A Model for Scalable Mixed Reality

Presentation

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Motivation

How we can facilitate the development of future and more complex MR applications?

=>Share? Define? a High Level Domain Specific Model, and build tools around it

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Previous Work

Toolkit models: VR Juggler, DIVERSE, Virtools, X3D, StudierStube, Thekla ...

UML-Based approaches: Kim, Vitzthum

Languages for specific domains in MR: InTml, X3D and other scene graphs, OpenTracker files, VRPN files, MRIML, UIML, CUIML, APRIL, SSIML/AR ...

Domain specific extensions: Scene graphs, Hybrid Objects, ARTasks (Vitzthum), ...

Our List of Issues to address

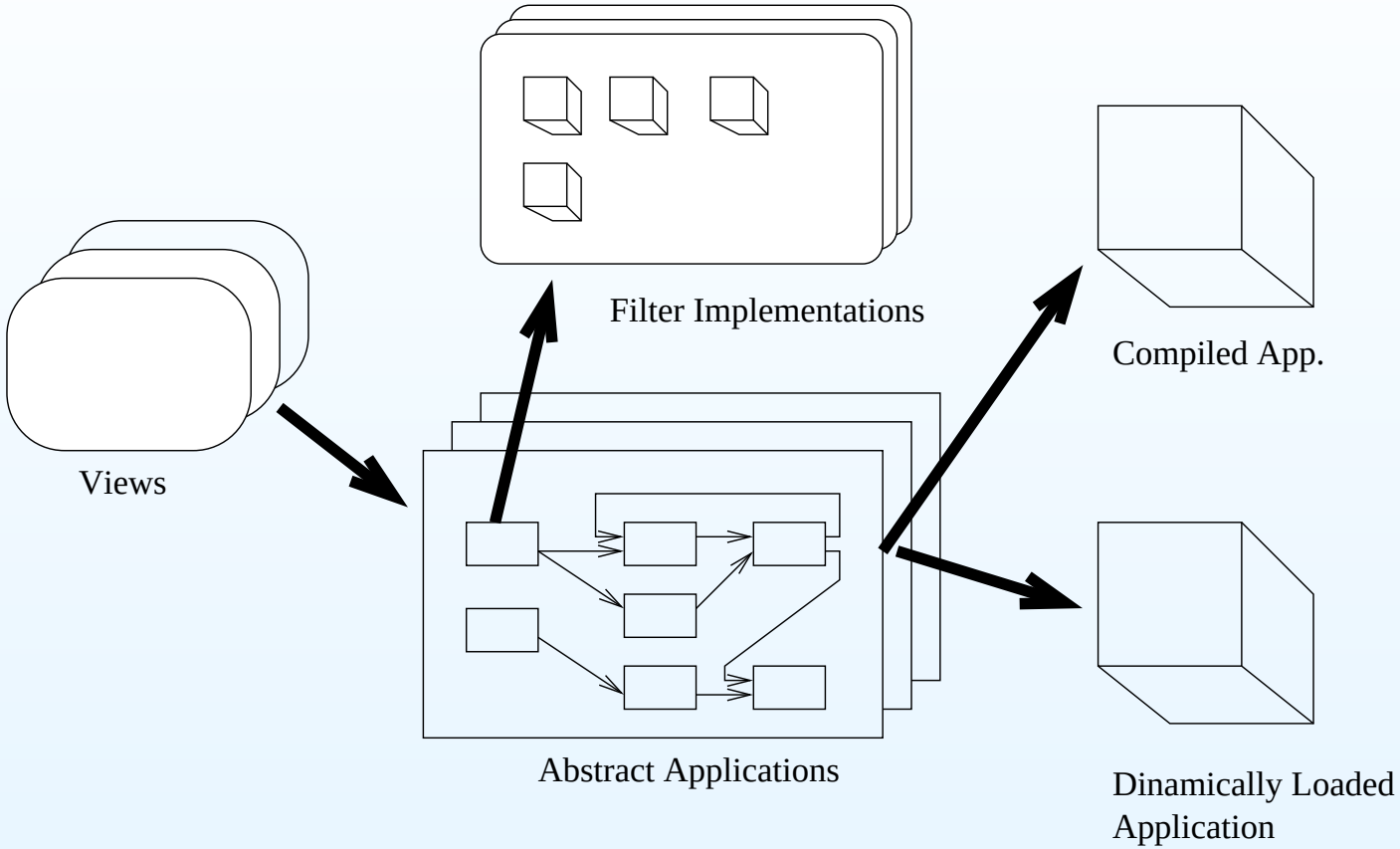
- Reusability
- Abstraction of devices
- Runtime adaptability
- Configurability
- Independence from programming language
- Scalability (among platforms, computational power)
- Retargetability
- Evolution
- Engineering issues
- Running a lab with so many hardware platforms that it gets to your nerves how to run, setup, evolve, retarget, and maintain applications in any of them

