Unified Incident Command and Decision Support (UICDS)™

Bridging the Gap with Common Operational Data Through the UICDS Information Exchange Middleware

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UICDS Outreach Director

The Incident Management World Today

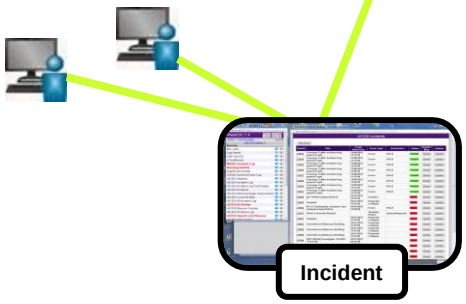
Emergency management occurs in many locations …

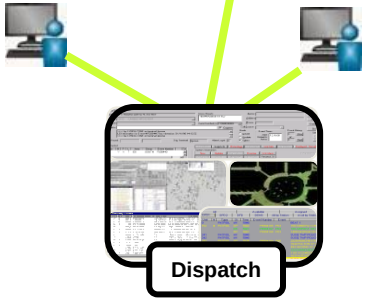
- Strategic decisions in a Operations Center
- Management decisions in Command Posts
- Tactical decisions in the field

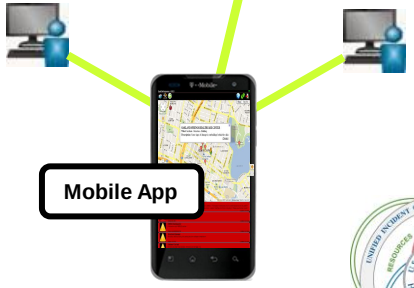
… and organizations

- Fire, Police, Medical, Public Works, Emergency Management
- Civilian, Military, Private Sector

Each Organization Uses Individual Software Applications to Serve Their Specialized Needs

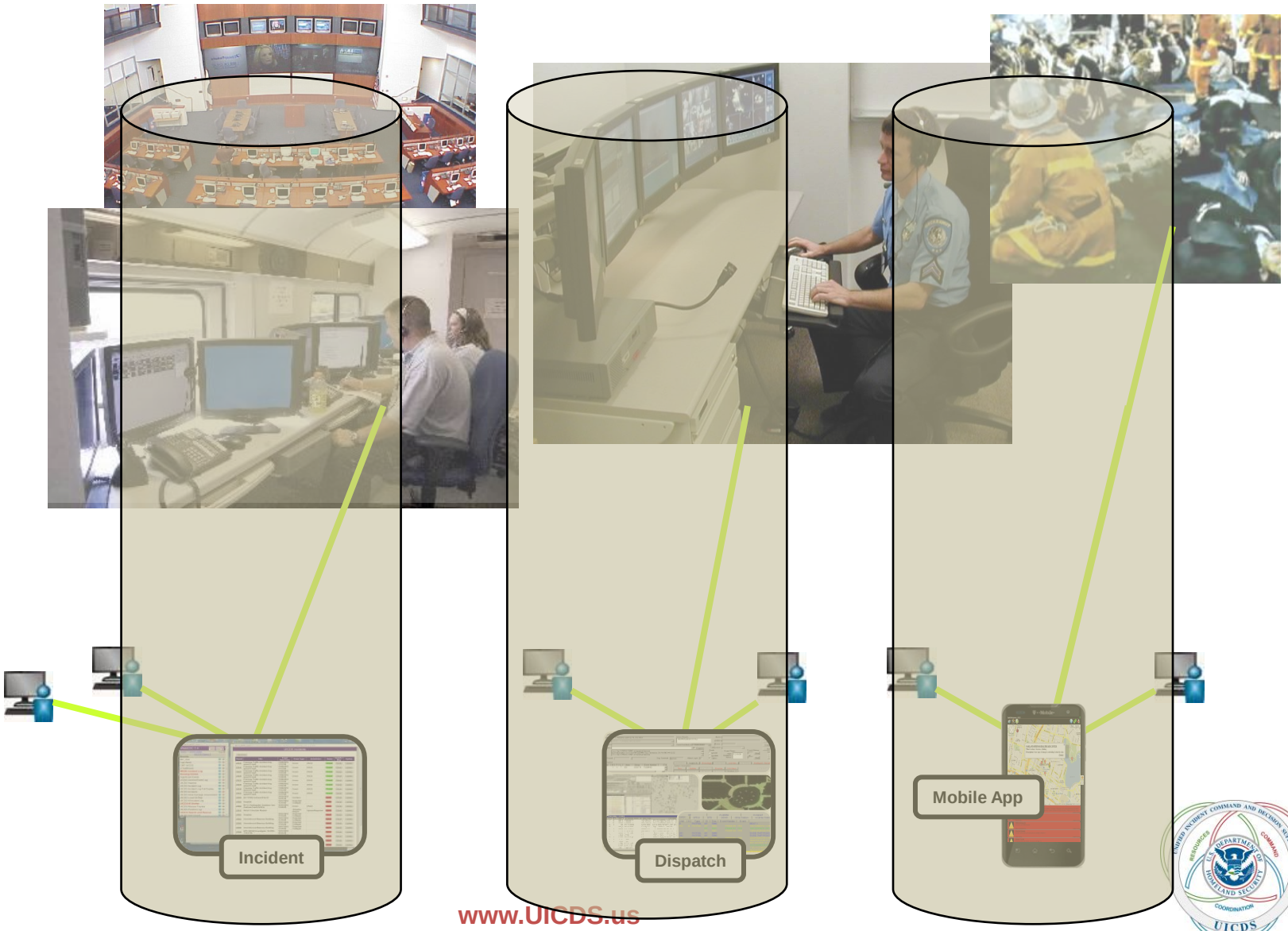






Managers, responders, critical infrastructure all have the software they prefer to do their jobs

Specialization Can Mean Separation into Silos



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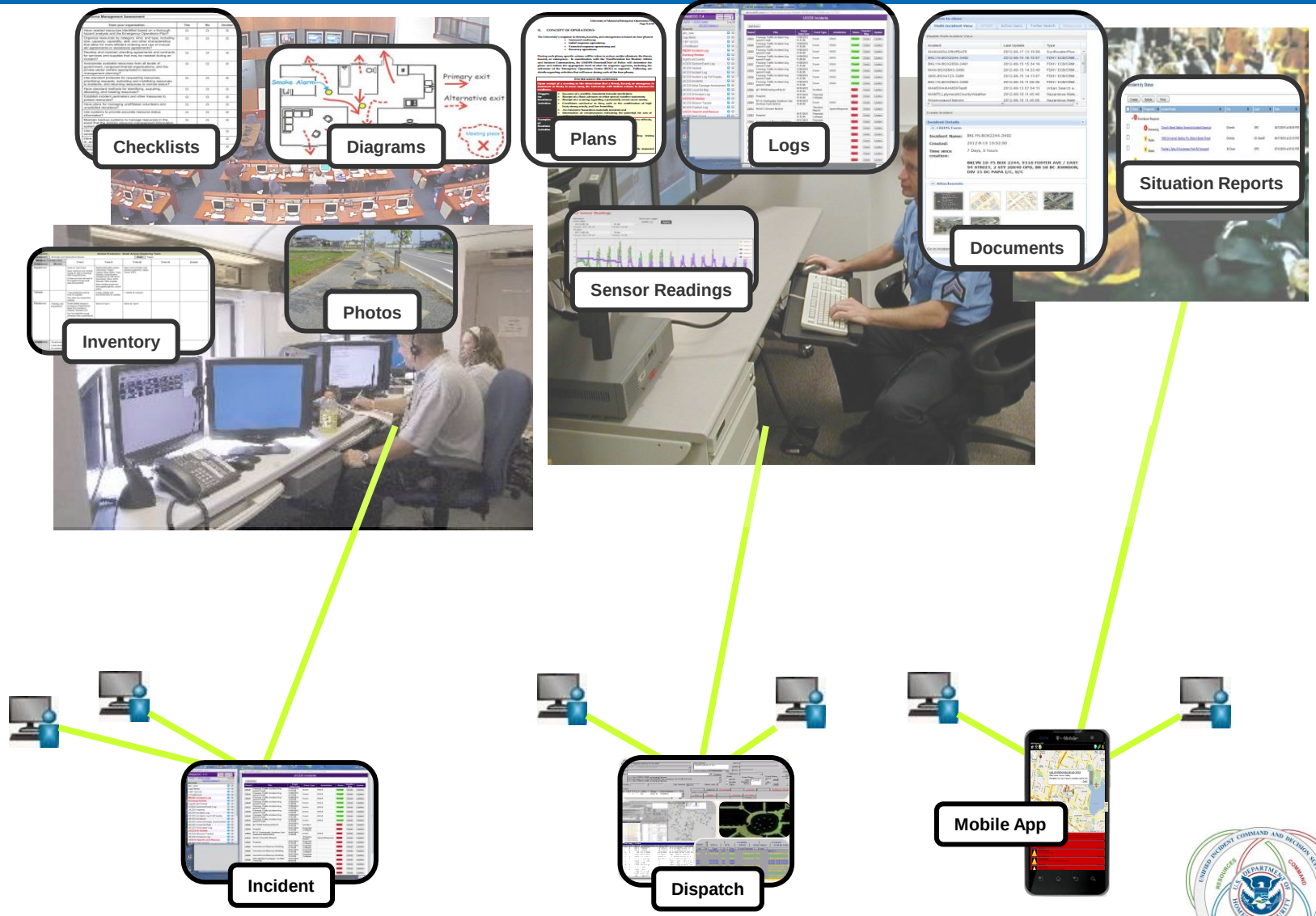
Many Applications Mean Many Information Silos



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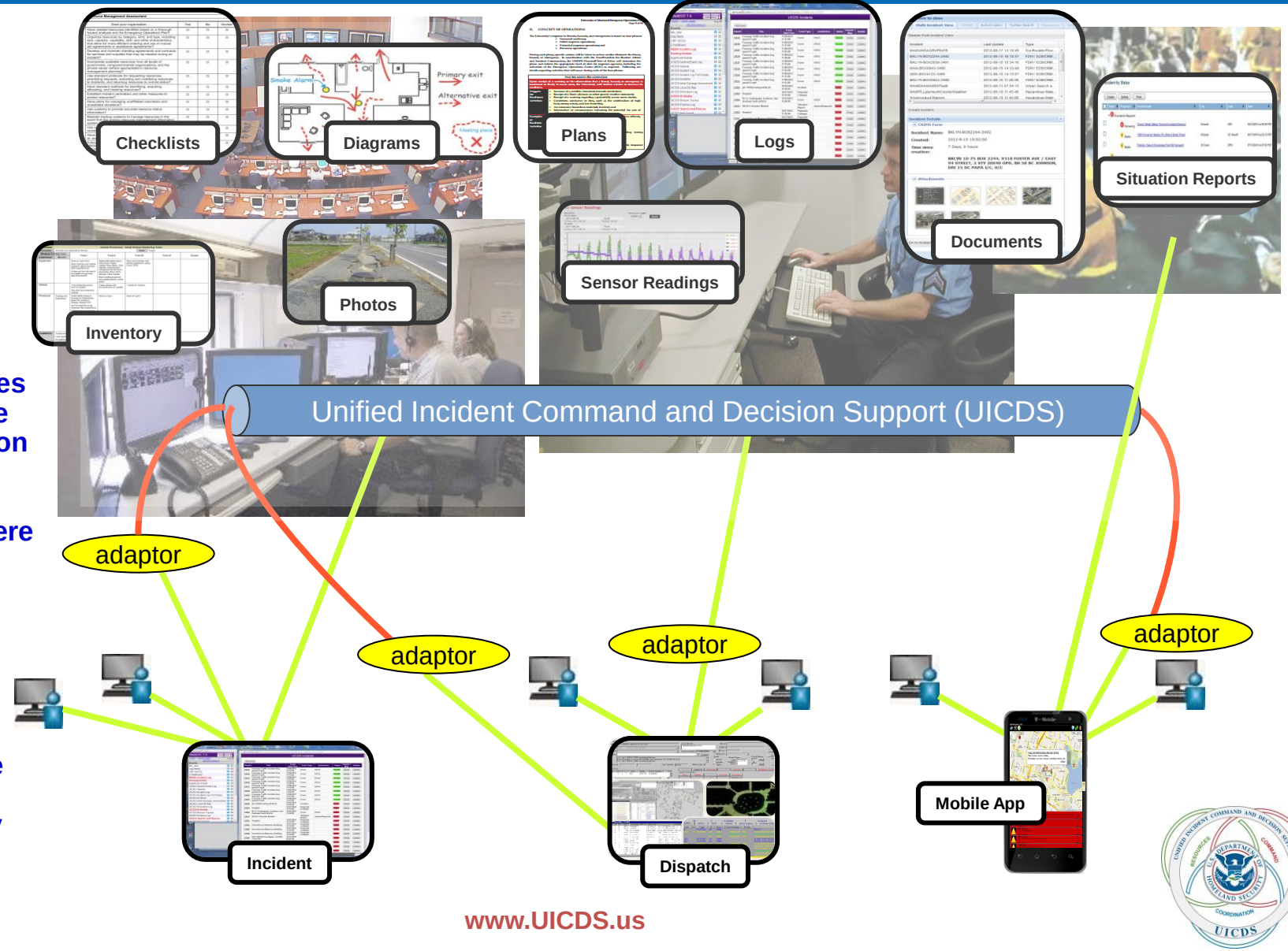
UICDS Middleware Unifies Information for Collaboration



UICDS provides a way to share that information among organizations when and where they need it

Managers, responders, critical infrastructure all have the software they prefer to do their jobs

Coordination Results from UICDS Information Sharing Among *Your Existing* Applications

UICDS-connected applications provide views into the data to help make critical decisions in response and recovery

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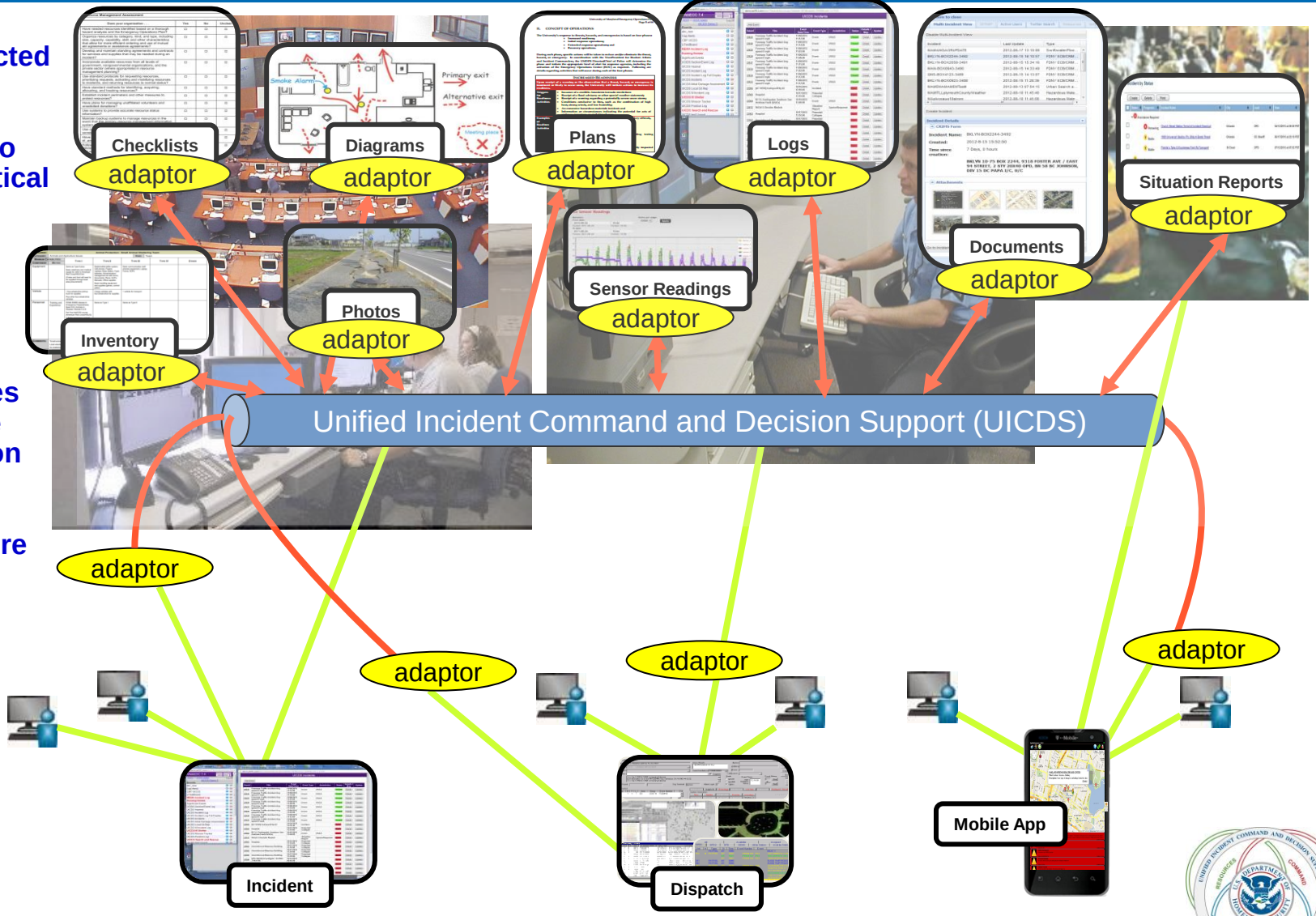

