Emergency Management Solutions in Smarter Cities

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EMS solution implementations are difficult

*Due to Complex, Siloed data and Redundant and Inflexible Operations*

- **Emergency operations centers (EOC)**
- **Fire Brigade**
- **Police**
- **Ambulance**

Government Industry Example
Emergency Management Areas

Virtual Emergency Operations Centers
- Mitigation strategies and planning for natural or man made disasters
  e.g. Flooding / earthquakes / riots / events
- Central point of coordination for multi-departmental, multi-agency emergency teams

Emergency numbers 112 / 911
- Management and dispatching of emergency calls

Mass Notifications
- Personalized and location based mass alert notification system via phone, radios etc.

Dispatch of units (Police, Fire Brigades, Ambulance, etc...)
- Deploy emergency units efficiently
- Efficiently manage units, less = more
- Exploit existing communication networks
Integrated Solution Domains in Government

Powered by the IBM Frameworks for Government

Government Industry Domains
- Tax and Revenue Management
- Safety and Security
- Social Services and Social Security
- Integrated Urban Infrastructure
- Metropolitan Transportation and Roads

Defense/NCO Domains
- Defense Intelligence
- Command and Control
- Logistics

Frameworks for Government
- Partner Enablement & Validation Program
- Government Specific Extensions
  - Common Industry Extensions
    - Interfaces and Adapters
    - Industry Standards, Data and Process Models
    - Templates and Portlets
    - Reference Architectures
    - Tools
- NCO Specific Extensions
  - Delivery Guides and Partner Enablement Centers

Government Framework Software Foundation

IT Hardware and Operations Infrastructure

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Smarter Public Safety Solutions Portfolio

Modular approach Leveraging an open standards platform

Intelligence
- Ingestion & Collection
- Identity & Relations Resolution
- Visualization

Public Safety
- Incident, Crisis Management
- Computer Aided Dispatch
- Digital Video Surveillance
- Alert Notification
- Geo Spatial - Situational Awareness
- Planning & Preparedness

IBM Frameworks for Government
- Partner Enablement & Validation Program
- Government Specific Extensions
- Government Framework Software Foundation

Infrastructure

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Solution 1: VOC (Virtual Agility™)
Support crisis management and planning
Create plans to respond to exmp. terrorist attacks and natural disasters

OPS Center Benefits:

- **Tactical managing operations**
- One common environment for conducting integrated emergency management operations, before during and after an incident
- Browser based usage - no need for PC client software installations
- GIS-representation of resources, incidents and other needed information
- Integrated communication and collaboration tools - instant messaging, web conferencing, screen sharing
- Highly flexible data collection through users defined business forms
- Rendering of external data and information through VirtualAgility SmartLinks™
- Extendable with IBM partner solutions - Unified Edge, E Connect, Archaio and others
Virtual Emergency Response Center
For Every Stage of a Crisis

Plan, Train and Prepare
- Identify critical risks and impacts
- Create and distribute contingency plans, check lists, SOPs
- Identify and map critical infrastructure
- Develop and maintain accurate contact info
- Disseminate intelligence on potential threats
- Train and perform exercises
- Capture lessons learned

Inter-Agency Collaboration Communication Control

During
- Execute contingency plans
- Coordinate multi-agency response
- Request, deploy, track resources

Before
- Request, deploy, track resources
- Manage volunteers
- Track donations
- Get people back to their lives, work and family
- Support damage estimates and reimbursement requests
- Conduct after-action reviews
- Review and plan for future events

Manage Recovery and Accountability

After
- Track, assess and manage recovery efforts
- Manage volunteers
- Track donations
- Get people back to their lives, work and family
- Support damage estimates and reimbursement requests
- Conduct after-action reviews
- Review and plan for future events
Gauteng Disaster Management Center
GERIS Gauteng Emergency Information Resource Services

South Africa

Business Challenge

The Gauteng Province is exposed to an array of hazards that can threaten livelihoods and damage critical infrastructures. The Province will also be hosting the 2010 FIFA World Cup Games.

The local government needed a real time Common Operating Picture and interoperability for its command center and officers in the field to prepare for emergencies and support emergency operations.

Project Overview

- **Industry**: Government
- **Solution**: I3 Framework – Virtual Operations Center (VOC) Solution
- **SBS Name**: Public Safety and Security
- **Key Business Processes**: Planning & Preparedness, Incident Management & Collaboration Enterprise Services for State and County Wide Governments
- **Location**: South Africa, Province of Gauteng
- **Facts**: Largest cities Johannesburg and Pretoria, Population 9,688,100
- **System Facts**: 200 concurrent users responsible for Government man-made and natural disaster management.

Benefits

- Deploy response capabilities
- Locate resources
- Improve planning capabilities
- Develop training scenarios
- Improve accuracy
- Provide timely decision support
- Develop contingency plans
- Manage field data in real time
Virtual Operations Center is composed of three major Hubs which Manage and Synchronize Emergency Management Operations

- VOC provides full spectrum services for the integrated emergency management command center
- Dynamic Planning & Preparedness Functions for inter & intra department and agency planning
- Near real time incident management functions plus fully integrated situational awareness
- Full recovery and continuity services
- Built on IBM’s flexible and scalable framework to support all future lifecycle development
- 100% COTS – Open Standards
EOC Solution enables visibility for the entire lifecycle of Emergency Management and provides critical information and analytics to enable real-time decision making.

