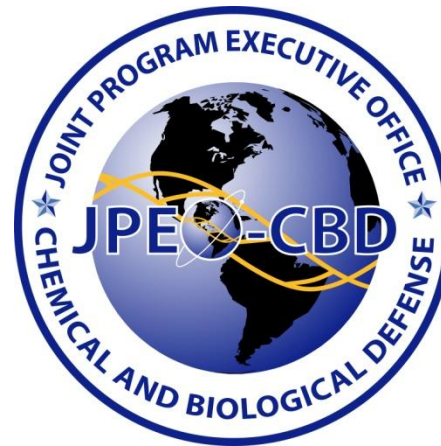




Chemical, Biological, Radiological, and Nuclear (CBRN) UCore Interoperability Pilot



13 May 2010

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ODNI IC-CIO/ICEA**



CBRN UCore Interoperability Pilot Challenge

- Inability for Intelligence Community to access and use Tactical/Operational Chemical, Biological, Radiological, Nuclear (CBRN) reports
 - Tactical CBRN reporting is isolated within isolated networks
 - No automated service to pull CBRN situation awareness reports



CBRN UCore Interoperability Pilot Purpose

- Create standards-based tactical to national “bridge” for CBRN data
 - Enable national-level access to tactical CBRN reports
 - Improve national and defense intelligence situation awareness



CBRN UCore Interoperability Pilot Membership

- **Distributed Common Ground System-Army (DCGS-A)**
- **Joint Forces Command, J87 – Command & Control (C2) Core Community of Interest (COI)**
- **Joint Program Executive Office – Chemical, Biological Defense (JPEO-CBD)**
 - Software Support Activity (SSA)
 - Joint Project Manager, Information Systems (JPM IS)
- **National MASINT Management Office/National Measurement & Signatures Office (Defense Intelligence Agency) – MASINT/Common Sensor Community of Interest (COI)**
- **Office of the Director of National Intelligence (ODNI)**
 - Intelligence Community Enterprise Architecture Directorate (ICEA)
 - Intelligence Community Information Sharing Data Standards Coordination Activity (DSCA)
- **Universal Core (UCore) Community of Interest (COI)**
- **Department of Homeland Security (DHS)/Domestic Nuclear Detection Office (DNDO)**



CBRN UCore Interoperability Pilot Scope

Programs/ Initiatives (a-z) that will advertise data as a web service:

- **Distributed Common Ground System-Army (DCGS- A):**
 - Consume UCore-wrapped CBRN data
 - Expose CBRN reports to Defense Intelligence users
 - Push CBRN data to Intelligence Networks (UCore, NIEM, C2 Core)
- **JPEO-CBD: CBRN Interoperability Web Service**
 - Converts the tactical CBRN reports available from the Joint Warning and Reporting Network (JWARN)
 - Calls Joint Effects Model (JEM) web service to request a plume
 - Converts plume into UCore
- **MASINT Portal (National MASINT Management Office)**
 - Pull CBRN reports from SIPR/JWICS DCGS-A
 - Expose CBRN data to National/Defense Intelligence Community
- **OSD DCGS MASINT Metadata Harmonization: Schema development support**
- **UCore: Schema development support**
- **C2 Core: Schema development support**

