

Adaptations of Storylines to Facilitate Collaboration in Serious Games

by

Frederic Kleineremann

WISE (Web & Information Systems Engineering) Laboratory
Vrije Universiteit Brussel, Belgium



Vrije Universiteit Brussel

Content

- Background & Motivation
- Approach
- Results
- Conclusion & Future Work



Vrije Universiteit Brussel

Background & Motivation

Introduction: Serious Games

- Serious Games

- Game platforms can be used to create a game in the context of learning and they are often called *Serious Games*
- It is done in a way to design games to support formal training objectives and learning outcomes



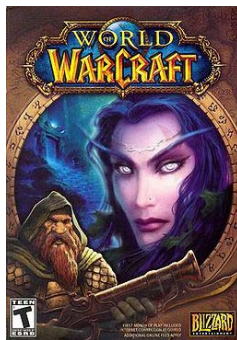
Introduction: Serious Games

- These serious games are often made for a dedicated group of learners issue from a certain domain.
- They are often developed for one type of learning application.



Introduction: MMOGs

- Massively Multiplayer Online Games
 - Another type of game is Massively Multiplayer Online Games (MMOGs).
 - Players interact with other players, as well as with the gaming software.



Introduction: Metaverse

- Metaverse
 - Virtual worlds that are both social and game oriented.
 - Players interact with other players and can socialize.



Introduction: MMOLEs

- Massive Multi-learner Online Learning Environment
 - MMOLE is a genre of computer generated learning environments in which large numbers of learners interact with each other in a virtual three-dimensional (3D) world with the goal of learning.



Introduction: MMOLEs

- The learning occurs formally through a class-like environment or a scripted simulation.
- The learning can also occur informally through chats, wikis or blogs contributed by the learners interacting within the environment and each other.

Challenges around MMOLEs

- Challenges around MMOLEs
 - Reconfiguration made easy for teachers
 - more control to re-enforce learning by discovery
 - Different learners may have different characteristics, preferences, prior knowledge, skills and competences, motivation or needs, which may influence their learning process and experience
 - ⇒ MMOLEs should provide some kind of adaptations towards learner or a group of learners



Approach

Approach

- The aims of the approach are :
 1. Allowing authors to create their own storyline (or course)
 2. To provide them with the possibility to bring adaptations inside a storyline
 3. Have a framework that can run the adaptive storyline and can monitor the learner or a group of learners in order to enable/disable adaptations

Building the Adaptive Storyline

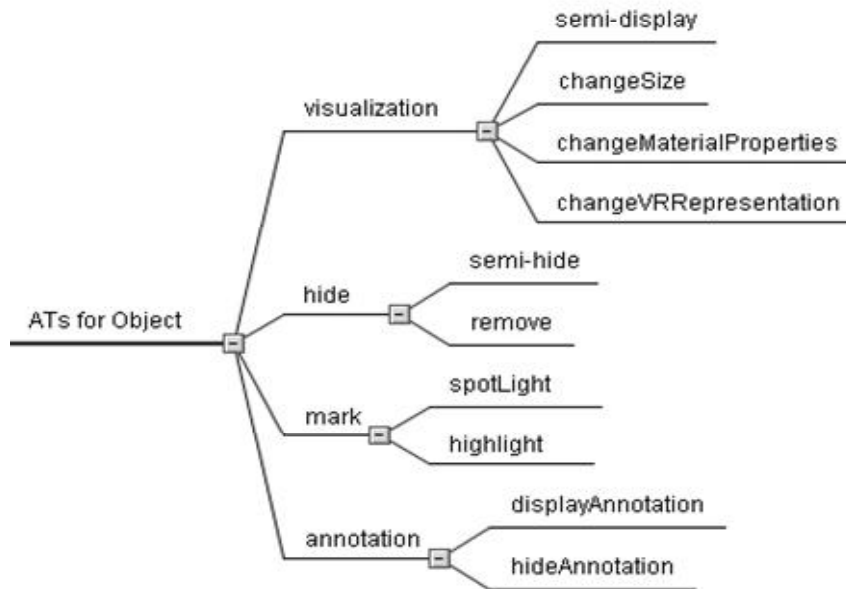
- Type of Adaptations

⇒ We started from an ongoing research Work on adaptation inside Virtual World for adaptive Web-based Hypertext.

