

Standards-Based Interoperability for 911 PSAPs and Computer-Aided Dispatch (CAD) Systems

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APCO Data Transfer Committee

Kevin Aide, Intergraph: Security, Government & Infrastructure Div.

January 27, 2010



Agenda

- **A Brief Overview of the Public Safety Data Interoperability (PSDI) Project**
 - **Guide to Information Sharing and Data Interoperability for Local Communication Centers**
 - **Priority Data Exchanges for Local Communication Centers**
 - **A One Minute Introduction About NIEM**
- **Data Sharing Between Alarm Monitoring Companies and 911 PSAPs: City of Richmond Case Study**
- **Intergraph and The Future of Interoperability Using BizTalk**

Acronyms and Definitions

- **APCO - Association of Public Safety Communications Officials**
- **CSAA – Central Station Alarm Association**
- **NIEM – National Information Exchange Model**
- **Nlets – The International Justice & Public Safety Network**
- **PSAP – Public Safety Answering Point**
- **PSDI – Public Safety Data Interoperability Project**

Public Safety Data Interoperability Project (PSDI)

- ▶ To advance standards-based information sharing and improve real-time information sharing capabilities to support the first responder domains:
 - emergency communications
 - law enforcement
 - emergency medical services
 - fire services
 - emergency management
 - and other relevant homeland security domains

- ▶ This project is funded by the Bureau of Justice Assistance's Edward Byrne Memorial Discretionary Grants Program. BJA is a component of the Office of Justice Programs of the U.S. Department of Justice.
<http://www.ojp.usdoj.gov/BJA>
 - Project Start: 12-10-07
 - Scheduled End: 05-31-10



PSDI Steering Committee

Representation on the PSDI Project Steering Committee:

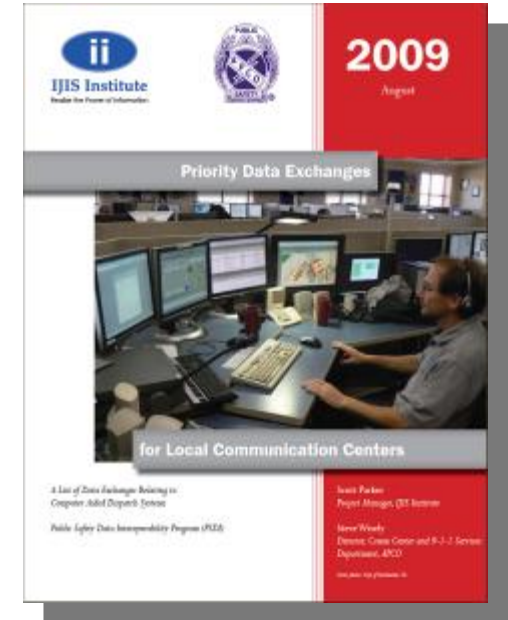
- ▶ 4 Industry
- ▶ 3 Communications
- ▶ 2 Law Enforcement
- ▶ 2 Fire Services
- ▶ 2 EMS
- ▶ 2 Emergency Management
- ▶ 1 Transportation



PSDI – Priority Data Exchanges

- ▶ Published at www.ijis.org and www.apcointl.org
- ▶ Apr 08 to Aug 09
- ▶ 47 draft versions
- ▶ 59 exchanges identified

Provides an overview of the many data exchanges that are of potential value to the Communications Center. Communications Center Directors and other planners may use this document to assess the current strengths, weaknesses and growth potential of their facilities.



3.1.2 Real Detective 3.1.2 (RDR 1.0) - Introduction to CAD

System Name	System Description	System Location	System Status
Real Detective 3.1.2 (RDR 1.0)	Real Detective 3.1.2 (RDR 1.0) is a computer-aided dispatch (CAD) system that provides a central location for all CAD-related information. It is designed to be used by dispatchers and other personnel who are responsible for managing the CAD system.

3.4 External - Outgoing

3.4.1 Call Management (to Applicant (RDR, DR, LE, or Fire Dispatch System))

System Name	System Description	System Location	System Status
Call Management (to Applicant (RDR, DR, LE, or Fire Dispatch System))	Call Management (to Applicant (RDR, DR, LE, or Fire Dispatch System)) is a system that provides a central location for all call management-related information. It is designed to be used by dispatchers and other personnel who are responsible for managing the call management system.

4.1 High Priority Exchanges

System Name	System Description	System Location	System Status
...

4.4 The Top 10

Ranking is determined by the number of entries in the National Exchange User List. Only approximately 10 entries in the "Top 10".

