Terminology and Concept
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Prototype and Problems
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Rewrite: New features
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Status
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csync - roaming home directories

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Terminology and Concept
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2 Prototype and Problems
- The Protoype
- Problems and solutions

3 Rewrite: New features
- VIO Plugin System
- Testing driven development
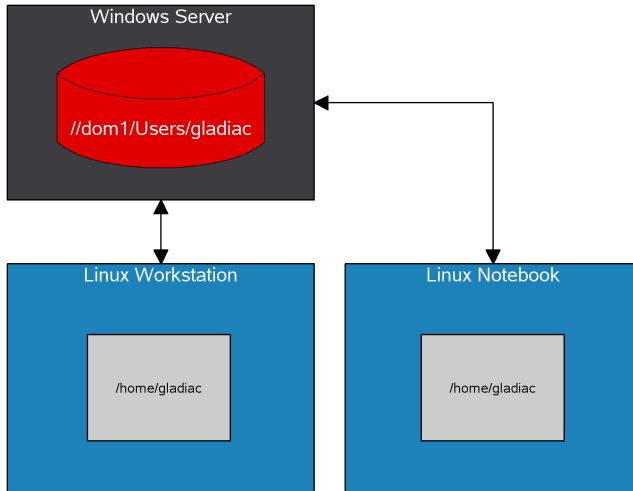
4 Status
- Development status of the rewrite

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Roaming Home Directories

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Concept

What is csync?

csync is a bidirectional file synchronizer

- working with metadata (stat())
- working with a metadata journal
- client only (no specific csync daemon needed)

Design

csync uses a simple design

- Collect and check metadata (update detection)
- Compare metadata (reconciliation)
- Copy files (propagation)

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The Protoype

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The Protoype

csync prototype

- Proof of concept
- Demo

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Problems and solutions

Why a journal is needed to detect newly created files

- What is a journal?

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Problems and solutions

What is a journal?

- It is the state of filesystem after the last synchronization
- It is a database with the metadata of each file
- Gets only written after a successful synchronization
- Demo

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Problems and solutions

What happend?

- Time of the last synchronization: 5
- Time of new file on one replica: 4
- $4 < 5$ means no changes; file doesn't exist on the opposite replica $\Rightarrow$ file has been removed
- Solution: first check if the file exists in the journal

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Problems and solutions

Other discovered problems and solutions

Whats new?

- Uses faster algorithms (Linked list $O(n)$ $\Rightarrow$ Red-Black Tree $O(\log n)$)
- Implements a journal (using sqlite3)
- Support for exclude list
- Better Virtual IO Plugin System (next slides)
- Completely testing driven development (more later)

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Idea behind VIO

- Be able to support various protocols (smb, sftp, . . .)
- Develop 3rd-party modules out of the csync source
- POSIX-like function inside of csync

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Testing driven development

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Why testing driven?

- Test new code as early as possible
- Don't spend time in the debugger when starting to use the functions
- You can check if how well your code covers all possible conditions

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Testing driven development

Testing in csync

- Each C file has a test
- Each function of a file has one or more testcases
- Tests are executed by a testing framework.

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CTest

- CTest ist part of the CMake build system
- Provides a 'make test' target

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Testing driven development

CDash

The Dashboard

- CTest submits testing result to CDash
- http://testing.csync.org/

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Development status of the rewrite

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Status of the rewrite

- Base system and initialization:
    - Journal: abstract query and update function are already done
    - Journal: create table, update, insert, delete missing
    - VIO: in development

- Update detection: missing

- Reconciliation: missing

- Propagation: missing

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Questions & Answers

Interested in development?

- Poject page: http://www.csync.org/