



# Mapping Emergencies:

9-1-1 to the EOC

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and  
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The Changing Face of  
GIS – URISA Workshop  
Oct. 29, 2009



Office of  
Emergency Management

# Overview

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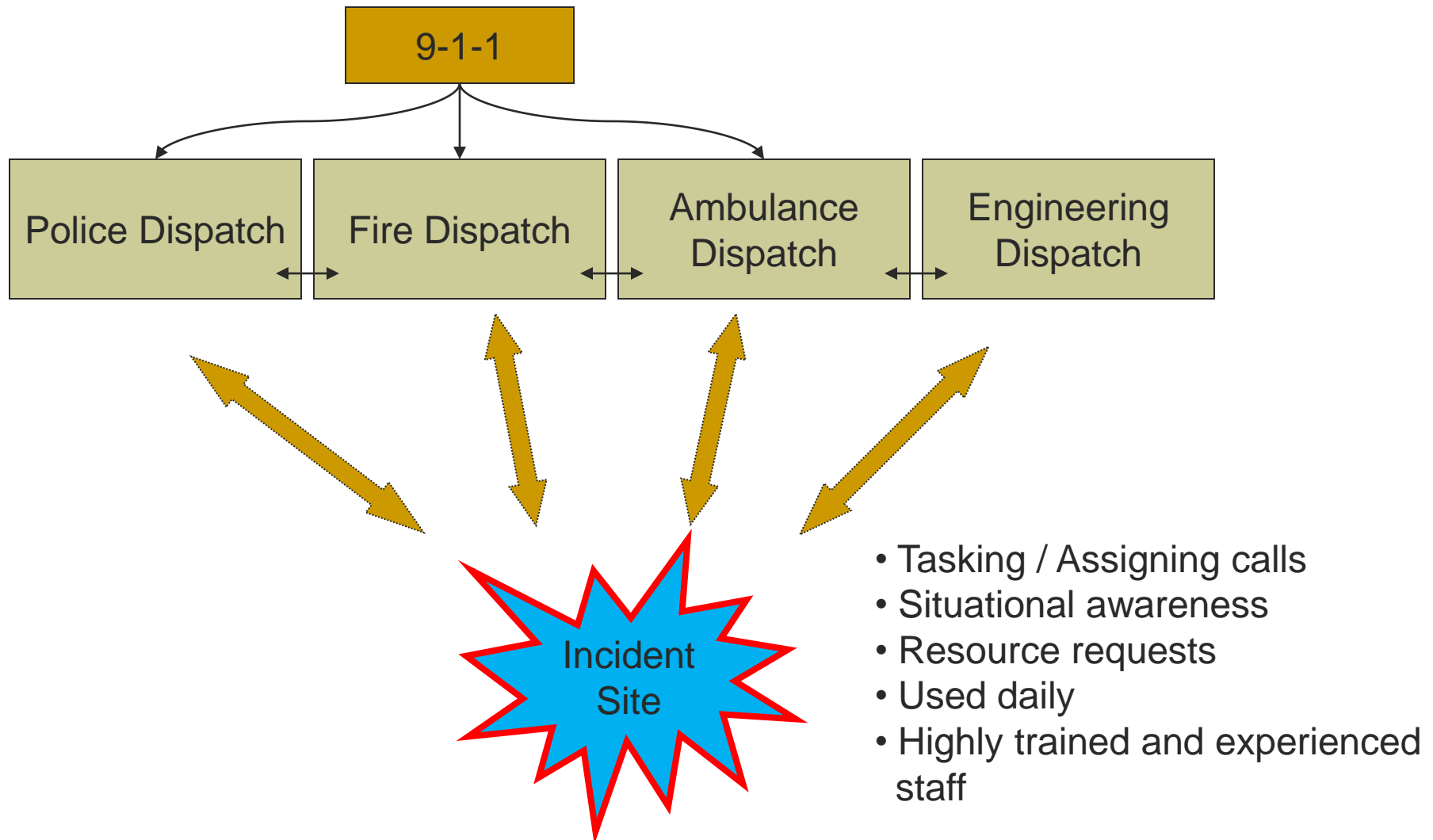
## ■ The Challenges

- Creating a real-time Common Operating Picture (COP)
- Alerting key CI owners of emergencies

