



# UAS Control Segment (UCS) Architecture

## Initial Work Packages

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# Initial Work Package (IWP) Goals








## Key goals:

- Demonstrate viability of UCS architecture by developing and integrating 10 services from UCS 1.0 architecture into existing control station software.
- Provide feedback to UCS WG on development and integration experiences
- Aid in determining level of difficulty in migrating existing control stations to UCS



# IWP Starting Point

*Five participants, 10 services, 5 GCS*

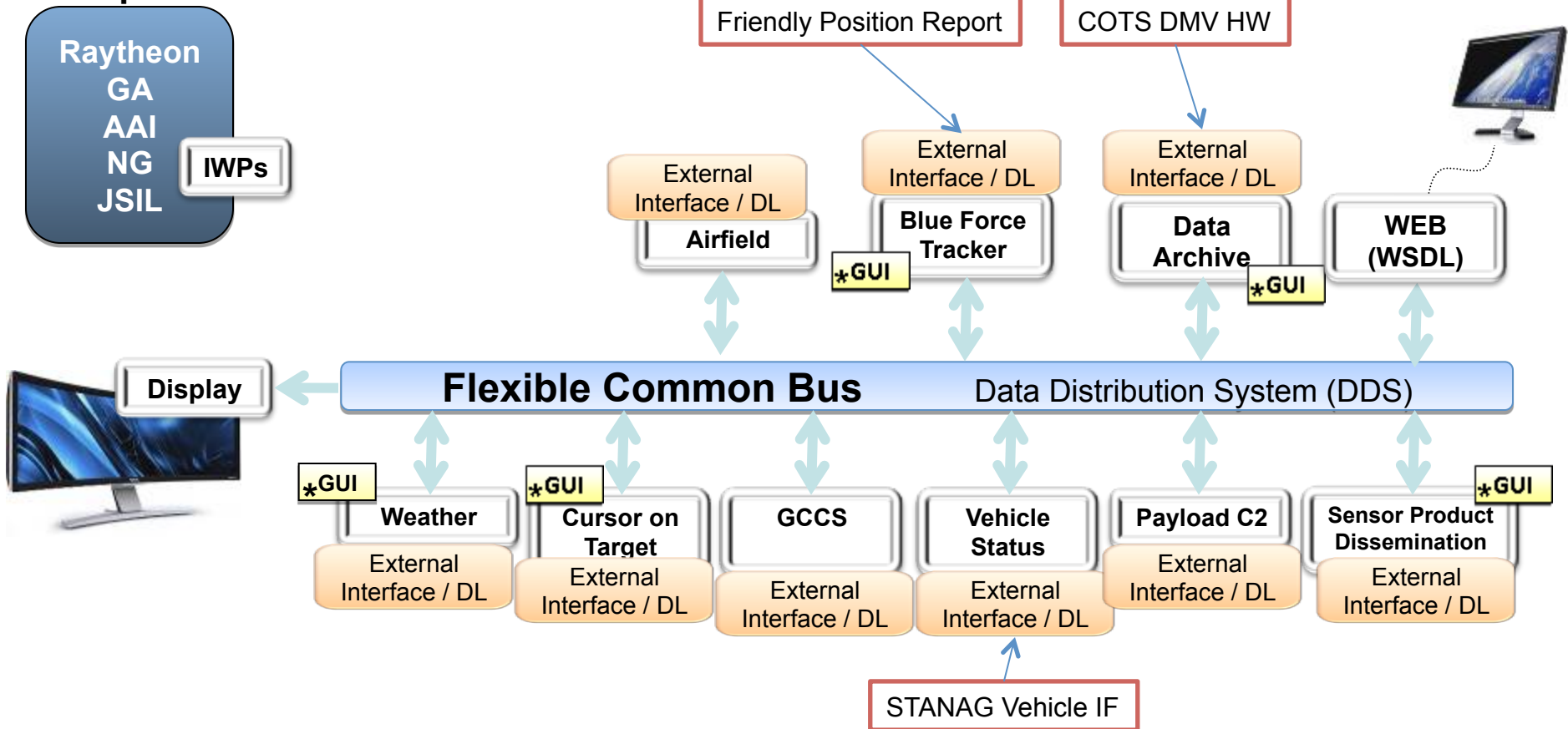
IWP Service	Functionality	Developed by
Blue Force SA	Sends and receives BFT data	
Cursor On Target	Sends and receives CoT messages	
Sensor Product Archive	Provides storage and retrieval of archived video files	<b>Raytheon</b>
Sensor C2	Provides local or remote payload sensor C2	<b>Raytheon</b>
Vehicle Flight Status	Sends and receives AV SA data	<b>Raytheon</b>
Video Stream Catalog	Streams video to DDS bus	
Weather	Retrieves weather data from AF weather server	
METOC Weather	Retrieves weather data from METOC weather server	
Airfield Management	Handles ground control services	
GCCS	External information / COP gateway	



