

# ca! - Emergency and Disaster Recovery System Extensions to caBIG™

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## Introduction

- During Hurricane Katrina, US Federal and State Agencies had disparate data acquisition systems, separate data networks and unique incompatible applications.
- System incompatibilities exist even between various Federal agencies.
- Consistent data available to one agency should be available to another. Data must be portable and with a common vocabulary.
- Katrina illustrated the need for a common data system to underpin applications at the first responder, local medical facility and state health care department level, plus federal safety and law enforcement.

## Requirements

### caBIG™ Integration

caBIG™ provides a GRID based environment with data abstraction and vocabulary services, workflow management and a security framework.

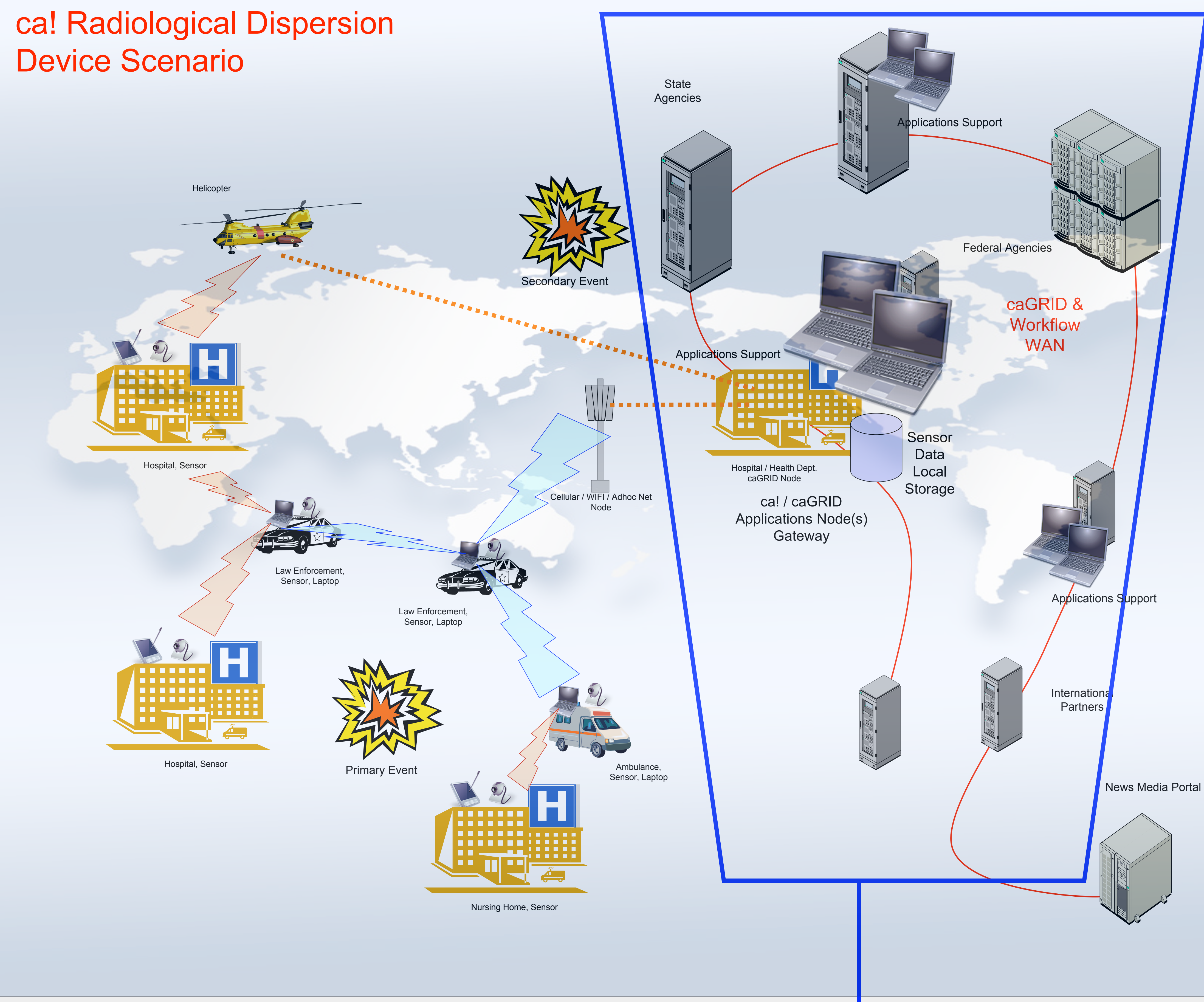
### Sensor Abstraction Interface

Sensor abstraction interface utilizes caDSR, enabling caBIG™ workflow aware applications to obtain local and global access to sensor data.

