SAPIR

SAPIR
Search in Audio-Visual

Information Society Technologies

Search in Audio-Visual content using P2p Information Retrieval *

The challenge

- The searchable space created by the massive amounts of video and multimedia content produced daily by Internet users greatly exceeds the area searched by today's major engines which are limited to index and search within associated text and meta-data.

The solution – SAPIR

- SAPIR addresses some of today's most exciting search challenges. It is geared towards finding new scalable and efficient ways to analyse, index, and retrieve the tremendous amounts of speech, image, video, and music that are filling our digital universe.
- Users will be able to search for information with a query-by-example approach, e.g., by taking an image of a physical object with a mobile phone, or by humming a melody to find a song.
- SAPIR solution is based on dynamic and distributed peer-to-peer index structures, based on metric spaces, supporting a combination of text and content-based similarity search that enable effective multimedia retrieval in real-time.
- User context information such as GPS position, query history and social networking (groups of users with similar interests) are used to increase search precision.
- Index freshness is granted by a push-based, collaborative crawling approach where content providers publish and "push" information to distributed indexes.

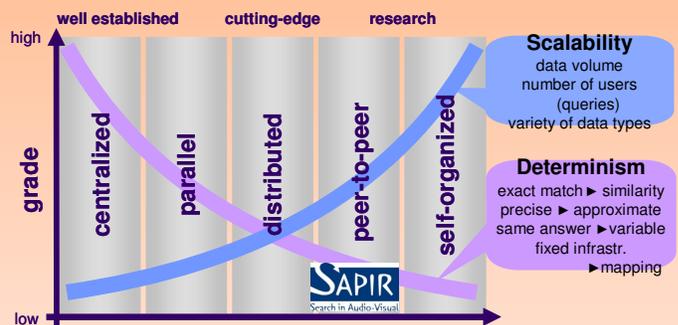- **Support for multiple devices, anywhere, anyplace and anytime.**

  SAPIR will support multimedia content for uploading/pushing, and for searching/retrieving from a variety of devices, including mobile phones, PDAs and PCs.

- **Support for intellectual property rights management**

  Because content providers themselves are at the level of end users, SAPIR will study IPR methods (DRM, MPEG-21) and develop solutions to solve the conflict between IPR protected digital content and the ability to analyze and retrieve this content.
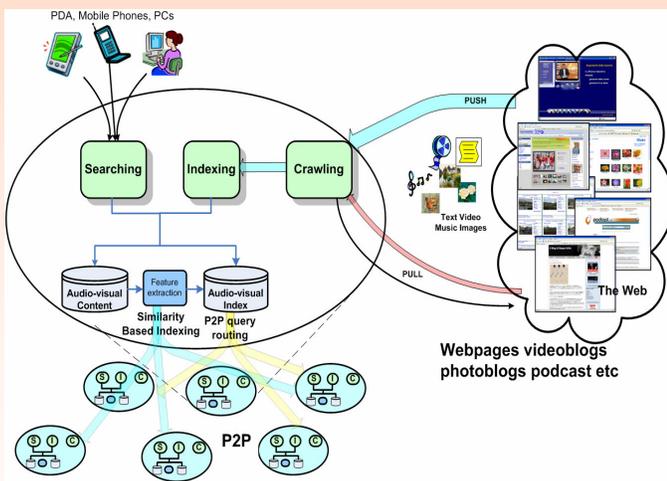
- **Planned contributions to standards**

  Extension to MPEG-7 for music and speech; Proposals for MPQF (MPEG-7 Query Format); A Chillout DRM implementation for P2P; Propose a call for MPEG-21 Query Format

Scalability
data volume
number of users (queries)
variety of data types

Determinism
exact match ▶ similarity
precise ▶ approximate
same answer ▶ variable
fixed infrastr.
▶ mapping

Project status - Jan 2008

- A scalable, extensible and versatile architecture for P2P was defined. APIs for P2P content management, indexing and search were defined and implemented. Several Application Scenarios were defined and tested in Focus groups
- 54 Million tagged and annotated digital photos were crawled and 5 MPEG-7 visual descriptors were extracted for each photo by exploiting the EGEE grid (target of 100M collection). The test collection CoPhIR – see http://cophir.isti.cnr.it - made available to the scientific community for large-scale content-based image retrieval experiments
- An effective demo for Indexing and searching within 10M images by using a combination of content-based and text image search was implemented with the SAPIR APIs. Next demo will include search in music, video and speech

SAPIR is an exciting opportunity that will bring to the European community an improvement over existing centralized text-only search technologies.

For more information visit: http://www.sapir.eu

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