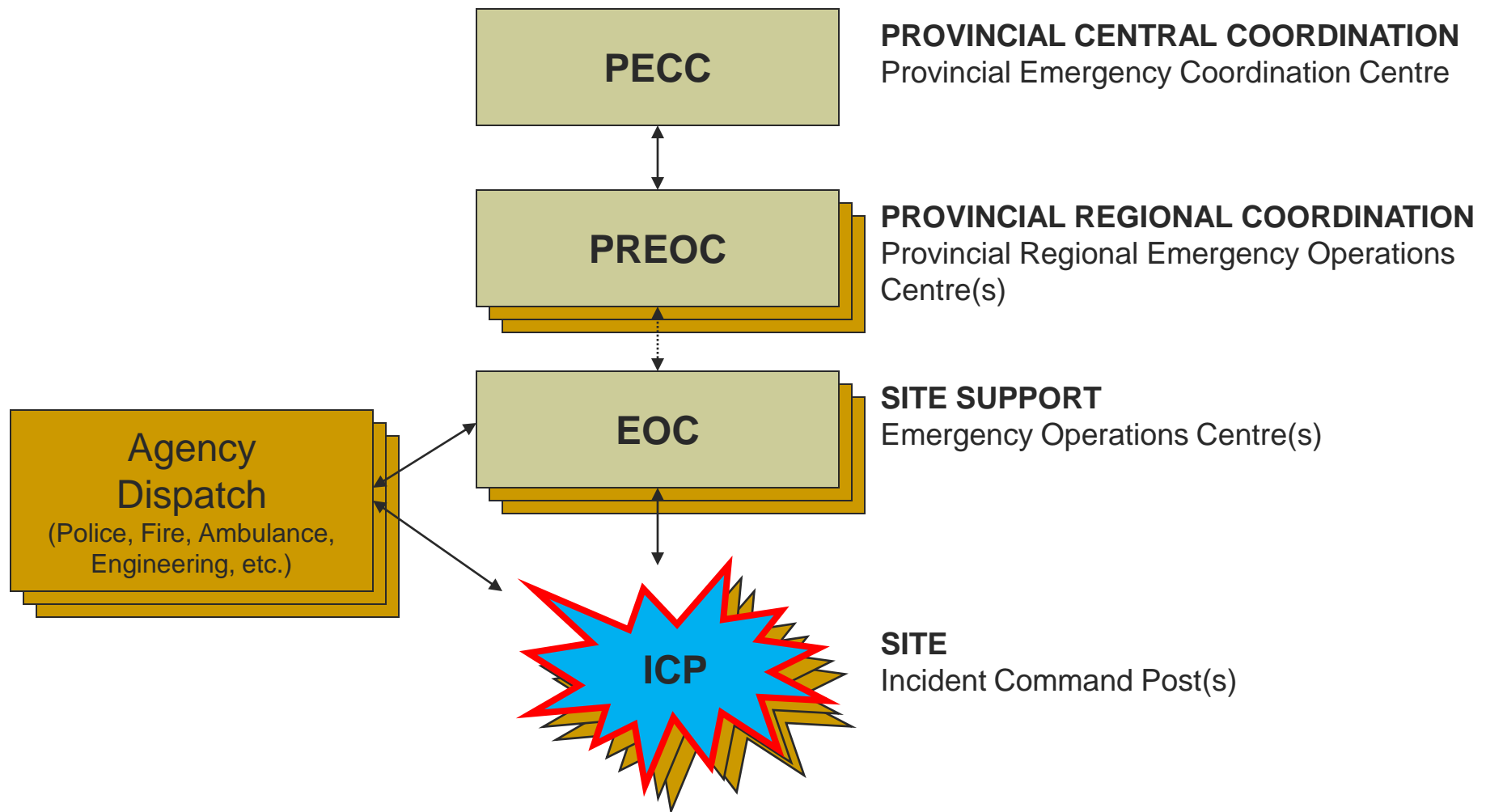
## ■ The Solution

- Integrate a number of applications using an open geospatial platform

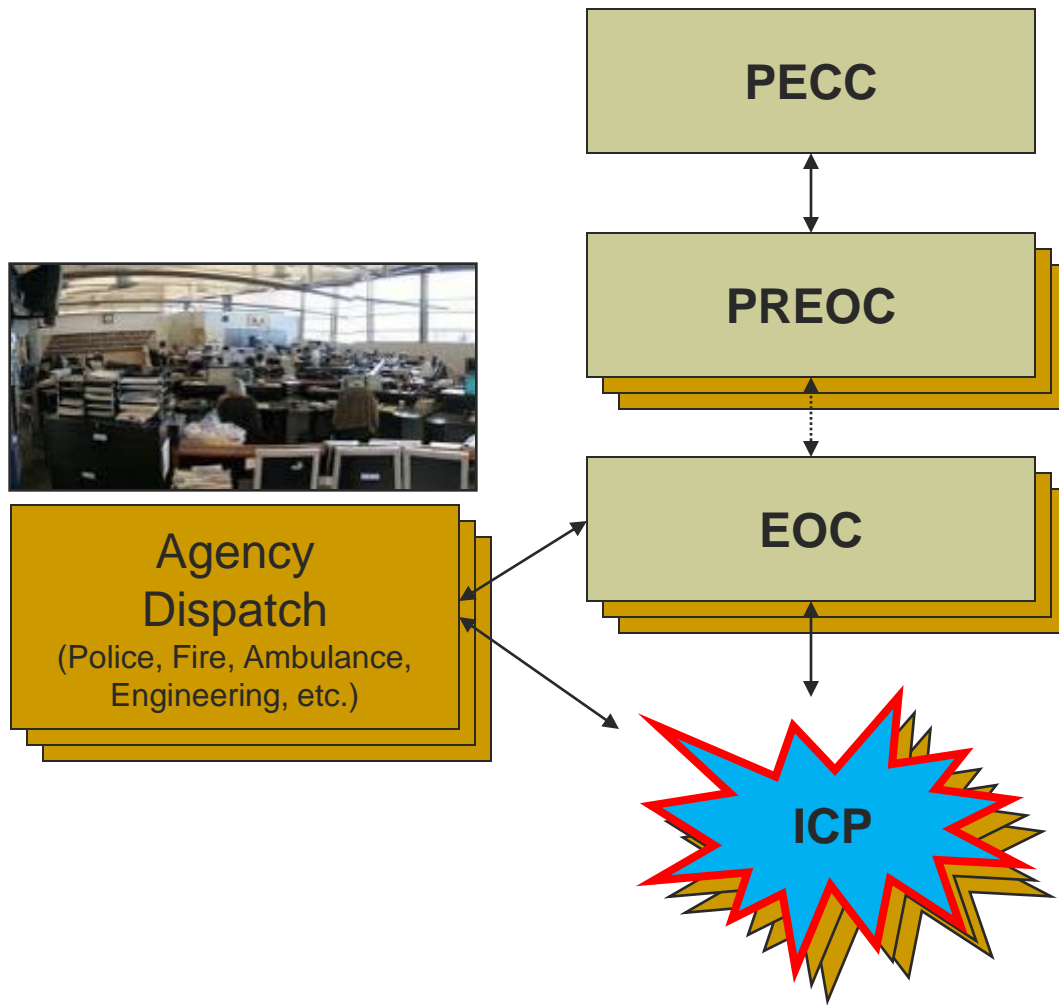
# Day-to-day



# Emergency Management in BC



# Emergency Management in BC

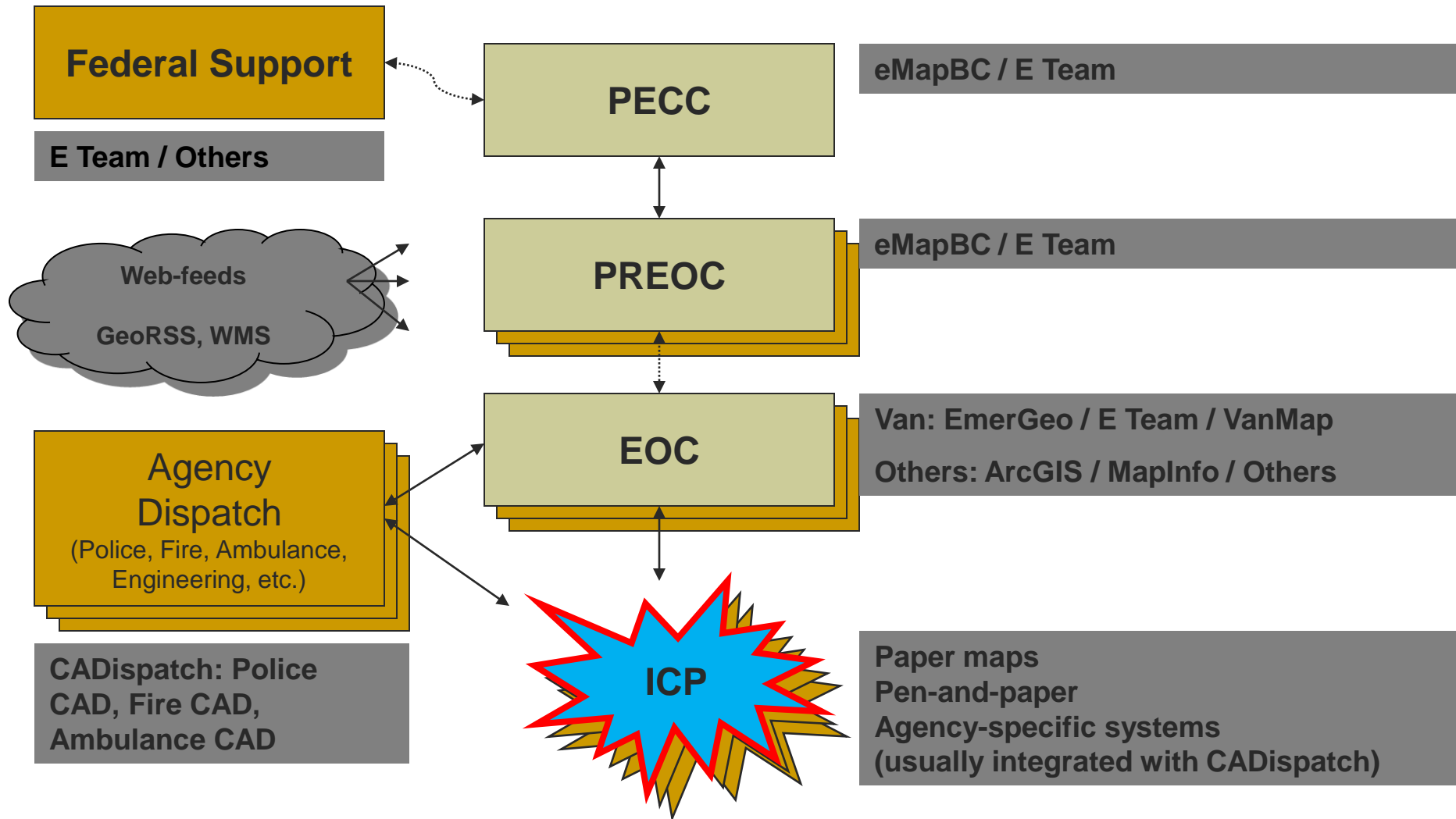


# When is this all used?

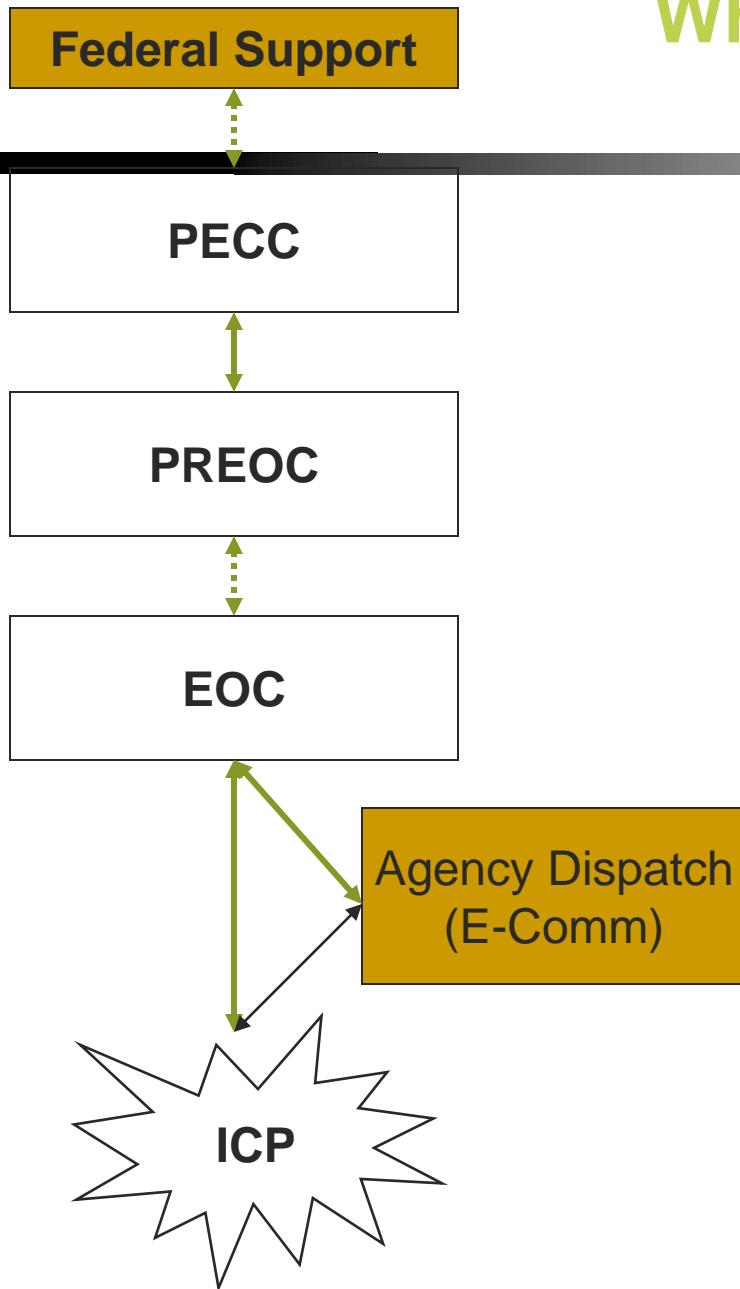




# Geospatial Incident Management Systems



# What are we dealing with?



## Data

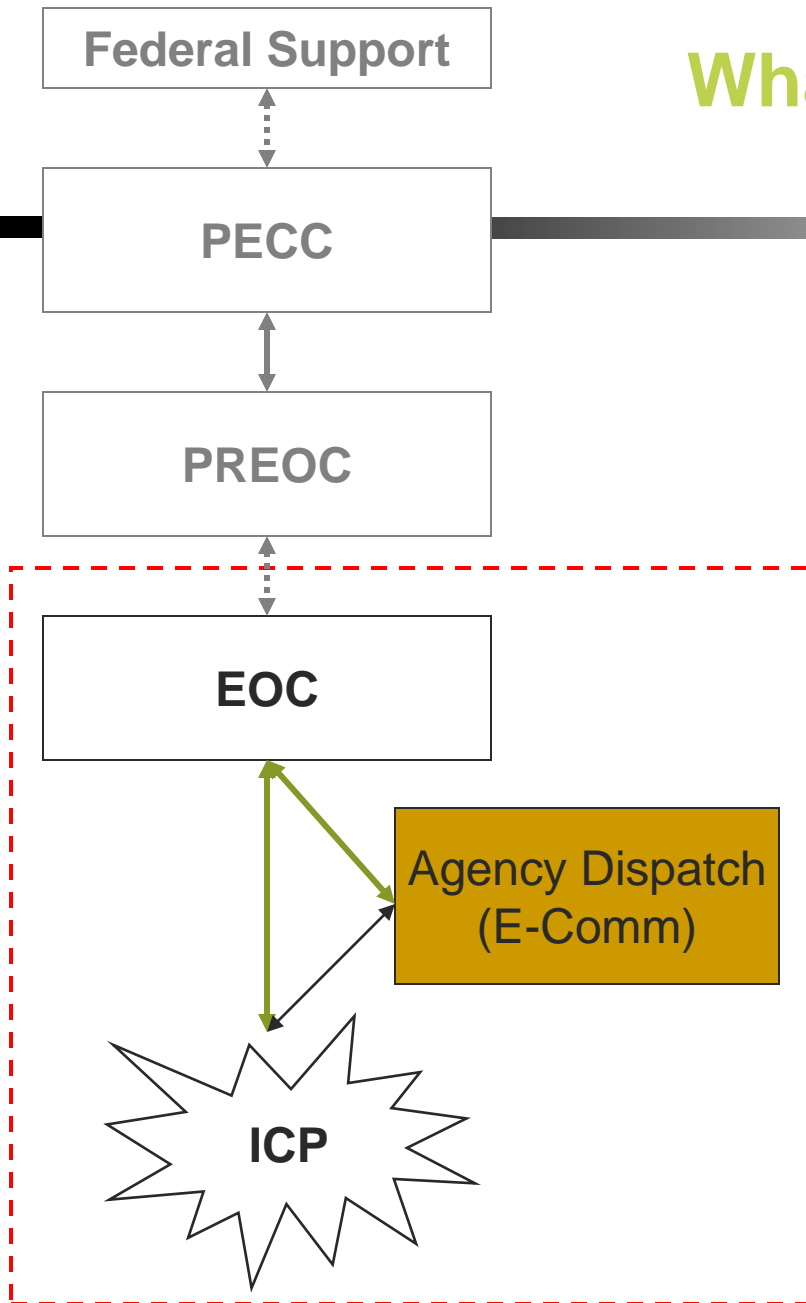
- File-based data (e.g. SHP, DWG, KML)
- Database Systems (e.g. Oracle Spatial)
- Proprietary GIS (with no export functions)
- Electronic paper maps (e.g. PDF)
- Paper-based maps

## Data Transfer

- E Mail
- FTP
- Fax
- Hardcopy
- Some web-based UIs



# What are we dealing with?



## EOC Geospatial Systems

- EmerGeo (mapping)
- E Team (information system)

## Incident Command Post and Agency Dispatch (through E-Comm)

- Police CAD
- Fire CAD
- Ambulance CAD

## Integration Between Systems

# The challenge from the City's perspective

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- ▶ Develop a real-time common operating picture
  - Three disparate systems
    - ▶ Police, Fire, Ambulance Dispatch Systems feed **E2MV Application**
    - ▶ EOC Logging and Communications Software (**ETeam**)
    - ▶ EOC GIS Mapping Software (**EmerGeo**)
- ▶ Key CI owners/operators not in notification circle.



# The E<sup>2</sup>MV Solution

**Integrating data from multiple dispatch systems**

# E<sup>2</sup>MV

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- What is E-Comm?
- What is E2MV
- What challenges does it solve?
- Lessons Learned
  - Multiple disparate systems
    - Police
    - Fire
    - Ambulance

# E-Comm

- 9-1-1 PSAP
- Wide-Area Radio System
- Emergency Dispatch
- Public Safety Technology Support