UICDS-Connected Common Operating Picture … The "Free" Benefit of Application-to-Application Sharing

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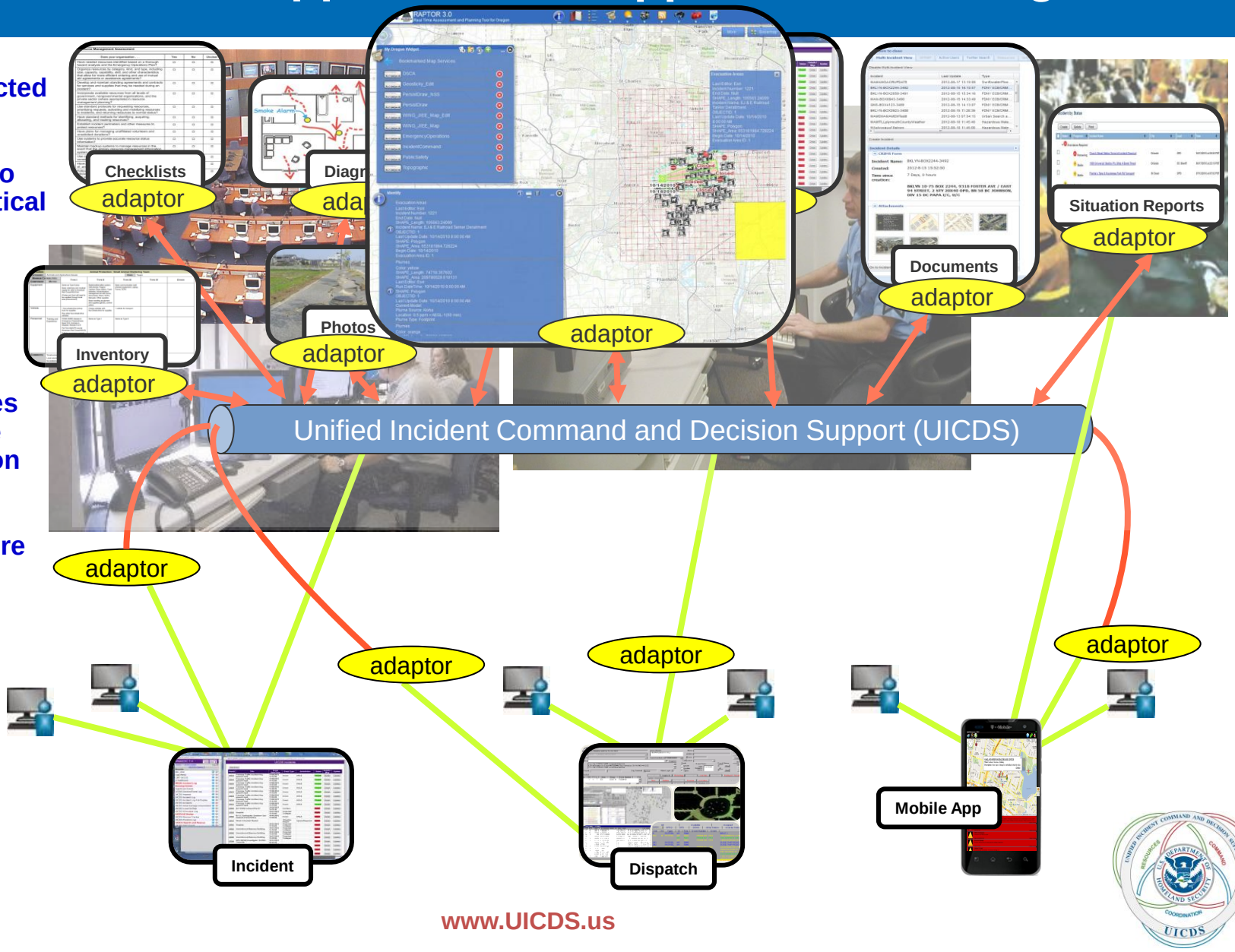


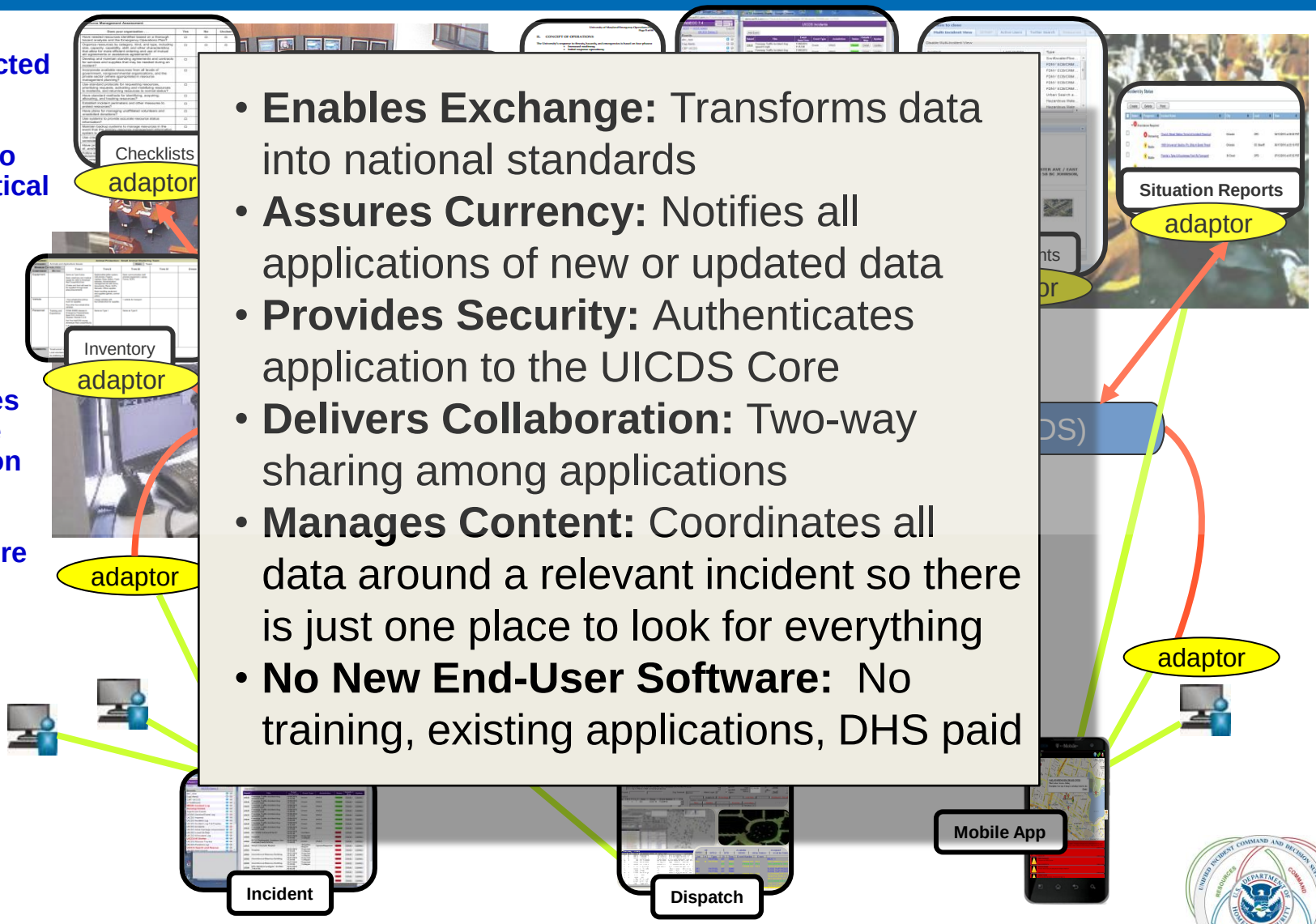
Technically, Middleware Serves Very Specific Purposes

UICDS-connected applications provide views into the data to help make critical decisions in response and recovery

UICDS provides a way to share that information among organizations when and where they need it

Managers, responders, critical infrastructure all have the software they prefer to do their jobs

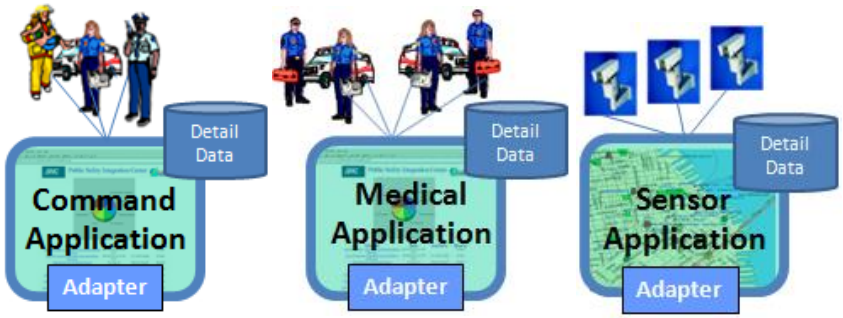
- **Enables Exchange:** Transforms data into national standards
- **Assures Currency:** Notifies all applications of new or updated data
- **Provides Security:** Authenticates application to the UICDS Core
- **Delivers Collaboration:** Two-way sharing among applications
- **Manages Content:** Coordinates all data around a relevant incident so there is just one place to look for everything
- **No New End-User Software:** No training, existing applications, DHS paid



How Does UICDS Exchange?

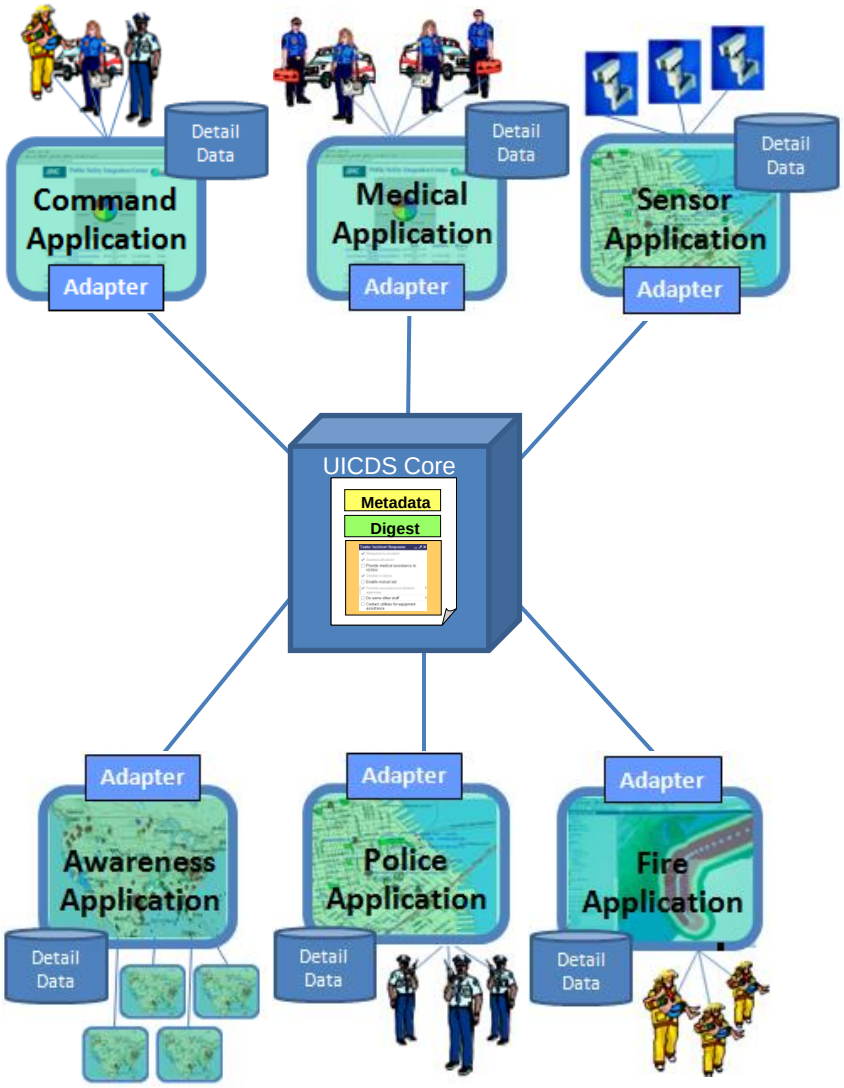
Existing Applications
Connectors
Middleware
Data Standards

Applications Are Connected By Adapters



- UICDS adapters for applications:
  - (1) translate application data into and out of UICDS data standards and
  - (2) connect to UICDS web services to provide or consume data

Applications are Connected to a UICDS Core



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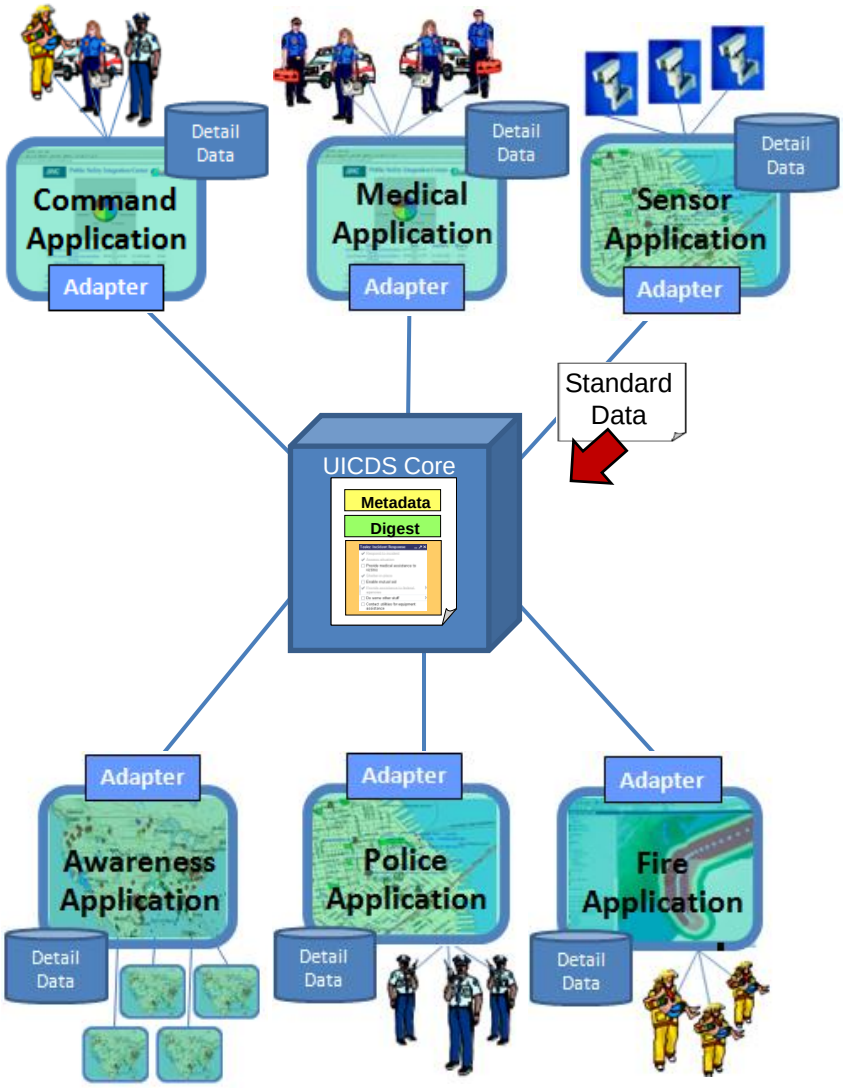

