

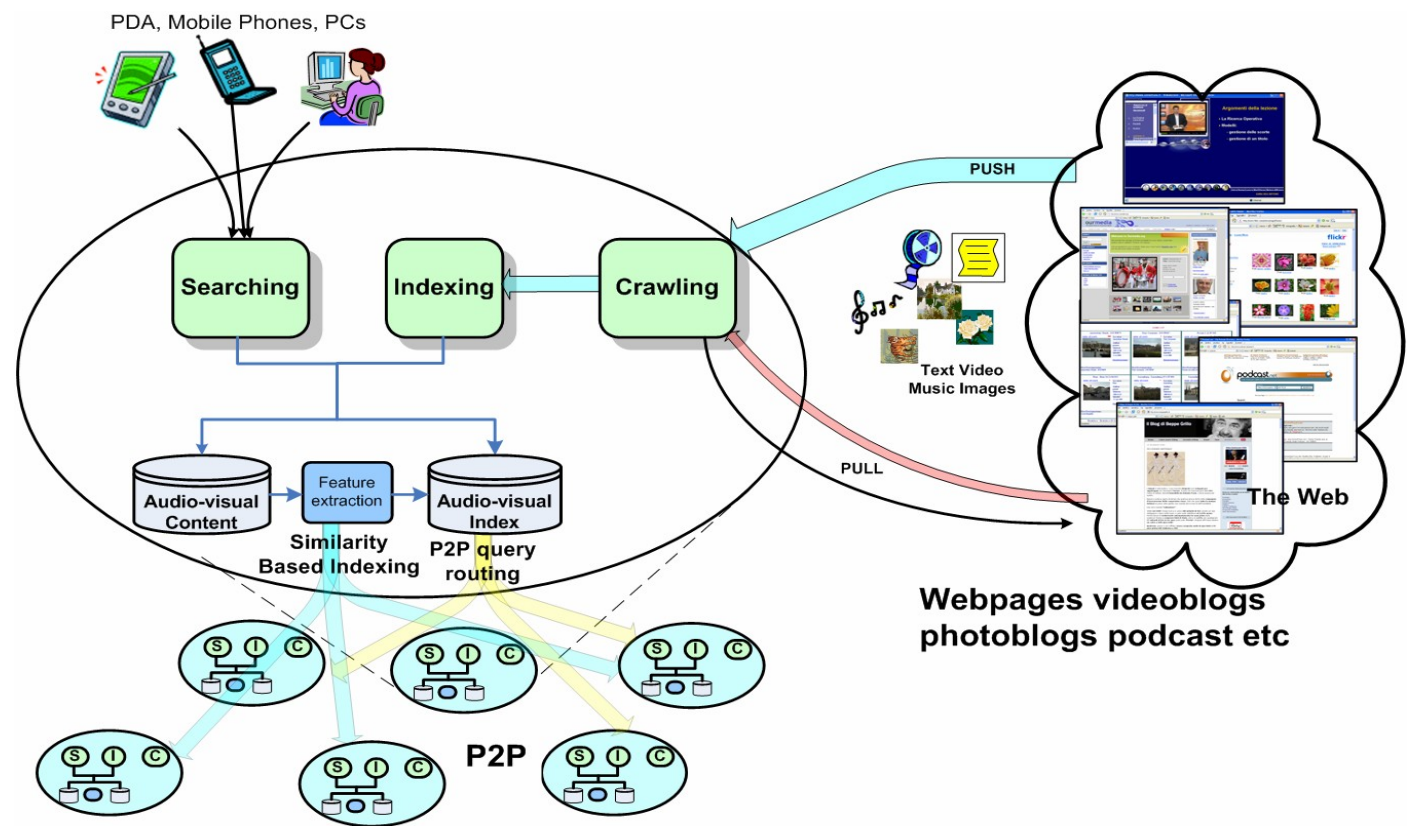
Digital Media Project

P2P iDRM