System Name	System Description	System Location	System Status
...

9 Appendix B - Exchange Checklist Worksheet

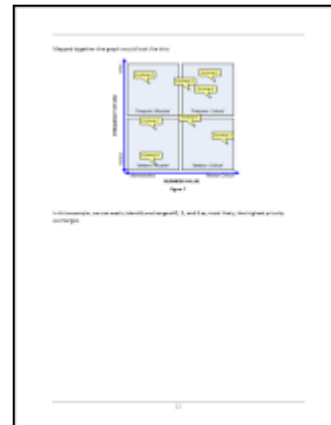
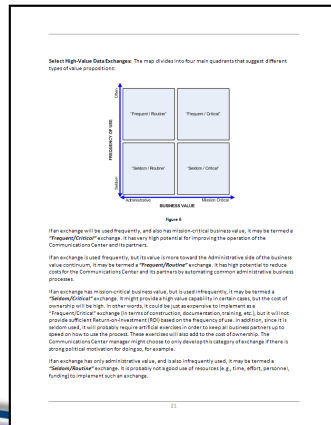
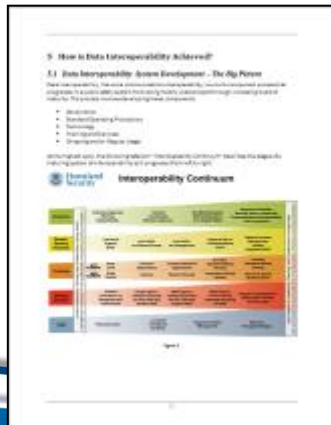
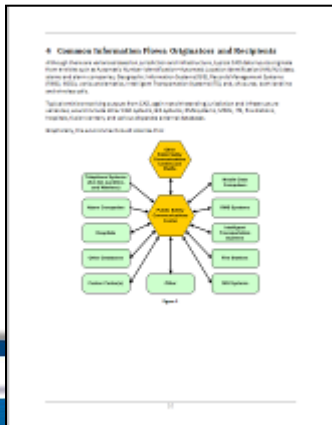
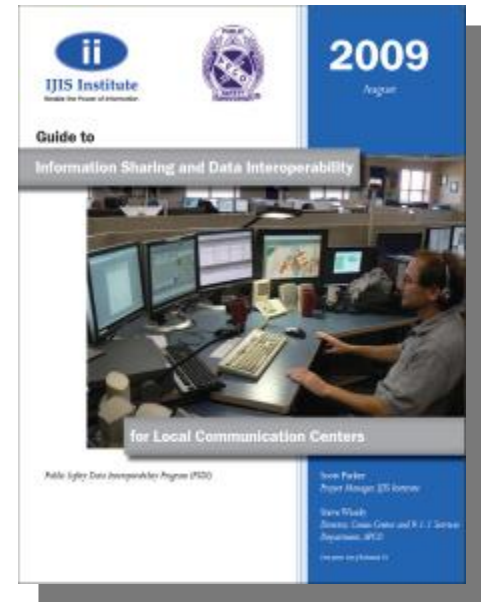
Use this worksheet to determine if you are currently using any of the following exchanges.

Exchange Name	Yes	No	Comments
...

PSDI – Guide to Information Sharing

- ▶ Published at www.ijis.org and www.apcointl.org
- ▶ Apr 08 to Aug 09
- ▶ 31 draft versions

Provides managers of Public Safety Communications Centers with an overview of the issues and opportunities related to information sharing; also provides practical insights and action-oriented advice for managers looking to enhance data interoperability at their facilities.



NIEM – Examples of What It Does at a High Level

Vehicle Make

- NCIC: Vehicle Make = Message Key VMA
 Example: VMA/FORD

- GJXDM: <VMACodeType>
 Example: <VMACodeType>FORD</VMACodeType>

- NIEM Core: <VehicleMakeCode>
 Example: <VehicleMakeCode>FORD</VehicleMakeCode>

NIEM – Examples of What It Does at a High Level

Vehicle Color

- NCIC: Vehicle Color = Message Key VCO
Example: VCO:BLK/WHI
- GJXDM: <VCOCodeType>
Example: <VCOCodeType>BLK/WHI</VCOCodeType>
- NIEM Core: <VehicleColorPrimaryCode>
<VehicleColorSecondaryCode>
<VehicleColorInteriorText>
Examples: <VehicleColorPrimaryCode>WHI</VehicleColorPrimaryCode>
<VehicleColorSecondaryCode>BLK</VehicleColorSecondaryCode>
<VehicleColorInteriorText>GREEN</VehicleColorInteriorText>

The Birth of a New American National Standard

**Official Name: APCO/CSAA 2.101.1-2008 ANS Alarm Monitoring
Company to PSAP CAD External Alarm
Interface Exchange**

Adoption Date: January 15, 2009

- **Standards-Based**
 - XML
 - Converted from Custom Template to GJXDM then to NIEM
- **No Longer a Pilot; in full production**

Video: News Story - WTVR Channel 6 - Richmond, Va.

