ICT use in Early Warning Systems and Information Exchange in Disaster Management

Second Multi-Stakeholder Forum on the Role of Telecommunications/ICT in Disaster Management

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Introduction

Organization for the Advancement of Structured Information Standards (OASIS)

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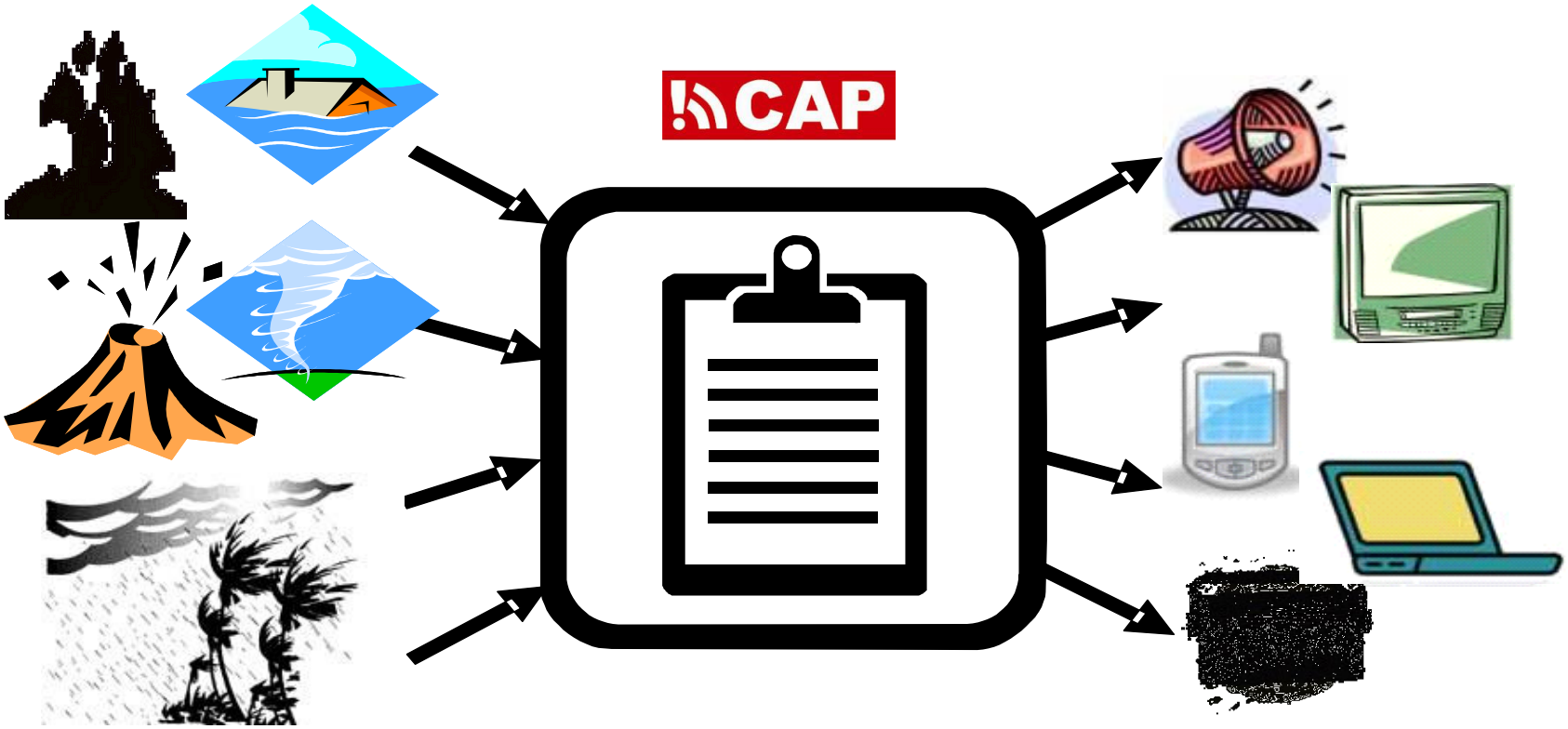
Agenda

