CommandRESPONSE: An Open Source Instantiation of an Event-Driven and Services-Based Architecture for Net-Centric Warfare and Public Safety Applications

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The Vision: Net-Centric Response

- No vendor should own the infrastructure.
- Complete open source technology stack.
- Enterprise-class scalability
- ‘Small smart pieces loosely coupled – many pieces/one view’
- XML-Web Services-Composite Processes-SOA
- Address the hard issues:
  - Shared information space (Pub/Sub)
  - Semantic integration (RDF/RDF-S/OWL/OWL-S)
  - Orchestration of web services (BPEL4WS)
ODP Pilot – City of Chula Vista
Agility and Interoperability Reference Architecture

• Attack on hazardous materials shipment
  – Hazmat shipment enters Chula Vista jurisdiction
  – Positional tracking every two minutes
  – Events occur at border, waterfront and in city
  – Event correlation moves dashboard to yellow
  – Explosion sends plume into air
  – EOC runs plume dispersion and weather simulations
  – Affected geography identified and alert program launched to participating agencies and public
  – Secure wireless LAN established at P.O.P. bridging mis-matched LMR’s and IP infrastructure
  – Police cruiser leaves LAN in pursuit but maintains connectivity across available protocols

• Pilot Participants
  – All City first responder agencies
  – Border Patrol
  – US Navy
  – SPAWAR
  – Coast Guard
  – Scripps Hospital
  – Sweetwater School District
  – Duke Energy
  – Private business

• Lessons Learned
  – It’s about INTEROPERATION … not INTEGRATION
  – First Responders desire simplistic user interfaces and rapid access to process-centric value components
  – Municipalities need incremental investment strategies and risk mitigation for current investments
High Level System Architecture

Regional Operations Centers

Command RESPONSE: Interoperability ~ Coordination ~ Agility

- SYSTEMS
- DATABASES
- SENSOR NETWORKS
- CRITICAL INFRASTRUCTURE
- AGENCIES
- DMIS
DIS aggregates, integrates, fuses, and intelligently disseminates relevant information to support effective decision-making.

DCOP facilitates collaborative planning and assists all participating agencies to achieve shared situational awareness.

DC2B provides a services oriented integration framework.

ESOE provides standards-based process definition, execution, and management environment enabling the creation of public safety, emergency preparedness/response, and homeland security processes.

DEEN provides standards-based alerts, notifications, and recalls issued to small groups or mass populations across multiple channels of communication.
ODP Pilot – City of Chula Vista
Service-based Value Components

1. Secure WLAN Infrastructure
2. Alerts/Warnings/Notifications
3. Geo-Spatial Data Fusion
4. Simulations & Situational Assessments
5. Event Mgmt. Dashboard
6. Data Collection
7. System & Information Integration

Technologies:
- TechAlt
- Cisco
- 802.11
- 1XRTT
- Ricochet
- SATCOM
- RF Comm
- SPAWAR
- Osmose
- CellExchange
- Qualcomm
- TAIC
- EEWN
- Intervoice
- SYS Technologies / Antin
- 1
- 2
- 3
- 4
- 5
- 6
- 7
Semantic Solution

Composeable Visualization Environment

XQuery & Inference

Business Logic & Rules

Data Values

Enterprise SOA and Service Grids

Enterprise Data Sources

Composeable Visualization Environment
Extending CommandRESPONSE to GWOT

Trident Warrior 06

- FORCEnet Experimentation
  Venue – GWOT vignette
- In cooperation with California Governor’s Office of Emergency Services
  - Emergency Response Management Network
- ERMN instances becomes key infrastructure in support of GWOT
  - Links municipality instances with DHS/FEMA DMIS and DHS/S&T NIEMS
  - Provides interoperability between HLD, HLS and First Responders
Questions?

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