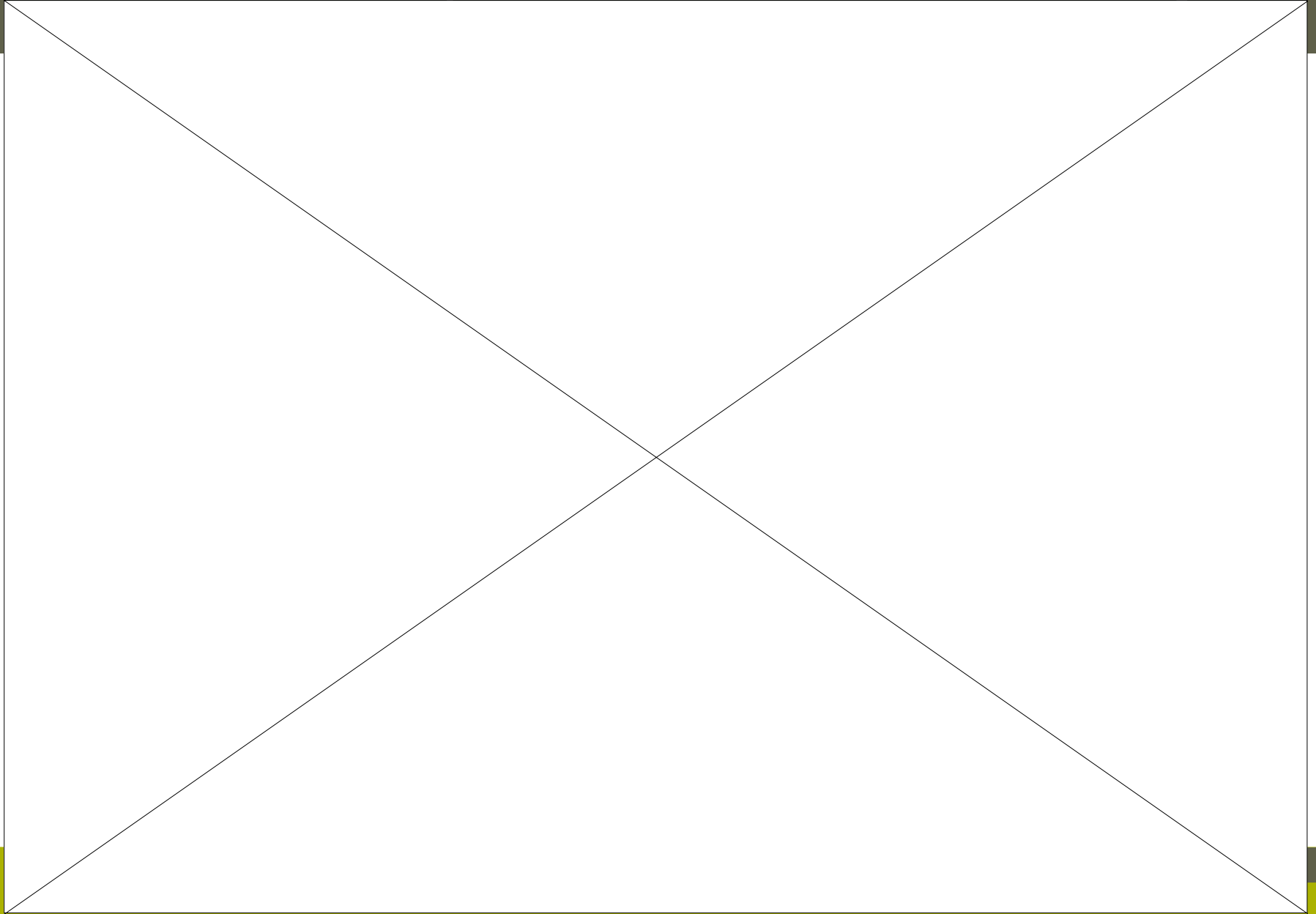
⇒ The idea is to adapt the virtual World according to the learner's profile and what he does inside.