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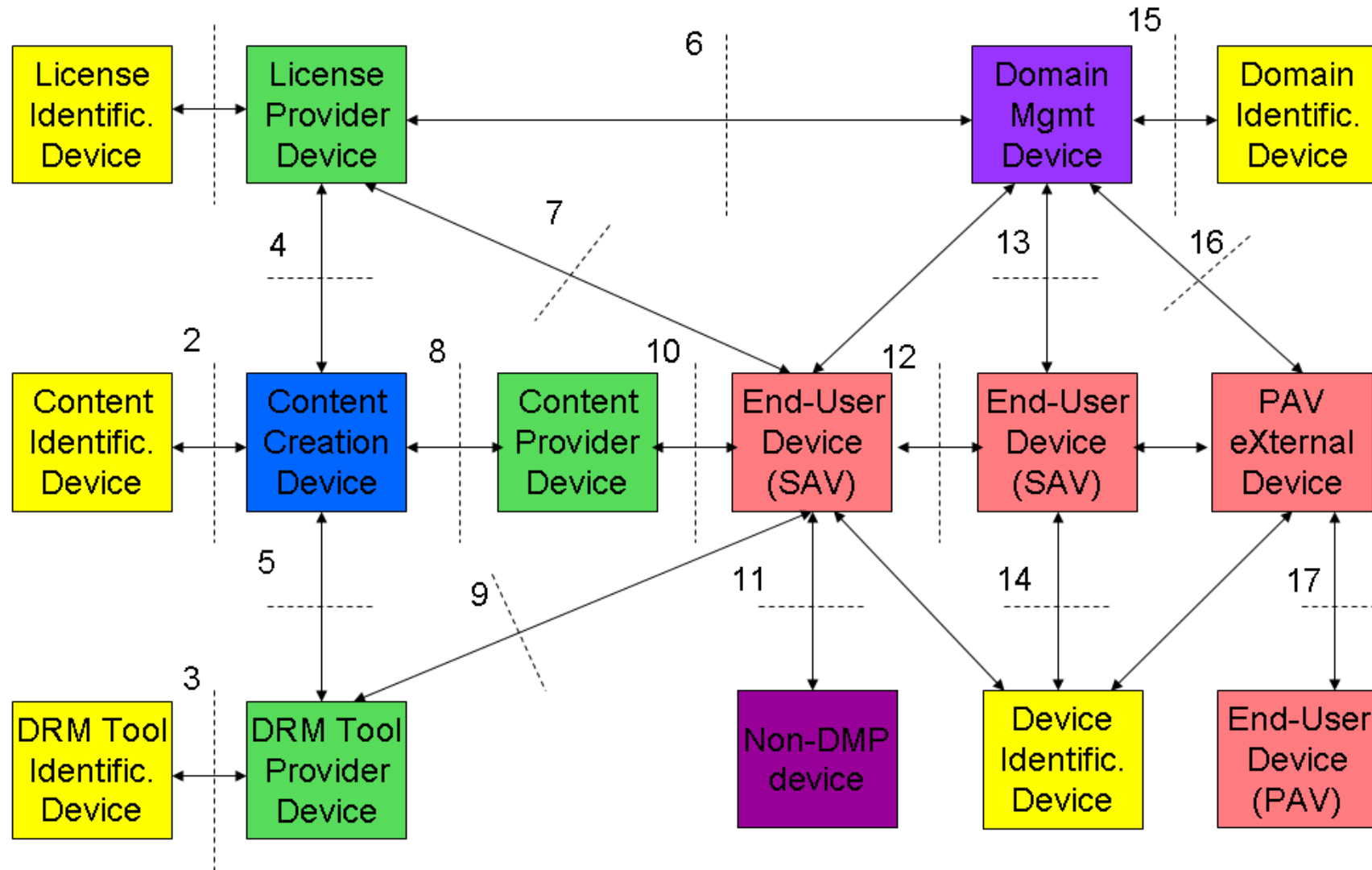
SAPIR