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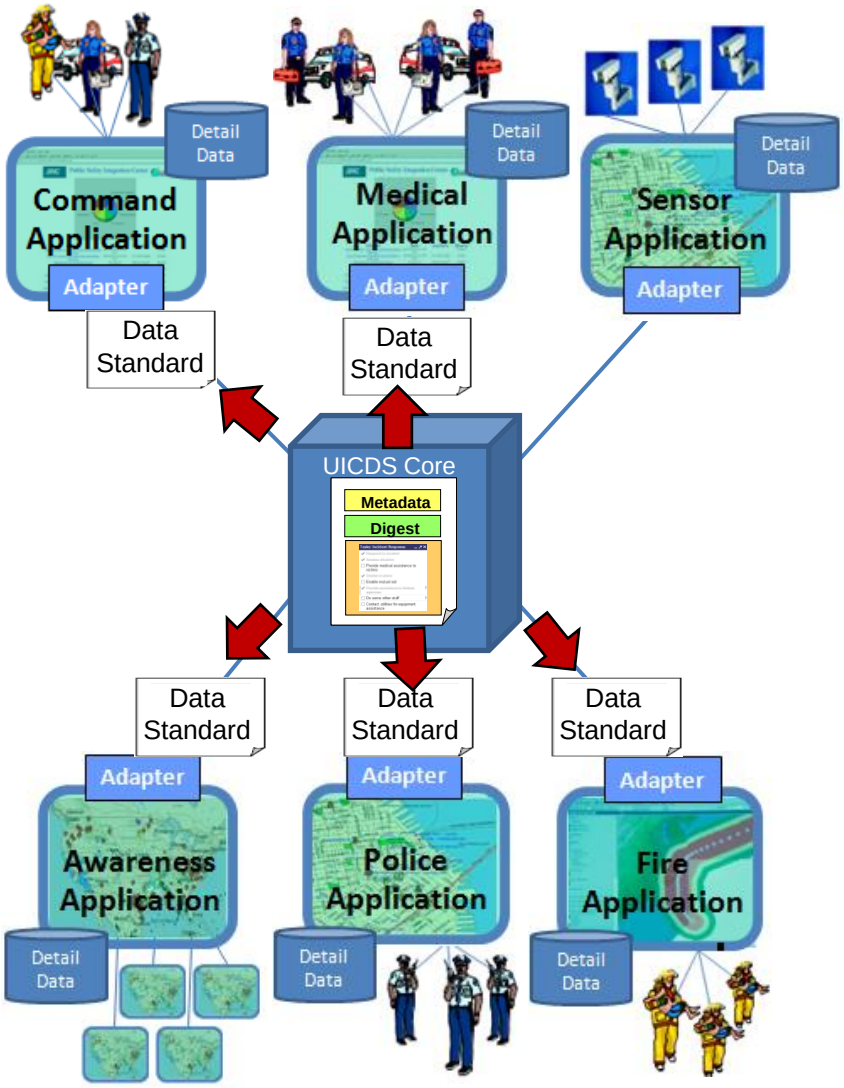

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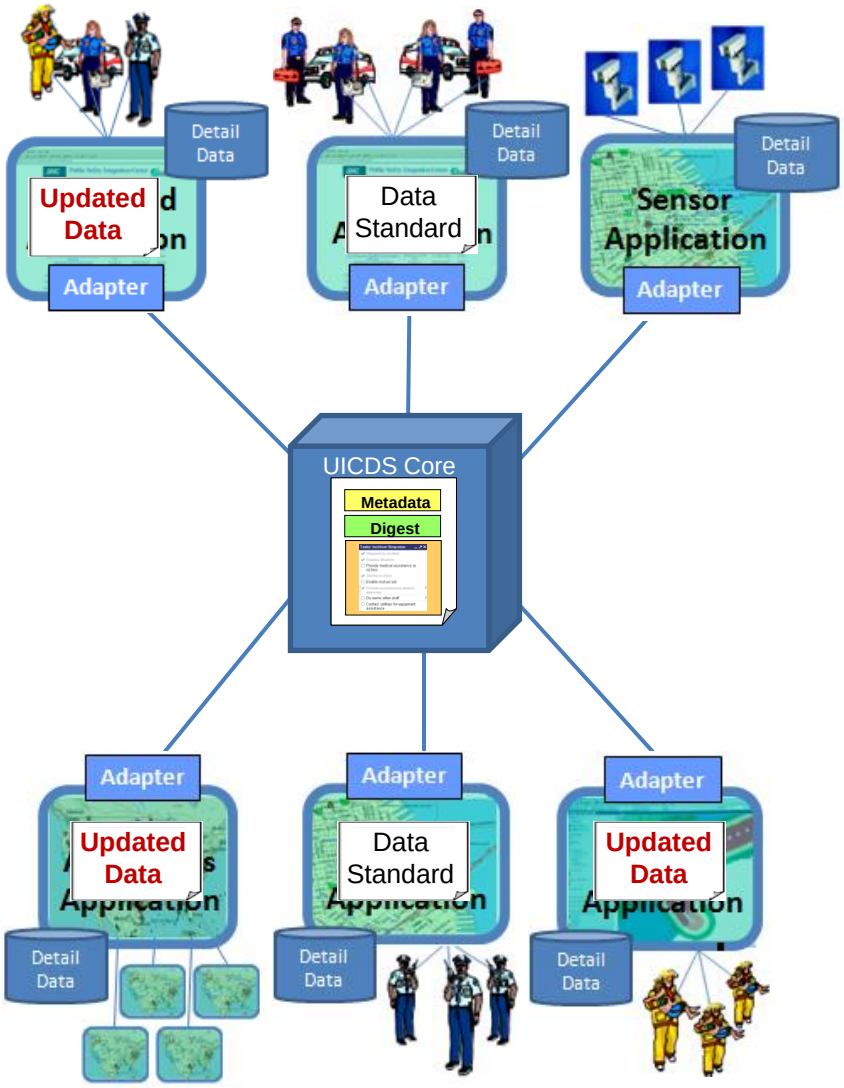

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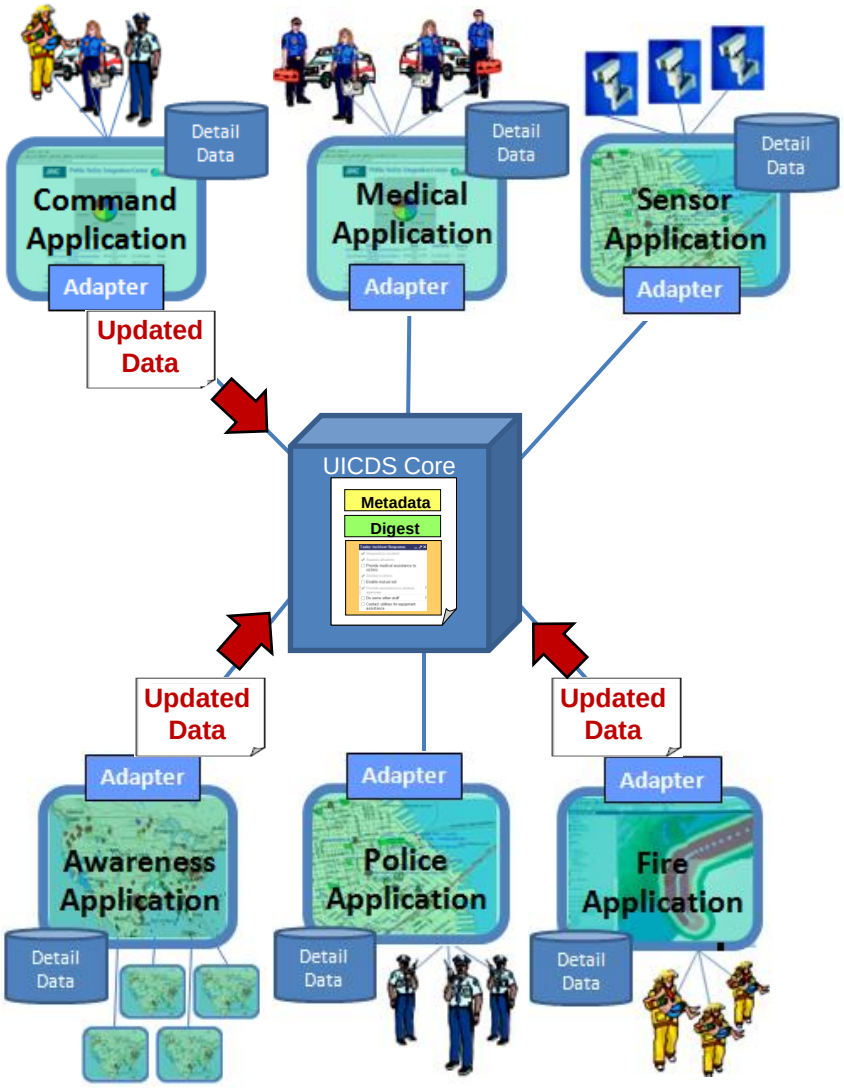

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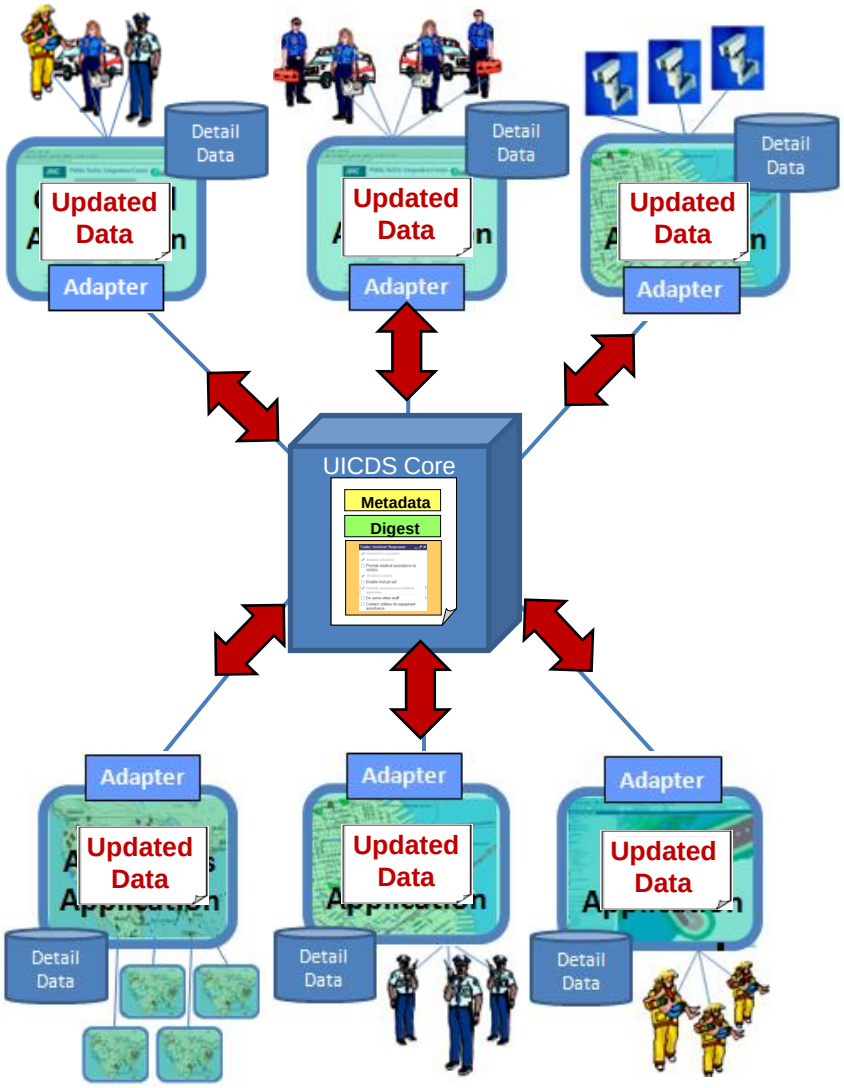

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- The adapter then provides the updated data back to UICDS middleware
- Which distributes modified data to subscribing applications and the two-way, collaborative sharing continues

What Does UICDS Exchange?

Common Operational Data

The Key to Coordination, Management and Field Collaboration

UICDS Helps Your Applications Turn Incident Data into Collaboration and Coordination Content

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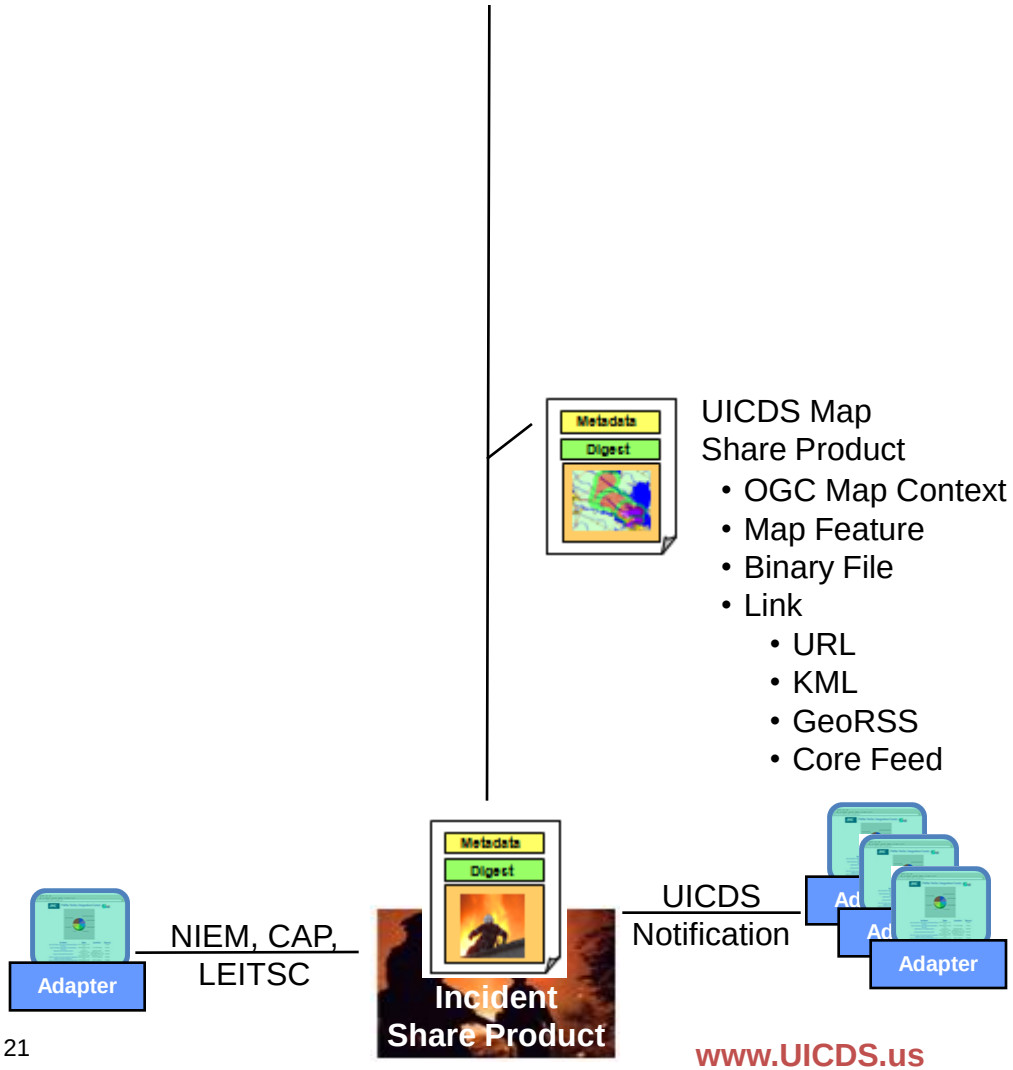