Stanley Cup Riot – Vancouver- 1994

# GIS @ E-Comm...

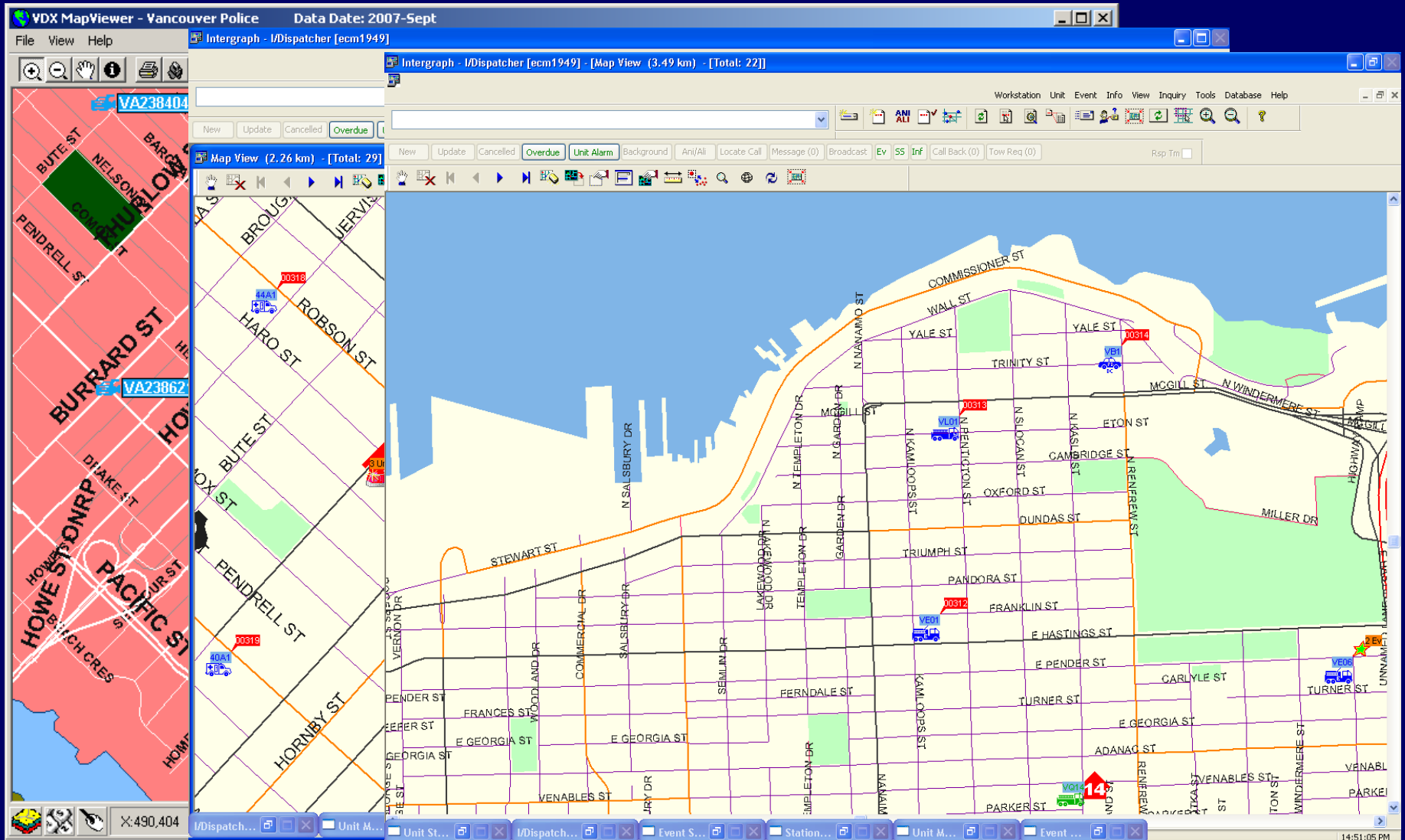
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## ■ GIS Data and Services

- Computer Aided Dispatch (CAD)
  - E-Comm Fire CAD (Intergraph)
  - PoliceCAD (Versaterm)\*
  - BCAS NetCAD (Intergraph)\*
- Records Management Systems (RMS)
  - PRIME-BC (Police) \*
  - Project Fires

\* Province-wide support

# Operations ... Lack of a C.O.P.





# Providing the C.O.P....

- Our Solution for Public Safety



*Emergency Event MapViewer*

# E<sup>2</sup>MV Project Vision...

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- Import information from multiple CADs
- Browser-based mapping application
- Display of active events
- Role-based access
- Event Management
- Event (data) Services

# Why E<sup>2</sup>MV?

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## ■ Operational Benefits

- Demand Mitigation
- Situational Awareness
- Interoperability
- CAD (Event Management) Backup

## ■ Technical Benefits (future potential)

- Single geographic display of CAD information, regardless of CAD vendor.

# User Needs Assessment

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## ■ UNA

- Identify user requirements
  - Discuss and assess the needs of users
  - Take into account user:
    - Ideas
    - Attitudes
    - Wants, and
    - Preferences
- Relevance to / Integration with other initiatives
  - Emergency Management BC
  - Integrated Security -- 2010 Winter Olympics
  - Ministry of Forests – Fire Management Section
  - Emergency Operation Centers