Our List of Solutions

- Model a family of applications
- A formal description of a MR application
- A model with higher-than-a-class granularity
- Tools for users at different levels of skills:
- Novel concept: *Level of Performance*
- A Model for development, based on product lines, generative programming, and UML–based methodologies

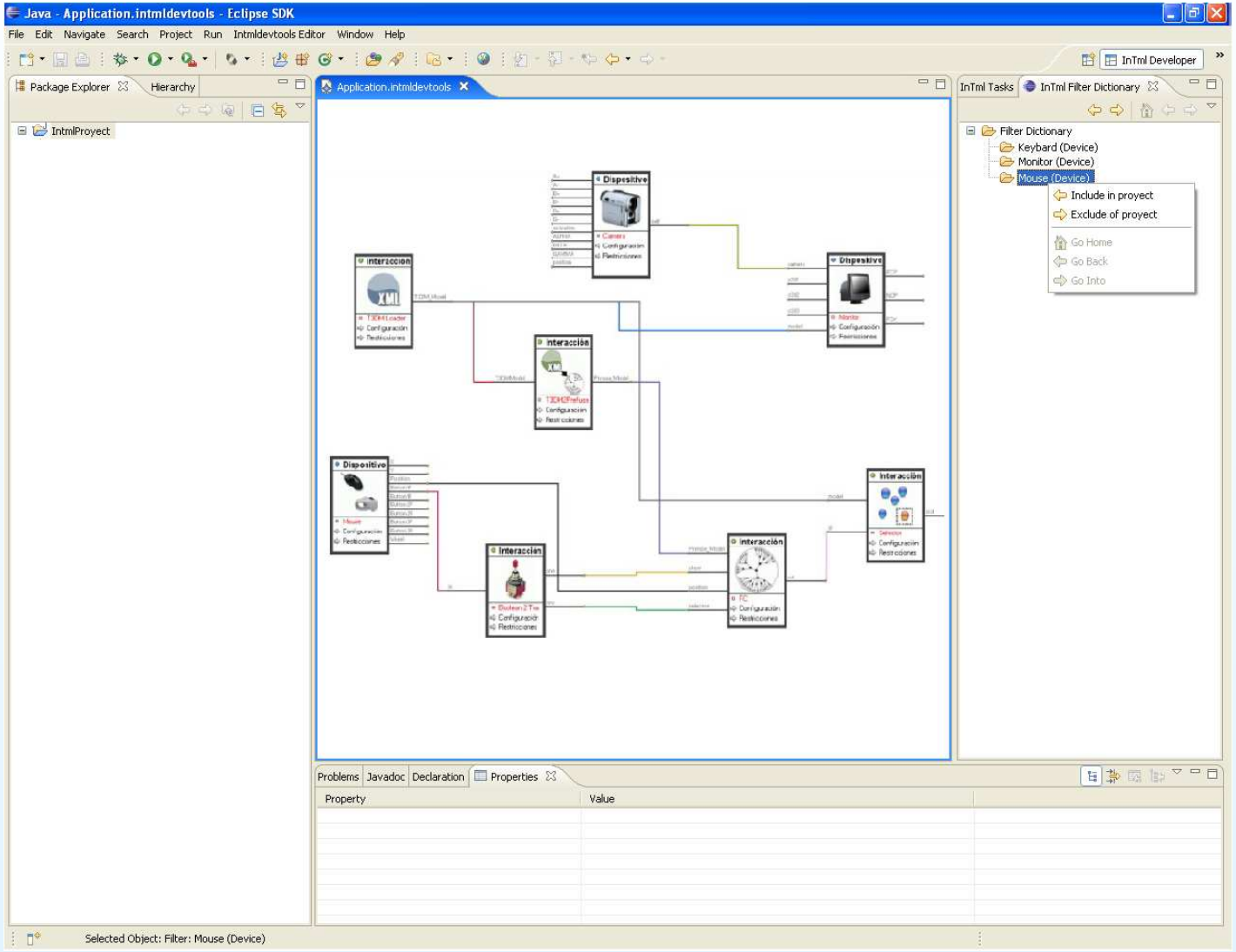
Solutions (2)

- Motivation
- Previous Work
- Our List of Issues to address
- Our List of Solutions
- Solutions (2)
- Solutions (3)
- Solutions (4)
- Future Work
- Questions?



