



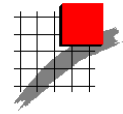
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Simulating Uninhabited Combat Aircraft in Hostile Environments (*Part II*)

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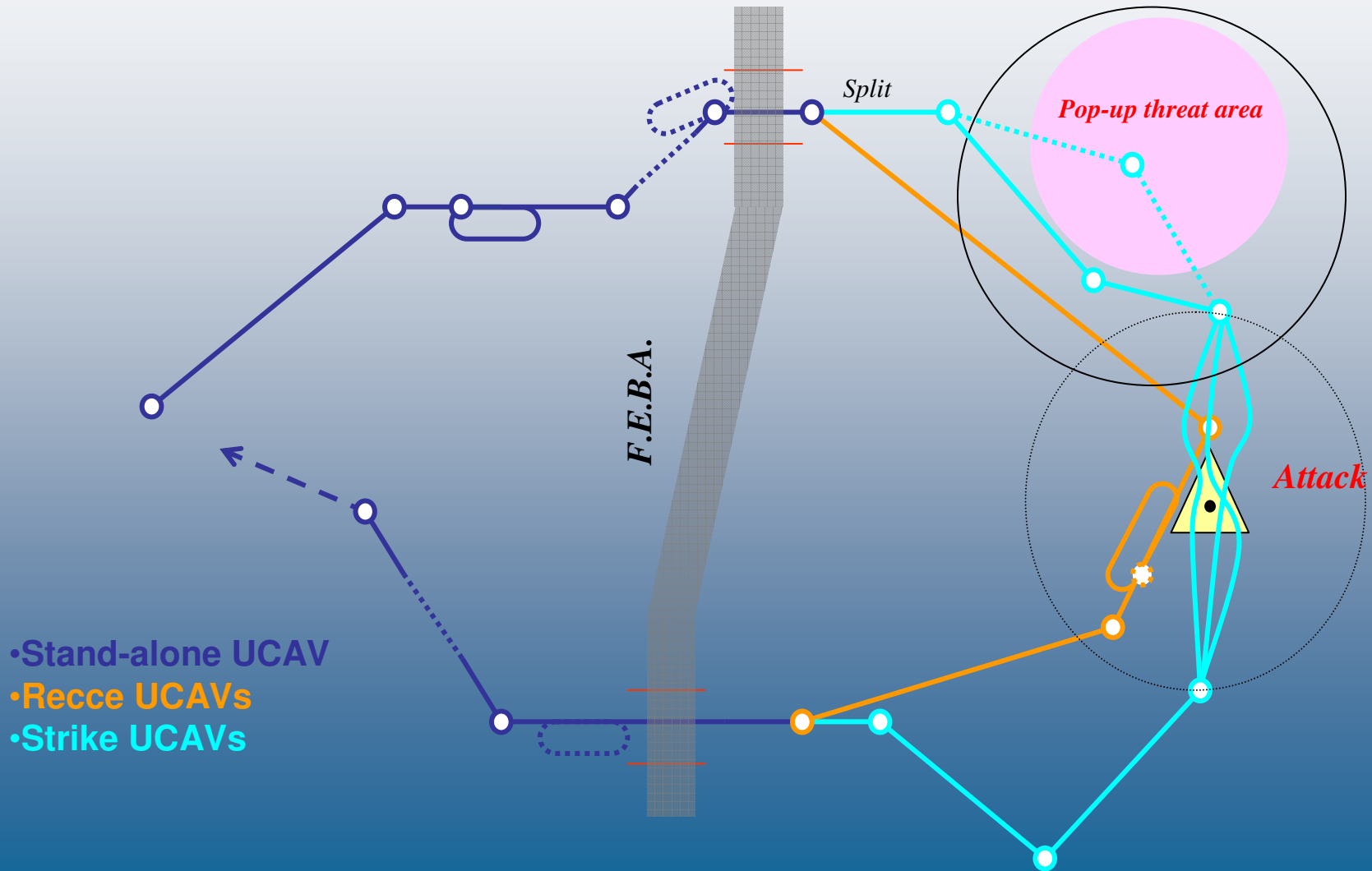
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Motivation

- Less dangerous situations for pilots.
- Uninhabited Combat Aircraft Vehicles (UCAVs) have been studied for 10 years.
- French initiative over the last years, funded by the *Délégation Générale pour l'Armement* (the French DARPA).