# E<sup>2</sup>MV Technology...

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## ■ Technical Platforms

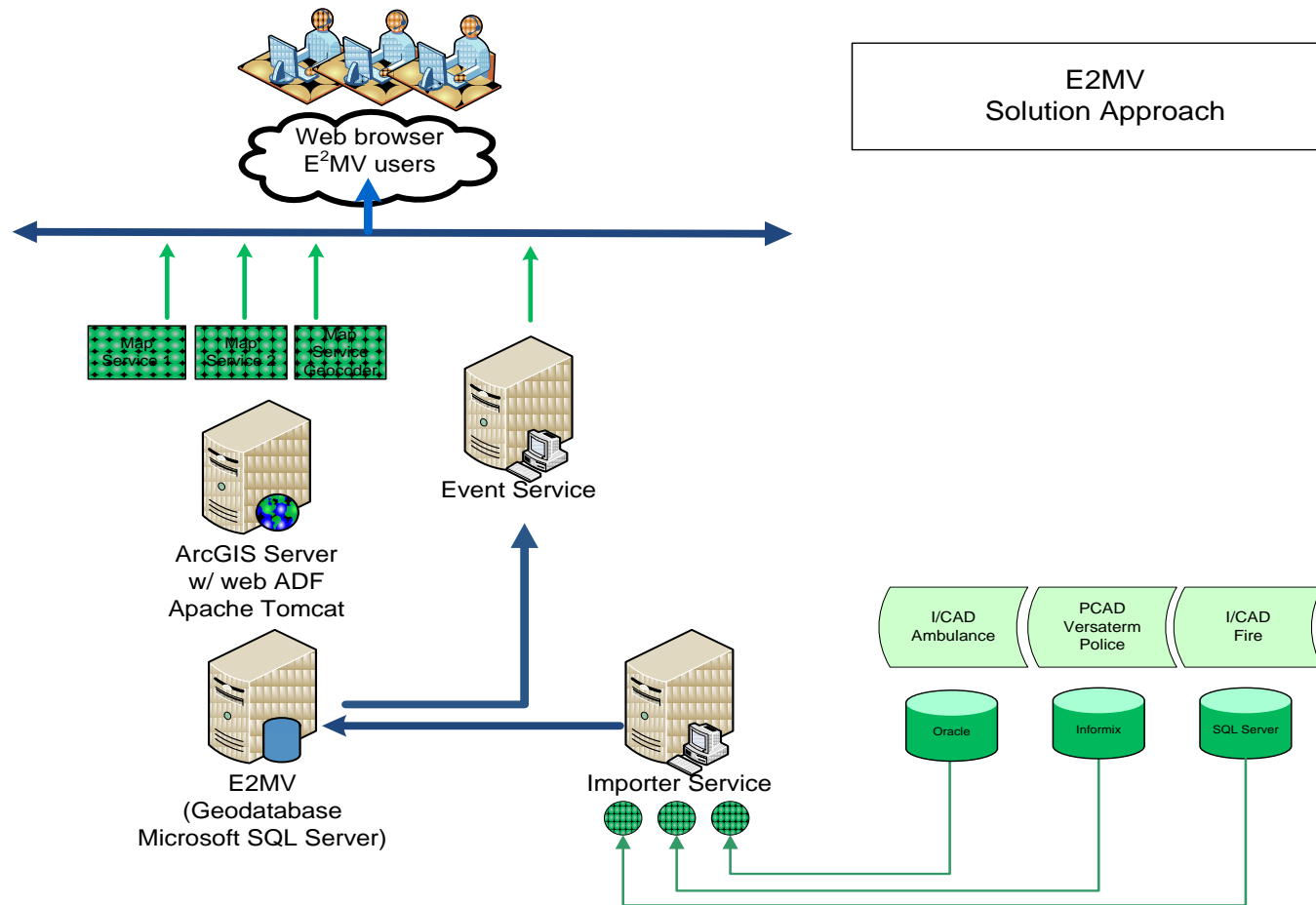
### — Server Platform

- Windows Server 2003 on VMWare
- ESRI's ArcGIS Server Standard, Enterprise
- SQL Server
- Flex API (ActionScript)

