

Customization of ILIAS and its Integration with the University Information System

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Outline

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Motivation (1)

E-learning suits usually consist of:

- ✓ educational tools
- ✓ e-learning administration
- ✓ infrastructure support

ILIAS:

- ✓ independence on the technical platform
- ✓ functions in the administration area

Motivation (2)

The case of the **Masaryk University**

- all educational and research administration is integrated in the Administrative Information Server (IS MU)
- all data needed by ILIAS administration modules covered
- IS MU better fits local conditions

Integration Requirements

1. minimize the **overlap** in the information content between ILIAS and IS MU
2. ensure future compatibility with coming **ILIAS 3**

IS MU runs on Oracle 9, ILIAS could support it directly, **BUT:**

- ✓ IS MU often overloaded
- ✓ "mission-critical" status

Integration Possibilities

1. replace all ILIAS operations on the local database by **remote calls**
2. **replicate** relevant information from the IS MU databases to ILIAS

The first approach **would imply:**

- ✓ many modifications to the ILIAS source
- ✓ limits to our potential to upgrade ILIAS to its new versions

IS MU Data Model

STUDIES
STUDY_ID
SUBJ_ID
...

SUBJECT
SUBJ_ID
SUBJ_KOD
SEMESTER
SYLLABUS
...

SUBJECT_TEACHER
SUBJ_ID
TEACHER_ID
NAME
...

SUBJ_SEMGR
SUBJ_ID
SEMGR_ID
NAME
...


SEMGR_TEACHER
SEMGR_ID
TEACHER_ID
NAME
...

SEMGR_STUDENT
SEMGR_ID
STUDENT_ID
...

Data Synchronization

- ✓ **No one-to-one correspondence** between **ILIAS** and **IS MU** data models (there could be e-learning material for a course as a whole as well as for a particular seminar group, data from both relevant sources are merged)
- ✓ **Replication module** copies all relevant data in the beginning of each session

Authentication

- ✓ **Kerberos** is used in IS MU
 - ✓ Advantages of integration:
 - ✓ users use **the same passwords** as in IS MU with no additional risk
 - ✓ no need to maintain another authentication server
 - ✓ **Recompiling** the ILIAS web server with Kerberos support
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What Platform for ILIAS?

- ✓ Windows vs. Linux?
- ✓ **Zend** PHP Optimizer?
- ✓ Several comparisons on the same HW
- ✓ Zend slows down some parts of ILIAS
- ✓ Apache-PHP-MySQL subsystem significantly **faster on MS Windows**

Localization of ILIAS

- ✓ problems with Czech characters in preview mode and courses

Possible solutions:

- ✓ addition of conversion functions into source code
- ✓ UTF-8 conversion of the MySQL DB, support in Apache, PHP - universal, memory requirements,

Conclusion and Future Directions

- ✓ ILIAS has been chosen as the primary e-learning platform for the Masaryk University
- ✓ "Teacher-friendly" editing and semi-automated publication of study materials prepared in DocBook and its derivatives (DocBook Slides)
- ✓ Integration with standalone system for semi-automated testing of students' programs in Java and other languages

Future Directions (cont.)

- ✓ Natural language processing support for e-learning enabling to go **beyond** simple **multiple-choice tests**
 - ✓ **Automatic linking** of additional study materials available at MU based on **intelligent text analysis**
 - ✓ Integration with **multimedia** teaching materials
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