Mission





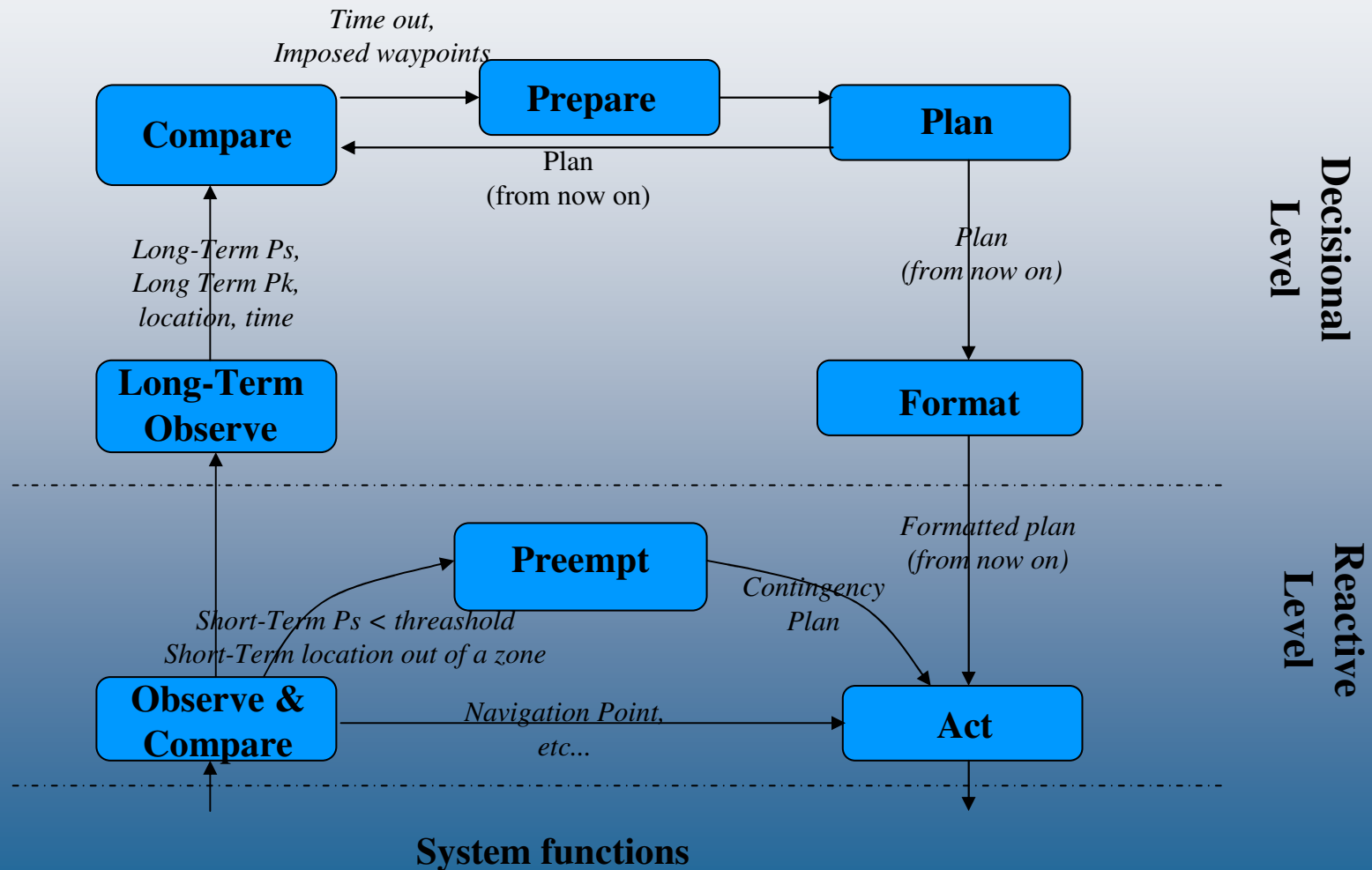
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Goals

- Simulation of the ground and air environment.
- Pseudo real-time.
- Reasoning under time stress.
- Collaboration among UCAVs.