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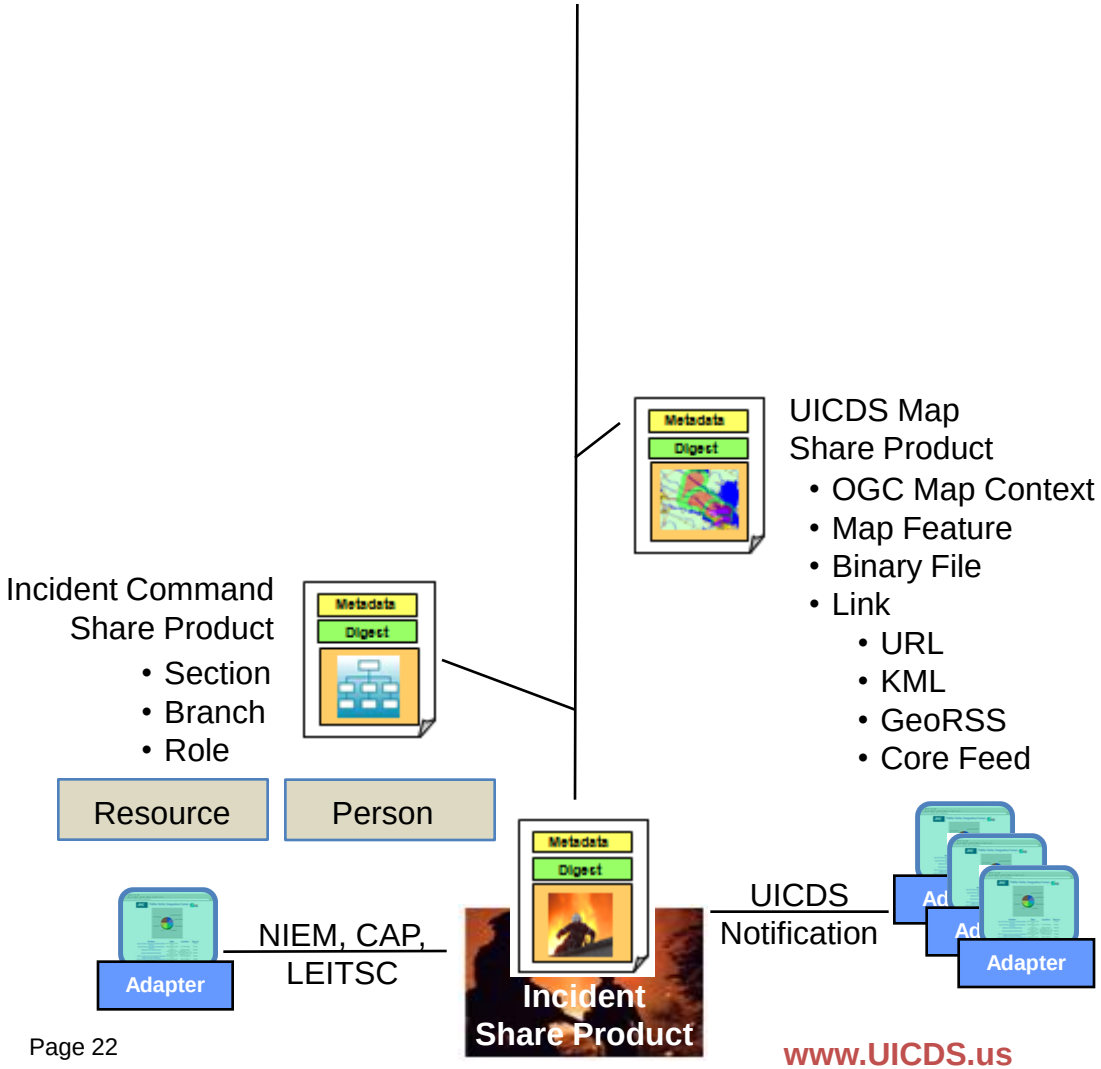

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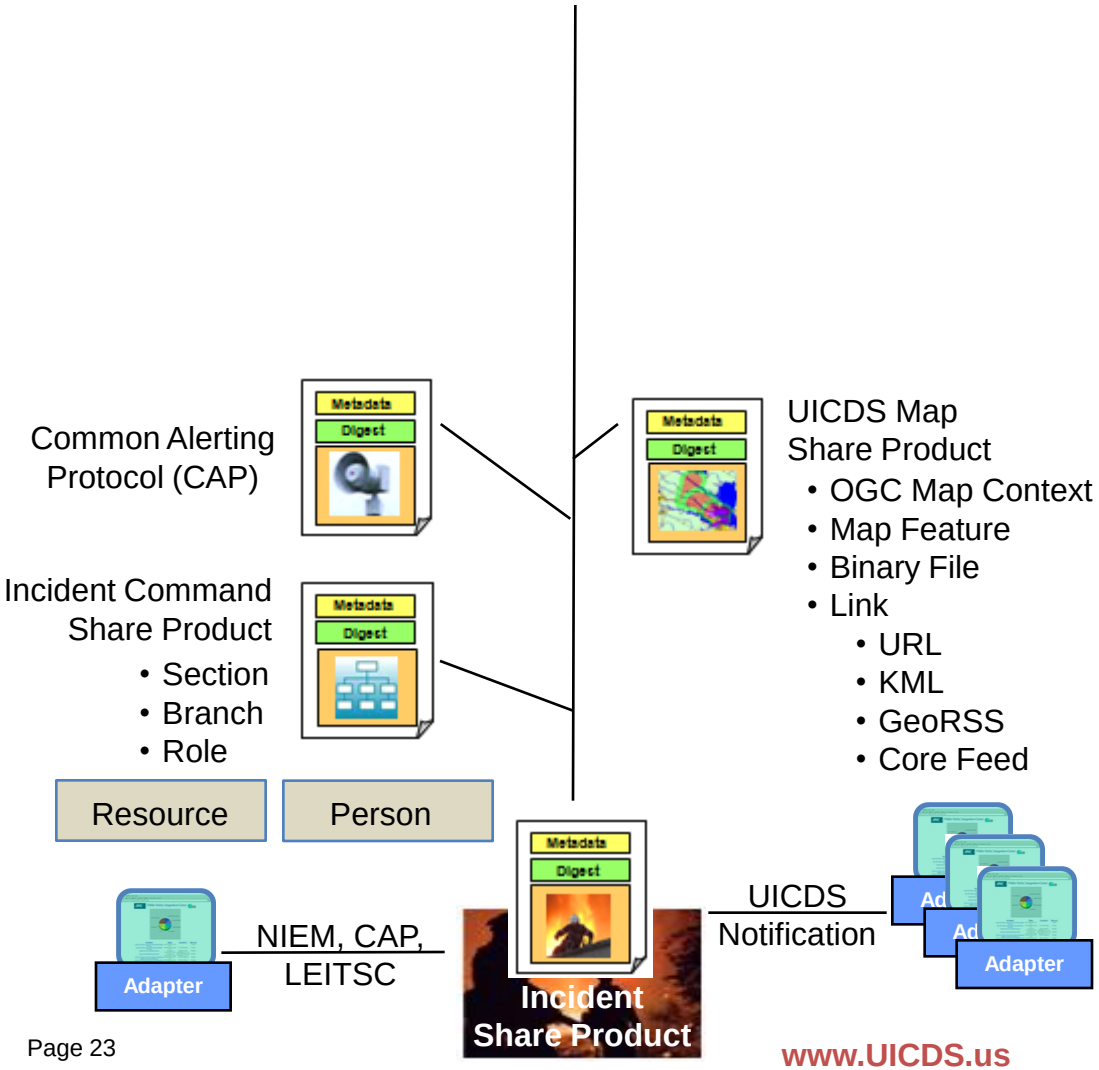

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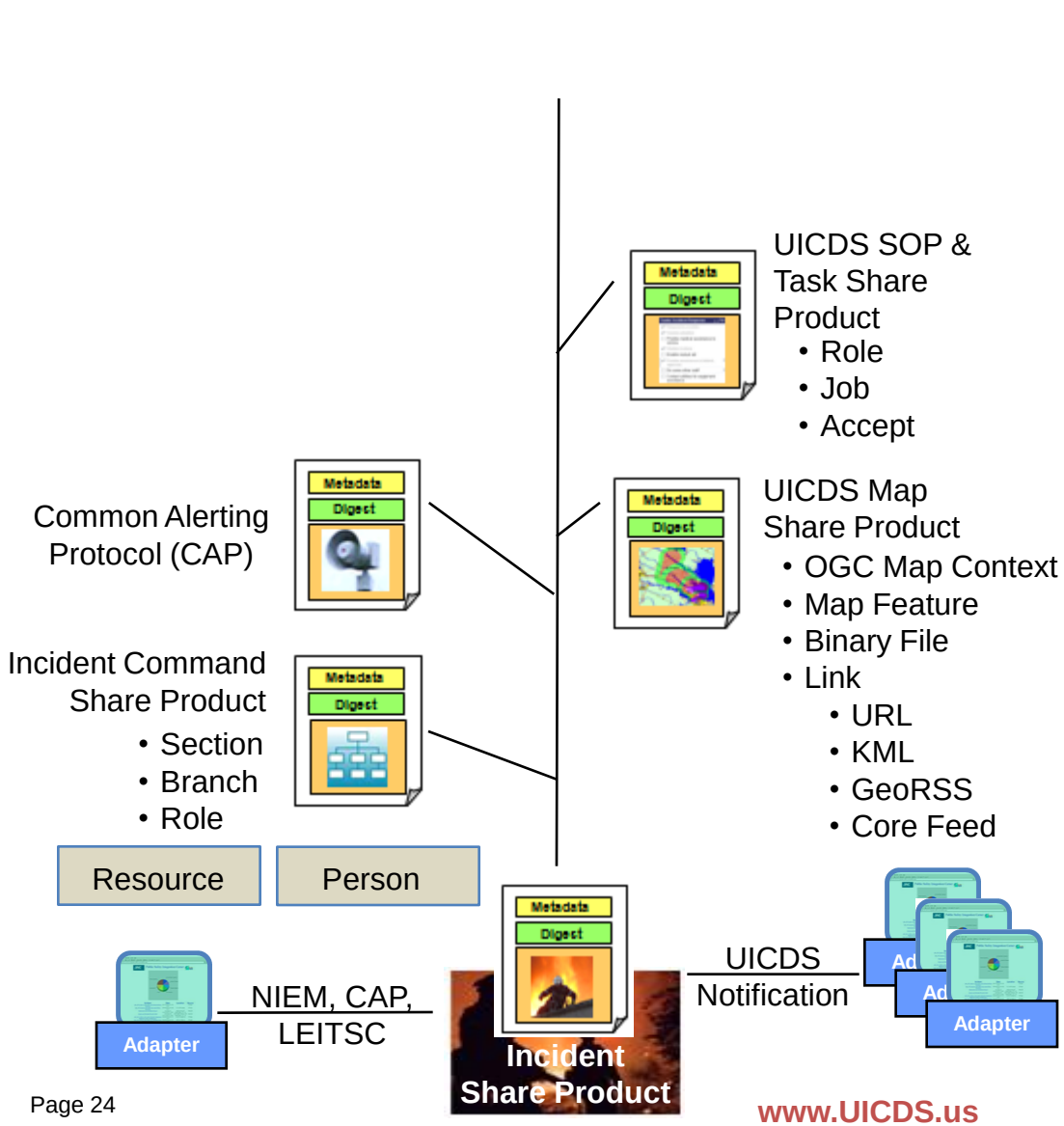

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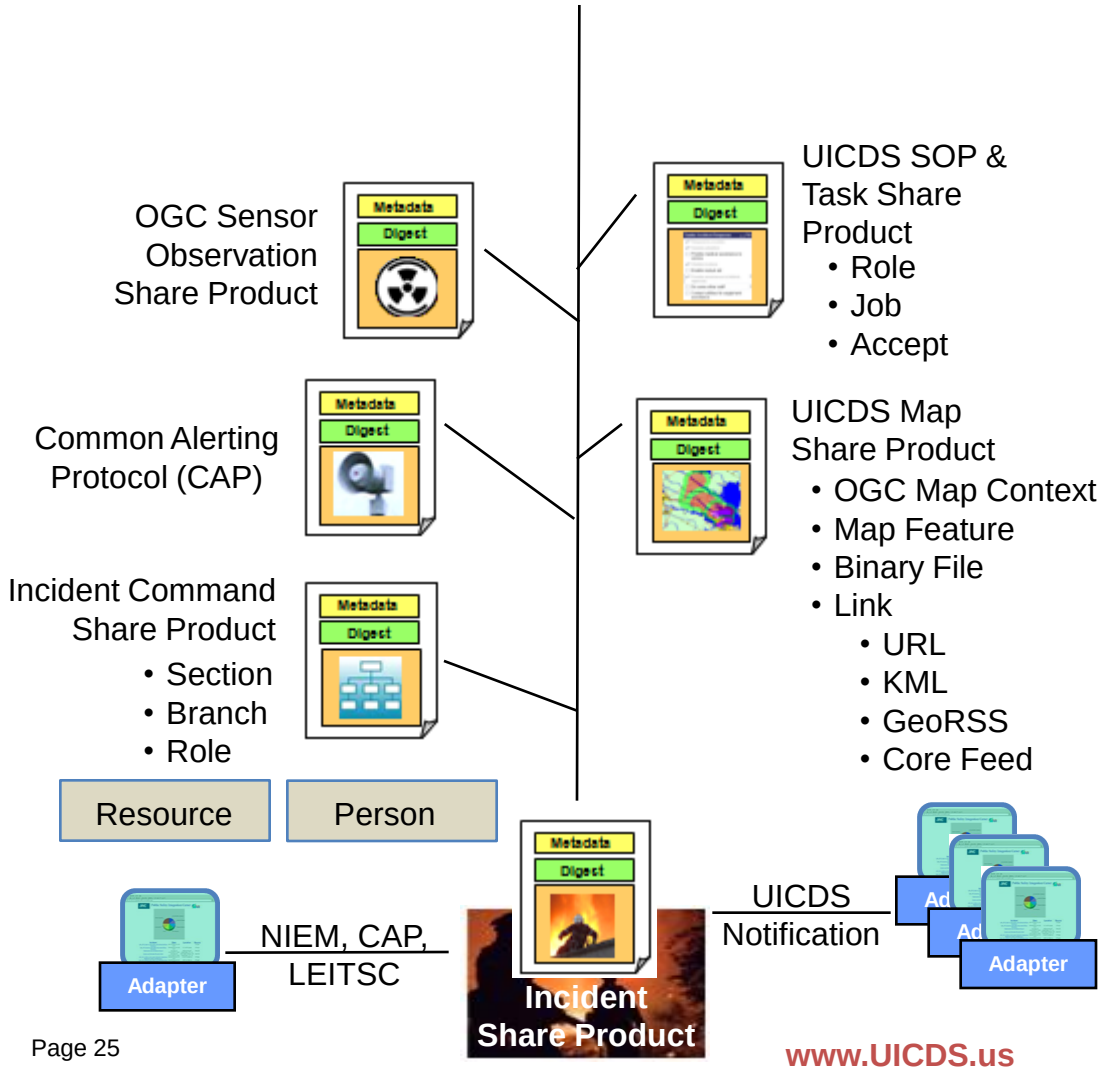

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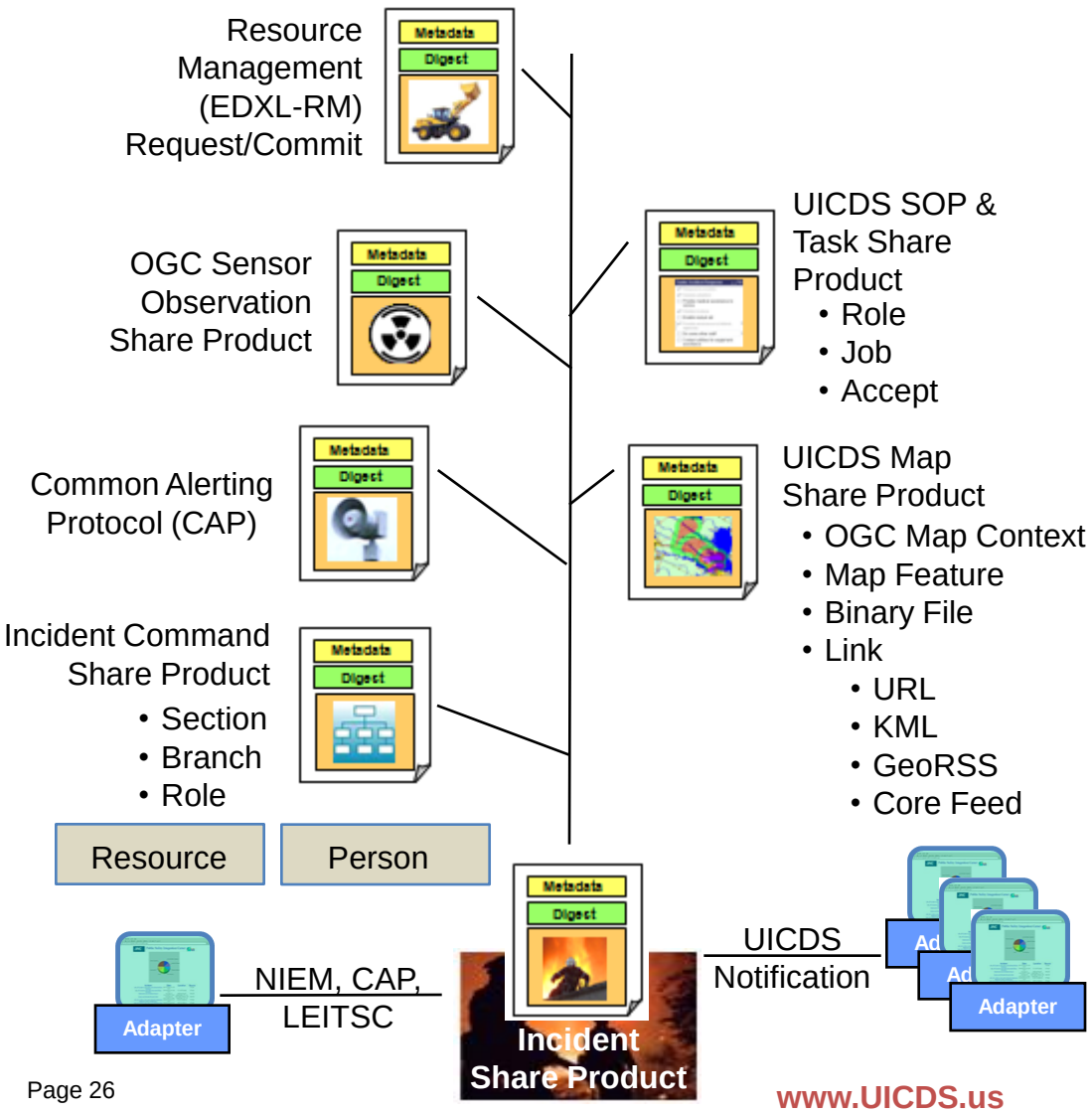

