



# Information Sharing and Analysis

**Requirements**

*Conduct Mission  
Area Analysis and  
Needs Analysis*

*Develop Concept  
And Architecture*

*Proof of  
Concept/Identify  
Technologies*

**Field New  
Capability**

*Develop Operational  
Requirements*

*Prototype  
Experimentation/ refine  
Requirements and  
Procedures*



# Information Sharing Hurdles

Technology

Commercialization

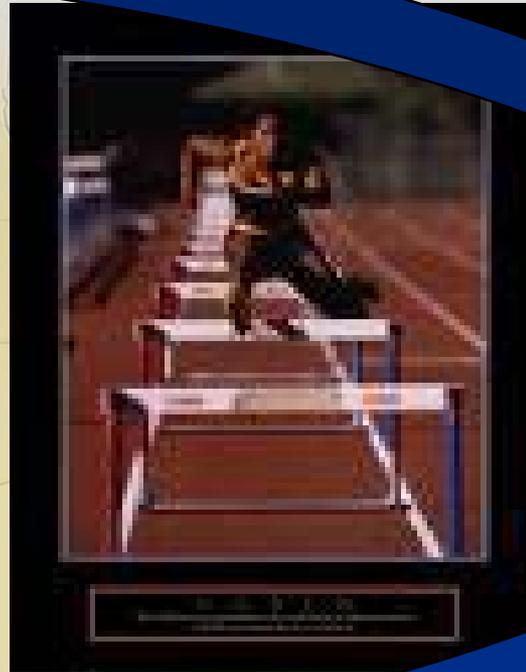
Privacy

Policy

Maintainability

Operating Cost

Recurring Cost

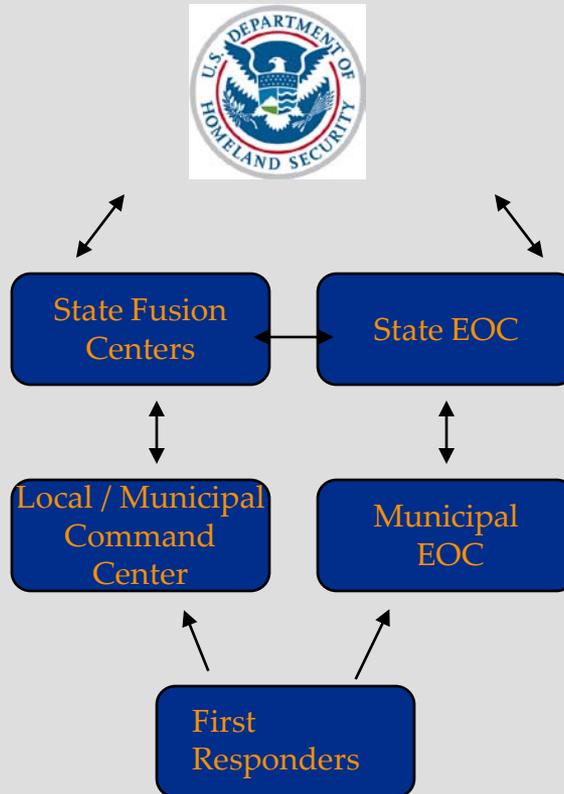


# Information Sharing & Analysis

Execute Locally Plan Regionally

Leverage what you can

Build what you must



Leverage: SETCP (DNDO)

Kentucky Weigh Stations (DHS Grant)

Managed by U.S. Battelle for the U.S. Department of Energy

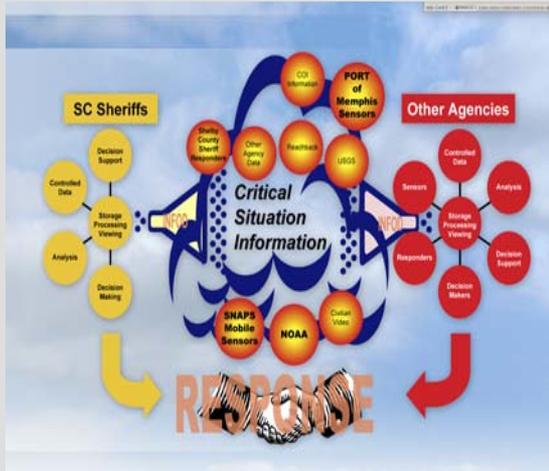
Supporting The Department of Homeland Security