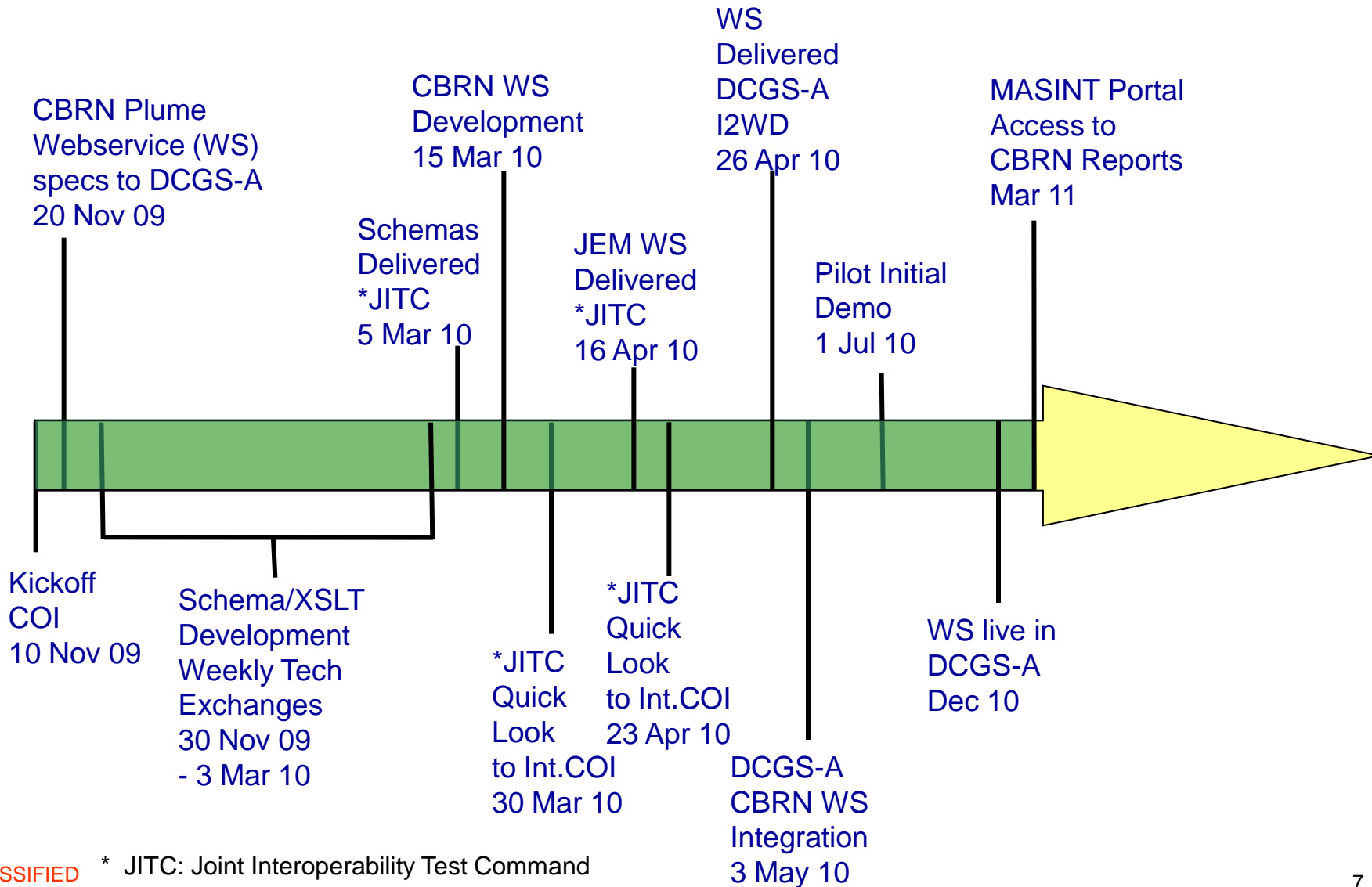


Leveraging UCore

- Why
 - UCore is designed to be universally understood
 - The data consumer (DCGS-A) specified that the data should be in UCore format
- How
 - Use XML Stylesheet Language Transformations (XSLTs) to transform plume data to UCore format
 - Consulting assistance from the UCore project team
- ROI
 - Most significant return is greater understandability of the data through use of a common standard
 - Pilot also serves as a proof of concept for implementing Ucore
 - Components have been designed to facilitate re-use