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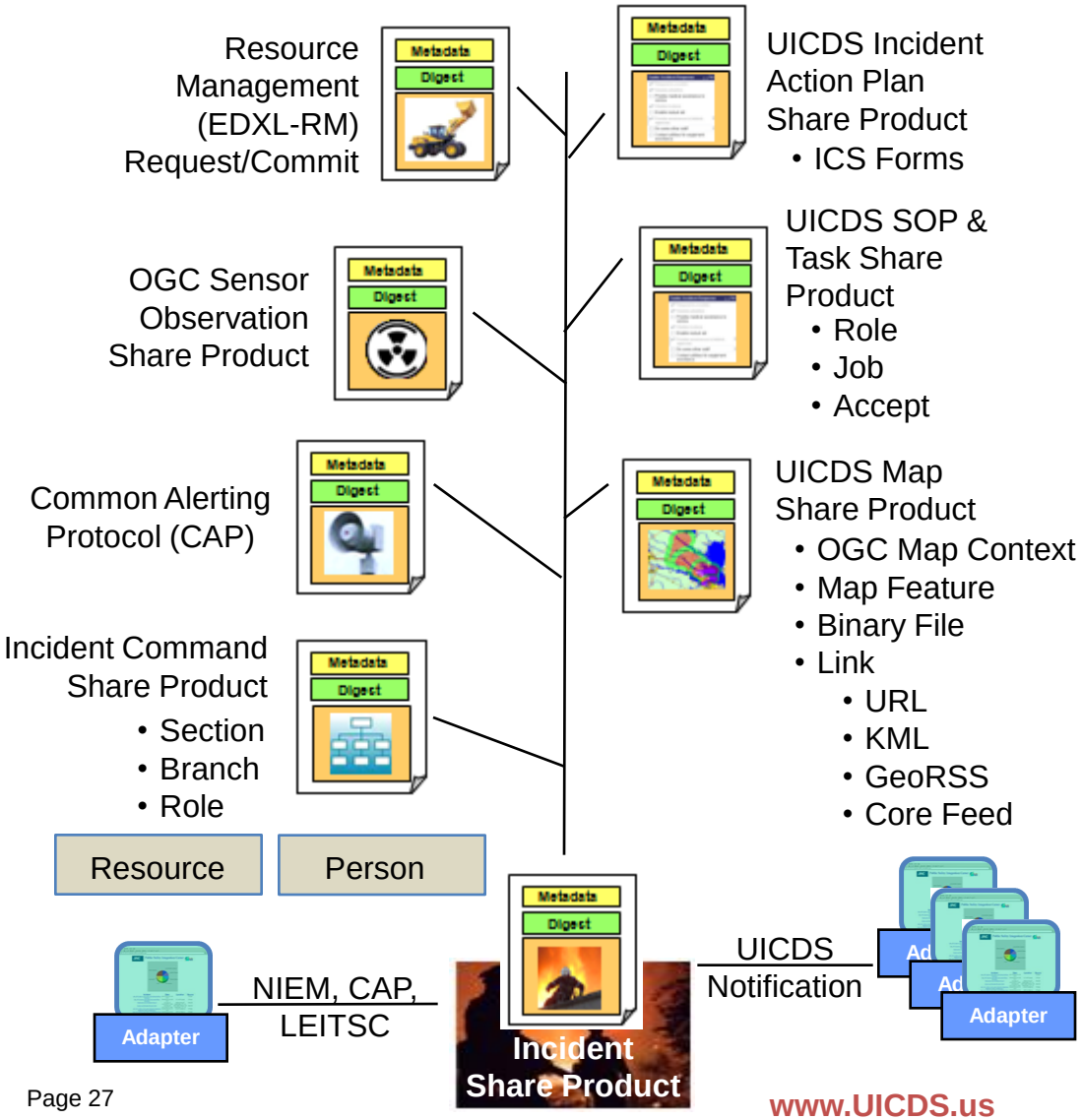

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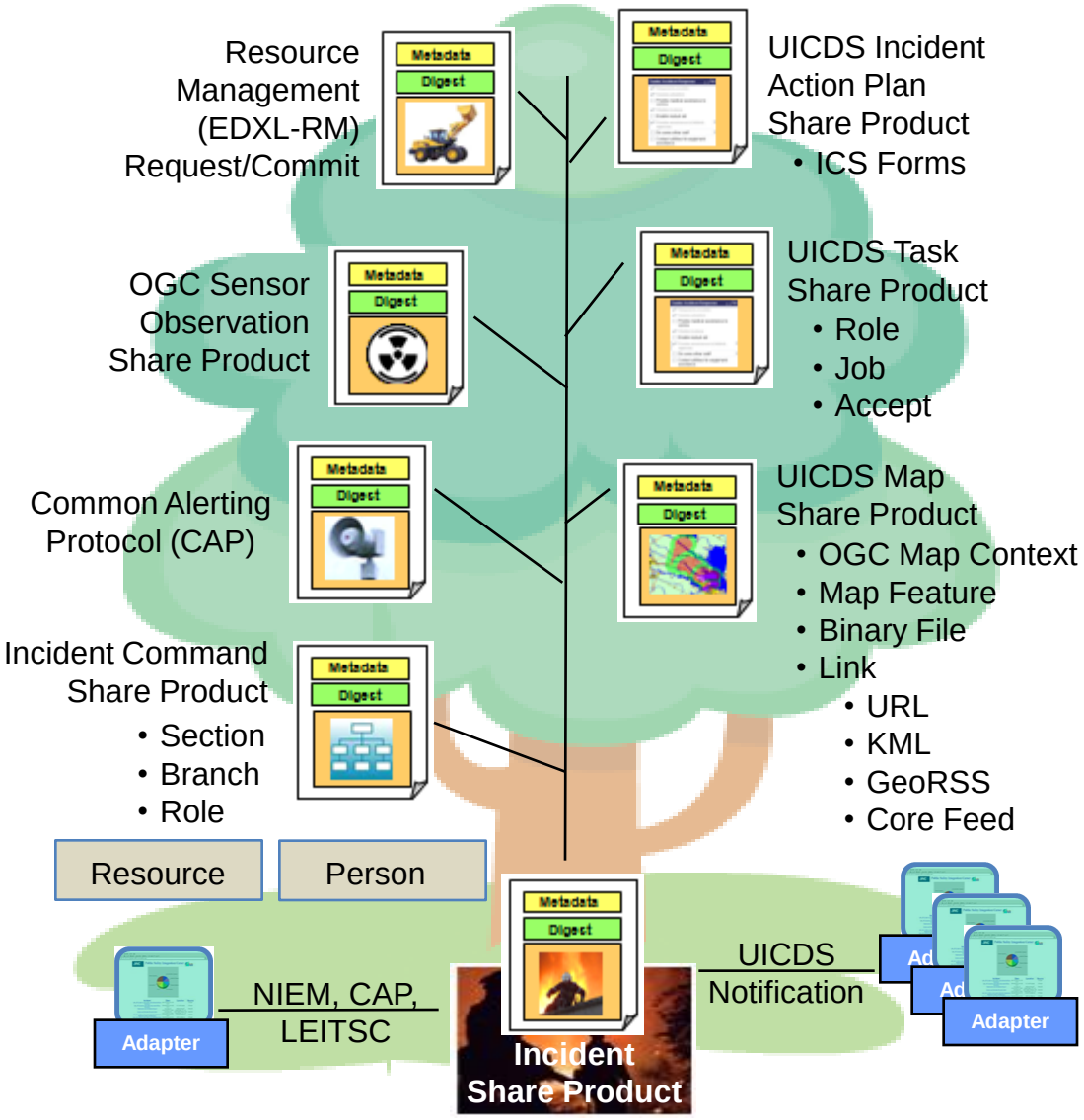
UICDS Tree of Incident Knowledge



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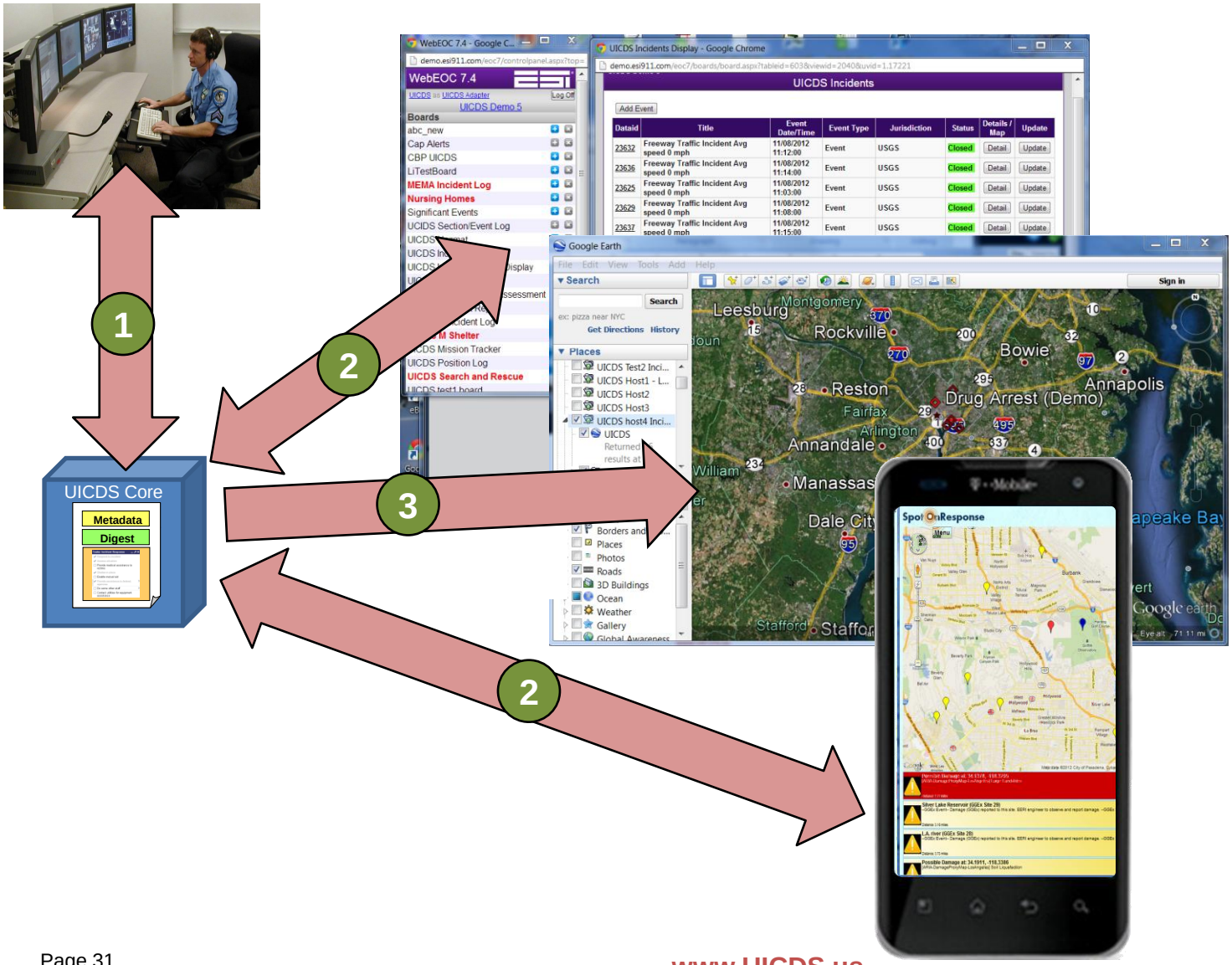
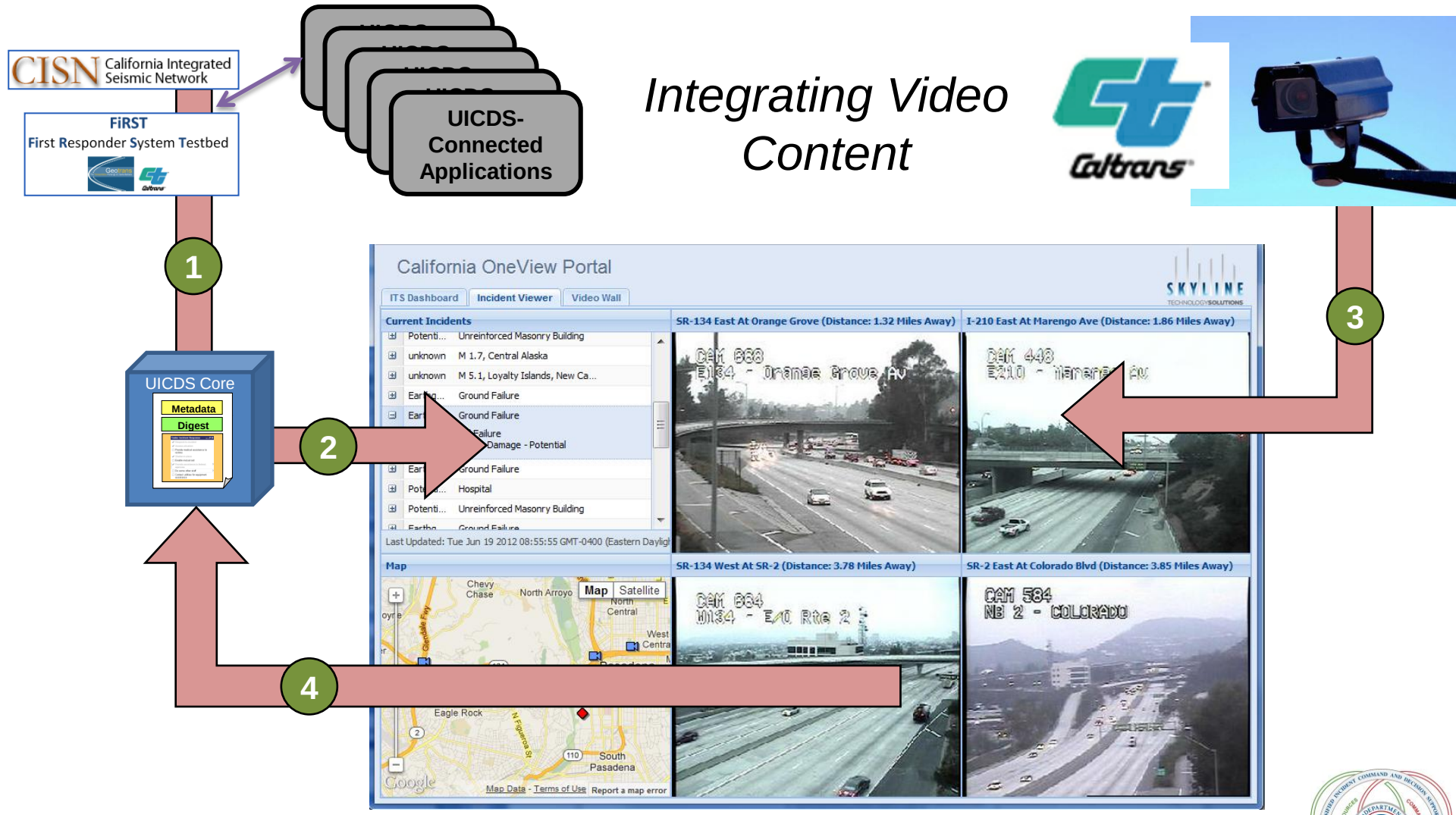
Building a Continual, Virtual Shift Change Briefing

Examples of UICDS Information Sharing

Two-Way Collaboration Among Incident Applications and Publication to Geospatial Viewers



Traffic and Security Video: SkyLine Network Solutions



Blue Force Tracking: US Army TARDEC

LOCATION TRACKING

JOC/Emergency Operations Center

Resilient

- Initial Incident WP to MCAP
- Map WP with KML URIs

MCAP

- Map WP with KML
- URI for
- Real Time Location

MCAP Cloud

MCAP Servers (Portal, DB, Apps)

MCAP DB and Core Service DB

UICDS Node

Google Maps

Resilient (SCC)