Teaser for the Audience

Keep These Three Numbers in Mind:

15,500

128,000

32,000,000

What Do You Think They Represent?

(Answer at End of Presentation)

External Alarm Interface Exchange - Purpose

To provide a standard data exchange for electronically transmitting information between an Alarm Monitoring Company and a Public Safety Answering Point (PSAP).

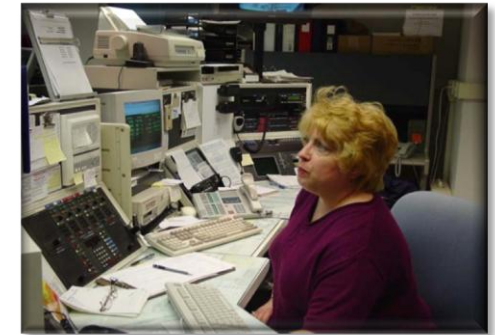
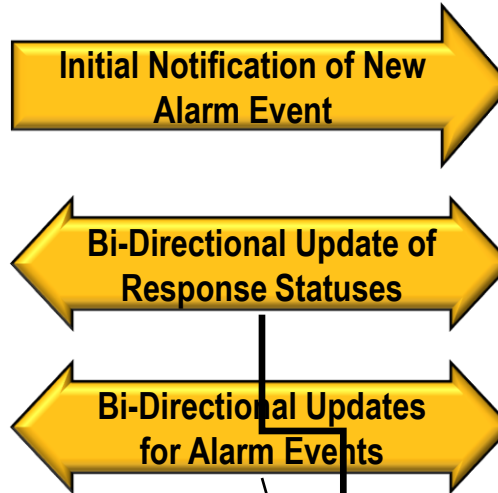
Generic Explanation: The exchange replaces the telephone calls between the Alarm Monitoring Company operator and the 911 PSAP call-taker.

External Alarm Interface Exchange - Usage

Three Primary Uses



Alarm Monitoring Company



Public Safety PSAP

- Acknowledgement by PSAP that Call Has been Accepted or Rejected
- PSAP Incident Number Returned to Alarm Company

- Updates from Alarm Company
 - Key-holder information
 - Request to cancel the dispatch
- Updates from the PSAP
 - Units dispatched
 - Units arrived on scene
 - Call closed with disposition

External Alarm Interface Exchange – Goals

Three Primary Benefit Goals – Goal #1

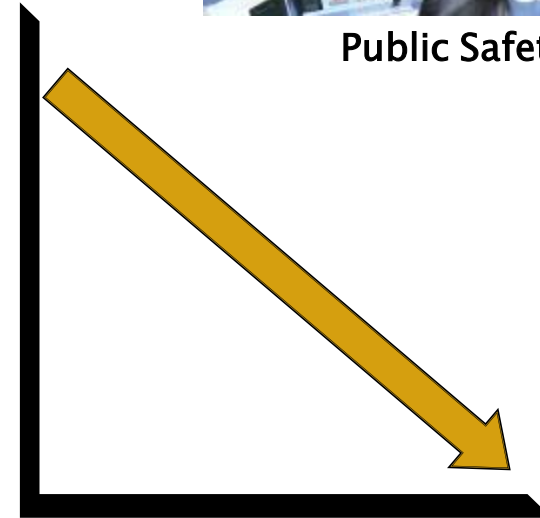


Alarm Monitoring Company



Public Safety PSAP

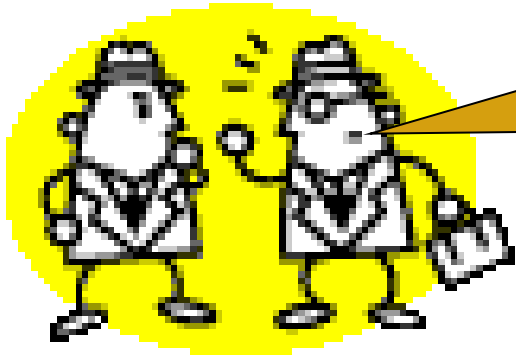
Eliminate the telephone calls between the Alarm Monitoring Company and the PSAP.