- Incident Reporting & Tracking
- Automated Case Management
- Situation Reporting
- Resource & Critical Asset Management
- Situational Awareness (Outside & Inside)
- Real Time Communications and Collaboration (VOIP)
- Network Monitoring

- Connect & Bridge Teams Dynamically
- Develop and rapidly deploy SOPs and Plans
- Collaborate & Share Plans
- Event Planning

- Incident Report & Tracking
- Situational Reporting
- Resource & Critical Asset Management
- GIS Overlays
- Real time Interoperability

- Financial Management
- Expense Recovery Reporting
- After Action Review

- COOP
- Log Reporting
- Track Financial expenditures for recovery
- After Action Reports on Performance
- Input back into plans
Supporting Complex Emergency & Incident Management Coordination – Inter/Intra Installation Operations And Synchronization

Seamless Coordination, Synchronization and Interoperability Supported by an Open, Scalable and Flexible Service Oriented Architecture
VirtualAgility OPS Center Base Components

VirtualAgility OPS Center Portal

- Incident Management Dashboard
- WorkCenter Connections
  - Organizations
  - Plans
  - Operations
  - Knowledge Boards
- GIS
  - Load GIS Services
  - Mash-up with Incident management and other data
- Directory Search (People Finder, DTM)
  - Sametime Chat & Presence
  - Collaboration Tools Initiation

Using WPS/WAS ESB VirtualAgility integrate disparate applications and data

VirtualAgility WorkCenter

- Incident/Task Management System
- GIS Application
- Lotus Collaboration Tools
  - Video – Voice – Whiteboarding
  - Screensharing
- Tivoli DI and DS Tools

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Virtual Operations Centre Solution Features

- Collaboration Center
- Cross Agency People Finder Portlet
- Authenticate/Secure Access
- Who Is Here
- Access to back-end Applications
- Incident Summary Reporting & Create Incident Reports
- Agencies & Contacts In the Directory
Solution Outline: Video Integration
Dynamic team meetings – video and audio/screen & file sharing

Screen Sharing

Live Video and Audio Discussions

Live Chat Features

Situational Awareness of Who Is Here
VOC Solution – Bill of Materials (BOM)  
IBM & ISV Product Mapping

**Tivoli**.software

Secure Access & Single Sign On
- Tivoli Access Manager
- IBM Tivoli Directory integrator
- Tivoli Directory Server
- Tivoli Federated Identity Manager

**WebSphere**.software

Modeling Disaster Management Processes & Operations
- WBI Modeler 6.0.2.1 *(Optional)*

Distributed Application & Web Servers
- WebSphere Application Server (Virtual Agility Application)
- WebSphere Application Server (ESRI Application)
- WebSphere Enterprise Service Bus

Secure SOA XML Processing & Security
- DataPower SOA Aplications (Choice)
  - XA35
  - XS40
  - XI50

**DB2**.Information Management Software

DataBase & DataBase Management
- DB2 9.0 (Viper) (Virtual Agility Application)
- DB2 9.0 (Viper) Supports Directory Integration and Search

**Lotus**.software

WebSphere Portal Extend
WebSphere Portlets (People Finder, Incident Management, Situational Awareness Portlets)
Real Time & Team Collaboration
- Lotus Sametime
- Lotus Web Conferencing
- Lotus Sametime Enterprise Meeting Server

**ISV Partner Software**
- Virtual Agility Work Center (Incident, Planning & Preparedness Application)
- ESRI Geo Spatial Application (Situation Awareness)
Solution 2: **SITREM™**: Computer aided dispatch (CAD)

- **SITREM™ GIS**: Location of calls, incidents and resources (AVL)
- **SITREM™**: Call, incident and resource management, with integrated communications
- **SITREM™**: Overall situation (calls, incidents, resources)
Smart: *Interconnect* via Radio Interoperability

*Solve the cross agency collaboration Challenge*
RadioConnect™ for Lotus Sametime

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Radio Channel</td>
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<td>Channel Activity</td>
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<td>Call Indicator</td>
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<td>Channel Volume</td>
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<tr>
<td>Local Recording/Playback</td>
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<td>Channel Status</td>
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<td>Global Mic Mute</td>
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<td>Push to Talk Button</td>
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<td>Channel Panning</td>
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<td>Text Message Button</td>
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<td>Preferences</td>
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<td>User Name/Profile</td>
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Alerting Citizens and Public Safety Responders

Integrated Alert Distribution Center

IP GW

Fix line Tel.

IDEN

Mobile GW

GSM/UMTS /CDMA

Paging GW

Sirens GW

Digital EAS

Missiles

Dangerous Materials

Earthquakes
With **Smart Surveillance Solution S3** Video information is useful **before**, **during**, and **after** an event response.

- **Awareness** – intelligent monitoring
- **Response** with tactical video
- Speeds **Investigation** after a reported incident
- **Evidence** to support prosecution

Smart Surveillance - Networked intelligent digital video can provide critical information *far beyond traditional monitoring*
Smart Surveillance Systems
Video Analytics Turns Cameras into Information Sources

Panoramic View

- Suspect Red car in lot
- Customer - No associate
- Hot-spot in Jewelry
- Suspect in Lot Plate #525SDS
- Non-scan
- 257 customers view this display on Thursday PM
- Concealment item removed from shelf
- Face Capture
- Congestion
- In-bound Congestion

- Blue Car
- 2007-12-07 11:19:31 [4.27s]

- Parked Car
- 2007-12-06 22:30:49.65

894 customers currently in the store
Smart Surveillance
Real Time Alerts and Tracking Technology

Motion Detection

Tripwire

Object Removal

Abandoned Object
Smart Surveillance
Examples – Teal Time Alerts

- Motion Detection
- Tripwire
- Object Removal
- Camera Move
The right, relevant and meaningful information must be available in the Command Center
Thank you.
Smarter software for a smarter planet