- Common Alerting Protocol
- Emergency Data Exchange Language (EDXL) Family of Standards
- Healthcare Interoperability Environment
- Conclusion
- References

Early Warning Emergency Alert Systems

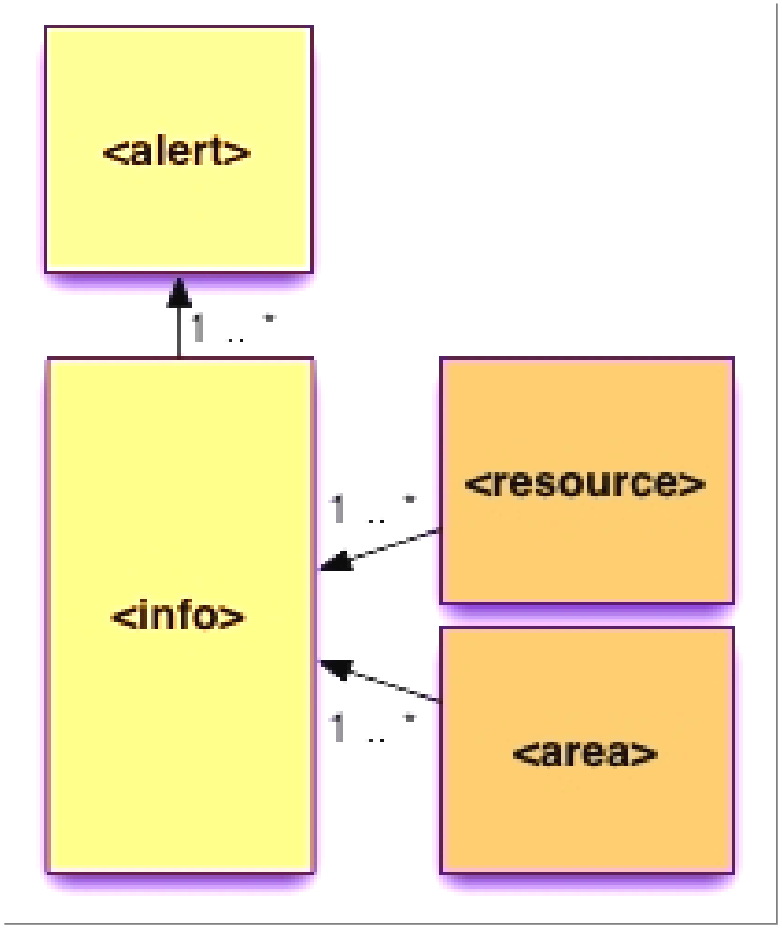


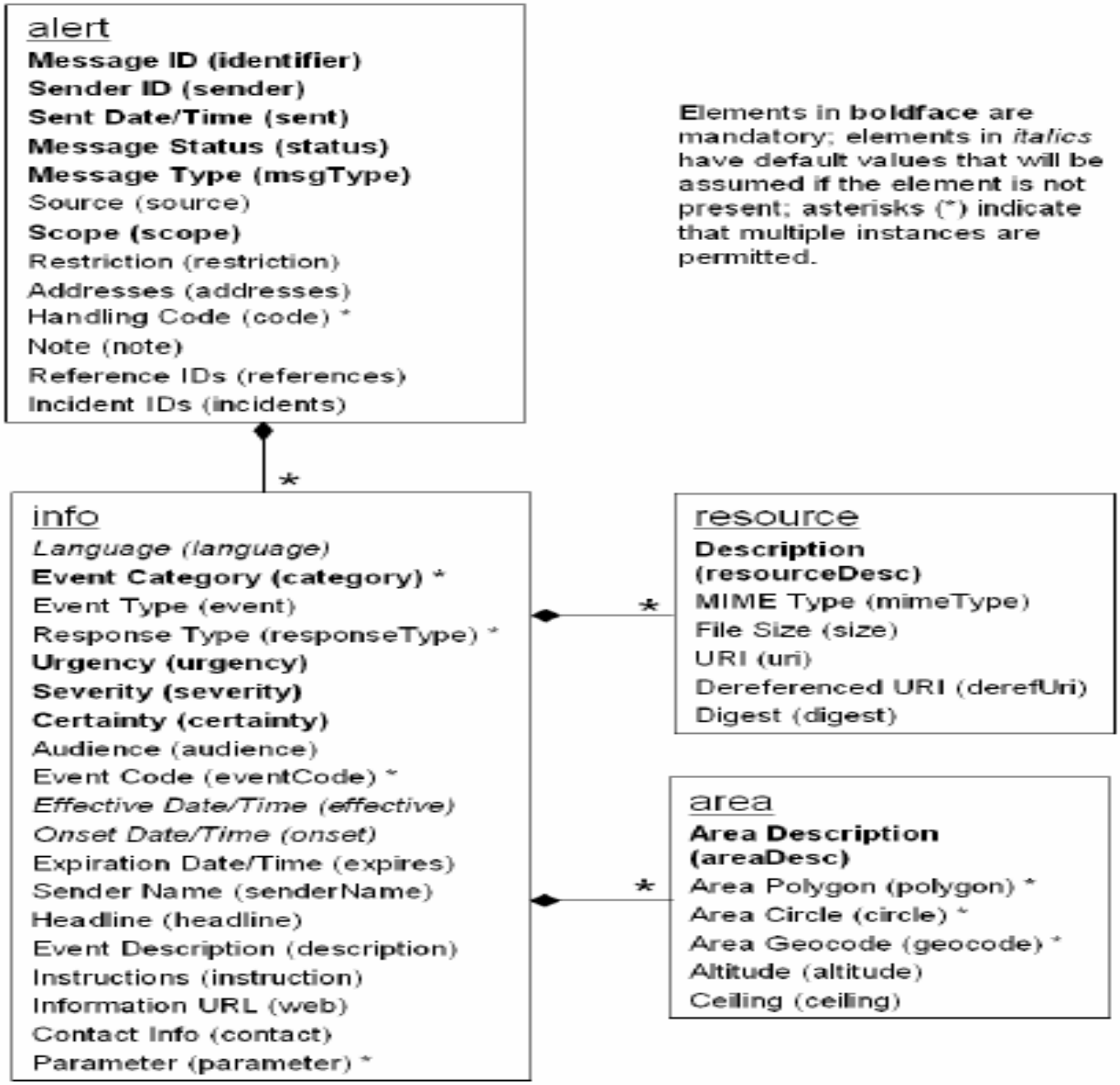
Common Alerting Protocol (CAP)
All-Hazards, All-Media

Structure of a CAP Message

CAP Messages contain:

- Text values for human readers, such as "headline", "description", "instruction", "area description", etc.
- Coded values useful for filtering, routing, and automated translation to human languages

