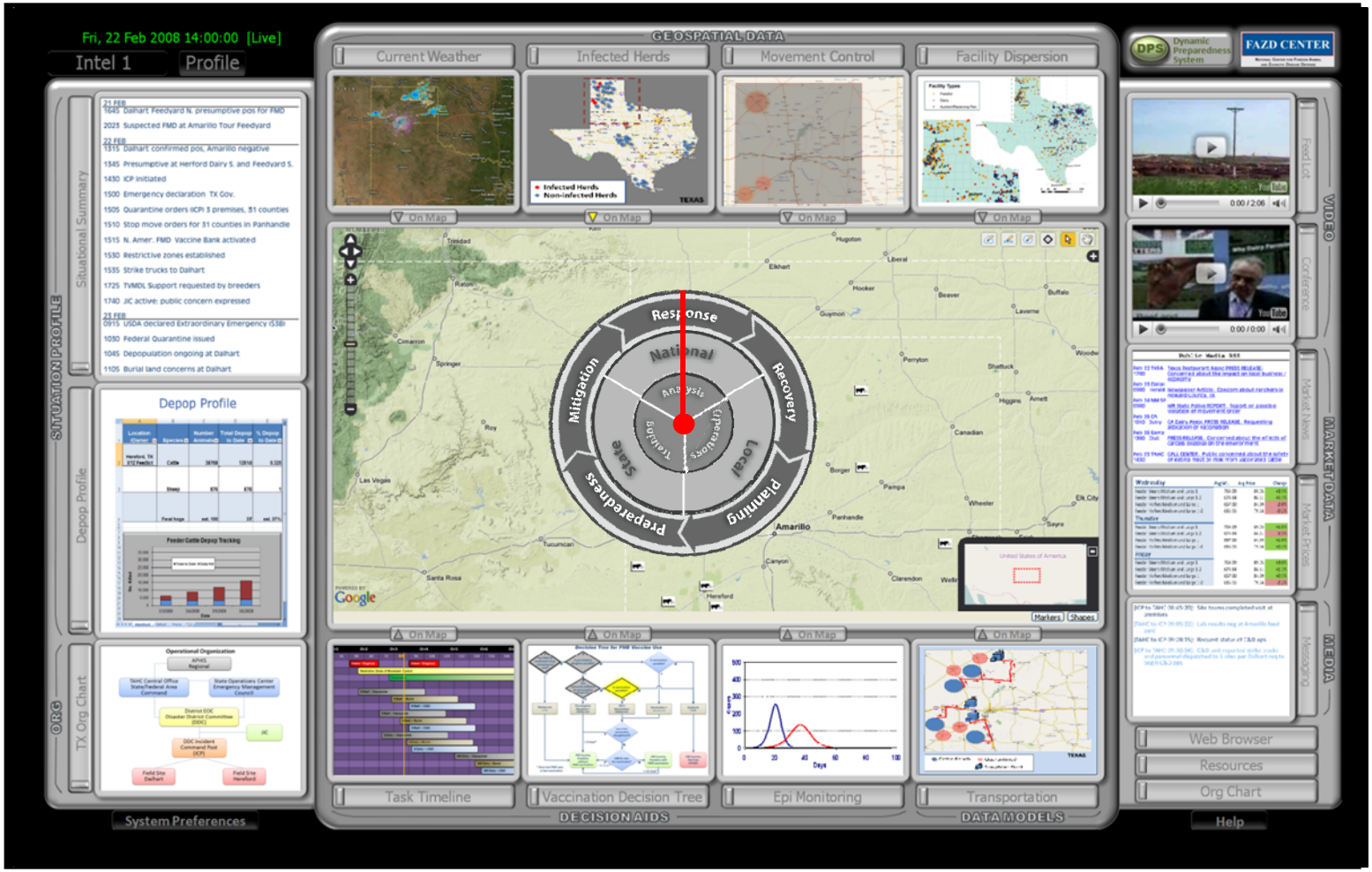
Emergency Response Support System (ERSS)