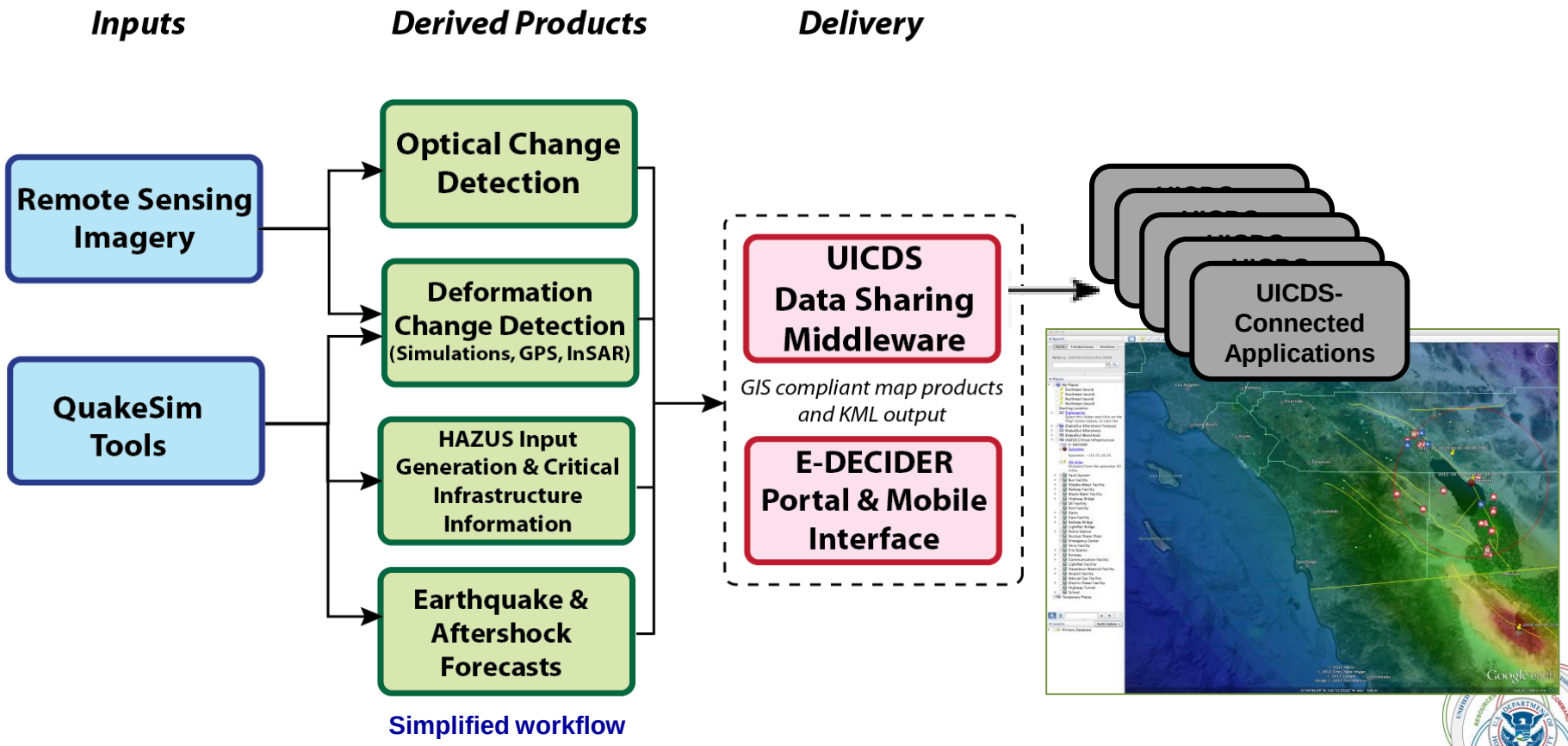
Partner Systems

UICDS Node

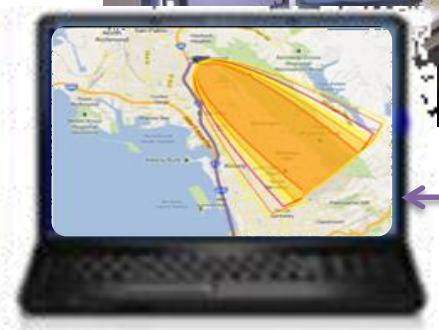
UICDS-Connected Applications

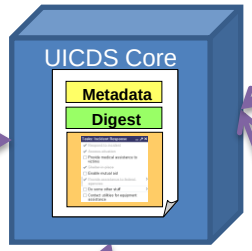
NASA Jet Propulsion Laboratory Model Results

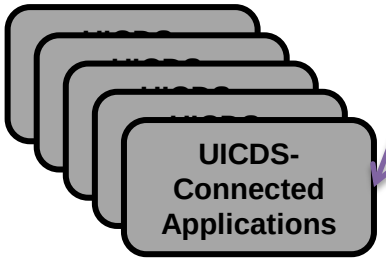
- E-DECIDER Project Goals: Transform and Distribute NASA Earth Science Data in support of Earthquake Mitigation and Response
- How to produce results that have immediate utility for disaster response?



EPA ALOHA Plume Model Results

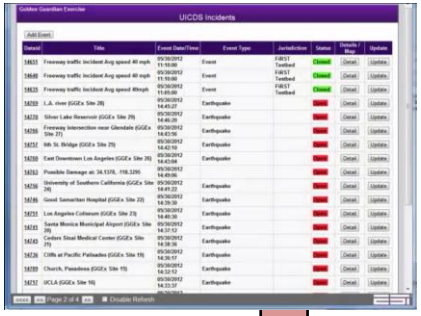






EPA ALOHA chemical plume model of possible airborne toxic release created in command vehicle, shared through UICDS to tablets in the field, to the EOC, and to all other UICDS-connected applications.

Utility Outage: UISOL



UICDS-Connected Applications

UICDS Core

Metadata

Digest

1

2

3

4

5

UISOL Data Viewer

Reset View | Zoom To | Wed May 30 16:04:29 CDT 2012 uicds-host1.saic.com | Refresh Off

Incident | Alert | Crew | Outage

Incident	Coordi
Freeway traffic incident	
Freeway traffic incident	
reeway traffic incident Avg spe	(-117.3
Freeway traffic incident Avg spee	(-117.7
Freeway traffic incident Avg spee	(-117.7
Freeway traffic incident Avg spee	(-117.7
Freeway traffic incident Avg spee	(-117.7
Unreinforced Masonry Building	(-117.7
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Hospital	(-117.3

Field Observations Through Mobile Apps

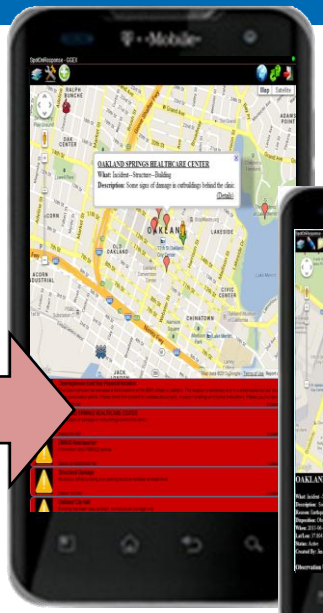
1

UICDS Core

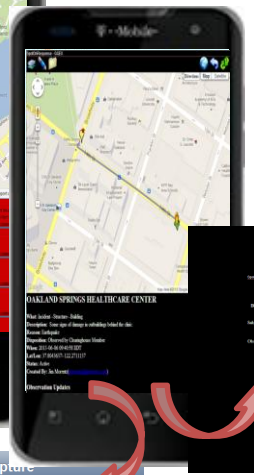
Metadata

Digest

2

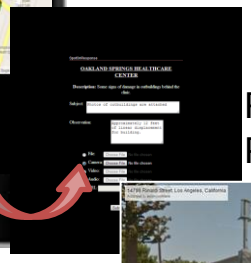


Red Alert to Possible, Nearby Damage Locations from UICDS



App Provides Directions for Scientist, Engineer, and Responders

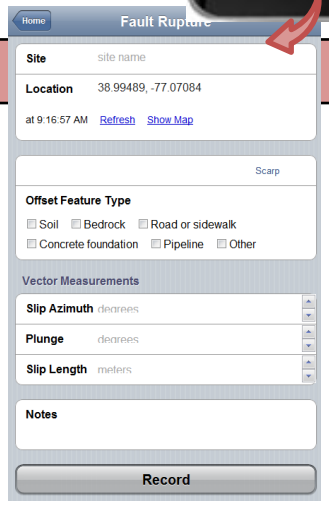
3



Record Observations with Photographs, Video

5

4

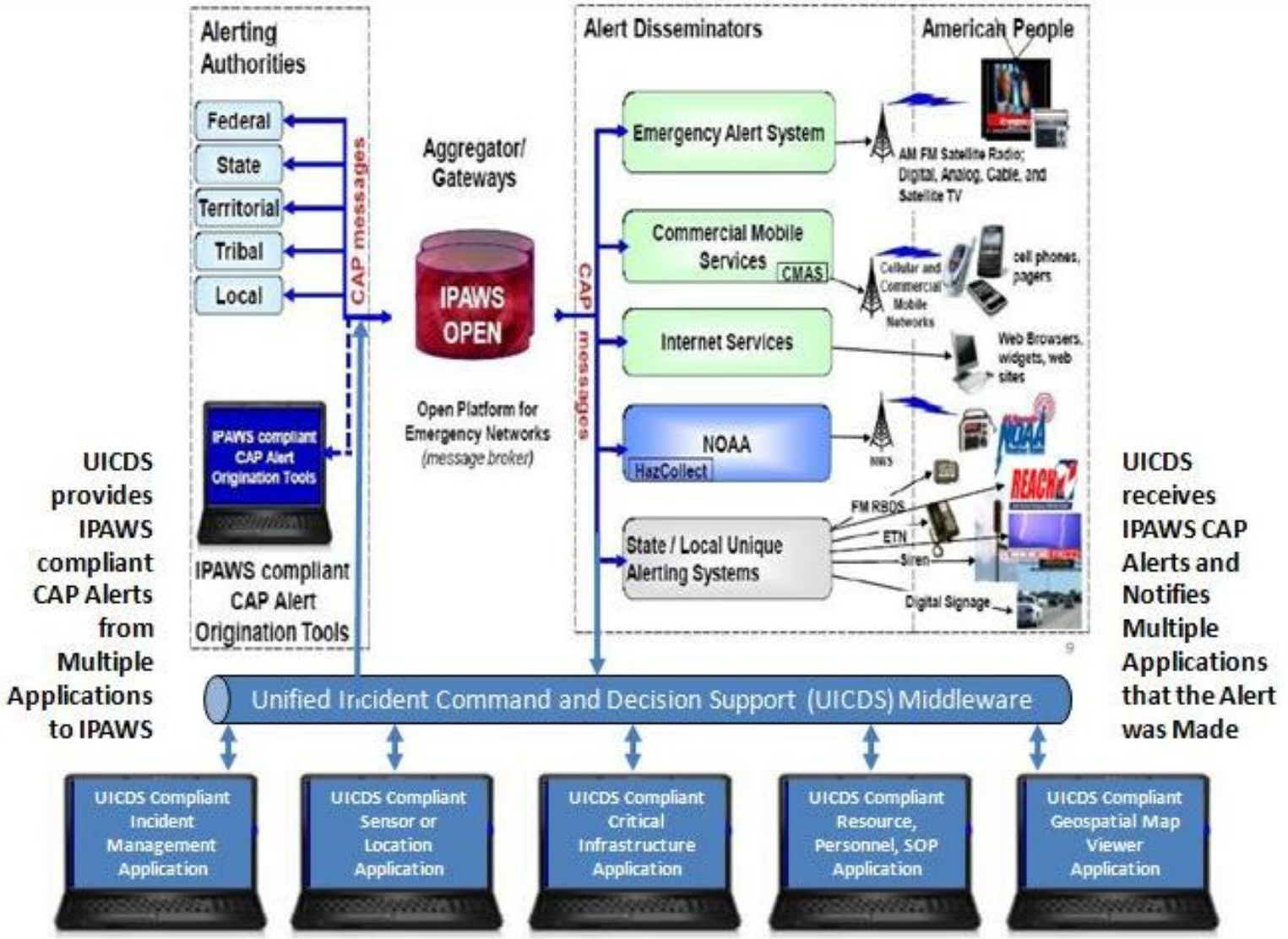


UICDS-Connected Applications

Integrate USGS Field Notes for scientific, engineering, and damage assessment forms of emergency response and recovery

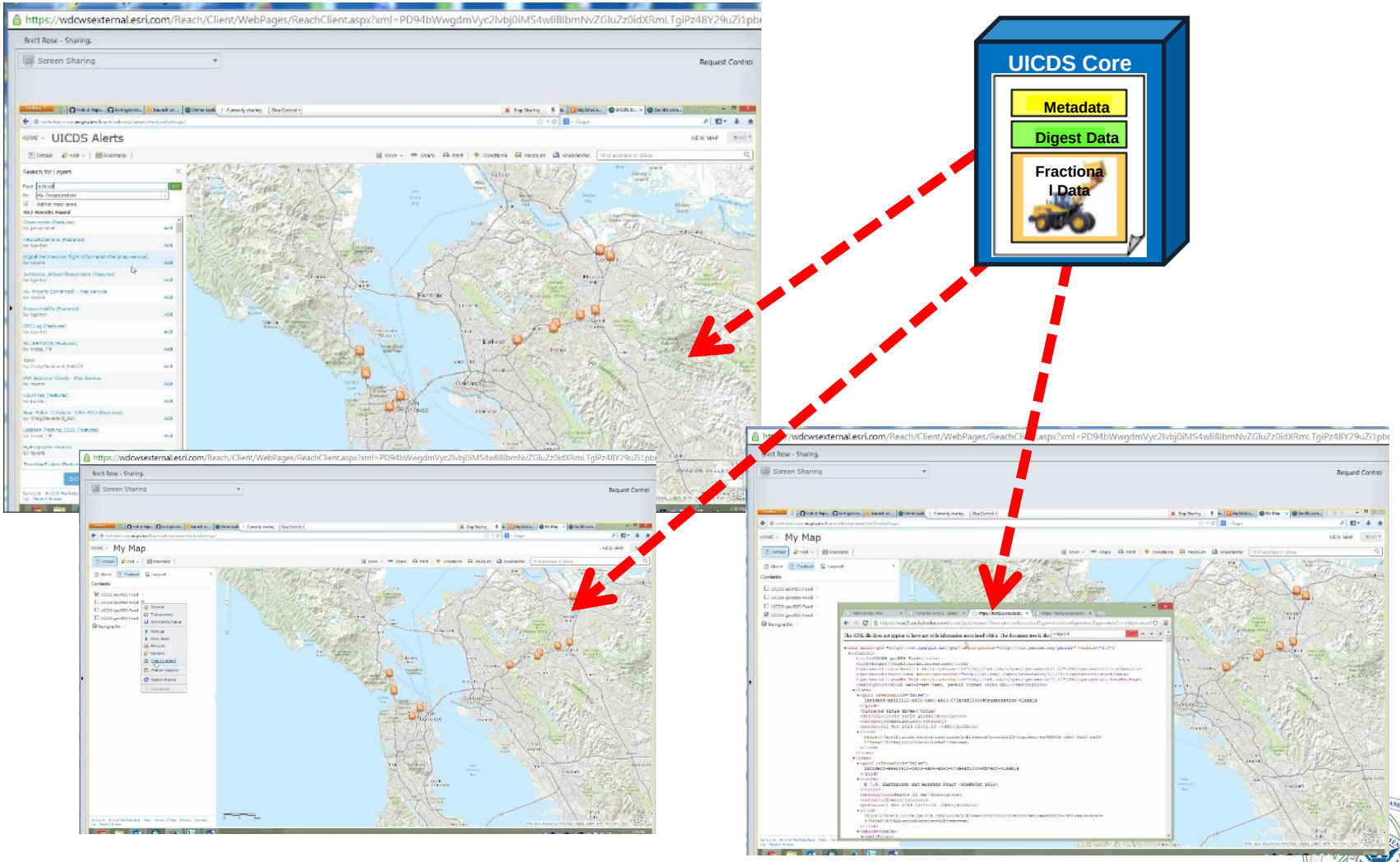
www.UICDS.us

Local and National Alerts: IPAWS



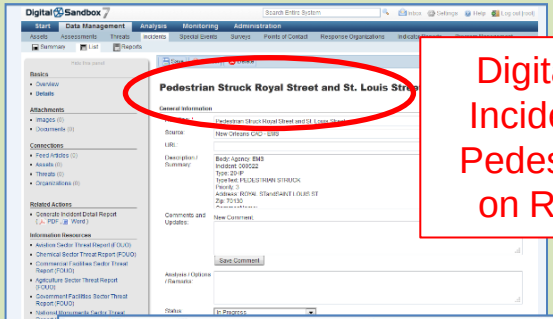
UICDS-Connected Applications

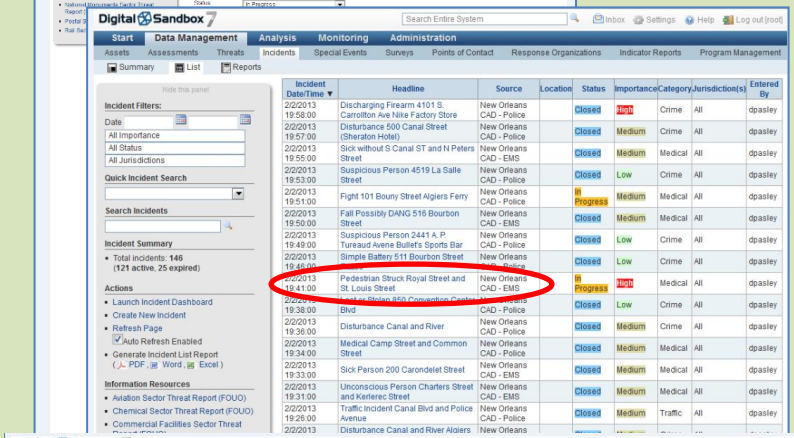
ArcGIS Online Is the UICDS Geospatial Repository