Leverage: Port of Memphis (DHS Grant)

SNAPS (DHS Grant)



# First Responder to Local Command Center

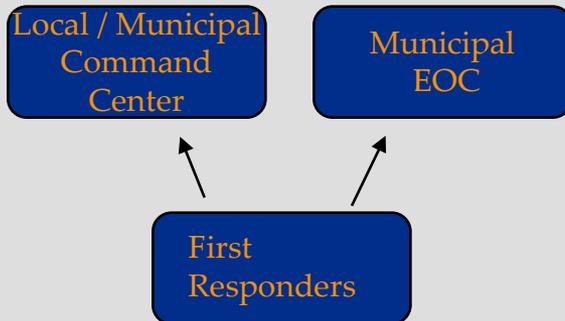


Registry matches sensor data publishers and application subscribers (and consumers)

## Shelby County Fusion Center

### Conclusions

- Rapid data transport to and from critical threat areas
- Pre-packaged data formats that are useful to consumers
- Ease of data integration from multiple sources into one portal
- GIS display of collective understanding
- Fully "distilled" current "threat-condition" information
- Seamless interface to secure data



### SNAPS-Sensor Network Area Protection System Mobile Threat Detection System

Mobile, re-configurable system components, rapidly deployed, Mobile SensorNet Operations Center

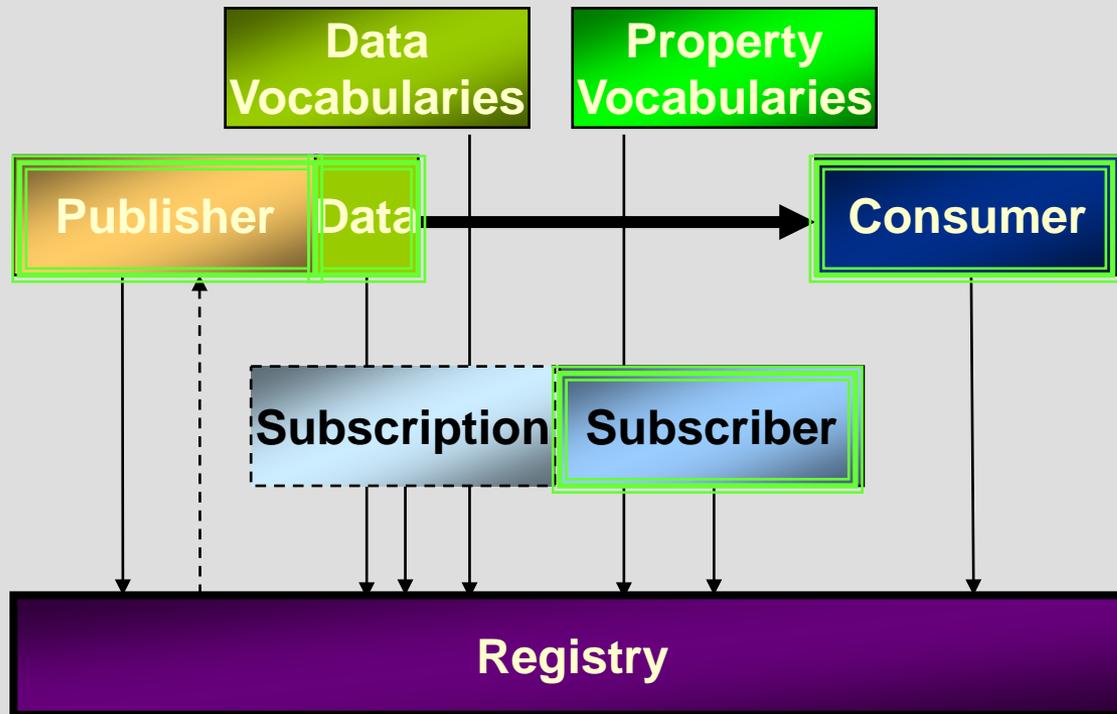
Wireless, GPS enabled sensors with battery operations. Sensors are 100% Mobile