State-Preparedness-Training

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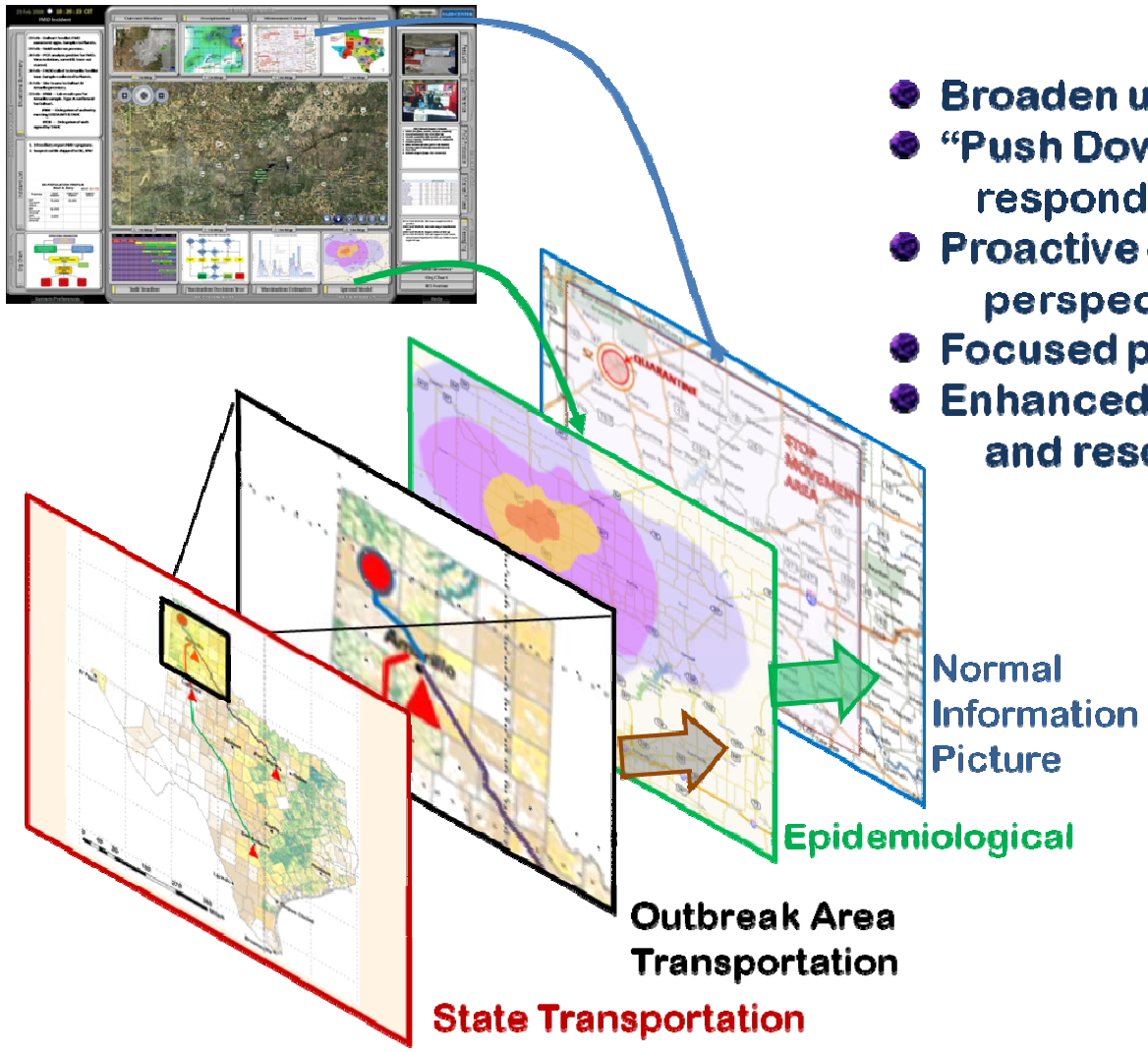
Model Integration – An Incident Response Multiplier