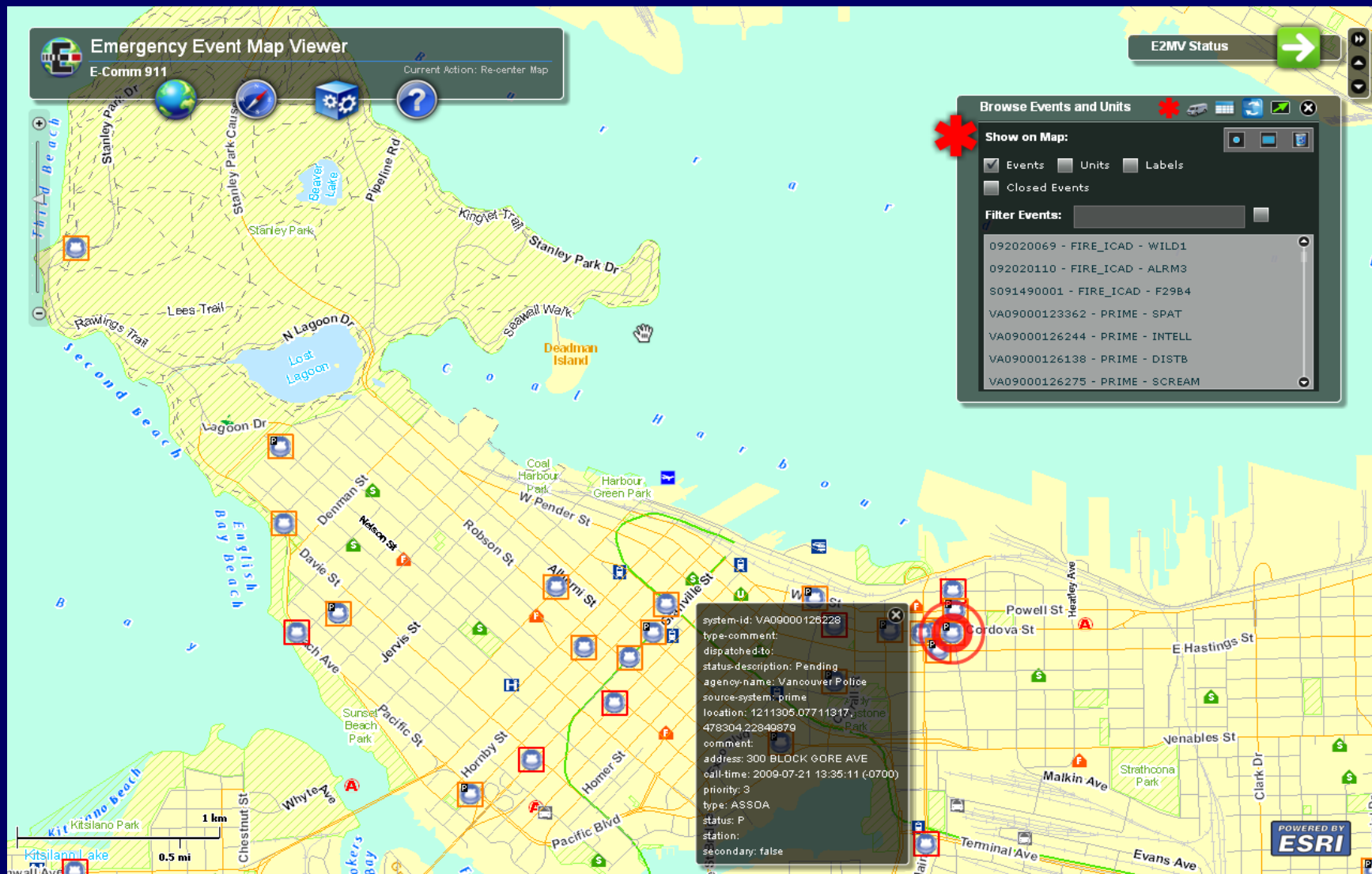
### — Client Platform

- Windows XP/Vista
- Standard Browsers with Flash Plug-in

# Solution Diagram



# E2MV... a reality





# E<sup>2</sup>MV – Interfaces to beyond...

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- Filtered event and unit data
  - depending on who/where request is generated
- Produces resultant Restful web service to be consumed by third party
  - Rest... Restful
  - Token-based pulls (GET)
  - The endpoint can be bookmarked and queried
  - The URL is very simple (english)
  - The service can return XML or JSON data

# E<sup>2</sup>MV – what's beyond...

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- Data Sharing to other initiatives
  - EOCs,
  - GeoConnections – MA SAS
  - EMBC - EMIS
  - Ministry of Forests (Fire Management Section)
  - Integrated Security Unit for 2010
- Single CAD Viewer (E<sup>2</sup>MV)
  - Multiple CADs... single Map and address verification

# E2MV – Lessons Learned

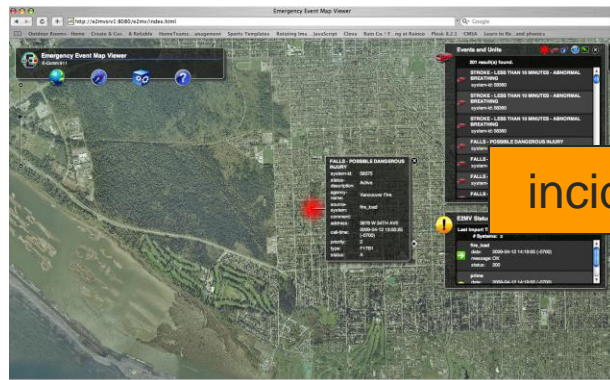
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- Get ready to hit the pavement
  - Data Sharing Agreements
    - Am I a lawyer?!?
  - Alleviating concerns
    - Security
  - Creating awareness

# The next steps – CI Alerting

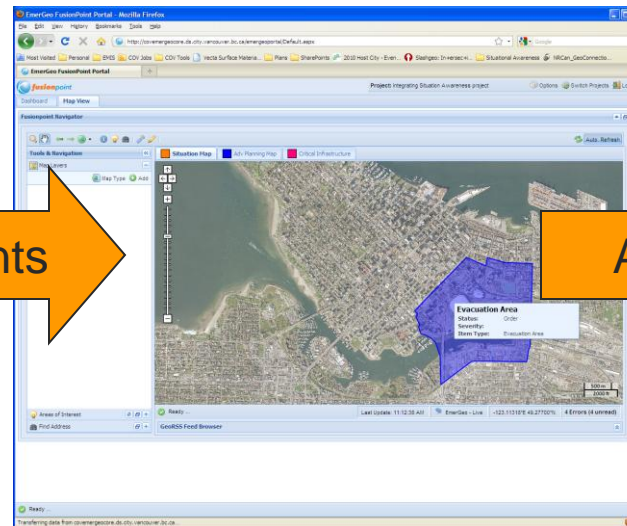
- ▶ Alerting Critical Infrastructure (CI) owners of incidents that will potentially impact their facilities
- ▶ Many CI owners/operators are not at their facilities and have no way to be notified if emergencies have potential to impact their services

# The next steps – CI Alerting



Police and Fire Dispatch  
(via E2MV)

incidents



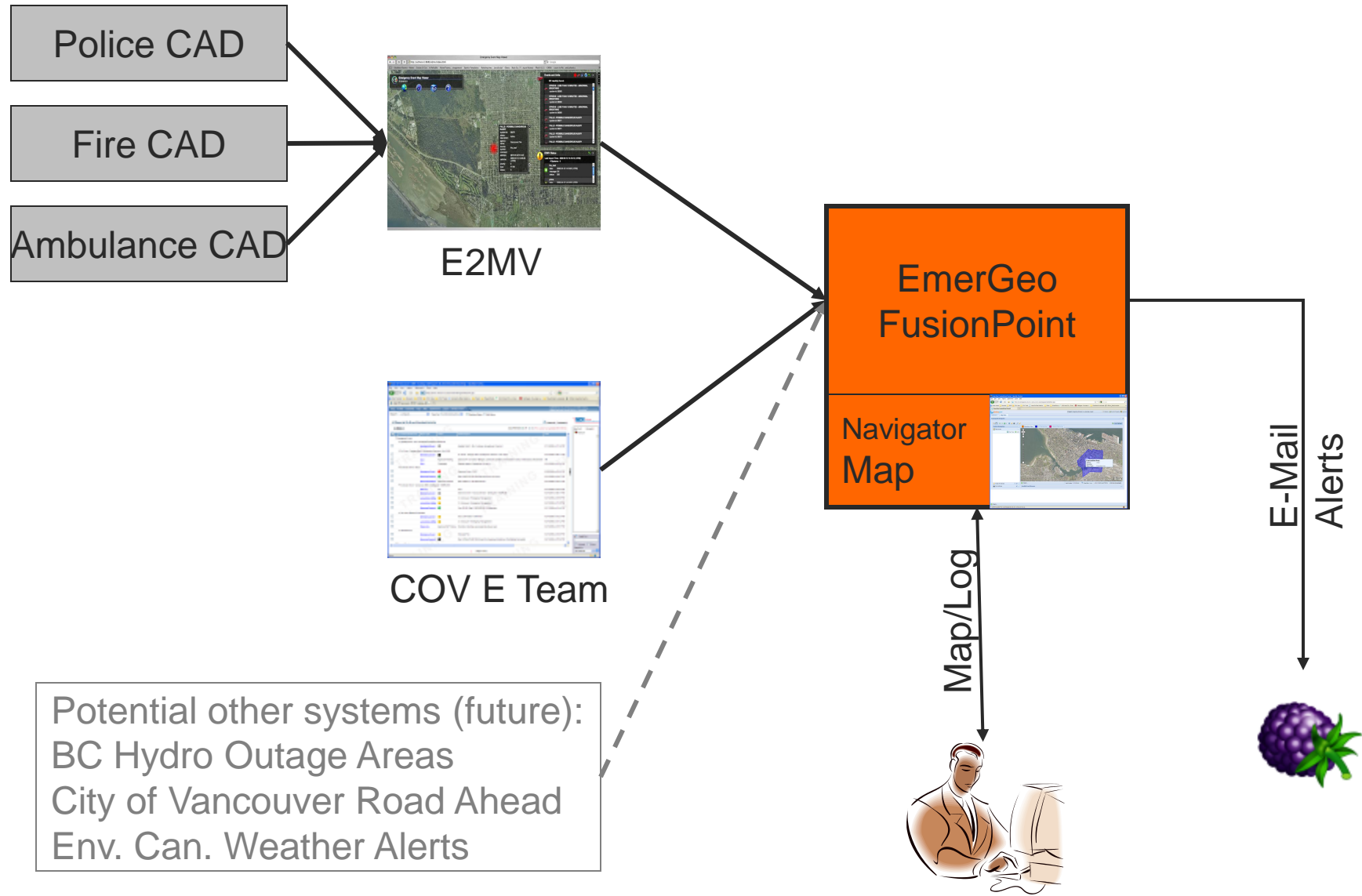
EmerGeo  
(including CI layers)

