Towards Supporting Multiple Execution Environments for UML/OCL Models at Runtime

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Runtime Monitoring with USE

- USE: UML-based Specification Environment
  - Validate UML / OCL models by:
    - Samples / Scenarios: Given execution sequence
    - Execution: Action Language (SOIL)
    - Model Finding: Model Finder / Generator
  - Subset of UML
  - Huge subset of OCL based on formal semantics
- Monitor: 4th option to bring models to life by linking them to a runtime environment
Overall idea

USE

Monitor

Java Virtual Machine
Overall idea

- USE
  - Monitor CLR
    - Microsoft Common Language Runtime
  - Monitor
    - Java Virtual Machine
Overall idea

- USE
  - Monitor CLR
    - Microsoft Common Language Runtime
  - Monitor
    - Java Virtual Machine
  - Monitor JRuby
    - JRuby
Overall idea
Conclusion and Outlook

• Common Meta-Model for Monitoring
  – Static (Snapshot)
  – Dynamic (Call-Sequences)

• Our target: Object-Oriented Virtual Machines
  – Java, CLR

• Possible other targets
  – JRuby as a language build on-top of another