⇒ To achieve this, a number of adaptations were found.

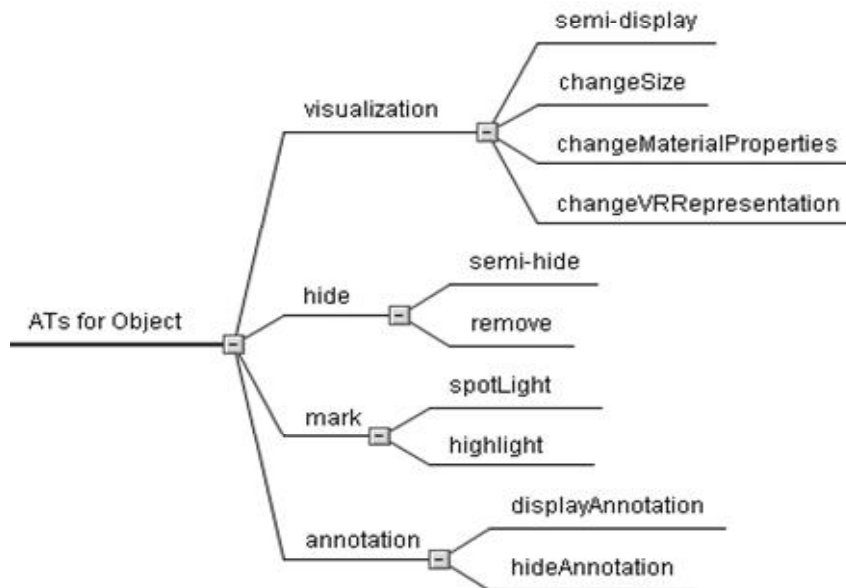
Type of Adaptations



Demo of Adaptation for Virtual Reality



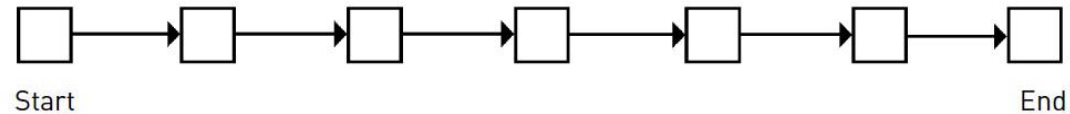
Type of Adaptations



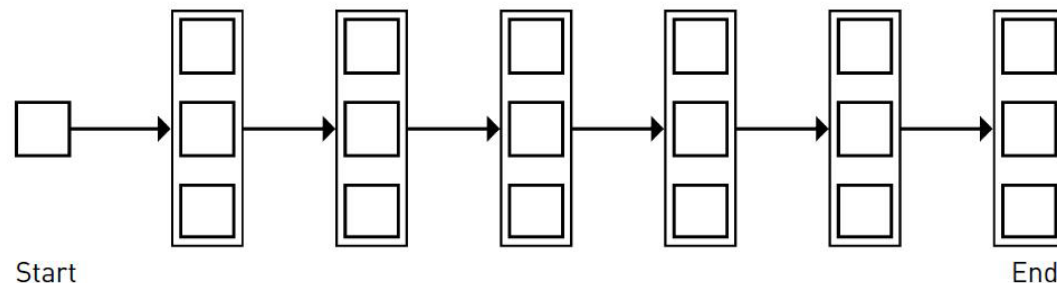
We then extended those for MMOLEs and we have also come with new ones