Alerts

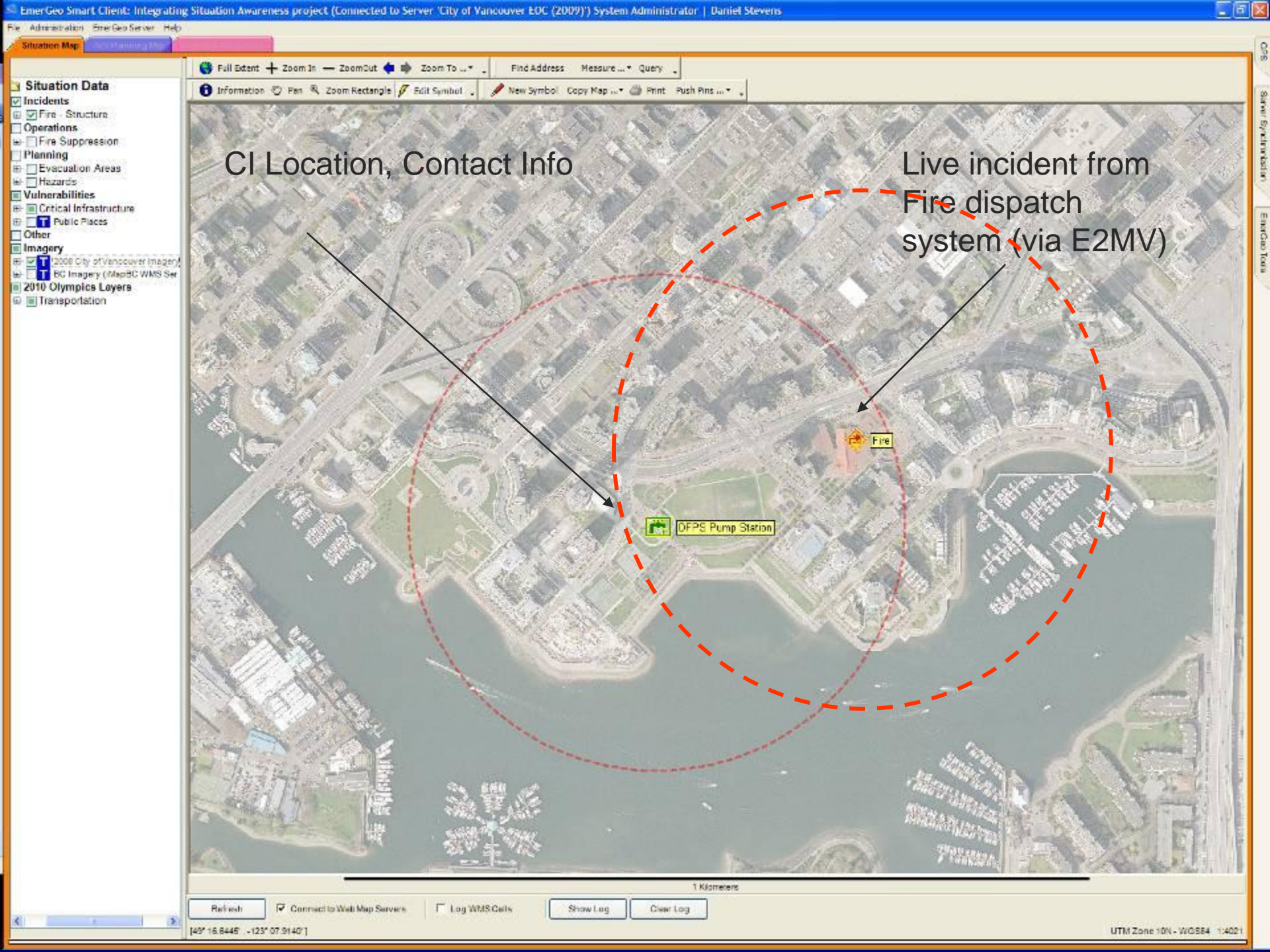


E-Mail and  
CAP-CP  
compatible  
systems

# CI Alerting









# Projects

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## ■ E2MV

Lead: E-Comm

Funded in part by GeoConnections

## ■ Integrating Situational Awareness

Lead: City of Vancouver Office of Emergency Management

Funded in part by GeoConnections