Automated Composition of Semantic Web Services into Executable Processes

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Summary by:

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Overview of the Approach

1. the user asks P&S for an article a, that he wants to be transported at location l;

2. P&S asks the producer for some data about the article, namely its size, the cost, and how much time does it take to produce it;

3. P&S asks the delivery service the price and time needed to transport an object of such a size to l;

4. P&S provides the user an offer which takes into account the overall cost (plus an added cost for P&S) and time to achieve its goal;

5. the user sends a confirmation of the order, which is dispatched by P&S to the delivery and producer.

P&S service
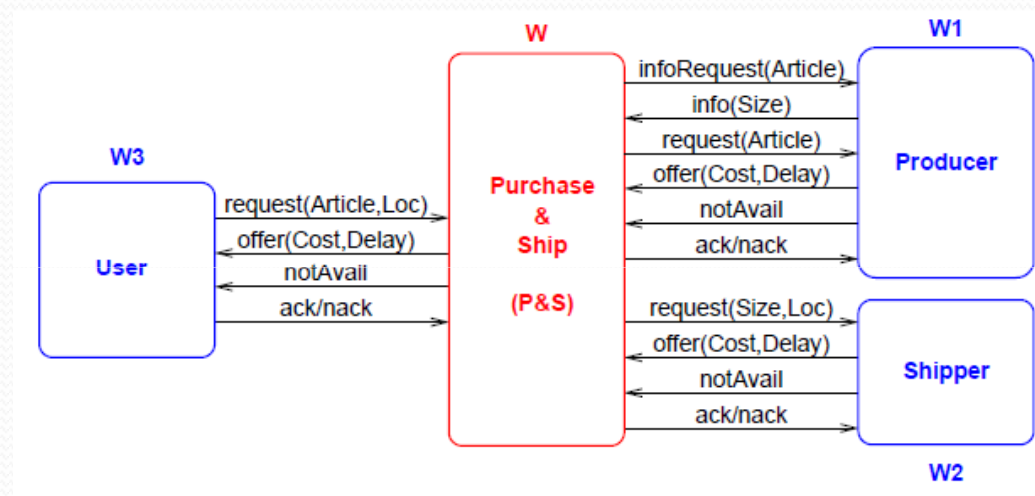
Overview of the Approach

1. OWL-S Process Models
   - Given a set of available web services $(W_1....W_n)$
2. State Transition System
   - Encodes each W_i into a state transition system
   - Provides a sort of operational semantic to the model
   - Each model describes the corresponding web services as a state-based dynamic (evolving) system
     - Partially control
     - Partially observable by external agent
   - Represent all possible behavior
3. MBP Planner
   - Inputs:
     - Composition Goal (Requirements)
       - Described in the EaGle Language
     - Planning domain (Σ)
   - Out Put
     - An automaton that depends on the observation and on its internal state states, can execute actions

OWL-S based Automated Composition