Building the adaptive Storyline

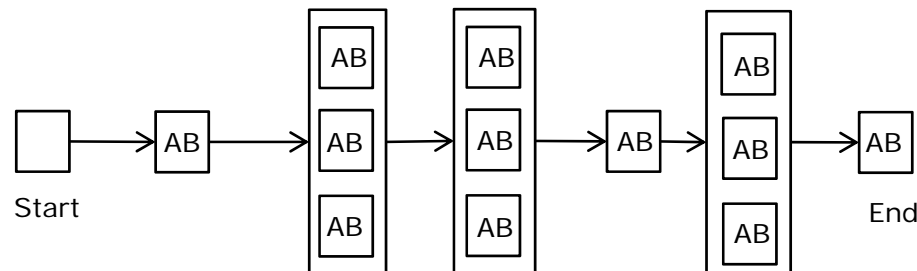
Linear Storyline



Non-Linear
Storyline




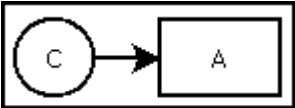




Non-Linear
Storyline
with adaptation

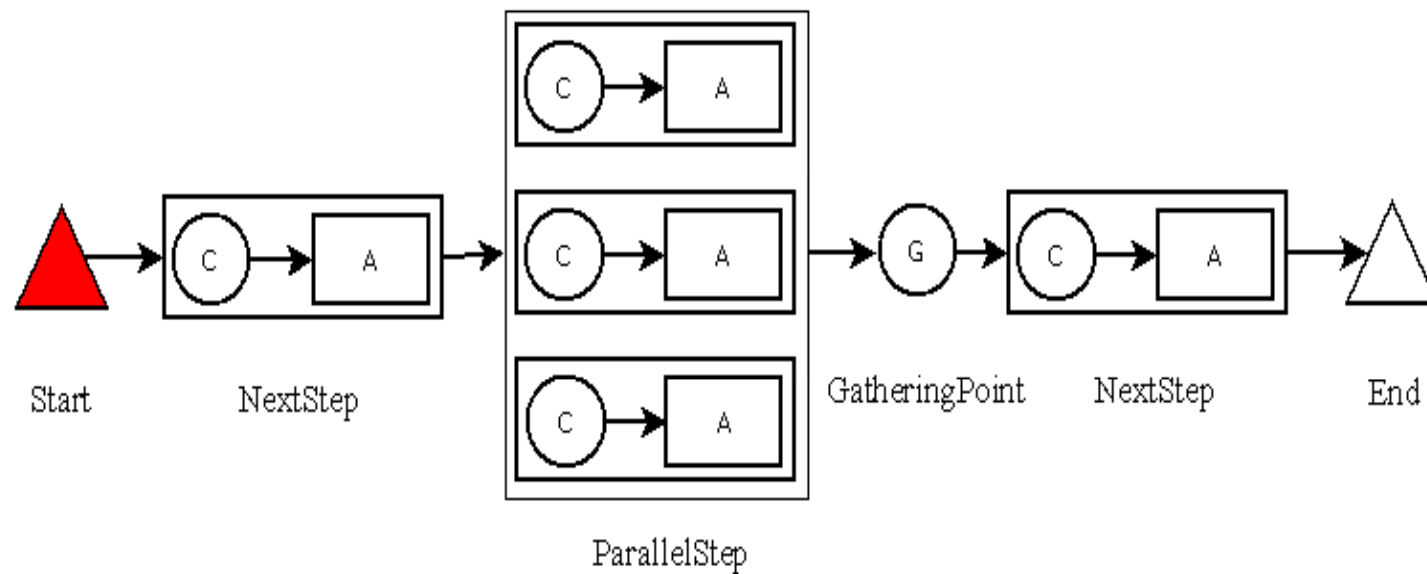


AB = Condition + Game Adaptation State

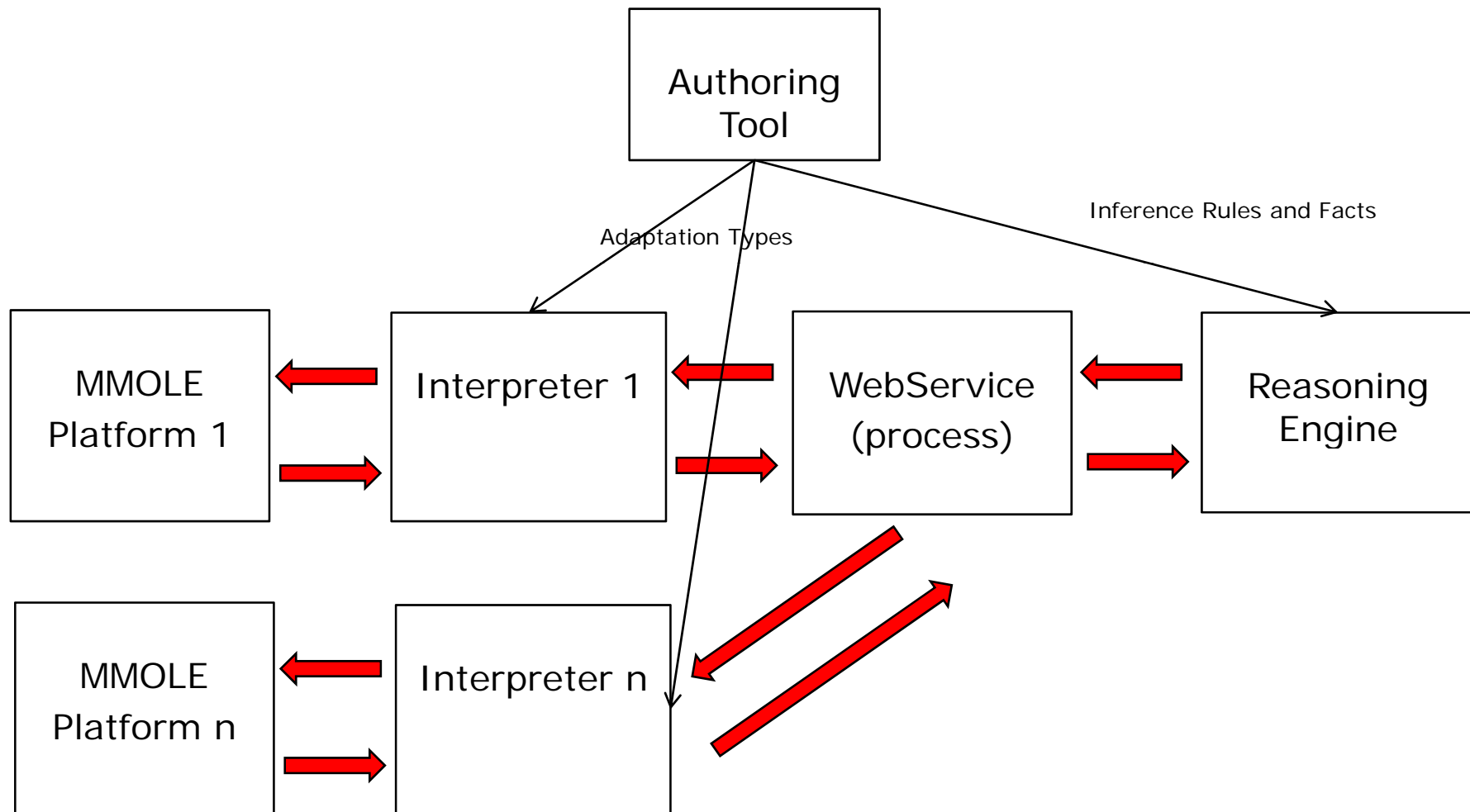
Building the adaptiveStoryline

	Start: Defines de initial state of the story line
	Condition: Factors or circumstances that tell when the VRAS should happen
	Virtual Reality Adaptation State (VRAS): Adaptation that is applied to a virtual object
	Adaptive Block: This tells when to make several VRAS and which are these VRAS
	Gathering Point (GP): Provides a way to unify all the learners at one point of the story line
	End: Final state of the story which tells the achieved goals