- Broaden use of the models
- "Push Down" distribution to responders
- Proactive operational perspective
- Focused planning parameters
- Enhanced economies of effort and resource allocation

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Benefits of ERSS

- Enhanced response capabilities provided by rapid sharing and organizing of relevant data from authoritative sources to decision makers wherever they may be thus facilitating shared situational awareness.
- Operational and economic efficiencies realized from a single tool that supports both training and operations.
- Economic efficiencies resulting from shared components and acceleration of the development process which is enabled by the Information Display Framework (IDF).
- Use across different agencies helps to mitigate interoperability issues.

National Animal Health Laboratory Network (NAHLN) Capacity Model

- Objective: To document laboratory capabilities related to the detection and identification of NAHLN-reported animal diseases and to incorporate this information into a model capable of assessing laboratory capacity during response to an animal disease outbreak.
- Goal: To increase the overall efficiency of diagnostic laboratory processes by more effectively distributing laboratory samples among national laboratories in order to decrease the amount of time from sample collection to diagnosis or confirmation of disease.

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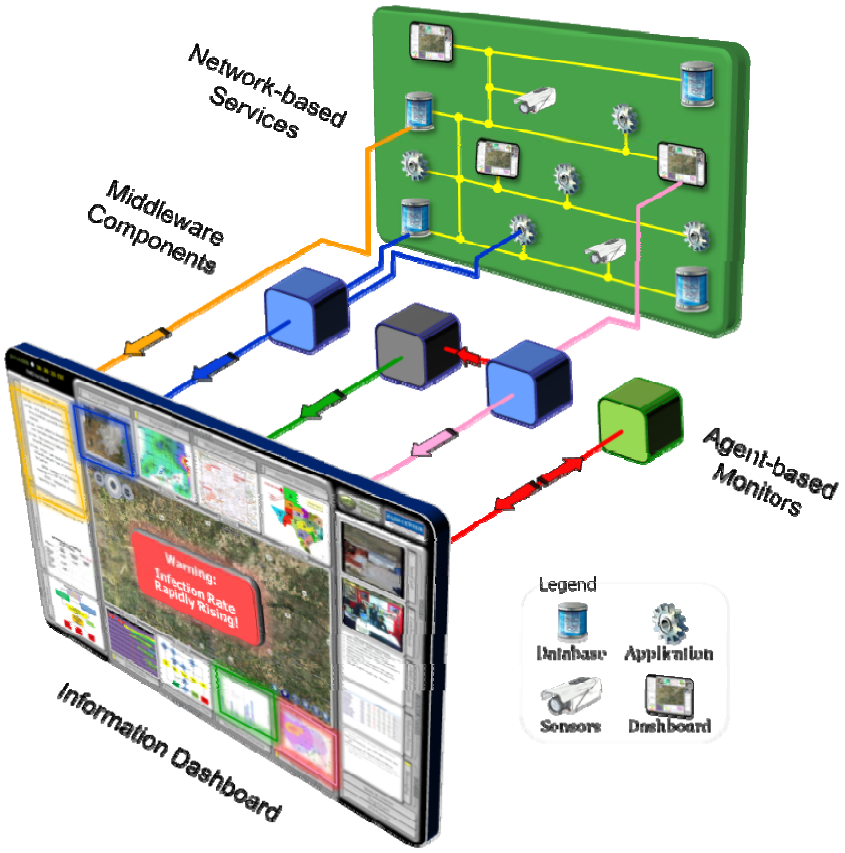
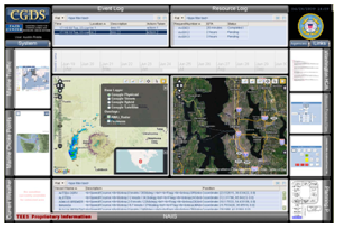
Questions?



Emergency Response Support System (USDA)

Bio-surveillance Common Operating Picture (DHS)



Coast Guard Display System (USCG)