Roaming Home Directories

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csync

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Roaming Home Directories

1. Terminology and Concept
   - Terminology
   - Concept

2. Roaming Home Directories
   - PAM
   - pam_csxnc

3. Plans for the future
   - Features users or developers asked for
Terminology and Concept

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Roaming Home Directories

Windows Server
//dom1/Users/gladiac

Linux Workstation
/home/gladiac

Linux Notebook
/home/gladiac

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Roaming Home Directories

- We don’t talk about Profiles here
- This is about synchronizing files!
- No merging of content (not yet?)
What is a replica?

- A tree or subtree of a filesystems
- This could be local or remote
- Changes are often made independently and as a result they do not contain the same information.
What is a conflict?

A path is conflicting if it fulfills the following conditions:

1. it has been updated on one replica
2. it or any of its descendants has been updated on the other replica too, and
3. its contents are not identical.
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What do we need?

We need a bidirectional file synchronizer

- working with metadata (stat())
- working with a metadata status database
- client only (no specific daemon needed)
Terminology and Concept

Roaming Home Directories

Plans for the future

Concept

What do we have?

csync simple file synchronizer which:

- collects and checks metadata (update detection)
- compares metadata (reconciliation)
- copy the files (propagation)

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How do we detect updates?

We compare the modification time of the file with the db entry.

- no entry = new file
- newer modification time = file changed
- equal modification time = no changes
- ...
What do we do with conflicts?

The Merge Algorithm

- doesn’t need any user interaction
- it is used by Microsoft for Roaming Profiles
- if it detects a conflict, it will use the most recent file and overwrite the file on the other replica
Which protocols are supported?

- SMB: using Sambas libsmbclient
- SFTP: using libssh (will be in 0.43)
For developers

csync uses:

- a red-black tree to store all information in memory
- a sqlite3 database to store all the metadata for the next synchronization
- a virtual IO plugin system to support different protocols
- a unit testing framework
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Pluggable Authentication Module

Separates the tasks of authentication into four independent management groups:

- authentication management
- password management
- account management
- session management
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pam

pam_csnc does ...

- authentication management to get the password and pass it to
- session management to synchronize the files
pam_cs sync features

- pam_winbind support to get the Profile directory from the ADS
- kerberos support
- exclude users
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GUI support

What’s needed?

- A conflict algorithm
- Callback that for the GUI to display and modify conflicts
More protocols

- WEBDAV: maybe possible with libneon
- RSYNC: maybe we can talk to rsync
- own daemon with mimetype support to merge special contents
Questions & Answers

Interested in development?

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