Telephone Call Volume From Alarm Companies

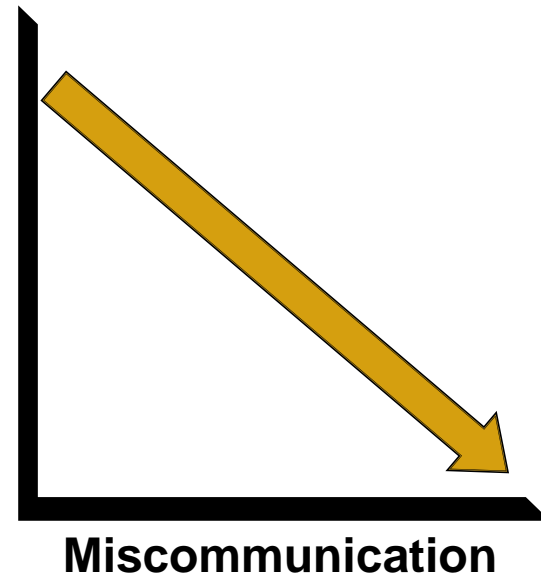
External Alarm Interface Exchange – Goals

Three Primary Benefit Goals – Goal #2



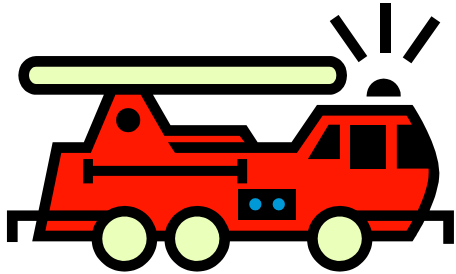
I can't understand you.
How do you spell that street?
I can't hear you, call back.

**Eliminate miscommunication between
the Alarm Monitoring Company
operator and the PSAP's call-taker.**

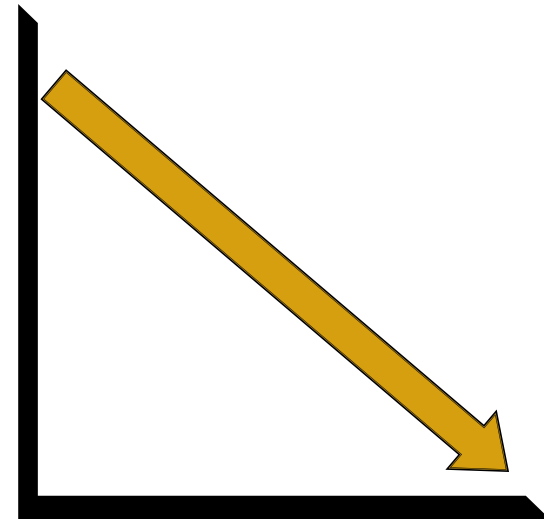


External Alarm Interface Exchange – Goals

Three Primary Benefit Goals – Goal #3



Realize a decrease in response times to alarm-related calls-for-service with an increase in law enforcement apprehensions made, fires more quickly extinguished, and lives saved.

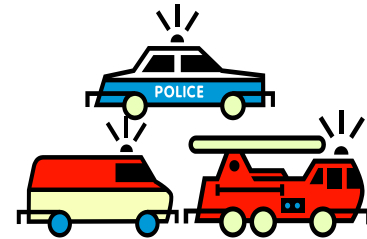
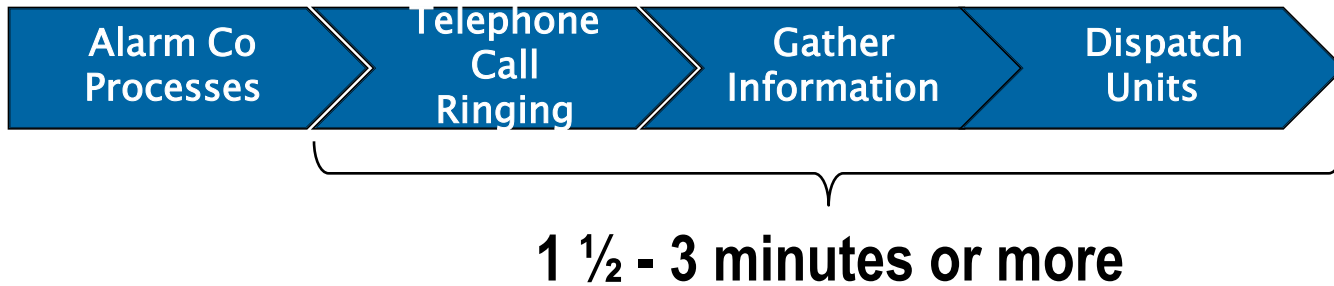