The challenge

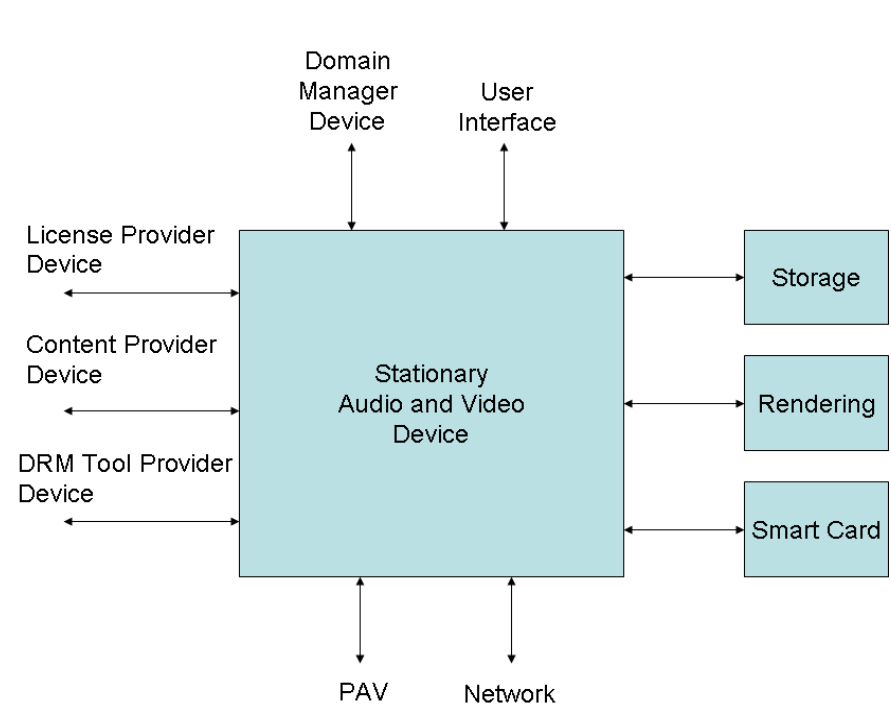
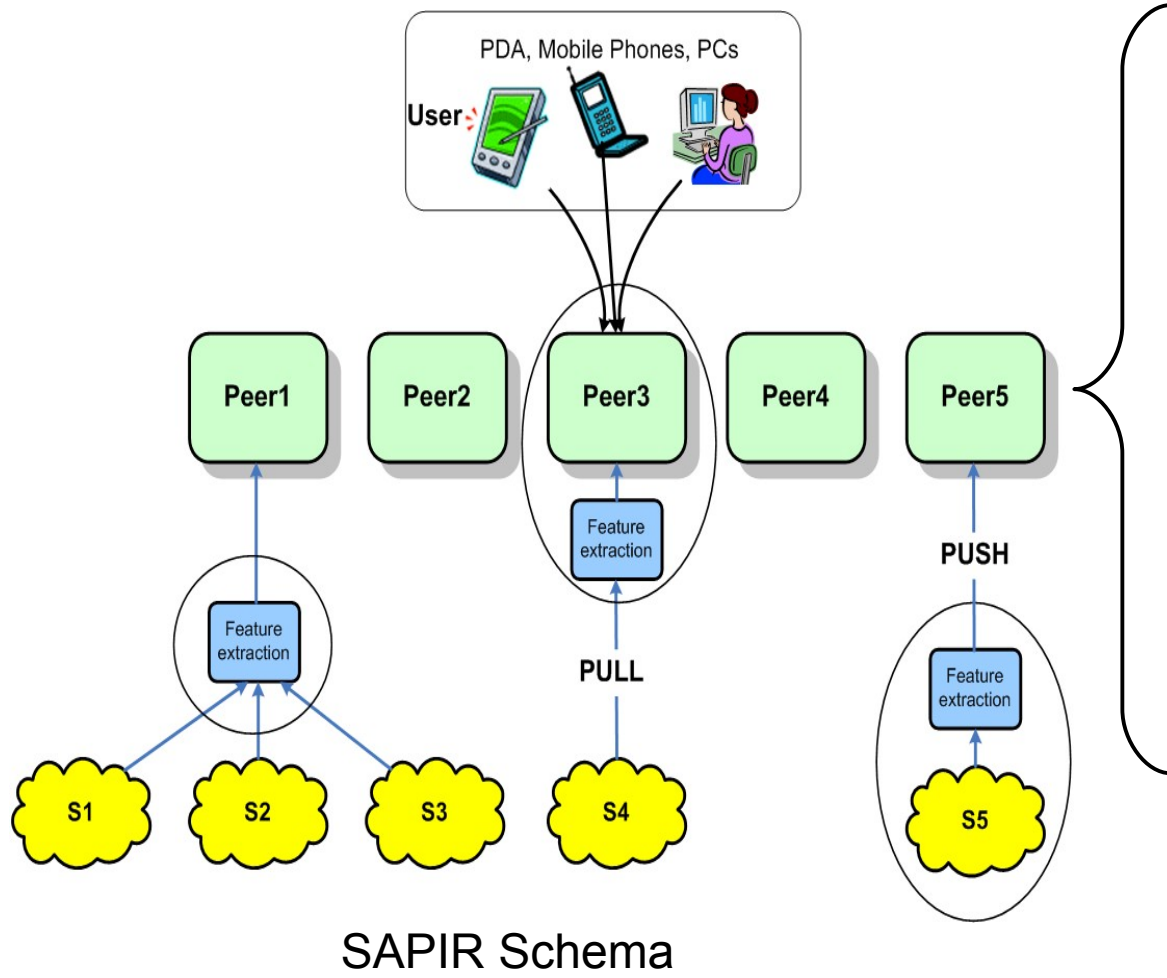
- The searchable space created by the massive amounts of existing video and multimedia files greatly exceeds the area searched by today's major engines.
- Traditional search engines are limited to searching in the associated text and meta-data of the multimedia content. If content providers don't clearly or accurately describe their multimedia files, or use inaccurate tags, the current method falls short.

