Approach Based Patterns for System-of-Systems Reconfiguration

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Plan

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SoS Engineering Process







Architecture desciption language : SoSADL

Constituent System (CS): have their own managerial and operational independance while contributing to the global mission of the SoS

Mediator: controled by the SoS. They belong to the SoS.

Mediateur are communicating element that specify, coordinate the interaction beetween CSs and SoS control over them.

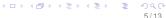
Coalition: a set of contraints about the CSs and mediator required to accomplish a emergent behavior.



Emergency service SoS

Mission: preserve human life and material





Need of architectural reconfiguration

Cause:

managerial and operational independance of the constituents

Consequence:

architecture evolve continuesly

Problems:

- determine a set of reconfiguration' operations to maintain architectural pattern in the concrete architecture?
- determine a set of reconfiguration' operations to make evolve the architectural pattern in a coherently way?



Architectural pattern



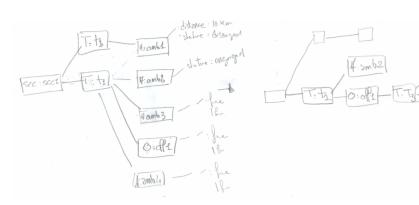


Maintain architectural patterns





Architectural pattern evolutions







Patterns for reconfiguration

Approach:

- use pattern approach to formalize a set of best practice to assist reconfiguration
- based on dedicaded language (SoSADL), describe SoS architecture pattern architectural taking into account SoS characteristics
- express a set of reconfiguration operations associate to this architectural pattern which can express for instance :when, how, for which to add a new CS.



Challenges

 the choice of reconfiguration' operations in order to instanciate or reinstanciate the architectural pattern



Introduction Patterns for SoS reconfiguration Related Works



Challenge and Futur Work

Challenge:

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Futur Work:

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