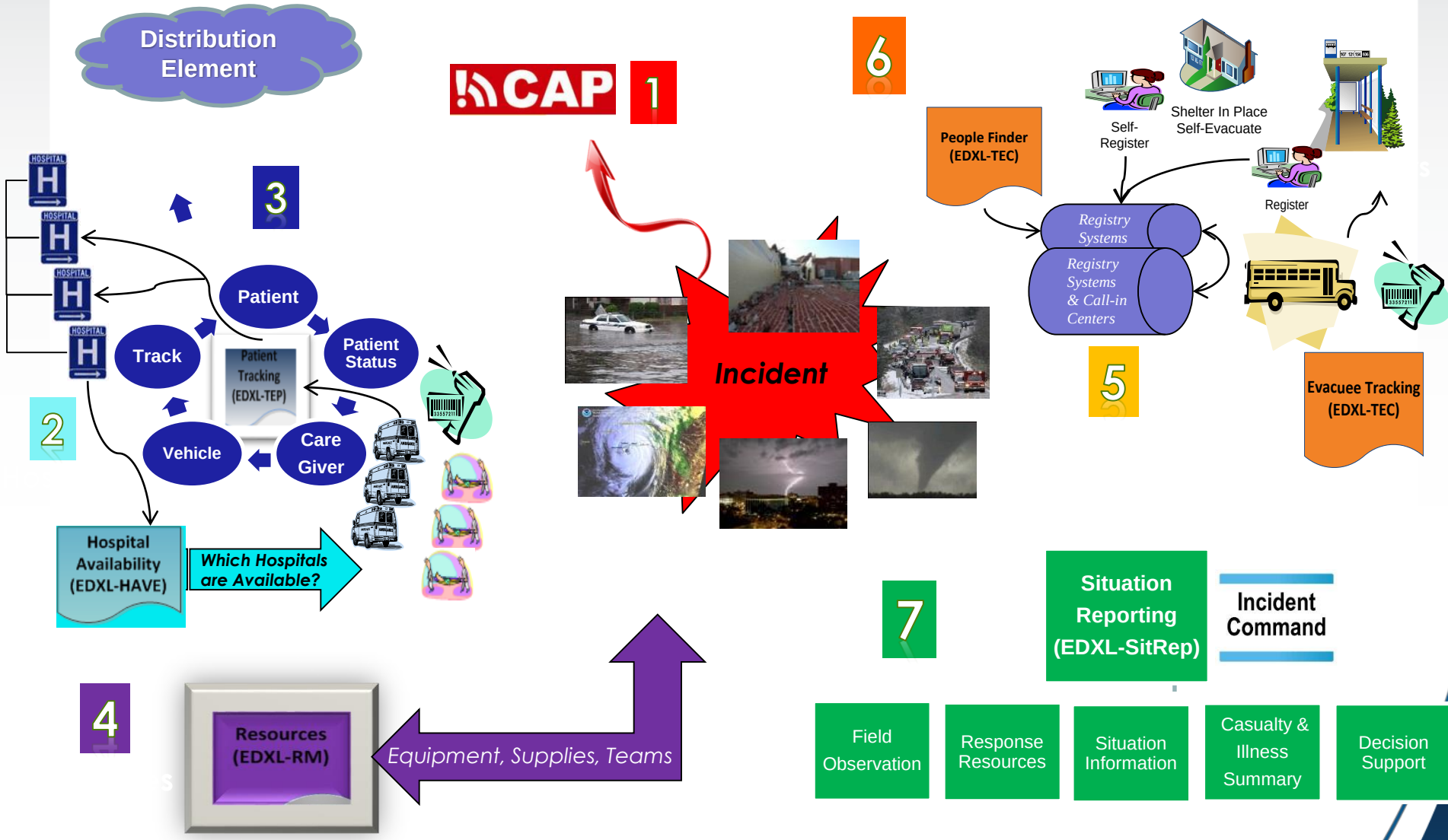



alert
Message ID (identifier)
Sender ID (sender)
Sent Date/Time (sent)
Message Status (status)
Message Type (msgType)
Source (source)
Scope (scope)
Restriction (restriction)
Addresses (addresses)
Handling Code (code) *
Note (note)
Reference IDs (references)
Incident IDs (incidents)
Elements in boldface are mandatory; elements in italics have default values that will be assumed if the element is not present; asterisks (*) indicate that multiple instances are permitted.
*
info
Language (language)
Event Category (category) *
Event Type (event)
Response Type (responseType) *
Urgency (urgency)
Severity (severity)
Certainty (certainty)
Audience (audience)
Event Code (eventCode) *
Effective Date/Time (effective)
Onset Date/Time (onset)
Expiration Date/Time (expires)
Sender Name (senderName)
Headline (headline)
Event Description (description)
Instructions (instruction)
Information URL (web)
Contact Info (contact)
Parameter (parameter) *
*
resource
Description (resourceDesc)
MIME Type (mimeType)
File Size (size)
URI (uri)
Dereferenced URI (derefUri)
Digest (digest)
*
area
Area Description (areaDesc)
Area Polygon (polygon) *
Area Circle (circle) *
Area Geocode (geocode) *
Altitude (altitude)
Ceiling (ceiling)