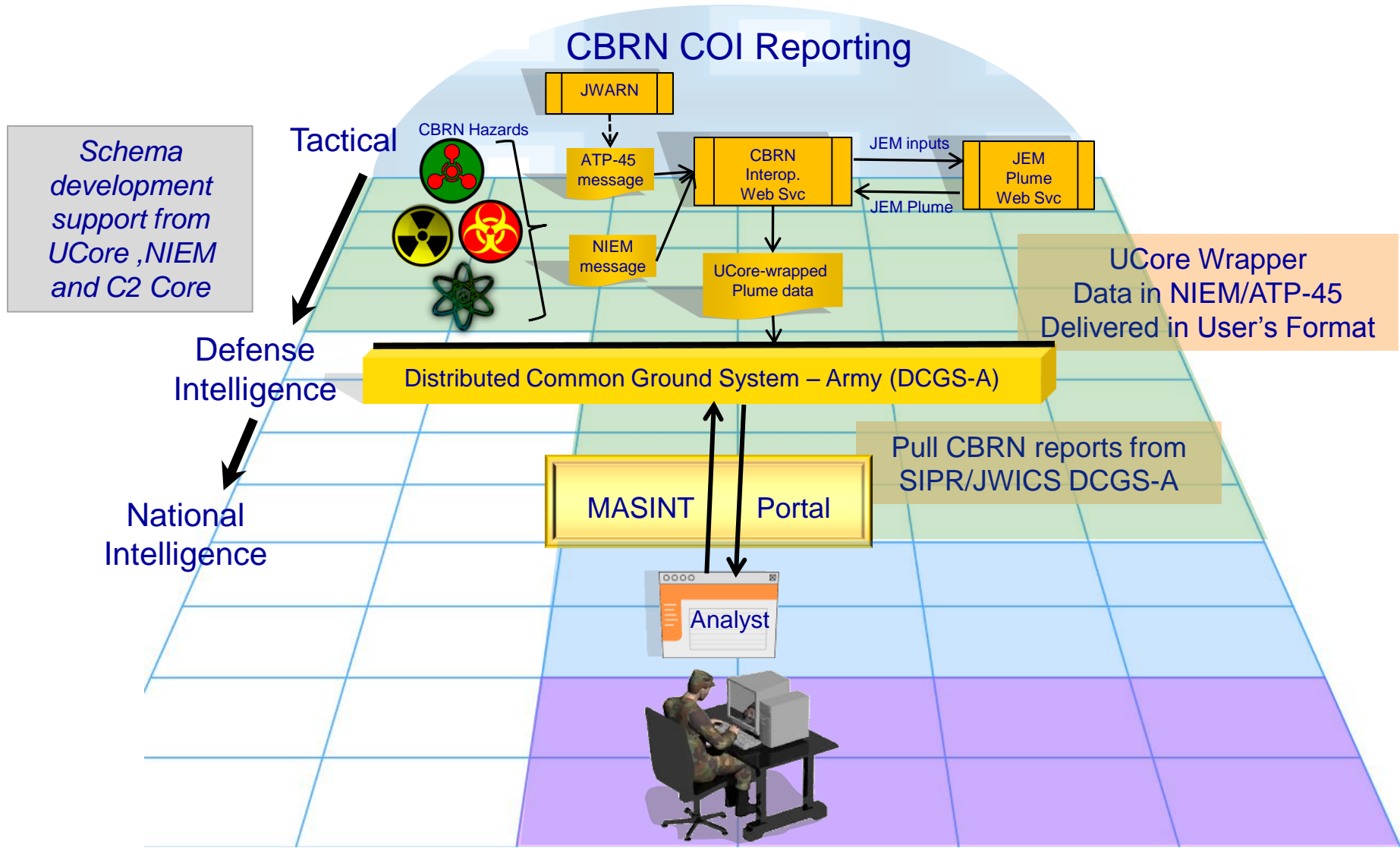
CBRN UCore Interoperability Pilot Schedule