Interoperable Digital Rights Management Platform: *Involved Devices*





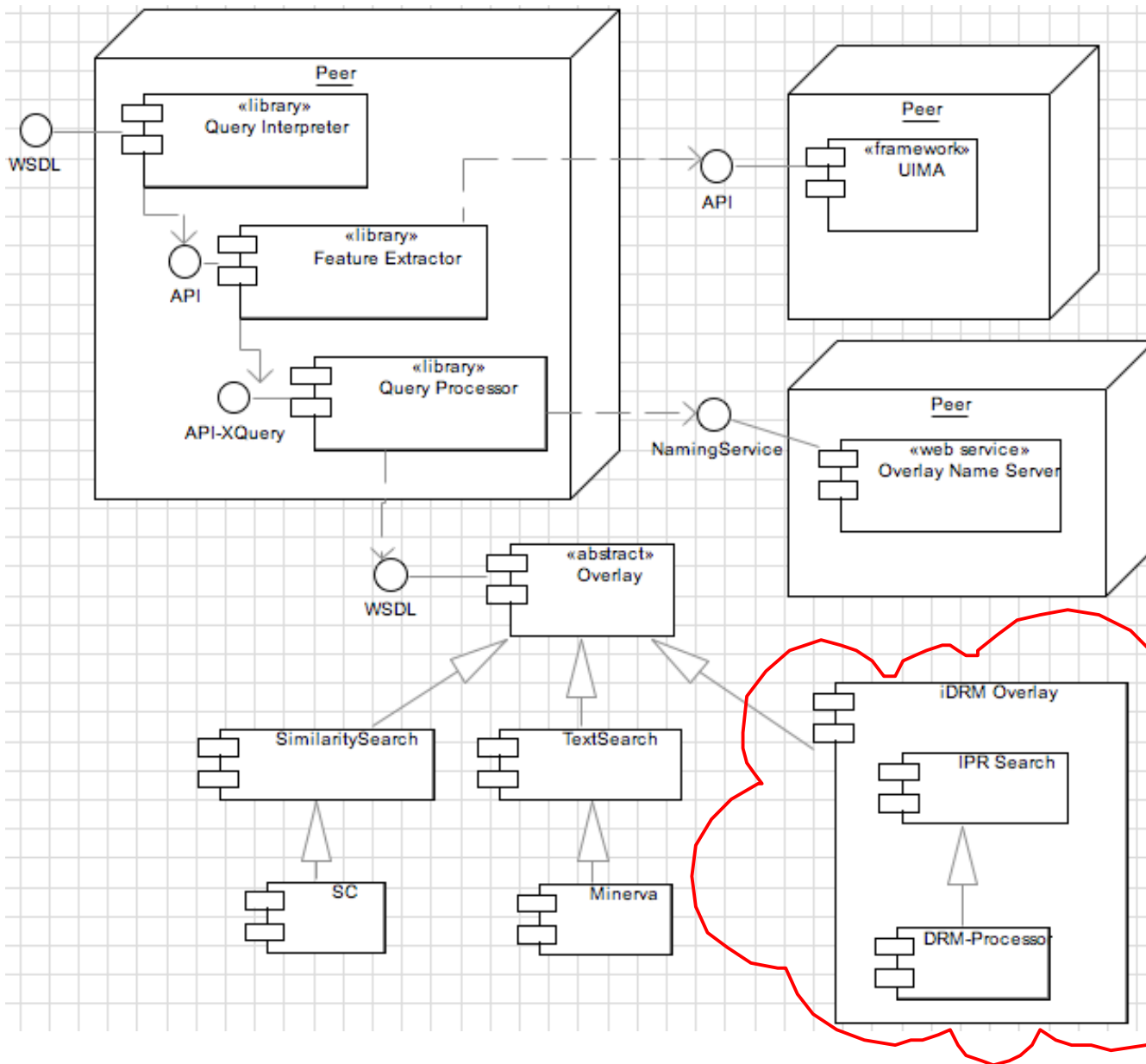
iDRM in P2P Proposed approach in SAPIR



Conceptual Model of Content Consumption Devices (iDRM specifications)



iDRM/SAPIR Architecture proposal



Aims

- Our aim is to try to implement the use Case and Value Chain No. 6: “Controlled Peer-to-Peer Distribution”(*) within the SAPIR project, making use of the reference software provided by Chillout.

(*) Approved Document No 4 – Technical: Specification: Use Cases and Value Chains, v. 2.1 – ch. 7 - <http://www.dmpf.org/open/dmp0984.zip>

- License type:

Chillout is under Open source (Mozilla).

we plan to refine and improve Chillout for P2P management, returning it to DMP

we plan to develop some other Chillout-based applications in order to fit other needs of SAPIR. This software will be under SAPIR Consortium Agreement

- Public Results:

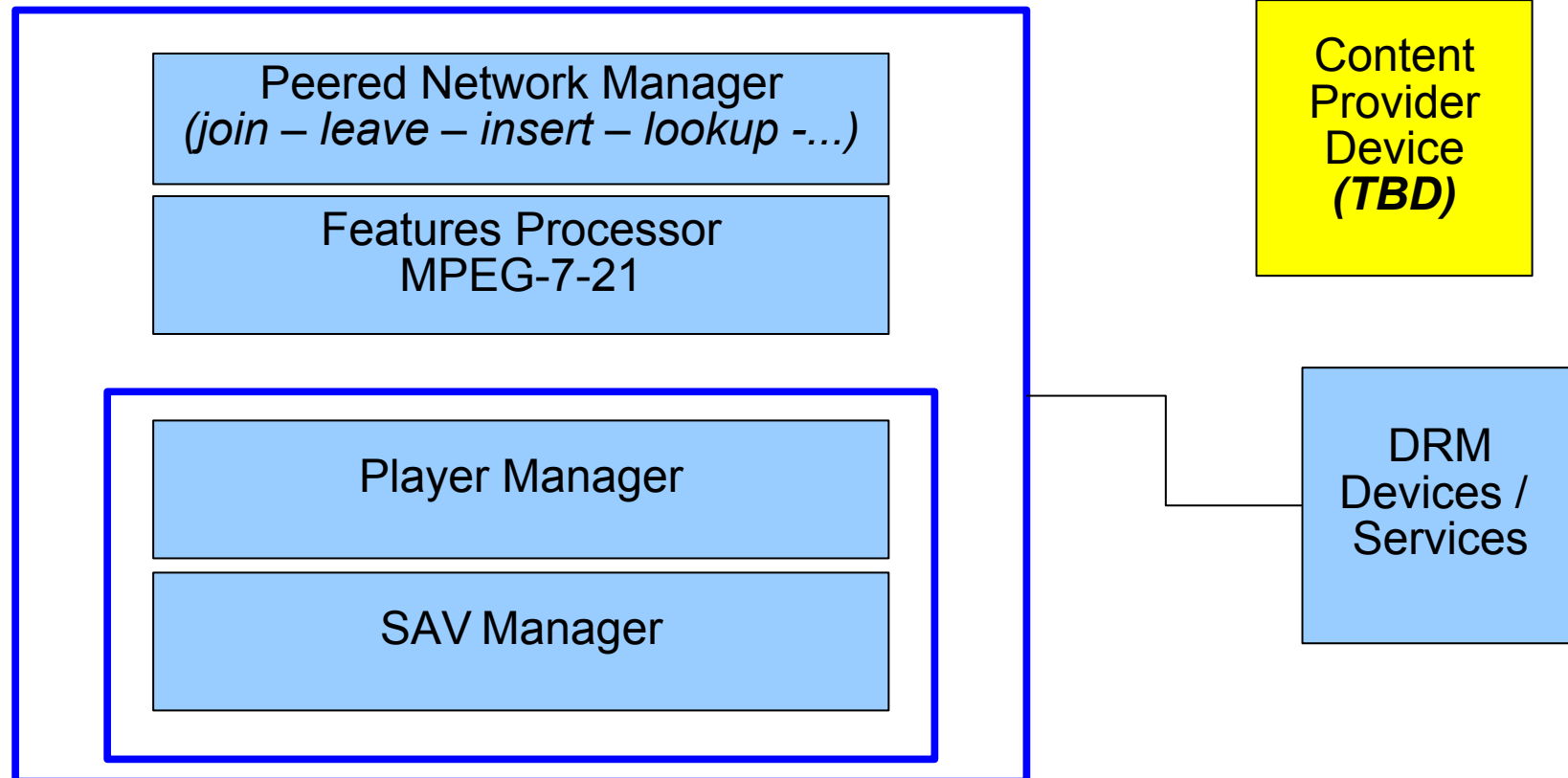
we plan to present the results of SAPIR<->iDRM on P2P network to the principal international conferences

Main Layers

Network

DHT - BitTorrent - Gnutella - ...