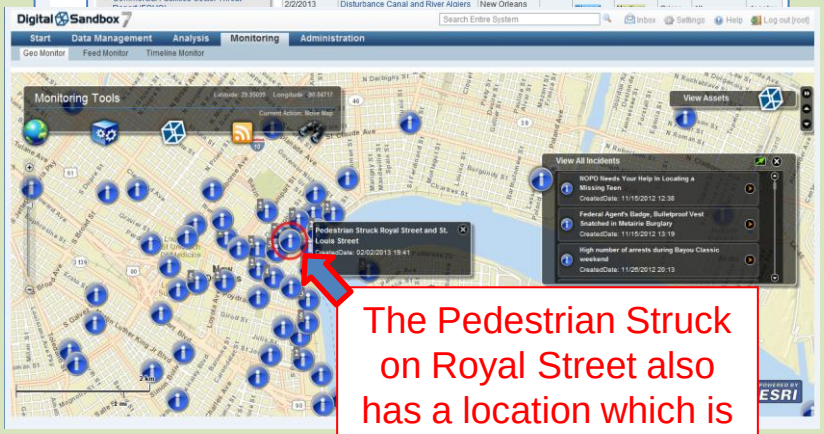


WebEOC Gateway: Super Bowl and Digital Sandbox

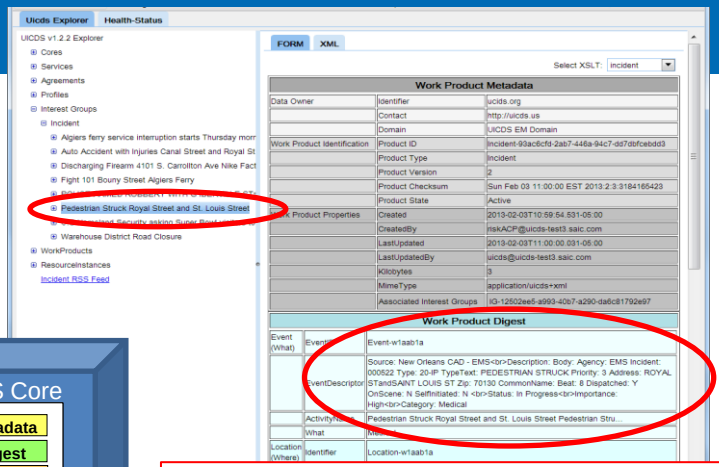
Digital Sandbox Incident created: Pedestrian Struck on Royal Street

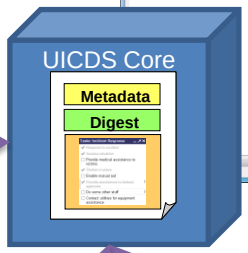




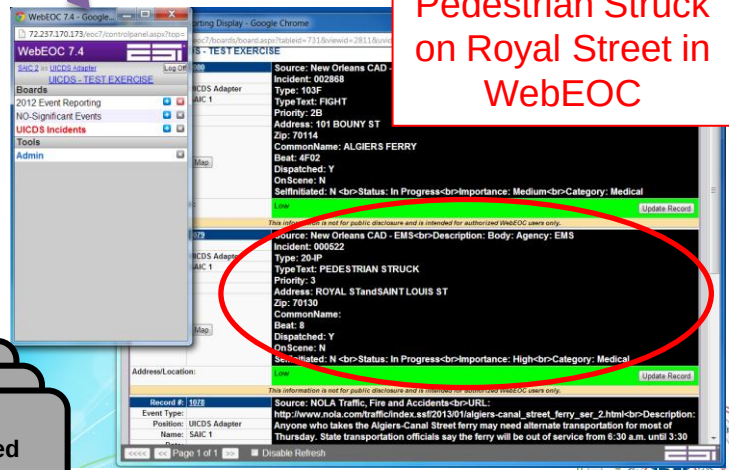


The Pedestrian Struck on Royal Street also has a location which is shared through UICDS.

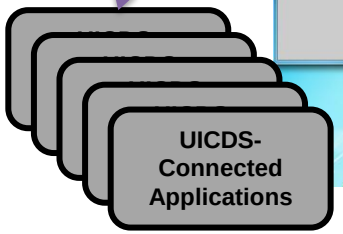




Pedestrian Struck on Royal Street in NIEM Incident Exchange Standard Format in UICDS



Pedestrian Struck on Royal Street in WebEOC



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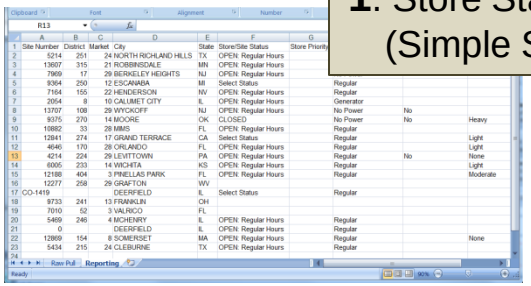
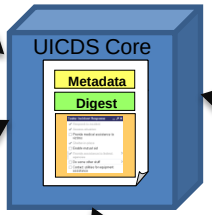
National Retail Store Closure and Restoration Status

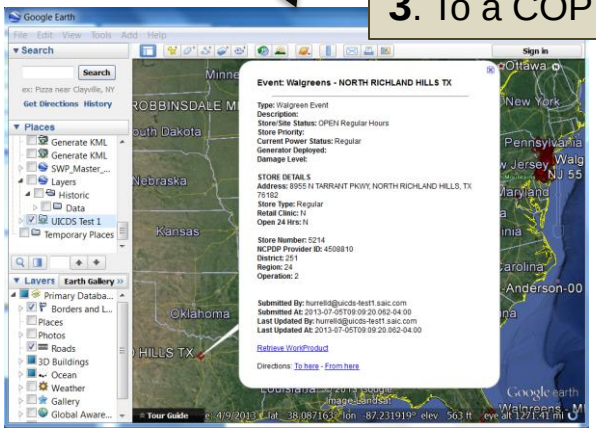
1. Store Status Output (Simple Spreadsheet)



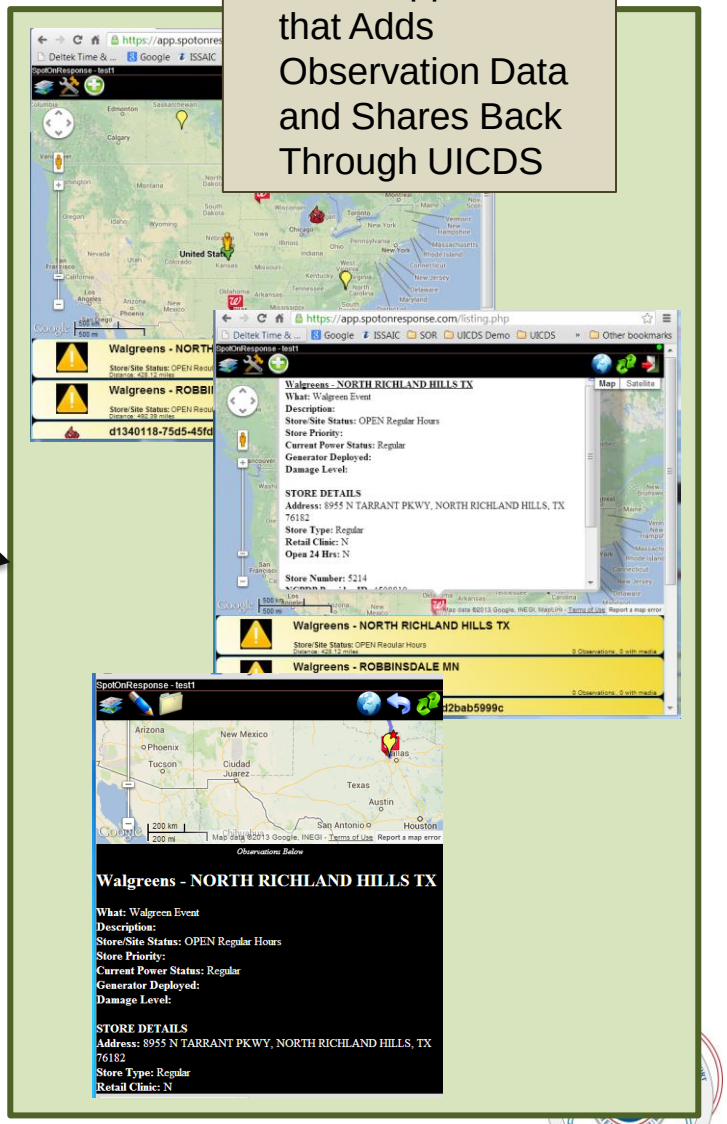
2. Shared Through UICDS



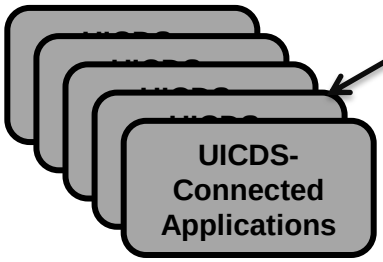
3. To a COP



4. To an Application that Adds Observation Data and Shares Back Through UICDS



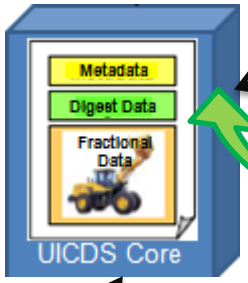
5. To All Connected Applications that Have the Status and Local Observations

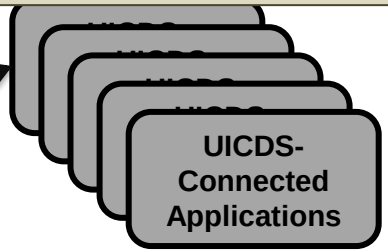


School Security at Indian Hills High School

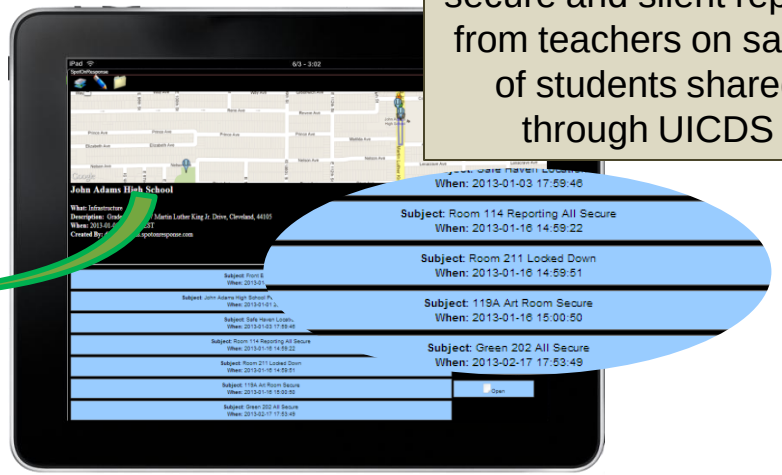
7. To authorized organizations

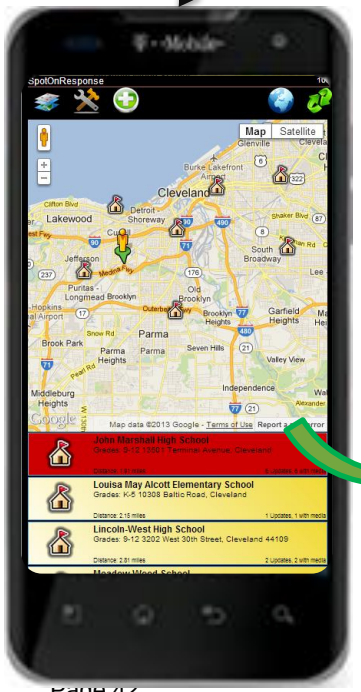
1. School locations shared to CAD and mobile apps