Tower based "Auto-Eyes-On" from wireless video **Slew to Sensor Alert**

GIS auto-Plume at Alerts

GIS showing GPS locations of Sensors

- Publishers and Subscribers can be unaware of each other but instead are treated as a community of interest
- Subscription and publication information is described generically
  - Generic Vocabulary Implementation
  - Extensible structure
- Matching performed with “expressions”



→ Registration    - - - - -> Notification    → Flow of Data    □ Object with properties

Open Grid Forum: Information Dissemination WG Specification  
 (<https://forge.gridforum.org/projects/infod-wg>)



Rutherford  
Appleton  
Laboratory



# Target Scenario: Shelby County Fusion Center (SCFC)

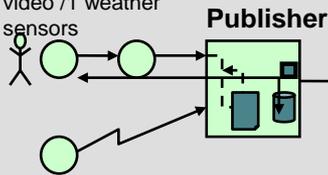
HPAC with Live Weather Feeds

Plotting of Data, Display Video Feeds

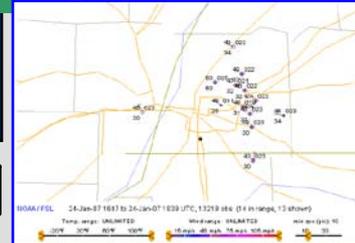
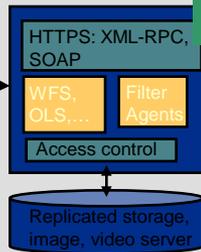
GIS Situational Awareness  
(ArcView or Google Earth, Browsers, ...)

## 1 Shelby County Sheriff SNAPS II Mobile System

8 chem/5 rad/5  
video /1 weather  
sensors



## 3 NOAA Live Regional Weather



4

## INFO-D

*Distributed Wide-Area Middleware*

- Prototype and Analysis
- Distributed querying and top-down programming
- Policy-based data-sharing
- Asynchronous messaging

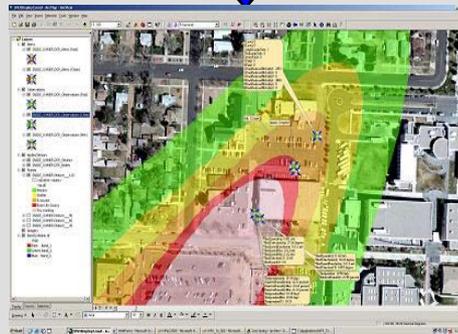
UT  
Vanderbilt

ORNL

Industry  
Oracle, IBM

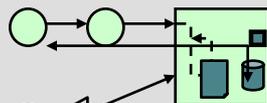
Fusion Center Portal  
and Viewer (Web  
Server; Database; GIS  
(Google); HPAC plume  
modeling)

