

Introduction to donatonio's technology

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Preface

Warning for this edition: This book has not thoroughly been revised. If some information here exposed enters in conflict with the donantonio's specifications (published in separated documents) these specifications will always have priorities.

This book collects some texts to illustrate the practical use of the donantonio's technologies.

Introduction to Donantonio

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This article already is obsolete by newest ones but it continues being of interest until the useful information is not extracted and arranged.

Donantonio is a new generation distributed publication system. In first instance it is developed for publication of free documents but it's immediately generalizeable for the publication, distribution and location of all class of electronic resources or like a system for generic cataloguing.

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Introduction to Donantonio

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This article already is obsolete by newest ones but it continues being of interest until the useful information is not extracted and arranged.

Donantonio is a new generation distributed publication system. In first instance it is developed for publication of free documents but it's immediately generalizeable for the publication, distribution and location of all class of electronic resources or like a system for generic cataloguing.

1. Requirements

- Distributed publication: it does not matter where is the resource, this can be located from any point of the donantonio network.
- Distributed publication responsibility: there are no hierarchies in the servers network; all the servers are equal to equal; in addition any system in Internet that accepts the donantonio protocols and that permanently is connected can be a donantonio server.
- Use and reusability of protocols Internet: whenever it is possible, within the donantonio protocols will be used standard internet technologies .
- Free implementation: GPL license.
- A query system between Donantonio applications.
- Techniques for the information retrieval on the end users part.
- Facilities for automatic replication based on Donantonio queries.
- Simplicity of design and implementation, independent of languages and platforms in order that it can easily be implemented and quickly spreaded.

2. Technical Specifications

The Donantonio system will work as the following rules:

- Uses of Bibliographic Descriptions (metadata); each published resource needs an only document that describes it. For this, standard bibliographical schemes will be used (existing, or slightly modified or made).
- The description does not have why to be hosted in the same server with the resource.
- Each server will maintain his own descriptions, offering them to whom want to copy them.
- It will exist formal differentiates between an original description and its copy. This difference will be shaped in an original-or-not mark. The originality mark only will have the original description, located in the publication server. Whenever an original description is copied the originality mark must disappear.
- The fact to publish original descriptions or copies it's done in a combined way and without distinction.
- The replicated descriptions (of different sources) can be put under a filtrate process to eliminate identical duplicates. It is to define the algorithm that distinguishes, for example, different versions, if it is necessary (is a filter that must have available only the end user or the query mechanism). Perhaps most ideal it is to have "modules of adaptable, interchangeable and modifiable filters". *NOTE: This paragraph cannot be thus by anything of the world.* .
- A donantonio server could be also a donantonio client.
- Each client will reply the descriptions of the servers whom he please, without maintaining no topology or concrete norm outside the free will of the administrator of the donantonio service .
- At the moment it's not decided which must be the method of internal storage. Probably it is not necessary to never do it.

- It's obligatory to import/export descriptions in the format defined by the Donantonio norm.
- Query system between applications.
- Techniques of end user to recover information:
 - search of patterns in description;
 - navigation by dynamic taxonomies;
 - bibliographical ontology (maybe you know what is that).
- Processes for reply/filter/query (TO DEFINE).

3. Functional specification?

3.1. Actions which a Donantonio server will do:

- to register descriptions
- to publish visible warehouse of descriptions through
 - query mechanism
 - internet protocols for transfer files
- (optional) to publish descriptions (that is, to publish the direction through a URL like another conventional file)
- to attend Donantonio's queries.

3.2. Actions which a Donantonio client do:

- to reply descriptions warehouses through
 - internet protocols for transfer files
 - Donantonio's queries
- to reply resources warehouses based on a query (with which the warehouse of descriptions is previously generated).

3.3. Actions of the Donantonio user interface

(the user interface is an interactive tool for queries)

- Design of queries(like QBE style?)
- Representation of the result of the same ones.
- Access to the referenced resources in the queries

4. Query system

The queries are the mechanism by the end user (human or cybernetic) access to the knowledge and the resources.