### Application Hierarchy

Proposed architecture is designed to use existing low cost infrastructure as a highly resilient mechanism for relaying sensor data. The network piggy-backs on first responder systems and the applications layer utilizes caBIG™ GRID services.

## ca! Radiological Dispersion Device Scenario



## Wider Design Criteria

### RDD Scenario

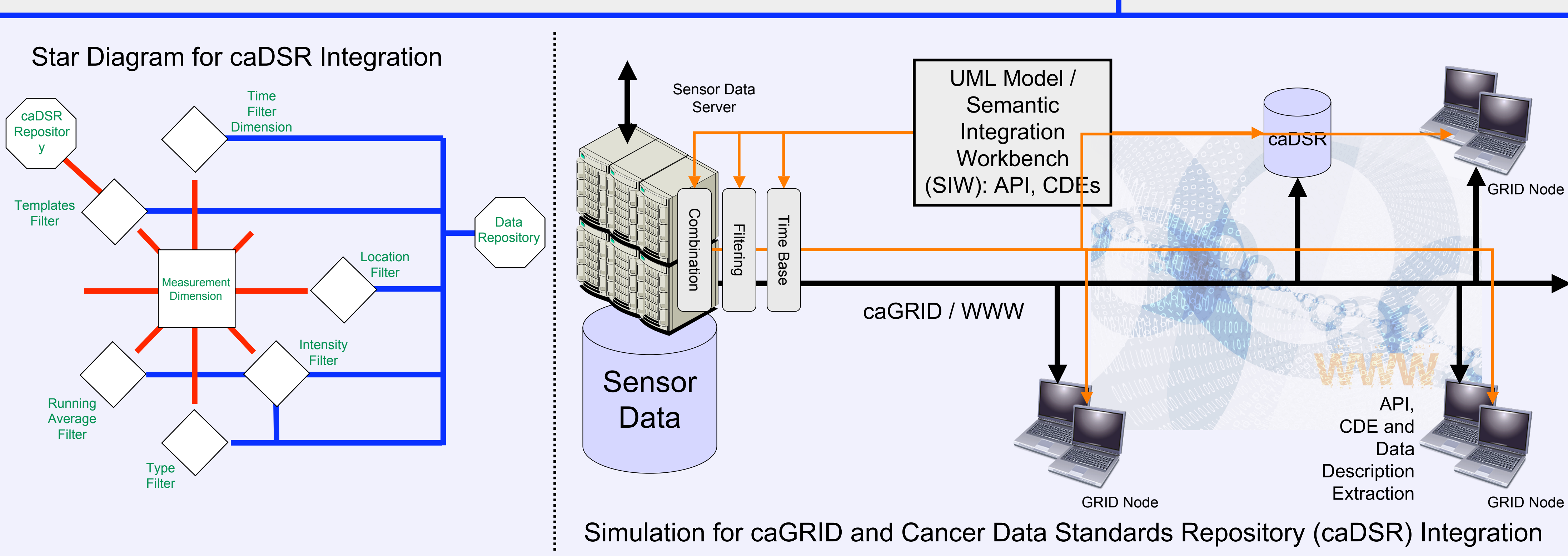
Our model is based upon radiation sensors in the aftermath of a dirty bomb detonation, to improve the survivability of first responders to the scene. Both local, state and federal agencies would be likely to respond.

### Low Cost, Existing Cyber Infrastructure

Use existing first responder systems for local sensor networking. Uses caBIG™ caGRID services for distributed applications environment.

### Standards

Applications built on caBIG™ caGRID/caCORE architecture, utilizing caGRID workflow. System provides sensor metadata abstraction via Cancer Data Standards Repository, caDSR. APIs are defined by the caDSR to allow for rapid application development at all consumer levels. The caDSR is based on reusable semantic metadata stored as Common Data Elements (CDEs), organized as per ISO/NEC 11179 standard. The semantics are drawn from an Enterprise Vocabulary Service, EVS. System has an SDK and applications can be certified for consistency in deployment.



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