Filtering and Routing Criteria

- **Event Categories**
  (Geo, Met, Safety, Security, Rescue, Fire, Health, Env, Transport, Infra, Other)
- **Urgency:** Timeframe for responsive action
  (Immediate, Expected, Future, Past, Unknown)
- **Severity:** Level of threat to life or property
  (Extreme, Severe, Moderate, Minor, Unknown)
- **Certainty:** Probability of occurrence
  (Very Likely, Likely, Possible, Unlikely, Unknown)

EDXL family of Emergency Management Standards



OASIS Emergency Data Exchange Language

- **Provides a Suite of Standardized Message Formats**
  - Common Alerting Protocol (CAP) for Alerting Messages
    - v1.0 March 2004
    - v1.1 October 2005, ITU Recommendation X.1303
    - V1.2 July 2010
  - EDXL-Distribution Element (EDXL-DE) for Standardized Routing for Emergency Messages and other digital resources like image, audio and video files
    - v1.0 May 2006
    - v2.0 June 2013

OASIS Emergency Data Exchange Language

- **Provides a Suite of Standardized Message Formats**
  - EDXL-Resource Messaging (EDXL-RM) for the variety of messages involved with handling emergency Logistics
    - v1.0 Nov. 2008
  - EDXL Hospital Availability Exchange (EDXL-HAVE) v1.0 for Reporting the Availability of Hospital Resources
    - v1.0 Nov. 2008
    - V2.0 Currently Under Public Review