# IWP Desired End Point

*Five participants, 10 services, 5 GCS*

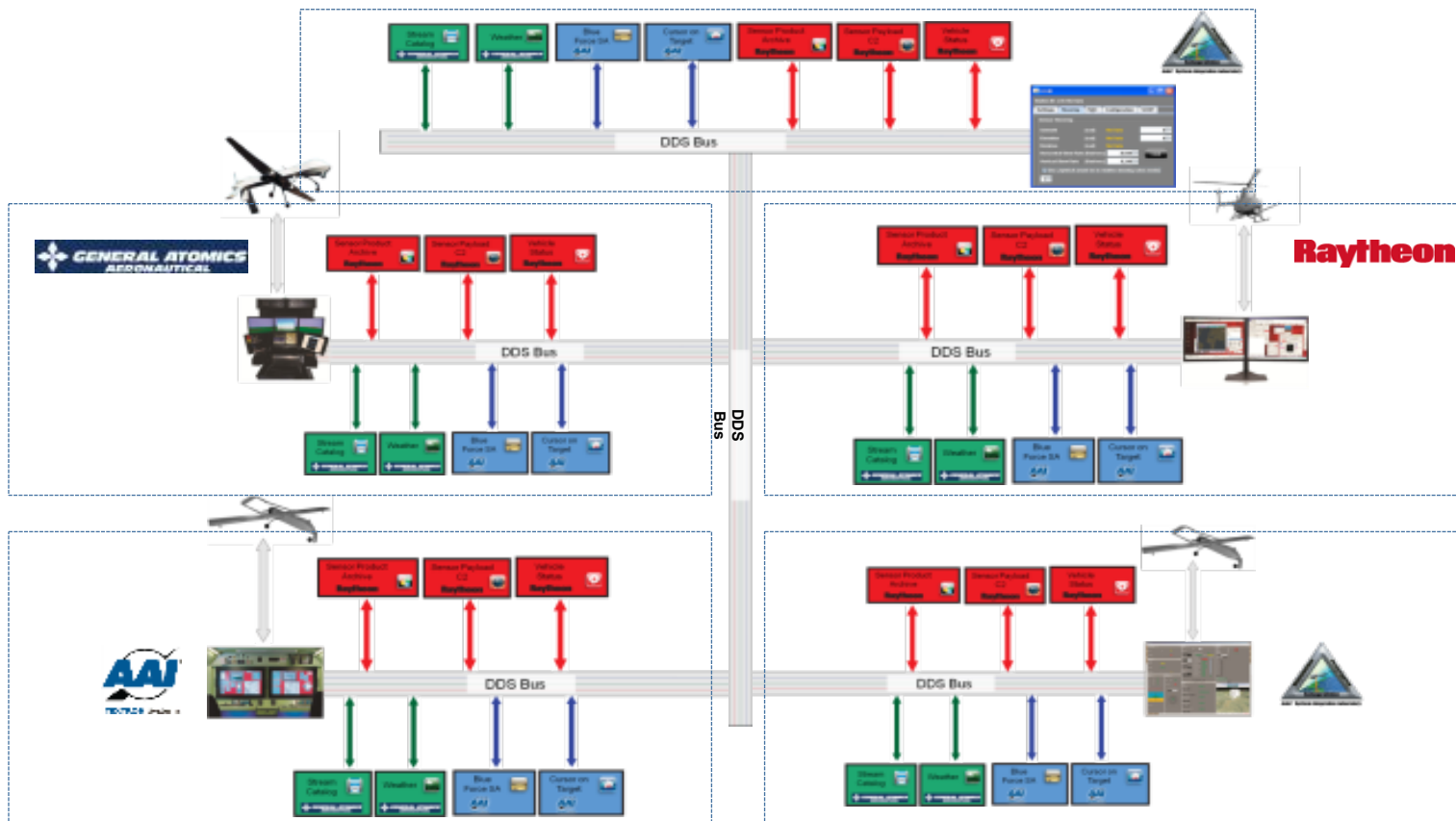
## Participants





# Demonstrations

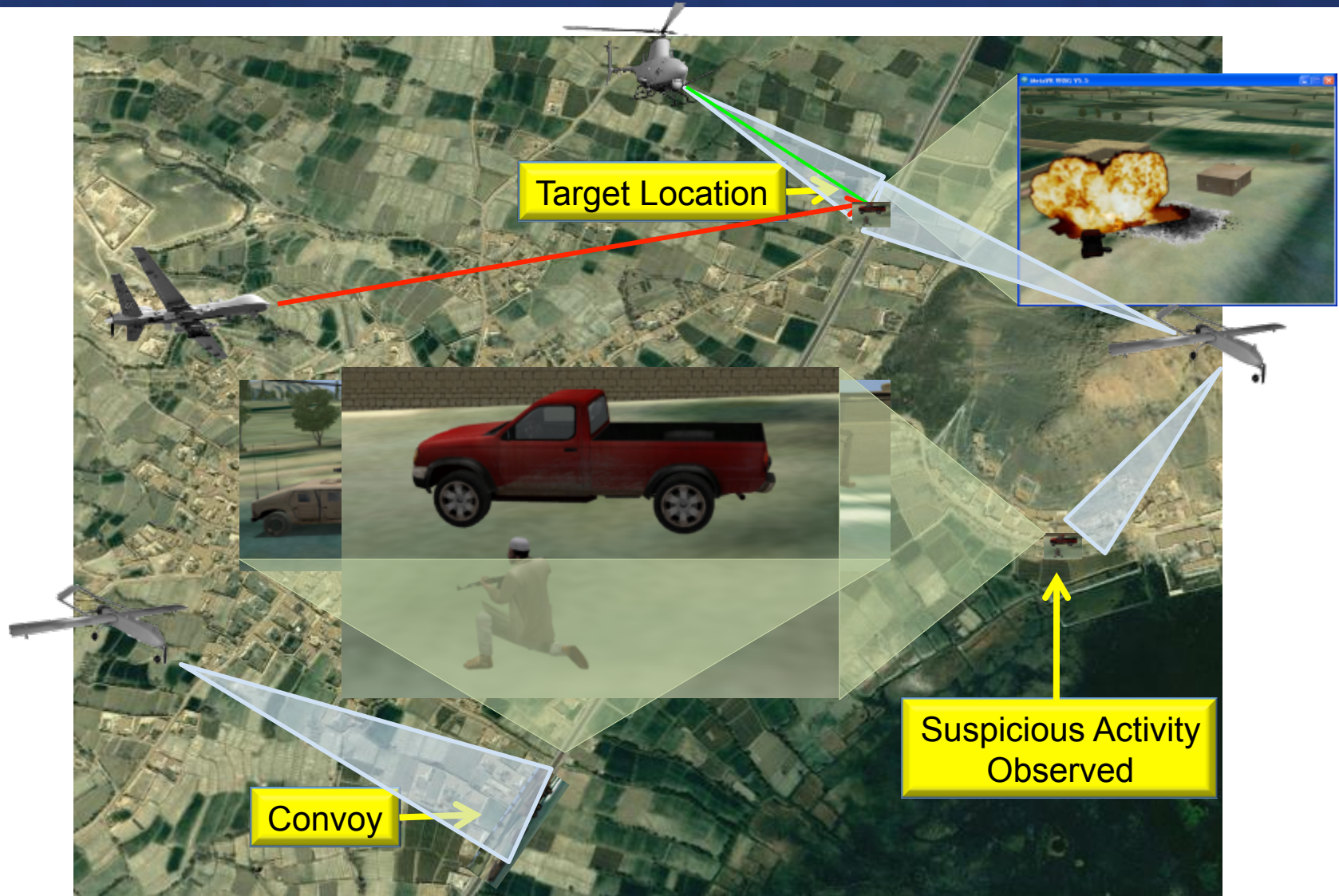
*Demonstrations performed by all IWP participants and Joint Systems Integration Lab*



Five independent systems and sets of IWP services connected via DDS



# Operational Scenario





# Lessons Learned

- Lessons fall into two main categories:
  - Implementation / Integration
  - Architecture Implications
- Implementation / Integration
  - Initial need for coordination for common platform specification.
- Architecture Implications
  - Well forms PIMs with explicit meta models will help with generating transforms
  - Additional marking models were needed for Quality of Service, criticality, other run-time behaviors.
  - UCS open architecture, common interface standards allowed same sw services to be integrated into multiple systems
  - Same underlying sw services used with different GUIs, supporting varying Service and CONOPs needs

# Summary



- ❑ The IWPs are an instrumental component of the overall UCS Architecture development effort.
  
- ❑ We have actively applied and integrated lessons learned.
  
- ❑ Thank you!



# Questions?