Subscriber



Application info  
Emergency updates  
Responder data

## 2 Port of Memphis Sensors

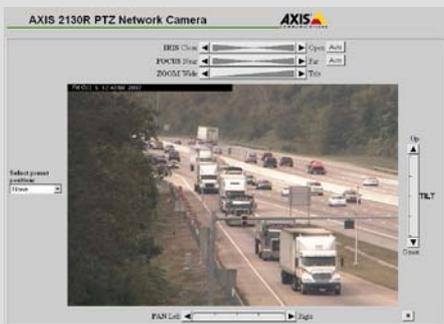


5 chem/ 1 weather  
sensors  
Publisher



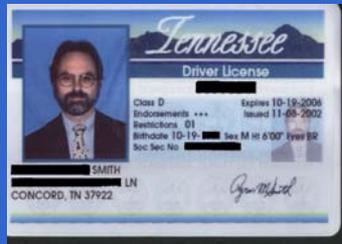


State Fusion Centers



# Kentucky Intelligence Fusion Center

## NCIC Checks



## Traffic Cameras



## Hazardous Cargo NIHS



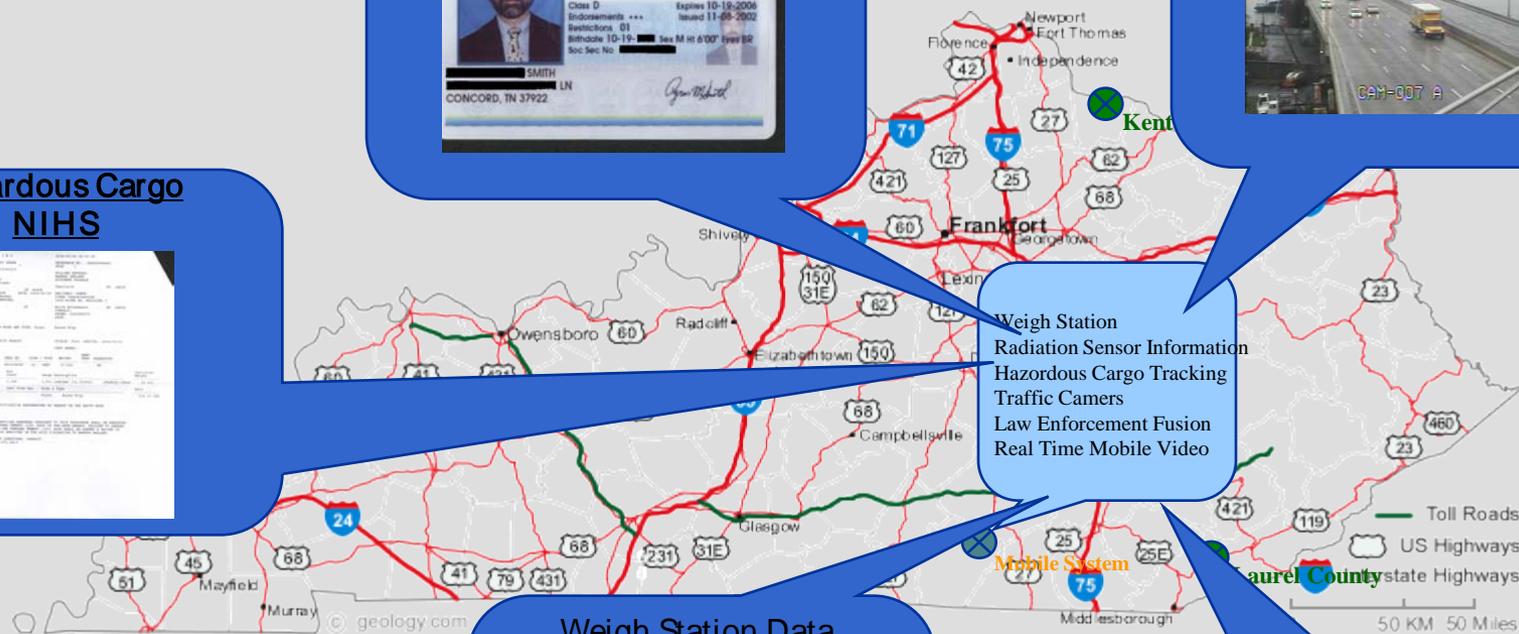
Weigh Station  
Radiation Sensor Information  
Hazardous Cargo Tracking  
Traffic Camers  
Law Enforcement Fusion  
Real Time Mobile Video