Processing &
Response Time

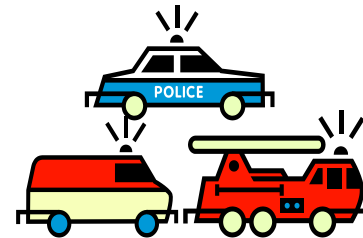
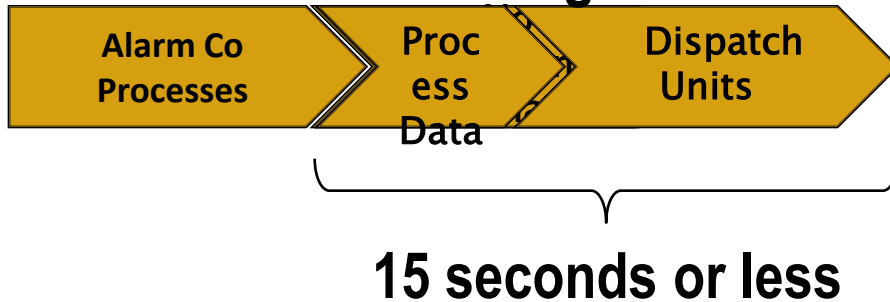
External Alarm Interface Exchange – Analysis

Detailed Examination of the Decrease in Response Time...
(based on City of Richmond's implementation)

Without the Alarm Exchange...



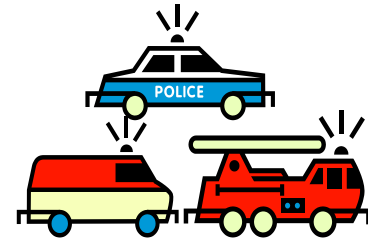
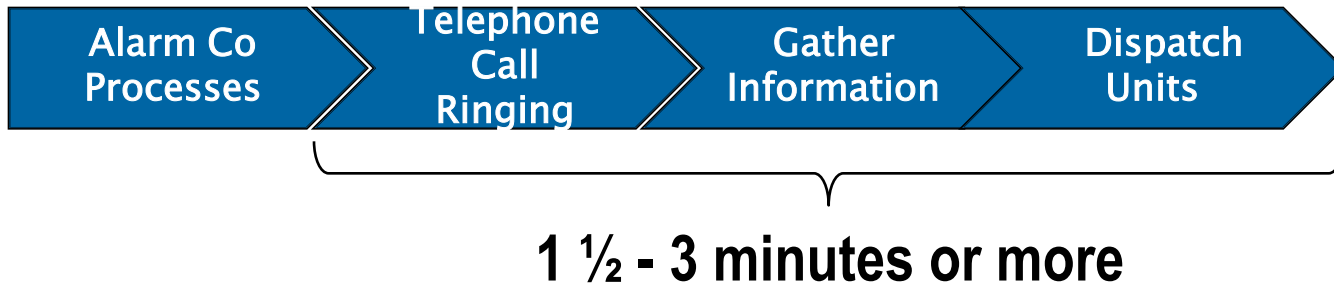
With the Alarm Exchange...



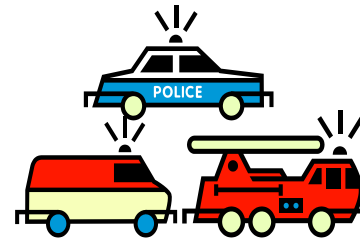
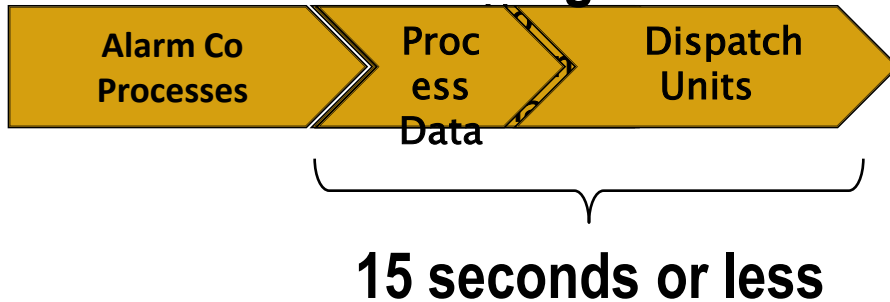
External Alarm Interface Exchange – Analysis

Comparative Examination of the Decrease in Response Time...
(based on City of Richmond's implementation)

Without the Alarm Exchange...



