

# Tool Usage by Students in a Software Engineering Course:



### Tasks and Efforts for Tool Administration

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### **Contents**



- Tools used in 2010
- Usage and Installation Types
- System Administrator's Checklist
- Some Trouble Some Examples
- Ideas and Reality





# Tools used in 2010 (1)

**objectiF** - commercial and free versions by *microTOOL*:

- Model-driven software development in Java, C#, C++
- Developing of use case and class diagrams

#### **CTE XL** - free version by *Berner & Mattner*:

- Test specifications and automated creation of test cases
- Functional testing

#### **Z/EVES** - Open-source software from *ORA Canada*:

- Methods for analysis of formal software specifications
- Z-notation

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### Tools used in 2010 (2)



#### **ATOSj** – developed by our Software Engineering group:

- Black Box Tests via systems' Graphical User Interface in Java
- Regression tests

#### **SOTA** – developed by our Software Engineering group:

- Executing control-flow oriented White Box Tests
- Coverage tests





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# Usage and Installation Types (1)

#### Personal usage

- Students install tools for themselves using our website's instructions
- Most convenient for us?
- Support is difficult





# Usage and Installation Types (2)

Computer lab – Windows 7 computers

- More effort for staff
- Work opportunity for students without PC/NB
- Ready-to-use tools
- Uniform working environment
- Advantage for teamwork



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# System Administrator's Checklist

- Current versions
- Documentation
- Licensing
- Installation instructions and user hints
- Computer lab changes
- Tests
- Websites

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# System Administrator's Checklist (1)

#### **Current versions**

- Looking for updates
- Contact developers / providers
- Newest versions?

#### **Documentation**

- Fast access to current documents
- Collecting, publishing and updating links

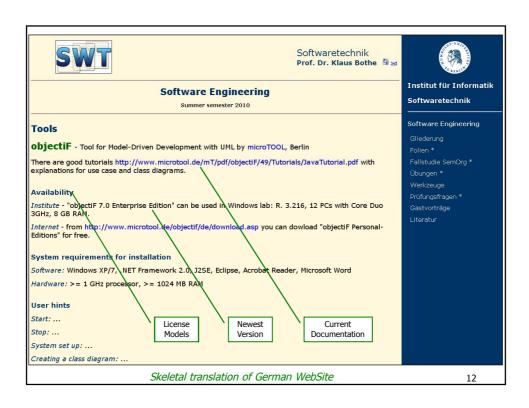




# System Administrator's Checklist (2)

#### **Licensing** at our Software Engineering group

- CTE XL under free license, but personally registration necessary
- objectiF under free and commercial license
- objectiF Enterprise Edition
  - 25 floating licenses for lab and remote access
  - Upgrade last year



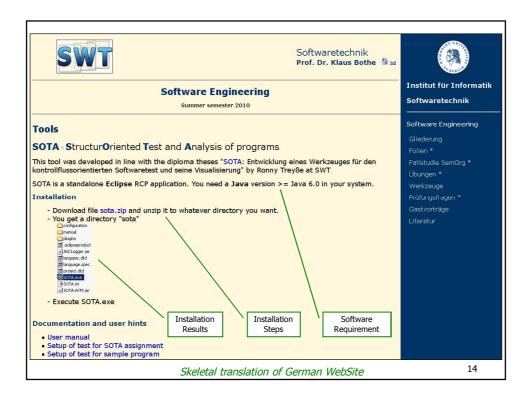




# System Administrator's Checklist (3)

#### **Installation instructions and user hints**

- SW and HW requirements
- Installation procedure steps and expected results
- Handling user interface
- Context of student assingnments







# System Administrator's Checklist (4)

#### **Computer lab changes**

- Hardware and operating system modernization
- Software new installaton

Tests: PCs, laptops, lab

Websites: Bundling of all tool's information

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# Some Trouble – Some Examples(1)

CTE XL - free version

- No problem for single-users
- You have to register and get a license key that is bound to your account and your PC
- Problem in lab with 12 computers and 60 users
- Solution
  - Computer administrator registers CTE XL
  - Students use corresponding key

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# Some Trouble – Some Examples (2)

objectiF Enterprise Edition – commercial version

- Central license server <sup>(3)</sup>
- "License server not found" (8)
- Problem caused by installation procedure:
  - search for license server in same subnet only
  - no registry entry for outside located server
- Antiqued solution executing a batch-file





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### **Ideas and Reality**

Usage of new MS Windows Terminal Servers

- One-time installation of tools
- Operating system independent access from anywhere
- The same working environment -> much easier support

First trials: CTE XL and objectiF - problems with

- Local devices
- Access rights
- Reboot needed after objectiF EE installation