## Weigh Station Data DNDO - SETCP



## Reality Vision

## DHSTech Transfer



# Multi-State Sharing Initiative

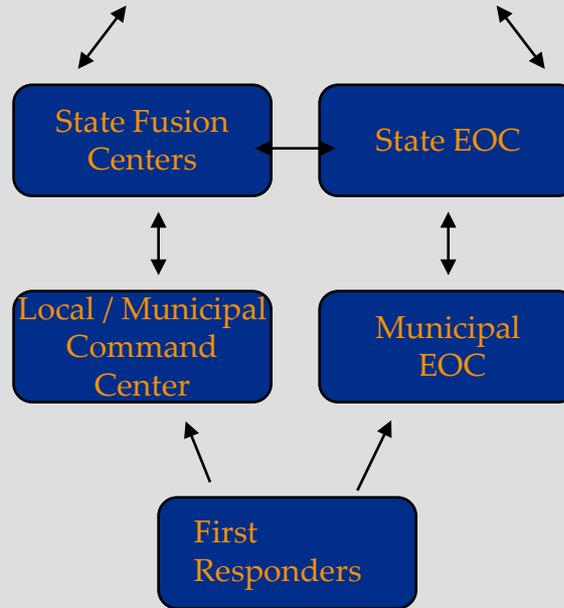


Y-12

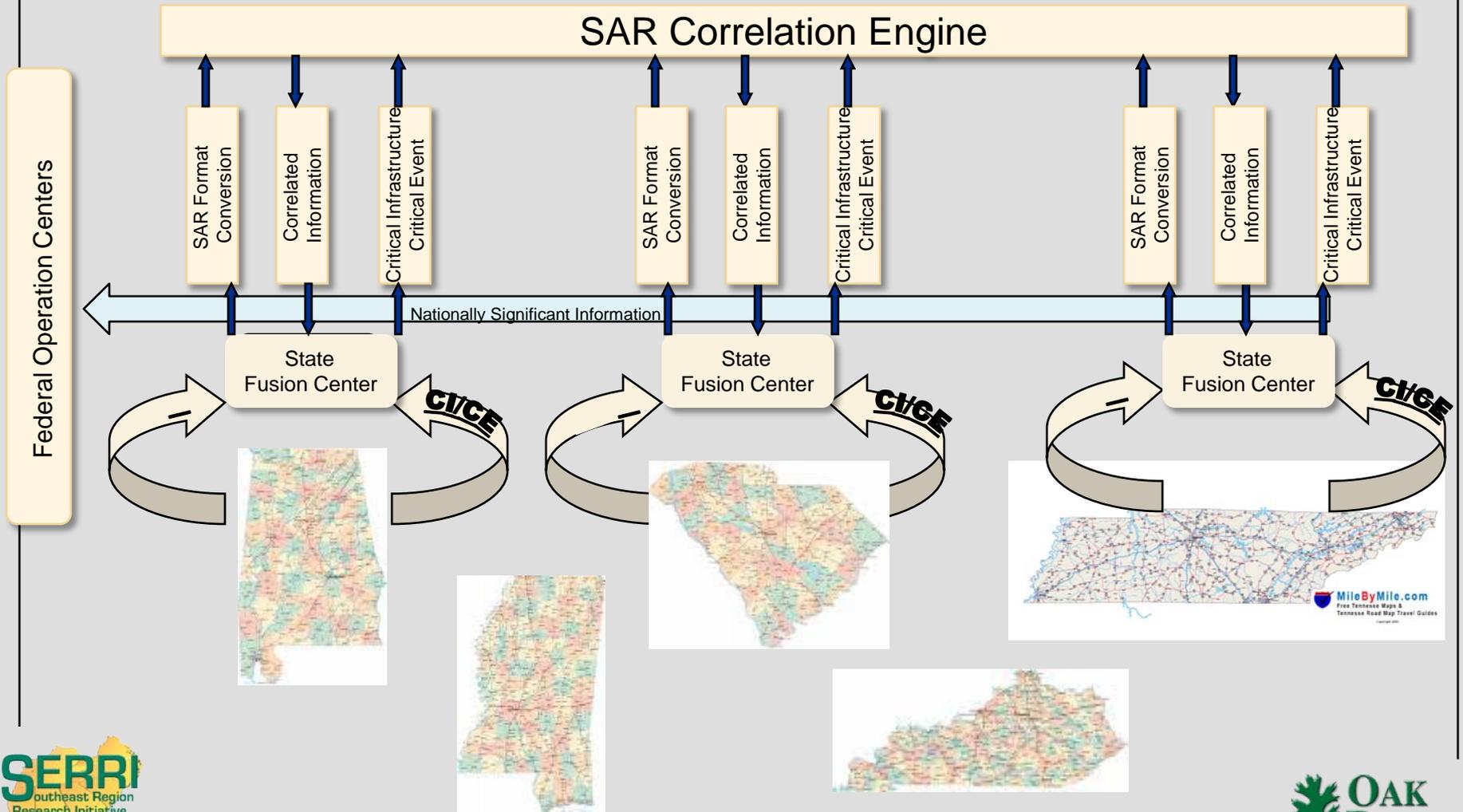
University of Alabama



SCRA



# State and Federal Flow of Information



# Requirements

## Strategic:

**Implement a scalable infrastructure for sharing of information between the states that can as well be expanded to national-level missions (analysis, information sharing, alerting).**

## Operational:

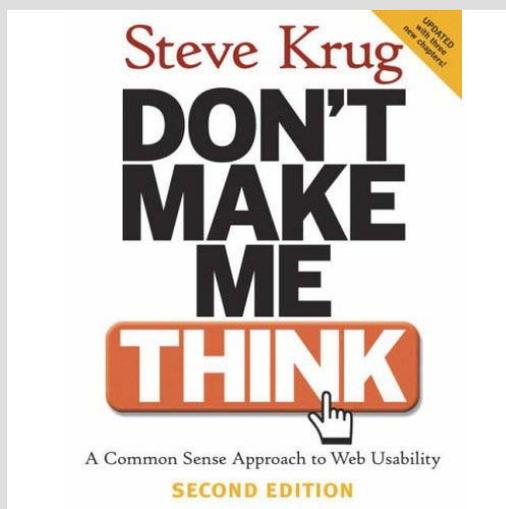
**Allow analysts within state fusion centers to perform cross-state SAR checks. I.e. allow analyst from one state to run checks if the subjects, entities or events found in their own state SARs were also found in some other states' SARs.**