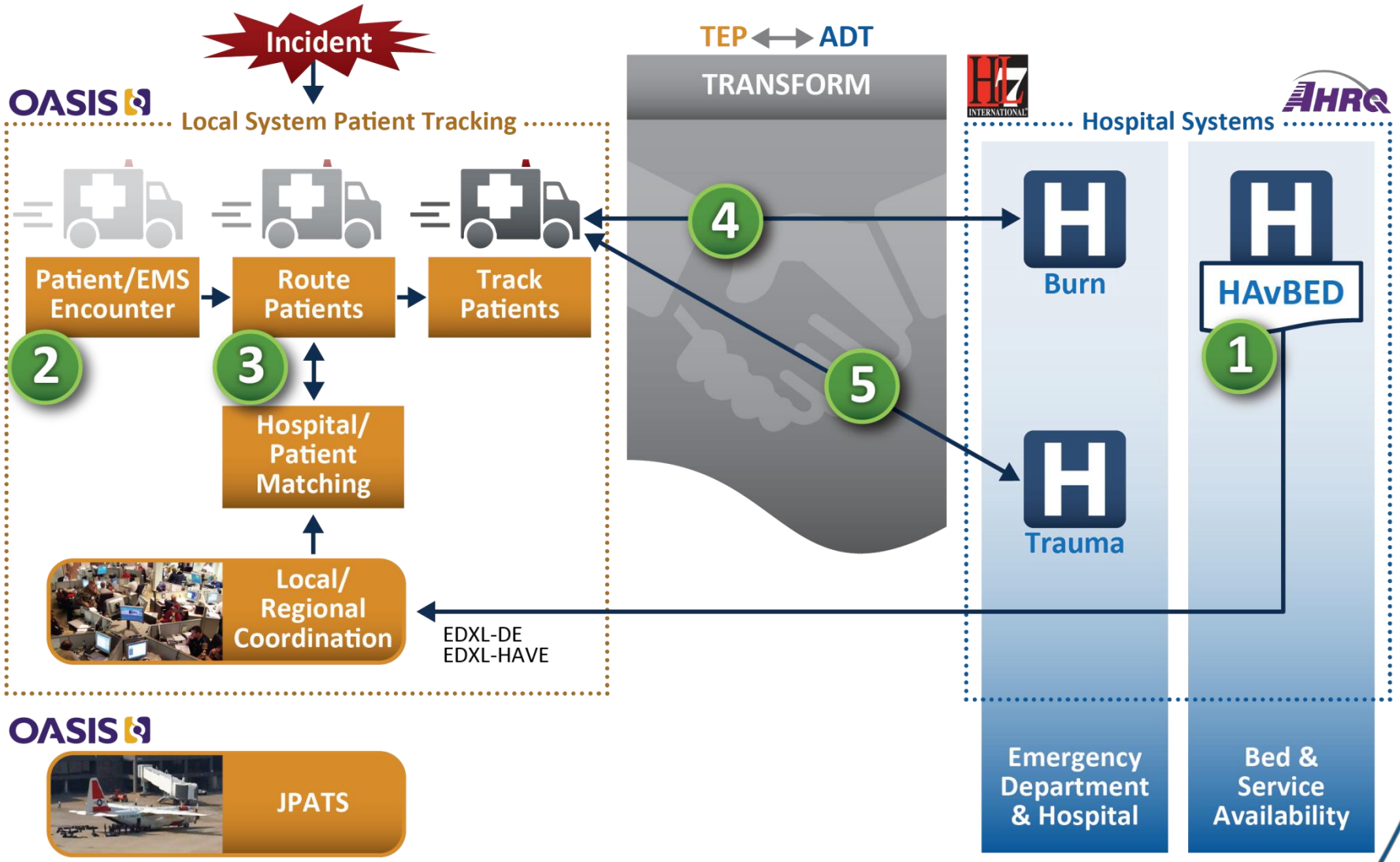
OASIS Emergency Data Exchange Language

- **Provides a Suite of Standardized Message Formats**
  - EDXL Situation Reporting (EDXL-SitRep) for Situational Awareness and Decision Support messages
    - v1.0 Nov. 2012
  - EDXL Tracking Emergency Patients (EDXL-TEP) for the continuum of patient information from emergency site through hospital admission /transfer
    - v1.0 Jan. 2014
    - v1.1 Jan. 2016
  - Tracking Emergency Clients (EDXL-TEC) Registry
    - v1.0 Jun. 2014

EDXL-TEP 1.1/HL7 2.7.1 ADT Transform

- **Joint effort between OASIS Emergency Management Technical Committee (EM-TC) and HL7 Public Health and Emergency Response (PHER) Working Group**
  - Data transform between OASIS EDXL-TEP 1.1 and HL7 2.7.1 Messaging
- **Bridges the electronic gap between the emergency management services and the hospital communities**
  - Bidirectional data exchange
  - Eliminates need to enter patient information received from EMS upon arrival
- **Facilitates ER preparation**
  - Tracks incoming patients from emergency services in the field
- **Used in day-to-day transfers, Mass Casualty Events (MCEs), and hospital evacuation**

Healthcare Interoperability Environment



Conclusion

- Information exchange is facilitated by standardized data messages
- Disaster management and response benefits when standardized information can be communicated
- Data message standardization allows for mapping between various information exchanges to enable interoperability
- Secure data message routing can use open standards to send and receive sensitive data across disciplines and jurisdictions

References

- www.oasis-open.org
- Status of CAP Implementations: http://www.preparecenter.org/sites/default/files/cap_implementations_6.pdf
- CAP/EDXL 2017 Workshop Flyer http://www.preparecenter.org/resources/cap-workshop-2017-flyer
- http://www.preparecenter.org/

Questions

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