Emergence of Composite Services in Smart Environments

Maroun KOUSSAIFI, Walid YOUNES
Françoise ADREIT, Jean-Paul ARCANGELI, Jean-Michel BRUEL and Sylvie TROUILHET

firstname.lastname@irit.fr

University of Toulouse, France - Toulouse Institute of Computer Science Research

Opportunistic Composition Engine “OCE”

- Environment-directed service composition
- Emergence of new composite services adapted to the context and the user
- Dynamic and continuous adaptation
- Learning by reinforcement
- Decentralized and automatic decision
- Integration of new appearing services

Opportunistic Composition Engine “OCE”

Interactive Control Environment “ICE”

Methods and Tools
- Domain Specific Languages (DSL)
- Model-Driven Engineering (MDE)
- Model transformations
- Eclipse Modeling Framework, GEMOC

Current status
- Operational prototypes of OCE and ICE
- Demonstration of simple use cases with real connected objects

Arduino, Android, Node.js, WComp...

Future Work
- Consolidation of the learning mechanism in OCE
- Interface adaptation to the user
- Feedback generation by ICE
- Feedback exploitation by OCE
- Full integration of OCE and ICE
- Scalability assessment