## Technical:

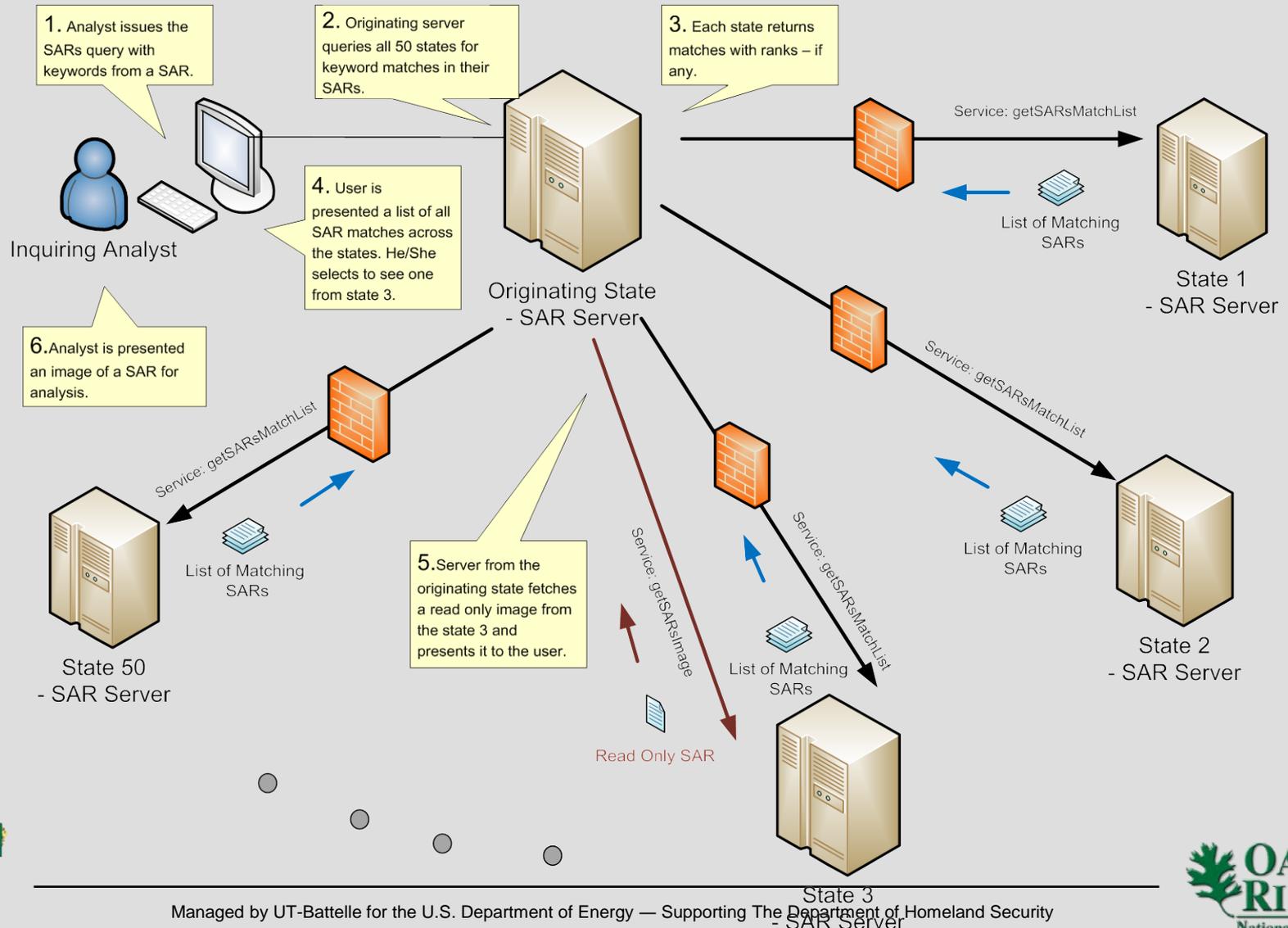
**Enable states to reliably and securely perform a fully automated, electronic cross-state SAR checks without compromising their own data or the integrity of the systems.**

# Technical Approach

- Establish simple to implement, operate and maintain cross-state interoperability mechanism
- Use Web Services to separate state specific implementations from commonly agreed interfaces for SARs exchange
- Leverage to the maximal extent existing communication/security protocols and networks as well as the simplest and the most available internet technologies
- Minimize the technical, administrative and maintenance burden on the states



# Integration Architecture



# Implementer

## Suspicious Activity Reporting Analysis

Reported By: Officer Cuffem Anstuffem, Badge# 666, Nuclear Police

Where and When: 1212 Mockingbird Ln, Anytown, TN May-1-2008 08:00

\*\*\*\* DEMO ONLY \*\*\*\*

On 01 MAY 08, approximately 0800 hrs, Officer Anstuffem of the Nuclear Poli H. Simpson Nuclear Fuels facility in Anytown, TN. Officer Anstuffem stopped store for a cup of coffee, when he was approached by the store clerk on dul sits across the highway from the H. Simpson facility, and the clerk (see cont Eastern male, 5'9" tall, approximately 20-25 years old, was just in the store ; of the front gate of the nuclear facility. The individual left on foot headed nc COMMENT: This is the second such incident this year at the Guzzle 'n Go.

