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Virtual Goods
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A License Aware P2P Client with URM

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*presenting

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Motivation

- Music industries have dropped DRM copy protection
- Today, no technical restrictions for users
- Users can behave illegally (knowingly or unknowingly)
- P2P users get cease-and-desist letters

→ A legal P2P file sharing system protects users

[1]

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Usage Rights Management [2]*

- Helps users to behave legally by managing usage rights of their media files
- Manages a license (set of ODRL rights expressions) for each digital media file (e.g. MP3)
- Visualizes the rights status in a media library (traffic lights)
- No enforcement

*Presented on VG2009

TURM (1) – Toolkit for URM

- Java based framework (platform independent)
- Starting point for further URM tools
- Extensible by plugins
- Will become open source

TURM (2) – current development

- Basic URM license – profile as aim
- RDF reading / writing extension (Andreas' presentation)
- Media manager
- Graphical user interface (GUI)
- Local media file analyzer (all infos)
- Online verification service (WS, e.g. CC Server)
- P2P file sharing extension (CUP)

TURM (3) – Possible plugins

- Support of …
- different media types
  - audio, video, images, eBooks, …
- different license templates depending on file source
  - e.g. in audio area: web shop download, Creative Commons, web radio recording, P2P file sharing, …
- different license encodings
  - ODRL 1.1-XML, ODRL 1.1-RDF, ODRL 2.0-RDF, other REL

CUP - Client for URM based P2P file sharing

- P2P client that adheres to URM right definitions
- Based on TURM and JXTA
- Administration of friends list
- Allows sharing "private copy" and "fair use"

CUP Scenario
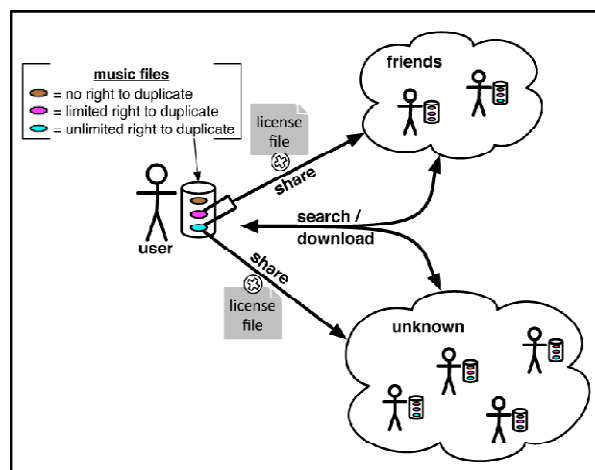
Use Case 1: Only Forward Media Files Legally

- Local license must contain the "duplicate" right
- Protects the sending user against
  - cease-and-desist letters
  - (note that some illegal uploads are monitored by special P2P clients)
- Protects the receiving user by
  - providing license file

Use Case 2: Only Receive Media Files Legally

- Using files of illegal sources is illegal*
- Only receive files from URM based P2P clients
- Receive license as legitimation and keep in local license store
- License can contain a link to an external legitimation
  - e.g., a web page with CC marking
- Additional local and remote check of license and files

*At least in Germany [5]

Use Case 3: Private Copy

- Derived from German copyright law
- Allows forwarding copies to a (real) friend
- Concrete number of copies not mentioned in the law
  - Can be adjusted by user
  - Recommended: max 3 copies for safety
- CUP delivers music file and license only to peers in friends list, counts copies

Implementation – It works

- GUI is under construction
- Visualization of licenses (traffic lights)
- Warnings and hints
- Buttons for
  - Management of media files
  - Overview of media files and meta data
  - Exchange of media files (search, upload, download)

Implementation – Media Library
GUI (prototype)

ODRL -Mediathek

Datei   Einstellungen   Ansicht   Hilfe

Künstle	Album	Nr	Titel	Jahr	Rechte	UID (SHA1-Hash)
Blood...	Taste Th...	03/09	In H...			66bb139a84aaa24a525b7df839dca44928e4bb87
Dem...	Demons...	04/13	Fiddl...	2000		c52d3d886e3bc3d675a22adeb4fa832b054ad8ab
Dog ...	Play Ga...	04/11	Rocky	1996		9014e6a21dab86462a2b4ee94426b28d2910af74
Tool	Ænima	05/15	Fort...	1996		71edf2707ec8b29cee6250a78c8971d6c2398863
Grimf...	Ghouls ...	05/10	No C...	2003		7d97a40c9fa71e18e1a5f04a746d20c93166b6e6
Blood...	Taste Th...	05/09	Unb...	2007		285fd27d5f0f8a4db4a51b3f408189c3ccf59d00
Blood...	Taste Th...	06/09	Insti...	2007		9b18db17ae4cf7c3dba371f832107c48fedc1b39
Forsth	Winterfr...	06/09	Wint...			02294c80cb6d73e14935b2e0d146f29d3c68def9
Blind ...	Imaginat...	07/11	Briq...	1995		ffed7e2e68d98cb3d8176cd3ea9c1ea0a452e0a8
Grav...	Scourge...	07/10	Fear...	2001		94c1e9d7e0584de6dffcc0bd52e7b4c5602da153
Blood...	Taste Th...	07/09	Tast...	2007		95c1d25a68356e02978238f5d9b0bcafc9a75525
Blind ...	A Night ...	07/10	The ...	2002		7917bf5ffa3fb00056326b6bed7dc8df0047d5df

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CUP management functions – CLI [7]

```
usage: Cup
 -u, --user <arg>                       ->the username. (required)
 -i, --incomingFilesPath <arg>          ->the path for the incoming files where
                                          the general licenses saved. (required)
 -l, --licensePath <arg>                ->the path for the incoming licenses
                                          where the general licenses saved.
                                          (required)

 -af, --addFriend <arg>                 ->the e-mail address of the friend, who
                                          add to the friendlist.
 -df, --deleteFriend <arg>              ->the e-mail address of the friend, who
                                          delete from the friendlist.

 -c, --client                           ->cup behave like a client. (either
                                          client or server can be selected)
 -s, --server                           ->cup behave like a server. (either
                                          client or server can be selected)

 -e, --email <arg>                      ->the user e-mail address. (required)
 -a, --search  <arg>                    ->the searchstring. (required, if client
                                          is selected)

 -rlip, --relayIPAddresses <arg>        ->a list of noted relay peers with value
                                          separator ','.
 -rnip, --rendezvousIPAddresses <arg>   ->a list of noted rendezvous peers with
                                          value separator ','.
 -rl, --relayPeer                       ->the own computer is a relay peer.
 -rn, --rendezvousPeer                  ->the own computer is a rendezvous peer.

 -h, --help                             ->shows this help.
```

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Conclusion and Outlook

- "A License Aware P2P Client with URM" provides
  - Legally safe P2P file sharing
  - Self protection
  - Some special features, like "private copy"

- Further steps
  - Integration with GUI
  - Better configuration of the "friends list"
  - Reserving rights for "better friends"
  - Different file types
  - …

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