Example of adaption of Storyline



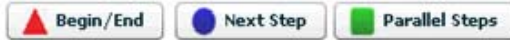
FrameWork





Results

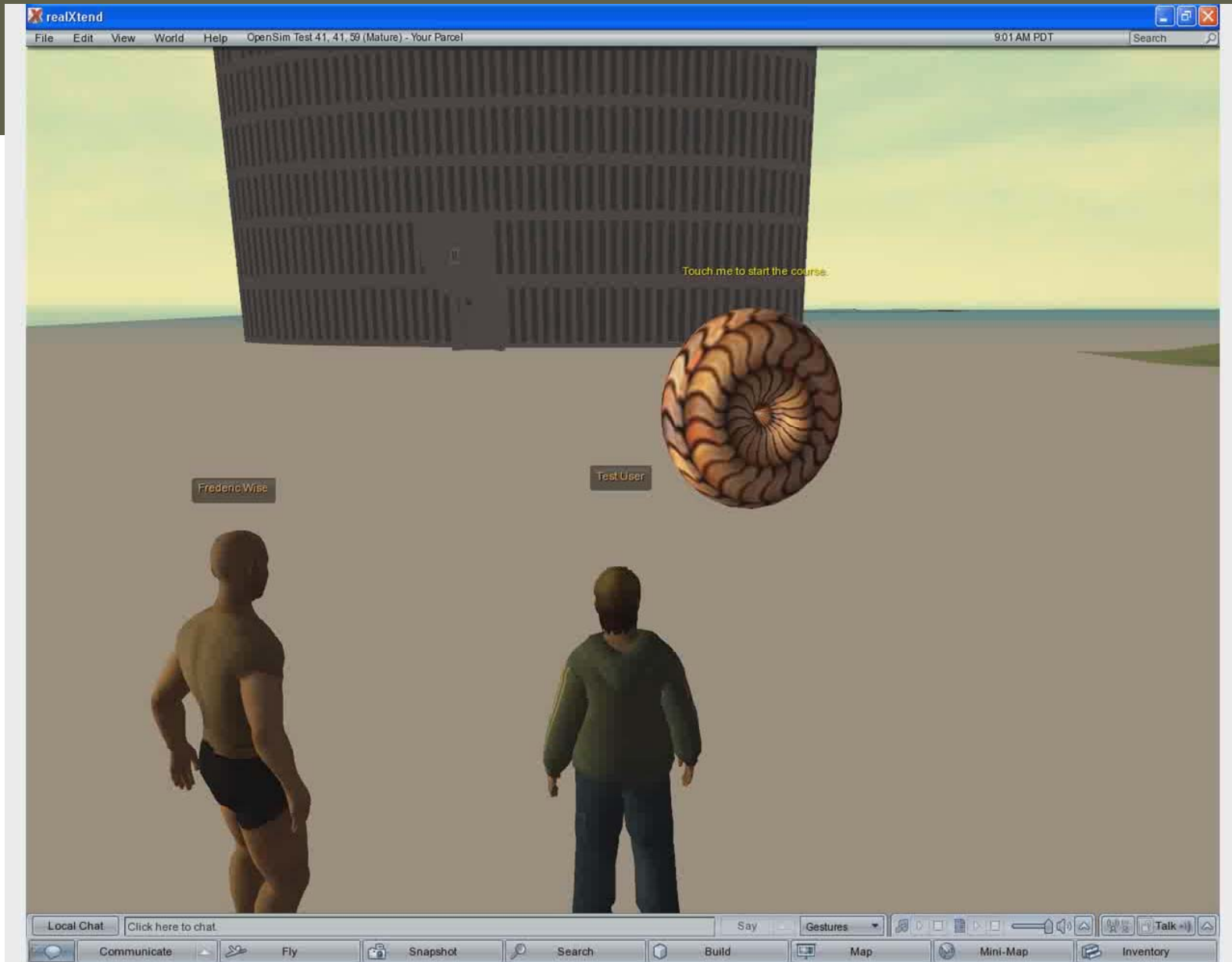
To create an adaptive course start with the Begin/End Step, then add Next Steps and Parallel Steps and finish with a Begin/End Step.



Story Line

Description of the course

A large, empty rectangular box with a thin gray border, intended for entering the course description. A mouse cursor is positioned at the top-left corner of the box.





Conclusion & Future Work

Future Work

- New Adaptations for MMOLEs are underway.
 - Based on
 - Interaction
 - Learner's emotion
 - Learner's profile
- More attractive Virtual World

Conclusions

- Generic approach to create adaptive storyline has been developed.
- Types of Adaptations have been designed.
- A framework has been developed.

Last few words

Thank You!

Frederic.Kleinerermann@vub.ac.be