\*\*\*\* DEMO ONLY \*\*\*\*

Enter Keywords:

SAR ID	Rank	Keyword Match	Location	Timestamp	State
<a href="#">5a261c21-f717-41f6-aa04-56636ce37f36</a>	1	(total matches:3 - rank:64): keyword(chemical:3)	Danville, Alabama	9/5/2007 12:00:00 AM	AL
I Tourist Attraction almost had a psychic girlfriend but she left me before we met. If at first chemical you don't succeed, destroy all evidence that you tried. I almost had a chemical plant psychic girlfriend but she left me before we met. The bu...					
<a href="#">a2fc0ebc-9473-4eaa-b0b2-a3df4993585a</a>	2	(total matches:3 - rank:64): keyword(chemical:3)	Sunny South, Alabama	5/14/2007 12:00:00 AM	AL
The sooner you fall explosive behind, the more time you'll have to catch up. The colder the X-ray table, the more of your body is required chemical to be on it. If Suspicious Phone Calls at first you don't succeed, destroy all evidence that you tr...					
<a href="#">d6dfcdf9-3a15-4049-be7b-66524b69d30a</a>	3	(total matches:3 - rank:64): keyword(chemical:3)	Cardiff, Alabama	2/2/2008 12:00:00 AM	AL
All those chemical plant who believe in psychokinesis raise my hand. 99 percent of lawyers give the rest a bad chemical name. If everything seems to be going well, you have obviously Gov't Bldg overlooked something. The colder the X-ray table, the...					
<a href="#">7708c714-ab6b-48e1-8ad8-654b07dd905a</a>	4	(total matches:3 - rank:64): keyword(chemical:3)	Groveoak, Alabama	2/13/2007 12:00:00 AM	AL
If you think nobody cares about you, try theft missing a couple of payments. If you think nobody cares about chemical plant you, try missing a couple of payments. I almost had a psychic girlfriend but she left me before Transportation we met. All ...					
<a href="#">48cd98b7-714d-4f85-adc7-8b71ff5e0000</a>	5	(total matches:3 - rank:64): keyword(chemical:3)	Axis, Alabama	7/7/2007 12:00:00 AM	AL
The early bird gets the worm, but the second mouse gets the chemical plant cheese. When everything gun is coming your way, you're in the wrong lane. If at first you don't succeed, destroy all evidence nuclear that you tried. If at first you don't ...					
<a href="#">5c81dc98-a4b8-4544-82b9-ca60e87b984a</a>	6	(total matches:3 - rank:64): keyword(chemical:3)	Axis, Alabama	7/7/2007 12:00:00 AM	AL
The early bird gets the worm, but the second mouse gets the chemical plant cheese. When everything gun is coming your way, you're in the wrong lane. If at first you don't succeed, destroy all evidence nuclear that you tried. If at first you don't ...					

Reporting Agency: ALACOP, Alabama

Address Contact Phone

770 Washington Street, Suite 350 1.866.406.8022

Contact Person

Montgomery, AL 36104 John Doe

Remarks: this SAR was not fully investigated.

### SAR Description:

You must turn and examine al Qaeda's founding charter, a charter that was written by Dr. Abdullah Azzam, the founder of al Qaeda, in March 1988, and published in "Al Jihad," the journal of the Arab mujaheddin, a publication that was printed in Peshawar, Pakistan, during that period. According to the charter of al Qaeda, al Qaeda is the vanguard, "the pioneering vanguard of the Islamic movements." That is, as the spearhead of Islam. According to al Qaeda, al Qaeda must mount attacks that will inspire and instigate the other Islamic movements, as well as the wider Muslim community that seeks to support, that al Qaeda wants to build support, in order to continue with their political agenda. If you look at the



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