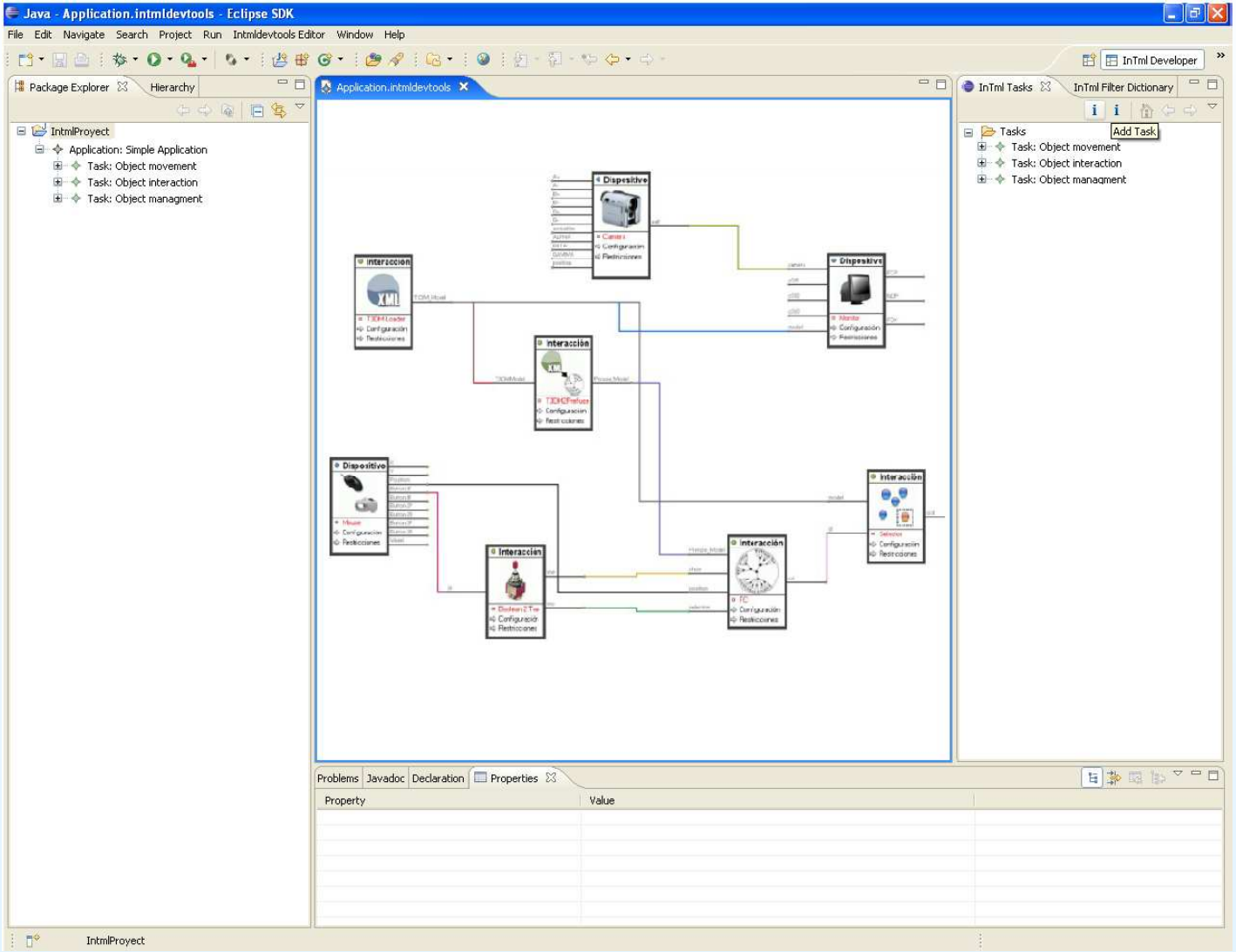
Solutions (3)

- Motivation
- Previous Work
- Our List of Issues to address
- Our List of Solutions
- Solutions (2)
- Solutions (3)
- Solutions (4)
- Future Work
- Questions?



Solutions (4)

- Motivation
- Previous Work
- Our List of Issues to address
- Our List of Solutions
- Solutions (2)
- Solutions (3)
- Solutions (4)
- Future Work
- Questions?



Future Work

- Motivation
- Previous Work
- Our List of Issues to address
- Our List of Solutions
- Solutions (2)
- Solutions (3)
- Solutions (4)
- Future Work
- Questions?

How we can measure the benefits from a Model?

How we compare models?

How do we collaborate on development of a model? (*ala* Eclipse)

How do we push hardware creators into models? standards?

Questions?

- Motivation
- Previous Work
- Our List of Issues to address
- Our List of Solutions
- Solutions (2)
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- Questions?