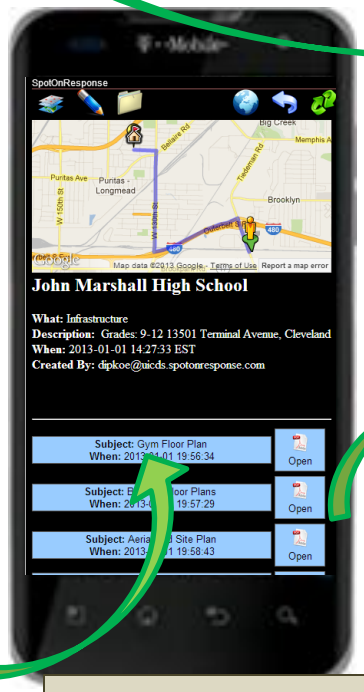




6. And in an emergency, secure and silent reports from teachers on safety of students shared through UICDS



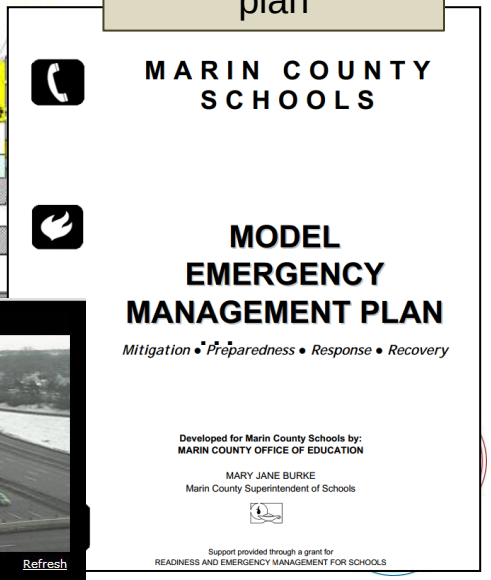




2. Evacuation route to safe haven directions

3. Floor plans

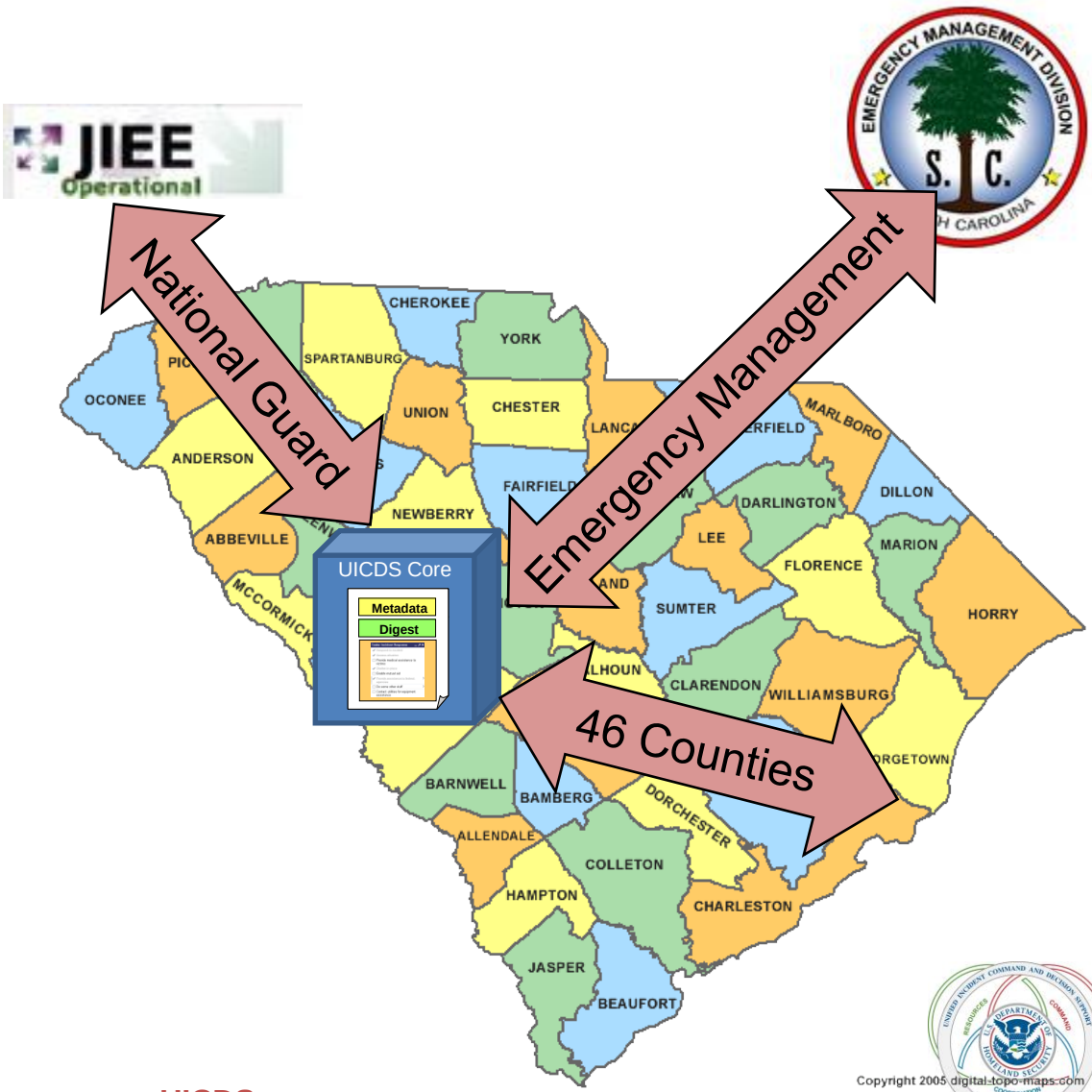
5. Emergency plan



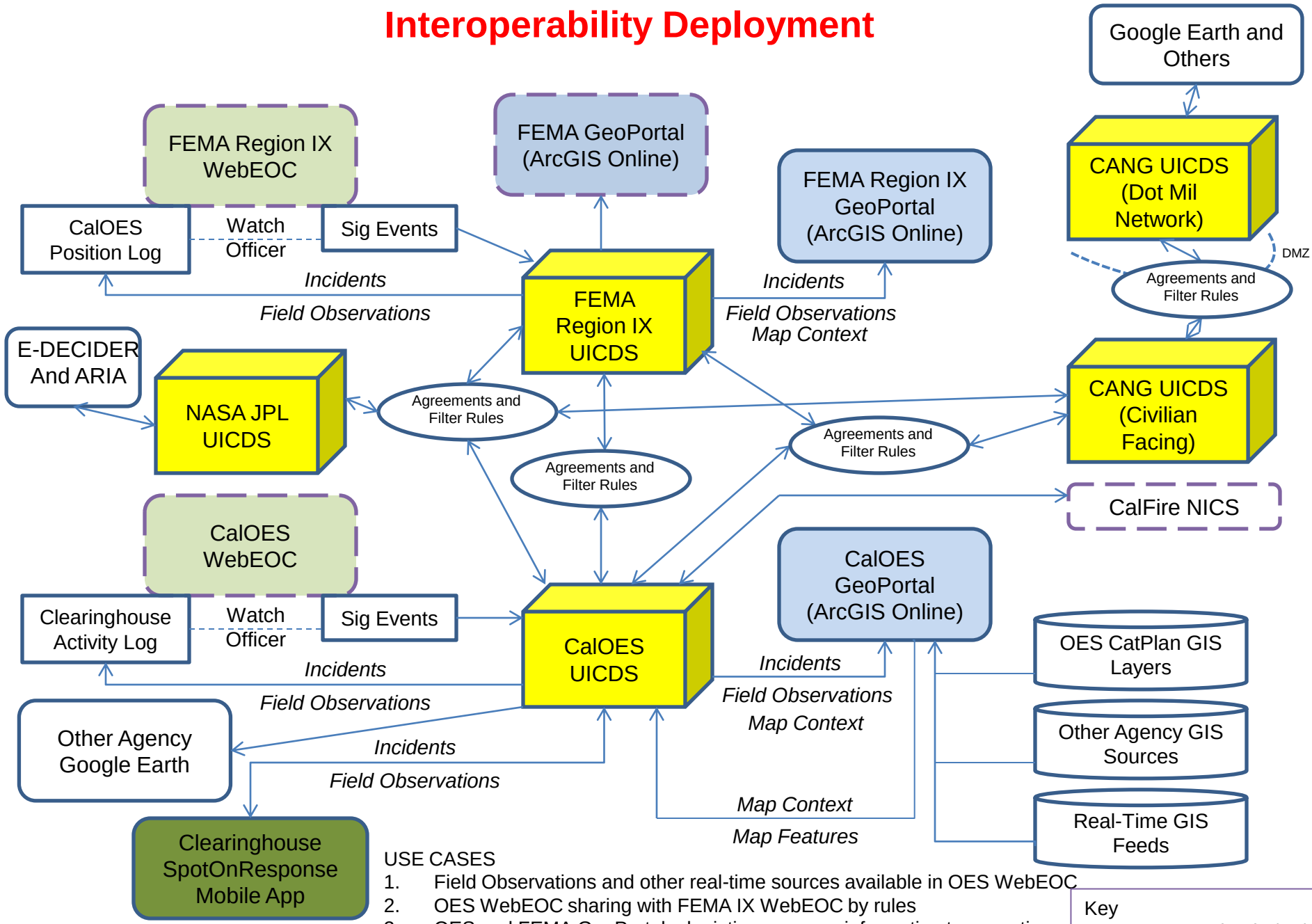
4. Traffic and security cameras

County, State, Military Shared Situational Awareness: South Carolina

- **Shared Situational Awareness**
  - Division of Emergency Management
  - National Guard
  - WebEOC Integration
  - IPAWS Alerts
    - Every county can create an alert within the county
    - Share to UICDS
    - Share to State
    - State Authorizes to IPAWS
  - Interact911 CAD and others
  - Google Earth COP
  - ESRI Flex Viewer COP



2014 CAL OES Cascadia Subduction Zone Exercise
Interoperability Deployment



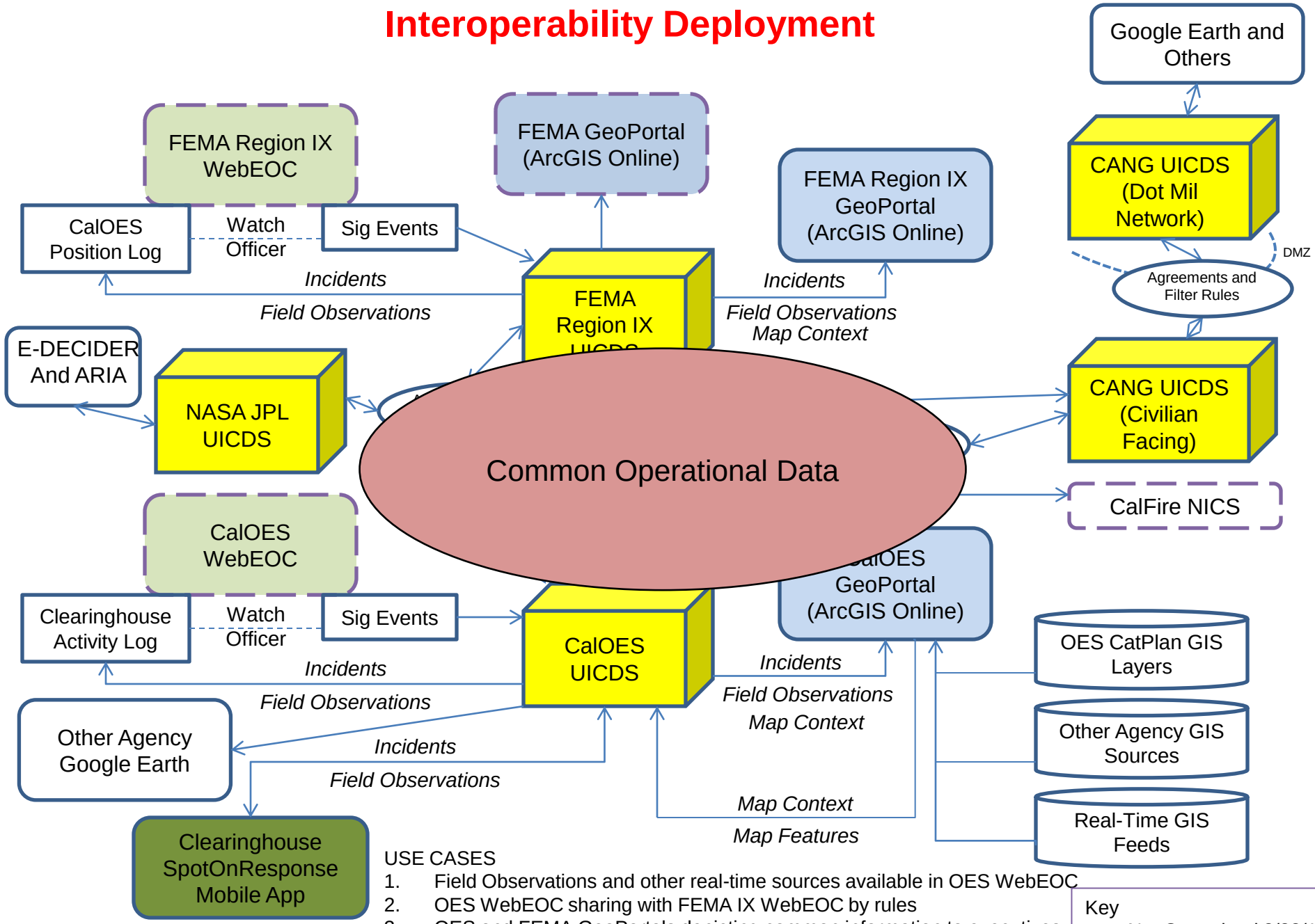
USE CASES

1. Field Observations and other real-time sources available in OES WebEOC
2. OES WebEOC sharing with FEMA IX WebEOC by rules
3. OES and FEMA GeoPortals depicting common information to executives

Key

- - - Not Committed 2/28/14

2014 CAL OES Cascadia Subduction Zone Exercise
Interoperability Deployment



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Key

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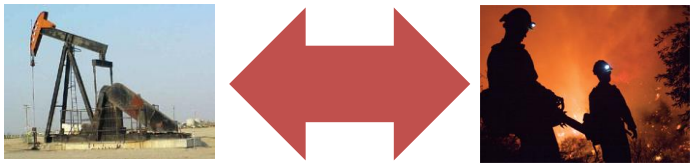
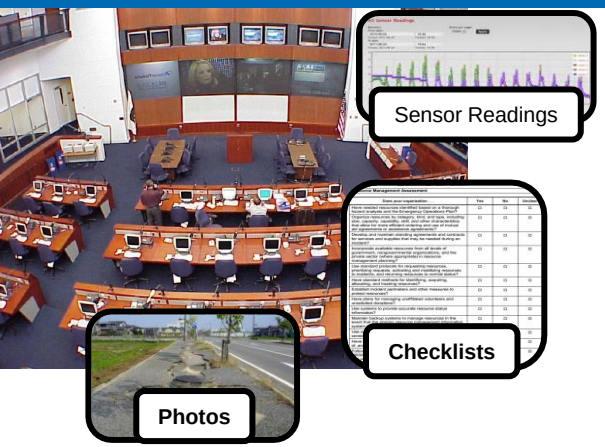
In Summary …

The Enabling Solution for Incident Collaboration: UICDS

- ***Two-way collaborative*** information sharing through UICDS for all individuals, teams, and organizations in the public and private sector
- ***Existing applications*** connect to UICDS through accepted data exchange standards; there is no new user interface to learn, no application to buy, no cost to obtain it
- ***Data owners retain complete control*** over data sharing through UICDS by defining what information you share with your trusted partners
- ***Define the information you receive*** through UICDS from those trusted emergency planning and response partners
- ***Without any disruption*** to your operations, use the data, improve it, and add related data that is shared in the background through UICDS
- ***UICDS leads to better information*** from government … better coordination with government … less burden by government … and added resiliency for critical infrastructure through information sharing



How Do You Get From Isolation and Fragmentation …



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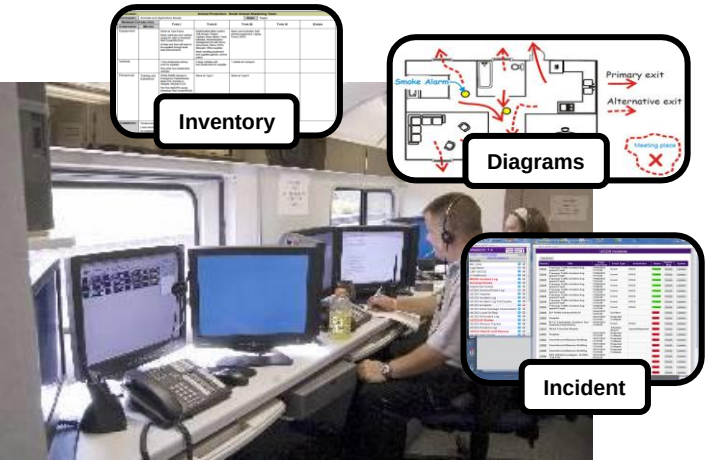

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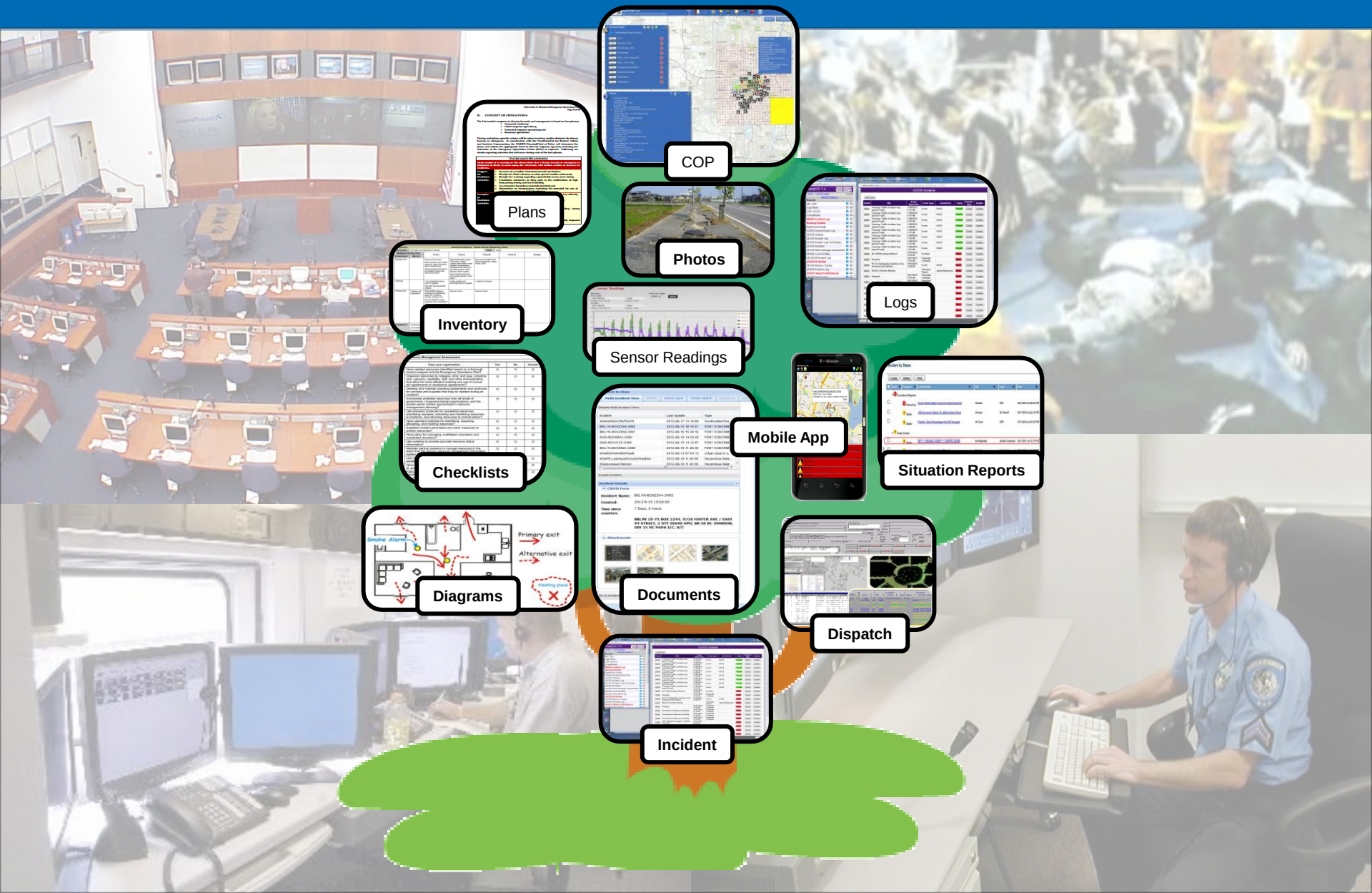
UICDS Collaboration and Coordination Middleware



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