UNCLASSIFIED * JITC: Joint Interoperability Test Command

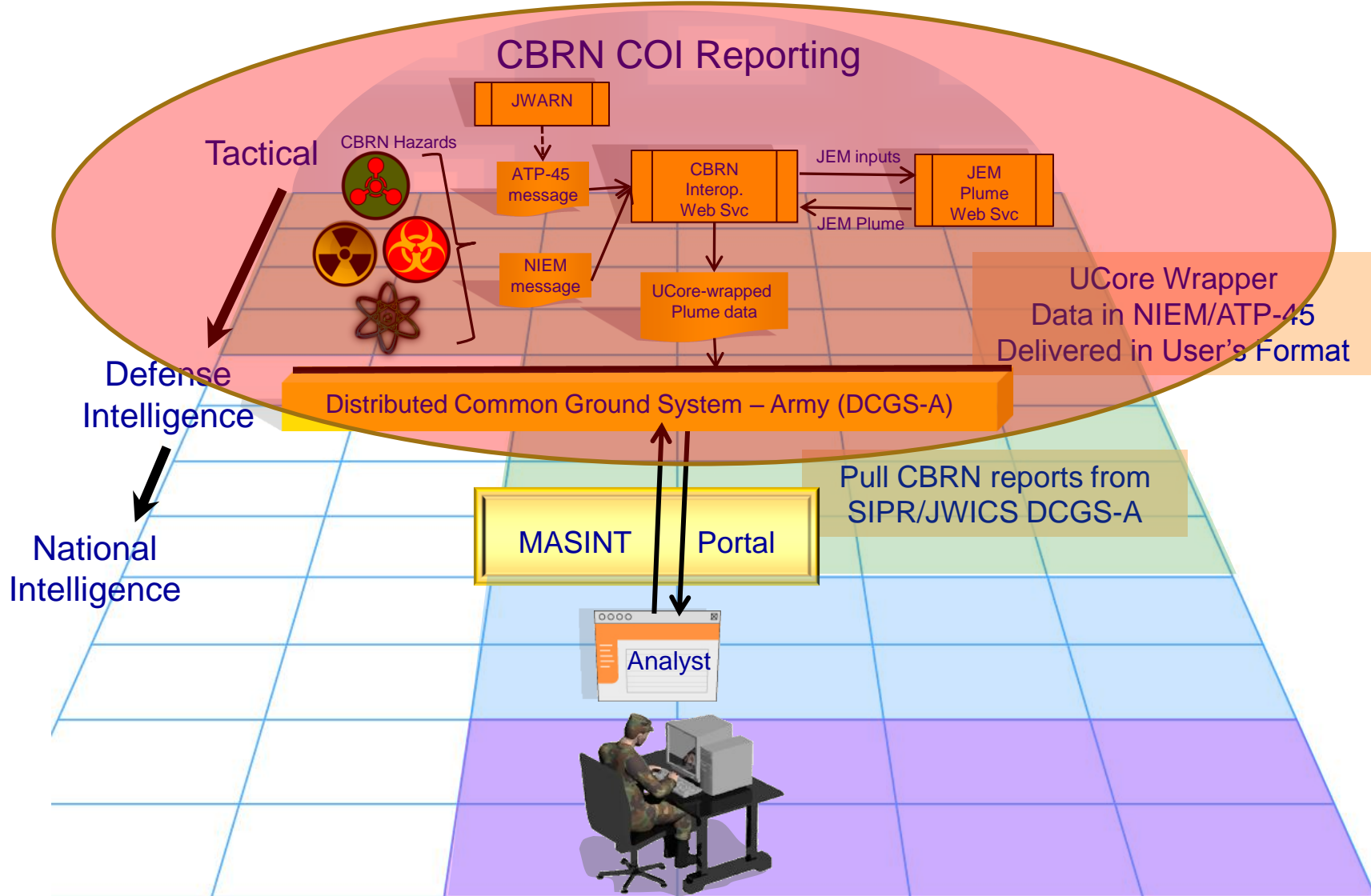


CBRN UCore Interoperability Pilot Messaging Architecture





Pilot – Phase 1





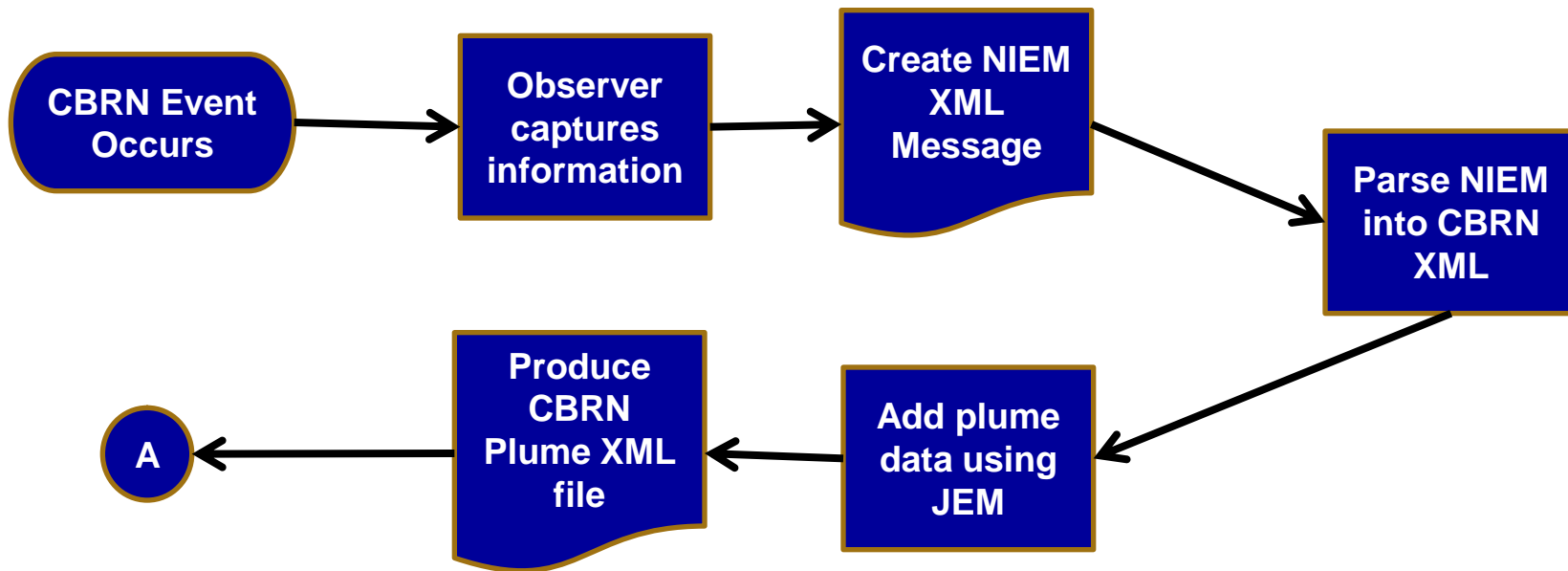
Leveraging NIEM

- Why
 - NIEM is used by the Department of Homeland Security (DHS)
 - DoD has a requirement to exchange CBRN incident data with DHS
- How
 - Sample NIEM message is created offline
 - Java transforms used to transform NIEM input message CBRN COI XML
- ROI
 - Most significant return is ability to receive and understand CBRN messages from DHS
 - A possible future enhancement is to provide NIEM output which could be sent to DHS
 - Components have been designed to facilitate re-use