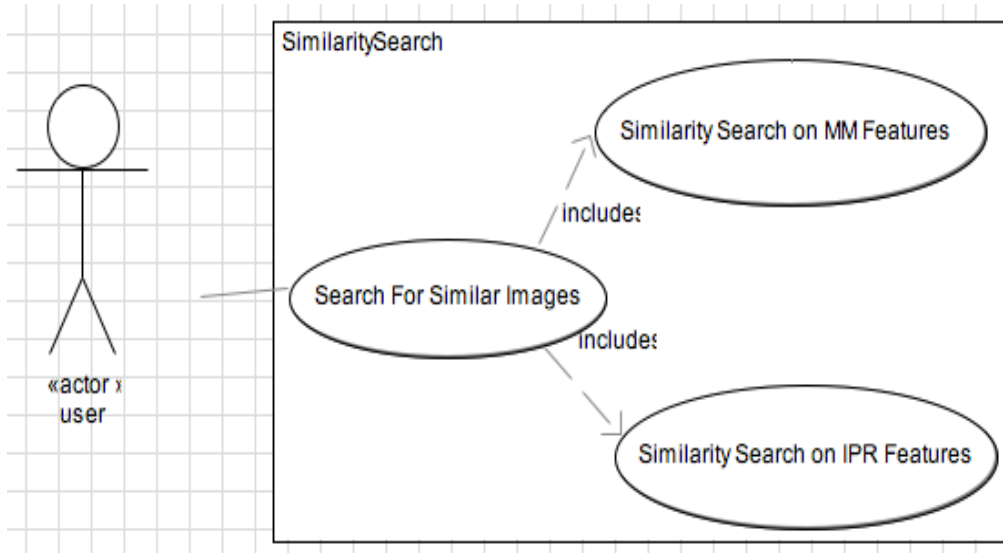
Peer



Implementation Plan

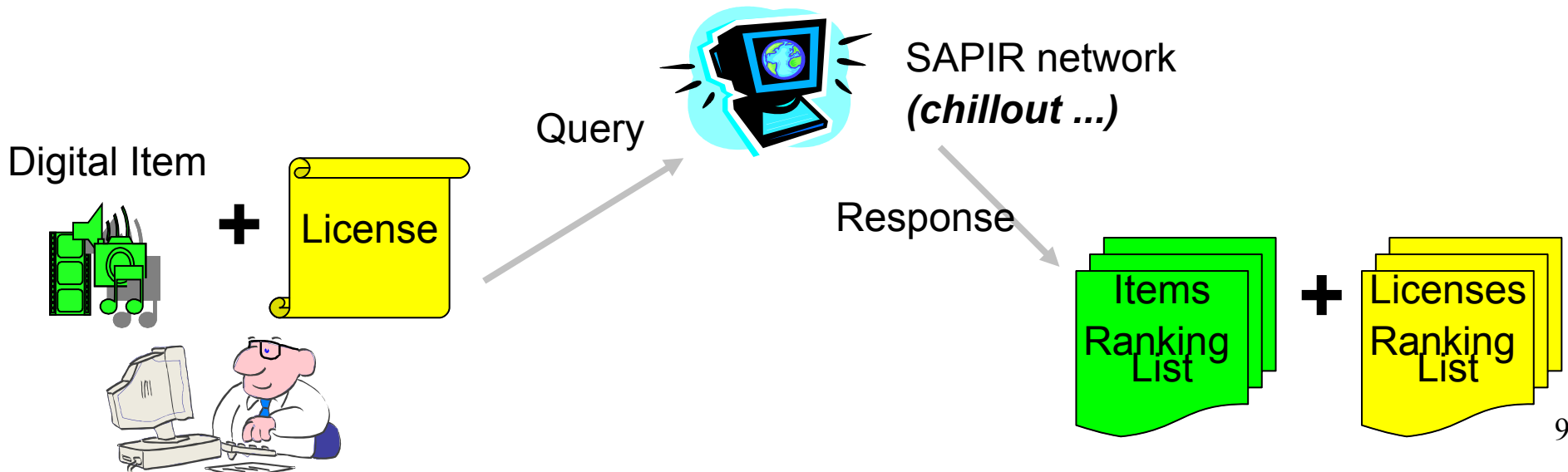
- Choose the initial Peered infrastructure (09/07)
BitTorrent - DHT (Chord – CAN - ...)
- Analysis of the DRM devices needed (10/07)
- First implementation phase (10-11/07)

