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Activity-based simulation using DEVS: increasing performance by an activity model in parallel DEVS simulation

基于活跃度的DEVS仿真优化方法:在并行DEVS仿真中依靠活跃度模型提高性能

Key words: Activity tracking, Activity enhanced modeling, Discrete event system specification (DEVS), Resource-aware simulation framework

关键词: 活跃度追溯；活跃度增强式建模；离散事件系统规范；资源敏感型仿真框架

Contributions

- The activity enhanced modeling with an activity meta-model is proposed to provide a set of interfaces to model activity in a specific domain.
- The activity model transformation in subsequence is devised to deal with the simulation difference due to the heterogeneous activity model.
- A resource-aware simulation framework is implemented to integrate the activity models in activity-based simulation.

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Activity meta-model and resource-aware simulation

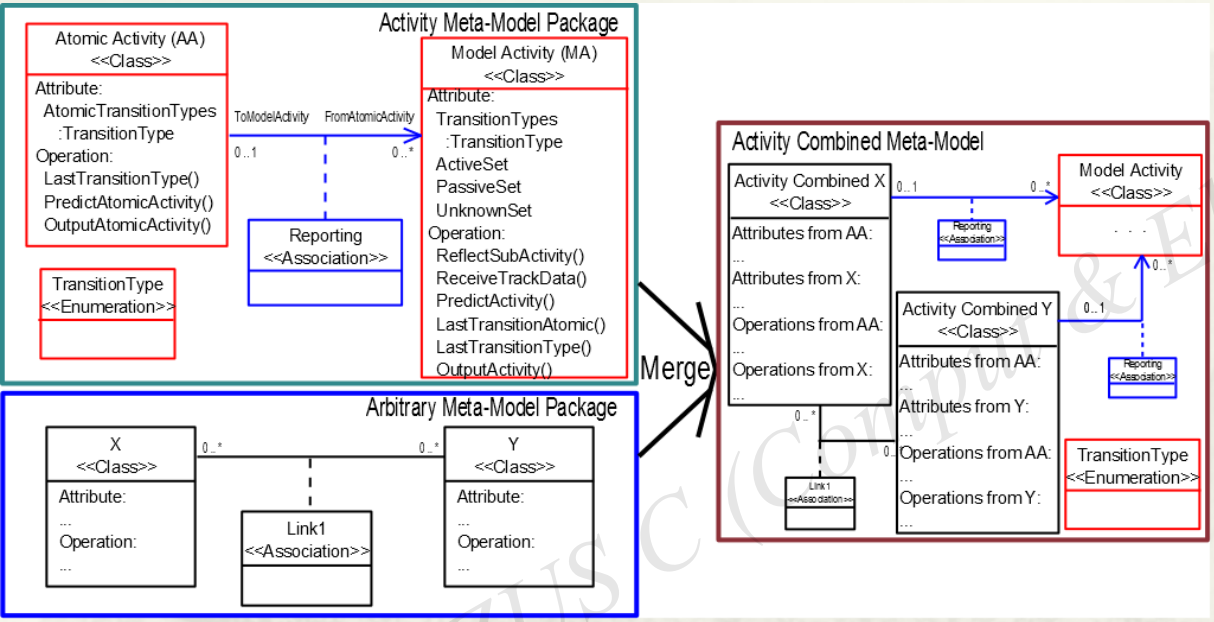


Fig. 6 Integrating activity meta-model into an arbitrary meta-model

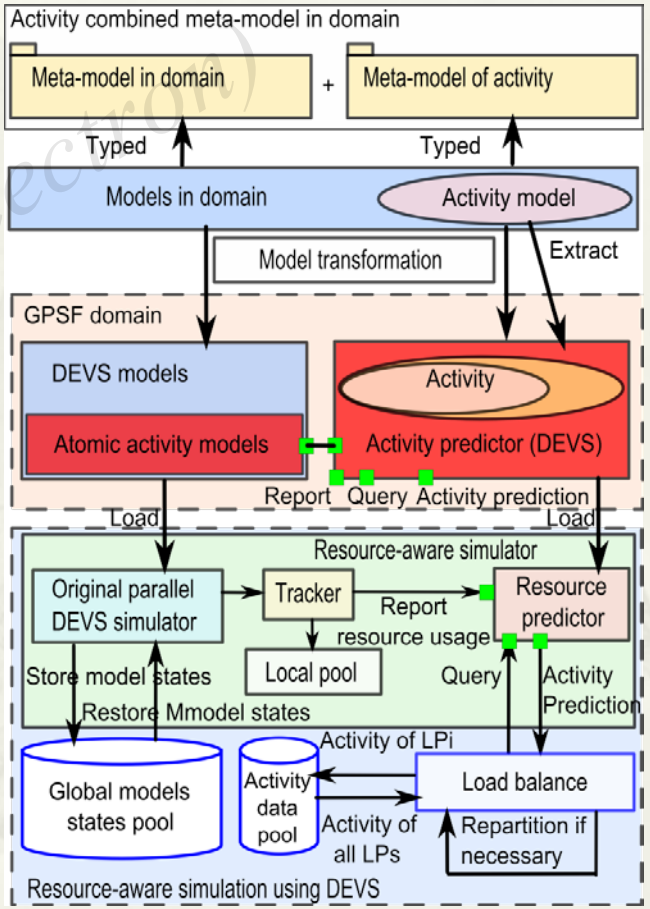


Fig. 9 Framework of resource-aware simulation

Conclusions

- Activity enhanced modeling gives a method to define the activity model in a specific domain.
- Domain specific activity modeling maintains the advantages in minimizing modeling accidence.
- The quantization of activity and resources makes possible the application of the activity model in the simulation.
- The resource-aware simulation framework implements the activity-based simulation, integrating the activity in both modeling and simulation aspects.

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