



**Figure 1: Proposed CODE Architecture**

# Collaborative Operations in Denied Environment Programme (CODE)

- In order to have an autonomous team of UA, each aircraft has to have a sufficient level of autonomy on its own. This includes autonomous management, both under routine and abnormal conditions, of platform subsystems, mission equipment, and flight trajectories. The following autonomous UA capabilities are of interest:
  - ...
  - Ability to identify and react to common contingencies;
  - Advanced methods for addressing lost link contingency without immediate mission failure ...
  - Ability to autonomously track moving targets by combining sensor control and aircraft trajectory to maintain optimal sensor performance ...

# DARPA is interested in approaches that:

- **Enable supervisory control of a large group of UA ( $\geq 4$ )** that are conducting tactical level operations from a mobile command station;
- Facilitate mission planning, including definition of mission objectives, area of operation, and rules of engagement;
- Enable natural interactions between the mission commander and the system;
- ...
- **Provide a concise but comprehensive targeting chipset so the mission commander can exercise appropriate levels of human judgment over the use of force or evaluate other options;**
- Leverage advanced user interfaces/approaches such as those found in video games;

# DARPA is interested in collaborative autonomy algorithms and software that:

- Develop a common decision making and world-modeling framework that is
- robust to poor communications (in terms of bandwidth, quality of service, latency,
- and availability) and random attrition among the team members;
- - Dynamically compose teams or sub-teams to achieve mission objectives;
- - Improve team performance in range, endurance, navigation, communication, and all steps of a strike mission (find, fix, track, target, engage, assess - F2T2EA)