Phase 1 Process Flows

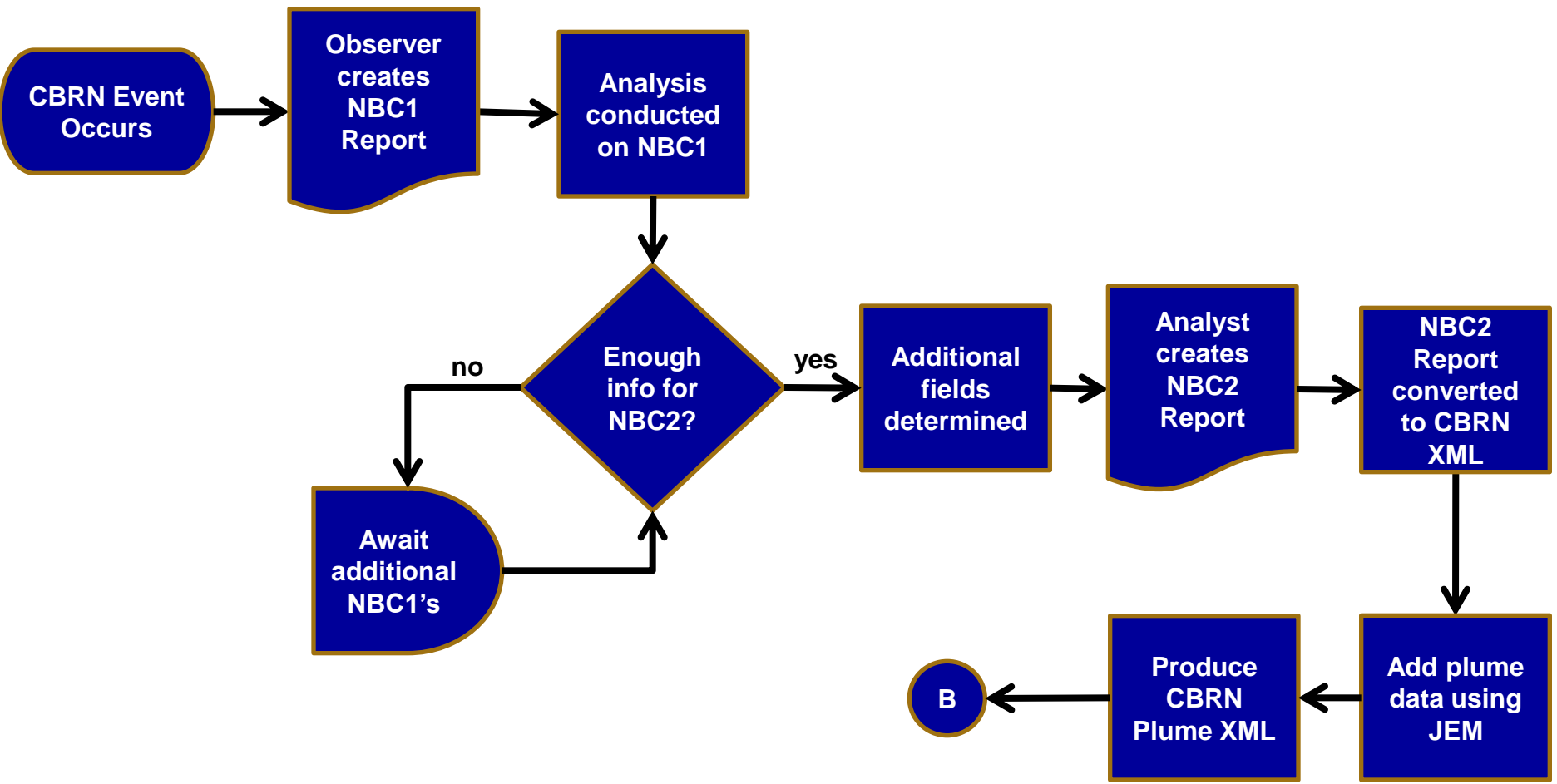
Step 1A: NIEM/JEM Plume XML Reporting





Phase 1 Process Flows

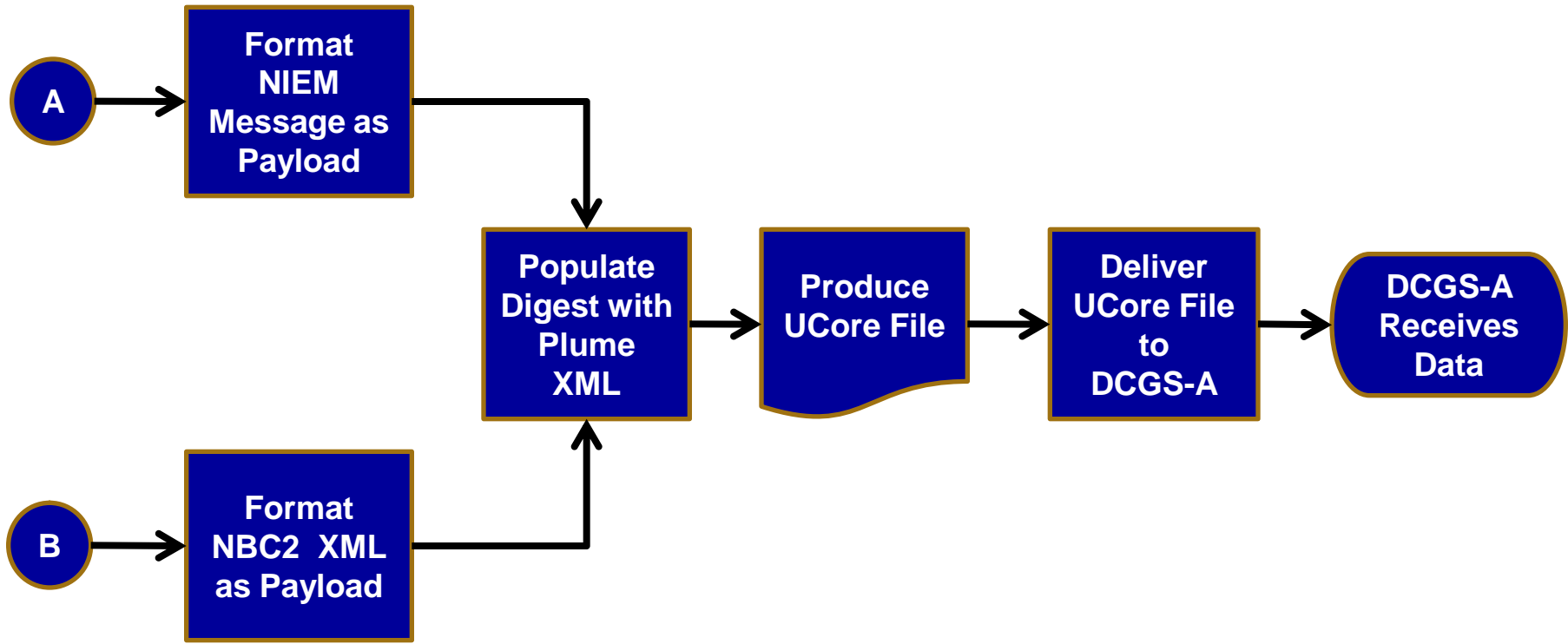
Step 1B: ATP-45(C) Reporting





Phase 1 Process Flows

Step 2: UCore Wrapping





Phase 1 Actions

- Performed in support of each of the two Phase 1 reporting channels
 - ATP-45(C)+JEM Plume Output to UCore Sample File
 - NIEM+JEM Plume Output to UCore Sample File
- UCore products were reviewed by SPAWAR UCore COI
- Reviewed products provided to JITC for validation
- Final formats will be reviewed by DCGS-A to ensure usability



Phase 1 Results

- ATP-45(C)+JEM Plume to UCore Sample File
 - Reviewed and agreed to by NMMO and UCore COI
 - Sample population and XSLT for converting JEM Plume to UCore created
 - Validated by JITC
 - Delivery will be made to DCGS-A

- NIEM+JEM Plume Output to UCore Sample File
 - Sample population and XSLT for converting JEM Plume to UCore created
 - Validated by JITC
 - Delivery will be made to DCGS-A



Potential Focuses of Future Phases

- Add JWARN capabilities to web service
- Integrate radiological/nuclear reporting capabilities
 - Actual STIRS JCTD data to supplement the JEM plume predictions
 - Data from DHS Domestic Nuclear Detection Office (DNDO)
- Consider additional output formats including NIEM
- Consider exchanging additional types of CBRN data
 - Add support for ATP-45 hazard area (“Triangle of Death”)
- Consider additional or automated weather sources
- Add support for Secure Socket Layer (HTTPS)
- Integration on existing systems for test exercises
- Development of web services for use on MASINT Portal
- Possible implementation on operational systems
 - Requires additional certifications



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