

CATERINA

A PROPOSAL FOR A PROJECT IN FP7 (please keep it confidential)

Creating, Aggregating, Transforming, Enhancing, Reducing Internet Network Applications
(acronym to be revised)
(structured protected multimedia digital file)

1 Abstract

Nowadays, people produce and use a growing variety and amount of digital contents by using a growing variety and number of devices.

To efficiently manage all these contents, it is useful to define a common format for storing and transferring digital information.

Extending the work of MPEG-21, we define a fundamental unit of storage, distribution and transaction: the Extended Digital Item. An Extended Digital Item includes "content" and "meta-information". Content could be for example a whole DVD or a JPEG picture or an MP3 file or a text file or a binary file or whatever combination of such components and/or links allowing to retrieve components.

However, differently from MPEG-21, content is not only multimedia information but also digital representation of people, identities, physical objects and places. "Meta-information" could be i) information describing the content and the structure of the "content"; ii) information on the ownership of the "content" and on the rights that different classes of users have on it (read, copy, modify, etc); iii) authentication, encryption and profiling features.

The overall aim of the project is to design and evaluate tools to handle digital items over diverse platforms and devices.

More in details, the project will focus on three issues:

- Definition of the Extended Digital Item; this can be based on the work of MPEG 21 or can follow alternative approaches.
- Design and evaluation of a middleware providing the tools needed to handle digital items.
- Design of a set of example applications exploiting the middleware tools, to show the usefulness, capabilities and performance of the proposed solution.

2 List of capabilities

Caterina uses a desktop PC at the office, a laptop PC at home or when travelling, a mobile phone, a PDA, a digital camera, a video camera, a DVD player, an MP3 player, an audio recorder, a home media platform, backup devices, car players, and domotics devices. Caterina needs to handle the digital information generated by all these devices. Up to now we gave to "handle" a very wide meaning; here we try to specify which are the specific functions that we intend to provide, across diverse platforms and devices:

- addressing, routing, organizing, searching, cataloguing, backing up and recovering, copying, transferring, sending, receiving, sharing, synchronizing Extended Digital Items
- coping with discontinuous transmissions
- ensuring the security and the privacy of the content of Extended Digital Items
- managing digital rights

- improving P2P and downloading functions, by choosing which part of an Extended Digital Item is to be searched and downloaded (transmission of partial information)
- selective dropping of least important pieces of Extended Digital Items in case of poor/expensive communication links
- control on who and when can access Extended Digital Items or part of them
- adapting Extended Digital Items to the capabilities of the target devices
- provide a common unit to social web applications (instead of proprietary and specialized solutions, such as Youtube, MySpace).

3 Example applications

To show the capabilities and the power of the Extended Digital Item concept and of the middleware the project will design a set of example applications. These will include:

- generalization of Apples’ I-tunes: ability to handle Extended Digital Item, and not only music; ability to work with several devices, not only PC+IPod. Think to a “central” application running on a PC able to interact with less powerful devices such as cameras, DVD recorders, mobile phones. A sort of Media Center controlling all the devices that we own and all of our Extended Digital Items. Probably such application will need to rely on services performed by suitable servers or (better) P2P architectures (Example of success story: mp3->mp3 players).
- Semantic searches (for example in P2P systems and in file systems).

4 Example scenarios

The project will define and implement a set of scenarios, including:

- coming home and collecting all the Extended Digital Items produced during the day by all our devices, cataloguing, synchronizing and backcuppung them all
- produce a digital representation of a physical object (i.e., a book) and send it to e-bay to sell it.
- handling of Public administration files (and private as well)
- synchronization and updating of stored files (with external sources)
- production and publishing of a digital CV
- interoperability of different social web applications
- P2P search and sharing of digital items

5 Partners

Committed

1	Organizations	Persons
2	UROMA2 (I)	Nicola Blefari Melazzi, blefari@uniroma2.it Stefano Salsano, stefano.salsano@uniroma2.it Giovanni Bartolomeo, giovanni.bartolomeo@uniroma2.it
3	NTUA/ICCS (GR)	Iakovos Venieris, ivenieri@cc.ece.ntua.gr George Prezerakos, prezerak@telecom.ntua.gr
4	LMU (D)	Heinrich Hussmann, hussmann@ifi.lmu.de
5	UTI (RO)	Mihai Tanase, mihai.tanase@uti.ro
6	TELECOM ITALIA (I)	Simonetta Mangiabene, simonetta.mangiabene@telecomitalia.it
7	SINGULARLOGIC (GR)	Andreas Katsaros, akatsaros@singularlogic.eu
8	XIW	Richard Walker, rwalker@xiwrite.com
9

6 LINKS to interesting information

Projects:

<http://danae.rd.francetelecom.com/>

<http://www.microsoft.com/emea/emic/default.mspx>

digital items format, wrappers and handling, right management:

MPEG21

OASIS XDI/XRI

OMA XDM

IETF XCAP

UCF (https://francetelecom-eng.webex.com/francetelecom-eng/docs/mc/support/ucf_faq.htm)

profile standards

3GPP GUP,

Liberty Alliance,

Digital Identity and Privacy

ETSI UCI Universal Communication Identifier,

LID,

OASIS I-Names initiative

Higgings project, fidis.net (NoE), DISCREET project, PRIME project

IETF ARK (<http://tools.ietf.org/html/draft-kunze-ark-13>, v. email di ieri)

<http://www.opengroup.org/projects/coreid/>