Software Architecture



Collaboration Model

Choosing a single proposal for each UCAV and a feasible attack time and a feasible attack mode for each objective treated by maximising global efficiency of attack and package survival probability

plan

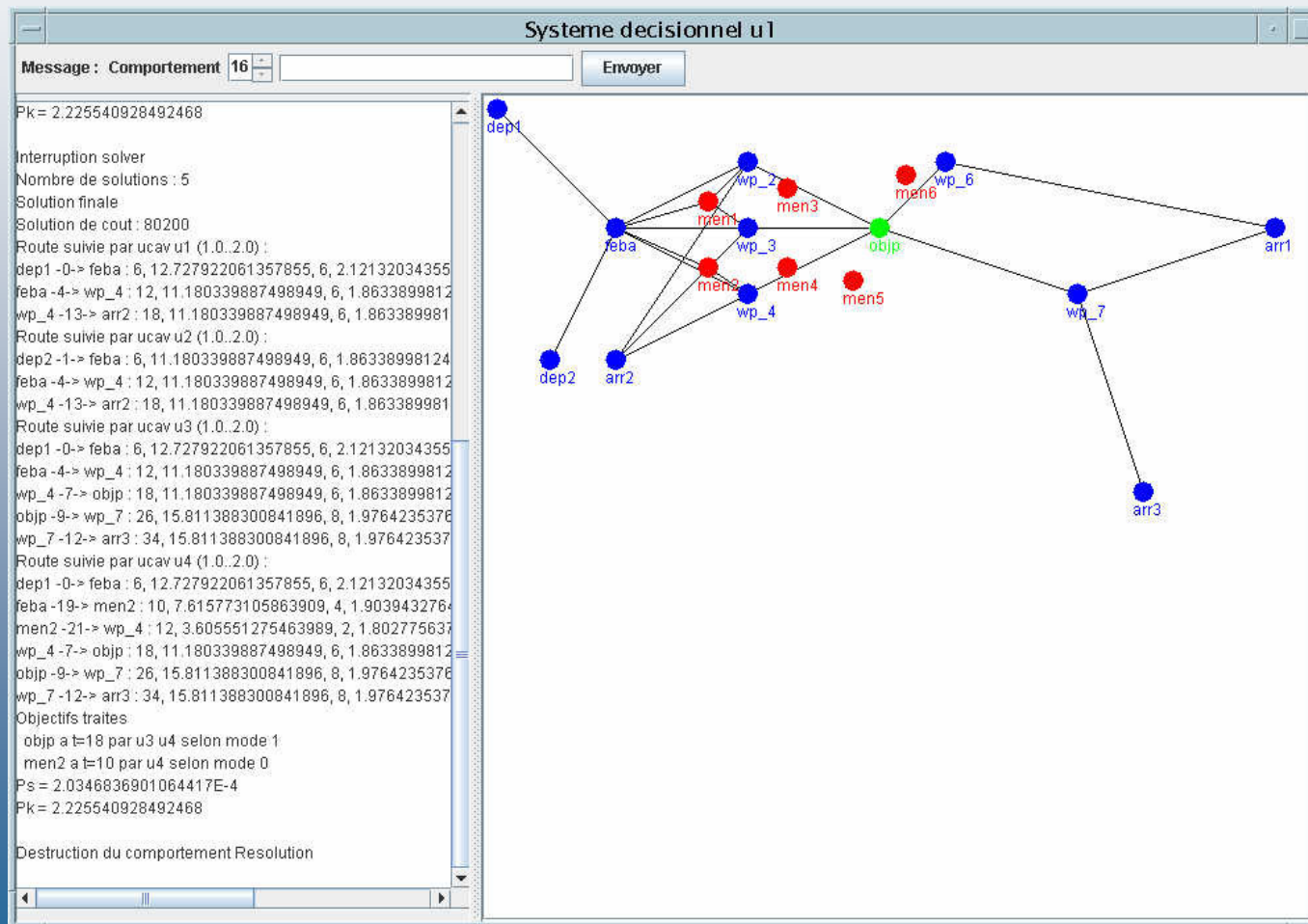
UCAV 1 enumerating a set of proposals taking into account topology and own resources

...

UCAV n enumerating a set of proposals taking into account topology and own resources

- Proposal:
- *Sequence of attacked objectives*
 - *Minimum and maximum time between objectives*
 - *Available weapons*
 - *Survival probability*

Planner Implementation





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Conclusion

- **Work in progress** (end in April 2006).
 - First simulation of the main components using Petri nets [Morignot et al. 04].
 - Software architecture (reactive, decisional levels, system functions).
 - Planner :
 - Collaboration by propositions
 - Anytime property
 - Integration tested on scenarios of increasing difficulty.
- **Future research directions:**
 - More experiments (first demo planned in September, 2005).
 - High Level Architecture (HLA) for pseudo real-time simulation.
 - Porting the models on 3 small real aircraft.