With the Alarm Exchange...



External Alarm Interface Exchange – Outcome

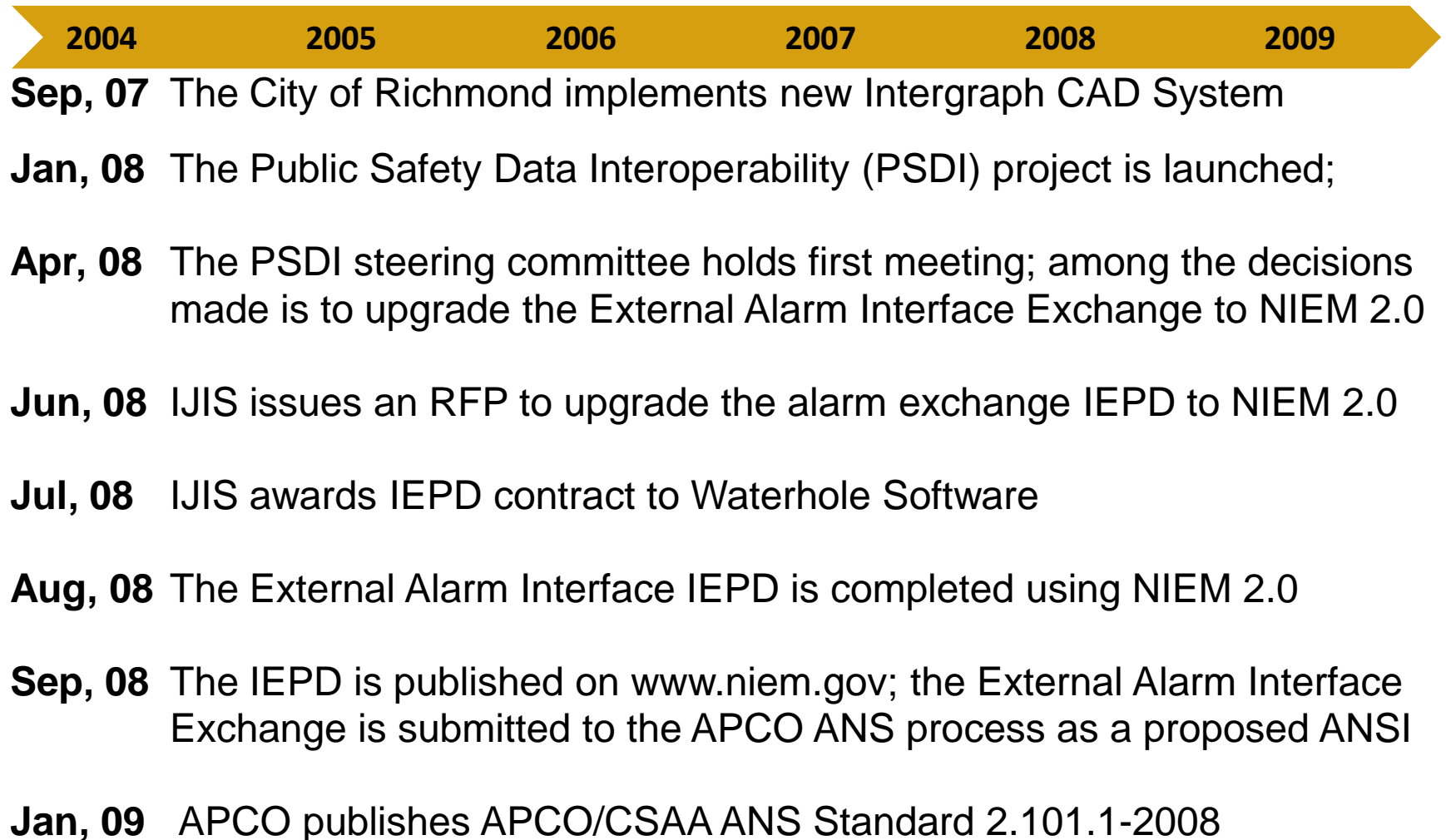
Richmond's Experiences

- **8,000 total alarm exchanges transmitted:**
 - No telephone call
 - No call-taker involvement
 - Spelling mistakes eliminated
 - No low volume headset issues
 - No need to try to interpret accents
- **Was...**
 - 1½ min - average process time w/o repetition
 - up to 3 min (sometimes more) – process time for some alarm calls
- **Now...**
 - 15 sec or less - average turnaround time via the interface