IPR Similarity Search 1/3

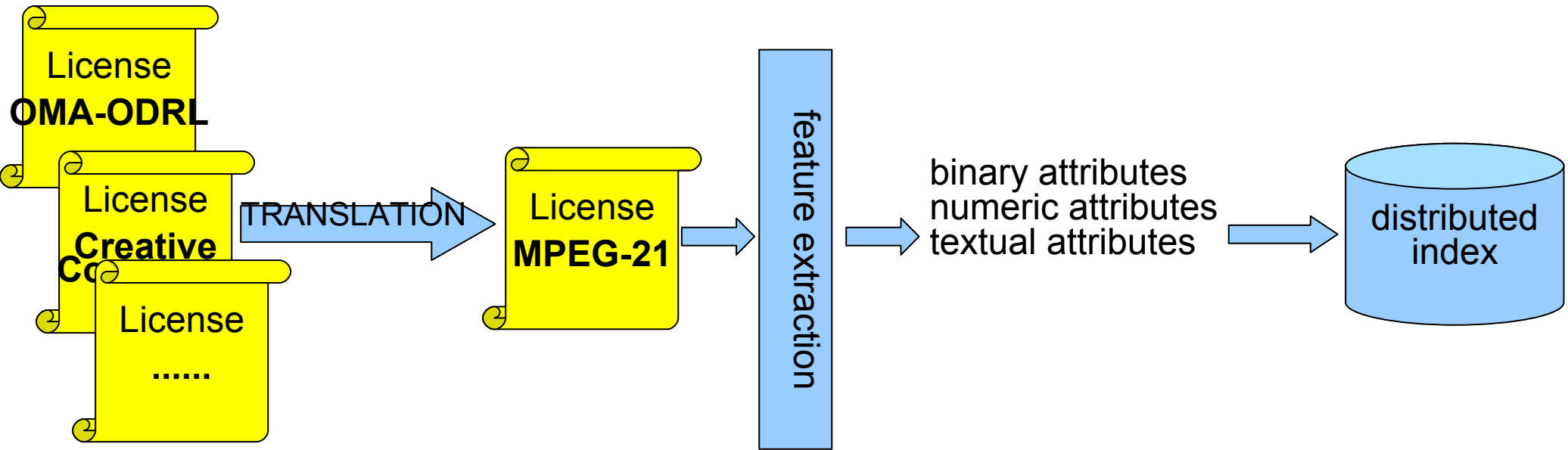


People involved:

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IPR similarity search 2/3



distance functions d_i

$f(\text{binary attributes})$
(eg. rights)

$$d_{i,j}(x_{i,j}, y_{i,j}) = |x_{i,j} - y_{i,j}| = x_{i,j} \otimes y_{i,j}$$

$f(\text{numeric attributes})$
(eg. constraints)

$$d_{i,j}(x_{i,j}, y_{i,j}) = |\log(x_{i,j}) - \log(y_{i,j})| = \left| \log\left(\frac{x_{i,j}}{y_{i,j}}\right) \right|$$

$f(\text{textual attributes})$
(eg. conditions)

	$term_1$	$term_2$	$term_3$...	$term_m$
$term_1$	0	$\alpha_{2,1}^{i,j}$	$\alpha_{3,1}^{i,j}$...	$\alpha_{m,1}^{i,j}$
$term_2$	$\alpha_{2,1}^{i,j}$	0	$\alpha_{3,2}^{i,j}$...	$\alpha_{m,2}^{i,j}$
$term_3$	$\alpha_{3,1}^{i,j}$	$\alpha_{3,2}^{i,j}$	0	...	$\alpha_{m,3}^{i,j}$
...
$term_m$	$\alpha_{m,1}^{i,j}$	$\alpha_{m,2}^{i,j}$	$\alpha_{m,3}^{i,j}$...	0

IPR similarity search 3/3

group distance $d_i(x_i, y_i) = \sum_{j=1}^{n_i} w_{i,j} \cdot d_{i,j}(x_{i,j}, y_{i,j})$

total distance $d(x, y) = \sum_{i=1}^n w_i \cdot d_i(x_i, y_i)$

$$d(x, y) \geq 0$$

(non-negativity)

$$d(x, y) = 0 \text{ iff } x = y$$

(identity)

$$d(x, y) = d(y, x)$$

(symmetry)

$$d(x, z) \leq d(x, y) + d(y, z)$$

(triangle inequality)



**SPACE of licences
(IPR features)
must be a
METRIC SPACE**