External Alarm Interface Exchange – History

2004	2005	2006	2007	2008	2009
Aug,04	APCO & CSAA kickoff project to create and test a data exchange between a central station alarm monitoring company and a 911 PSAP; York Co., VA and Vector Security are selected; York Co. uses a copy of Richmond's CAD; Vector Security uses GE				
Jan,05	APCO and CSAA formerly partner to develop an exchange that will be consistently used by CAD providers and Central Station Alarm Companies for PSAPs to increase efficiency and decrease errors				
Jul,06	The Alarm Interface Exchange 2.0 goes live at York Co. VA; includes only Burglar and Hold-up alarms				
Aug,06	APCO requests the City of Richmond to join the pilot to generate additional volumes of alarm exchanges; City of Richmond's interface goes live within 24 hours of the request				
Oct,06	The alarm exchange pilot is expanded to include Fire and Medical alarms				

External Alarm Interface Exchange – History



“The Holy Grail” and Other Famous Quotations

- **APCO And CSAA Conduct Test Project For Third Party Call Center Communications (January, 2005)**
 - "It is the intention of APCO International that this joint alarm project will lead to a standard for all PSAPs who wish to use this procedure after its proven development. Likewise, we would expect CSAA to provide these results to all its alarm companies for their use with PSAPs." - Greg Ballentine, President, APCO
- **Associations partner on alarm data exchange (July, 2005)**
 - “This is the Holy Grail that everyone said would be great to have,”
 - Steve Doyle, Executive Vice-President, CSAA
 - “The intent of the partnership is to develop an interface for alarm companies to communicate directly with 911 centers electronically,”
 - Pam Petrow, Executive Vice President, Vector Security

External Alarm Interface Exchange – Pilot Participants

- **City of Richmond (Va) – DIT and 911**
- **York County (Va) 911**
- **Vector Security**
- **CSAA**
- **APCO**
- **IJIS Institute**
- **GE Security**
- **Intergraph Corporation**
- **Nlets**
- **Virginia State Police**

Teaser Answers

15,500 ?

Answer: The average number of alarm calls reported to the City of Richmond annually by all alarm companies. Richmond estimates a \$25,000 savings per year could be achieved.

128,000 ?

Answer: The total number of alarm panel signals sent from Vector Security alarm subscribers' equipment located within the City of Richmond during FY0809 but only about 2,300 or 1.8% resulting in a notification to the 911 PSAP for dispatch.

32,000,000 ?

Answer: The estimated number of alarm calls reported annually via telephone to the 6,500 PSAPs across the United States by all alarm companies. Using the Richmond median salary rate for communications staff, over \$51,520,000 could be saved.

What about your agency or the agencies you support?

Interoperability with Intergraph's Computer Aided Dispatch System

Breaking new ground using Microsoft BizTalk Sever



Intergraph and Interoperability

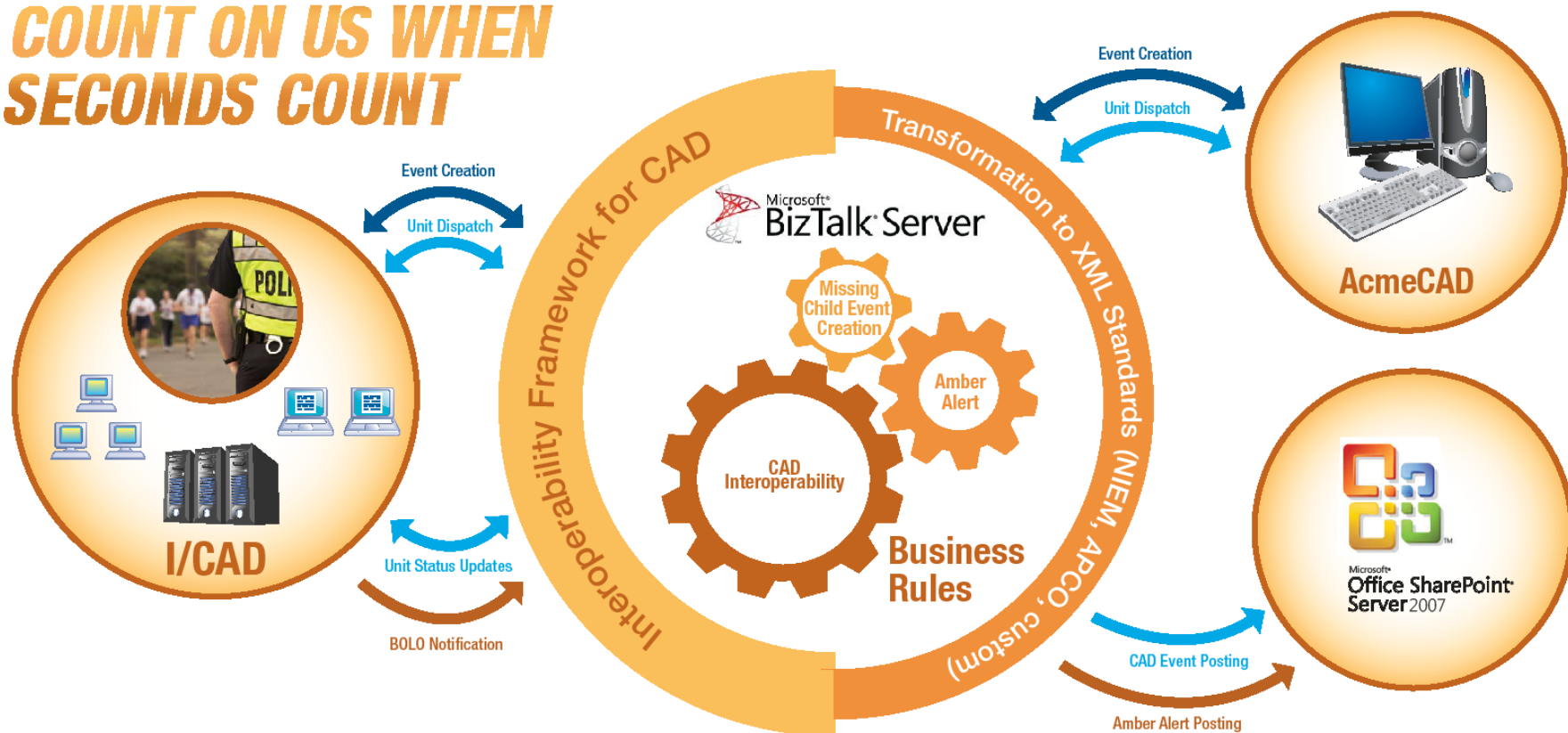
- **Intergraph has long been a strong proponent of open systems and data interoperability**
- **Intergraph was the first CAD vendor to implement the APCO Project 36 standard in their I/CAD system**
 - InterCAD has served its customers well by providing an integration technology for use with I/CAD
 - As powerful as InterCAD is, it doesn't address all the Integration and Interoperability requirements that we're seeing in the modern Public Safety Enterprise
- **Intergraph made the strategic decision to leverage Microsoft BizTalk Server as the platform for Interoperability and Integration with I/CAD**
 - Intergraph included a COTS integration with BizTalk with its CAD 9.0 release

Interoperability Framework for CAD

- **Includes 3 WCF services which support a rich integration with BizTalk by:**
 - **Publishing key activities** that are taking place in I/CAD
eg: event creation, unit dispatch, unit status change, timer expiration, etc
 - Providing **CAD database query capabilities** from within an orchestration
 - Providing access to a **CAD command engine** which can be used within an orchestration to invoke CAD actions
eg: create an event, change a units status, etc.
- **Includes orchestrations and other BizTalk artifacts required to support out-of-the-box CAD interoperability**

Intergraph Interoperability Framework for CAD

COUNT ON US WHEN SECONDS COUNT



Intergraph Interoperability Framework for CAD

A graphic with a black background. The year '2009' is in white at the top left. The word 'HOTT' is in large, glowing orange and yellow flames. Below it, 'PRODUCTS' is in white. A white-bordered box in the bottom left contains yellow text.

2009

HOTT

**15 Innovative New Solutions
Identified at 75th Annual
APCO CONFERENCE & EXPO**

PRODUCTS

Thank You!!!

For More Information:

- Public Safety Data Interoperability Project Documents
 - www.ijis.org go to “Programs” > “Public Safety Information Sharing”
 - www.apcointl.org go to “APCO Resources” > “APCO Resource Library”
- External Alarm Interface Exchange ANSI, Fact Sheet, FAQs, IEPD
 - www.apcointl.org (APCO Standards Section)
 - IEPD available at www.niem.gov (Tools > Work with IEPDs > Search for IEPD (Keyword “Alarm”))

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