Three types of queries are proposed:

(Note: now that I think it, this division can only has sense at level of user interface and that can be codified internally with the same mechanism... perhaps SQL? It is probable)

- search of bibliographical description patterns;
- taxonomic navigation (what name so grandiloquent, I hope not to have put the shrimp).
- bibliographical ontology (take that, grep).

4.1. Search of patterns

The search of patterns is a classic search. If it is necessary we tried to make one description more formal. The user interface could be like QBE.

4.2. Taxonomic navigation

I believe that Taxonomic navigation is the most powerful tool. I have not verified if sites as Yahoo uses it but are ideal.

Of what it consists? Easy. The bibliographical descriptions are done on the basis of a scheme. That scheme has a pre-determined syntax and contents. If we ordered a set of descriptions based on a determined order of the fields that comprise of the scheme, we obtain a hierarchy. The ideal is that the order of the hierarchy adapts to each consultation based on the user. Thus, a consultation could begin ordering descriptions of mammals by terrestrial/amphibian/marine/o flyers and make that the following hierarchy is based on another field as could be... damn, I do not remember how the mammals are classified.

The question is that another query can have a different order.

In each query the user is navigating more deeply refining the query.

So for this refinement has more feeling, in each increase of the depth it can add restrictions in the sense of fields that match or not certain properties.

The query finally must have the possibility of being saved, in order to reuse it at another moment (like a view to the warehouse of descriptions).

As it is of supposing, throughout navigation they are appearing references to the descriptions that match the conditions of the search. Finally the descriptions will take us to the resource. Like Freshmeat, but done well.

I know that this is a hell of incongruencias, but for that we are, to clean, to fix and to give splendor.

4.3. Bibliographic Ontology

Light us, David.

5. Resources replication system

If we constructed a Donantonio query it supposes that we do it because we have some class of interest in the referred resources. In that case it's interesting to be able to have them quickly in local way.

For that nothing else easy that to reply them maintaining a synchronous copy of each one of them.

Having the descriptions of our pleasure and since the resources are accessible via Internet it's almost trivial to design a tool that reply them.

The uses are many and varied:

- creation of departmental e-libraries
- preparation of gathered cdroms.
- maintenance of Linux distributions.

6. Bibliographics Schemes

The bibliographical schemes are sets of description of standardized metadata what are used for bibliographical classification. *NOTE*: I wager it has one more formal definition.

6.1. RDF

Abbreviation RDF respond (IF I AM NOT MISTAKEN) to Resource Framework Description, this is a standard of the W3C for the codification of bibliographical descriptions using XML technologies.

One of the advantages of the RDF design is that, thanks to name spaces of XML, a description can be stored in a form of XML document completely transparent. That facilitates the maintenance of both enormously.

RDF is being developed quickly in the industry of software (commercial and free) and the new versions of the most important navigators contemplate to implement it.

6.2. Standard Schemes

Whenever it is possible we tried to use standardized schemes in RDF, XML or in other technologies adapting them, if it is precise, to new medial.

Some interesting schemes are

- OMF, for free documentation;
- lsm, for free software;
- rdf/rpm (I don't know its exact name) to catalogue RPM software packages
- UDDI, new norm for the cataloguing and publication of services B2B in Internet;
- donantonio-biblio pending to define), for the publication and diffusion of servers.

6.3. Donantonio extensions of standard schemes

It is not the intention of this technology to contaminate opened standards, but for this technology works as it is expected it is precise to codify certain information in each description.

It's pending to solve if this information can be transparently codified by the *name spaces* or its precise to create minimal variants of the schemes to use.

7. Practical consequences of the Donantonio architecture

- The resources and the descriptions have publication fixed points and are accessible through a URL.
- The existence of resources is possible and identical descriptions with different URLs. Although Donantonio has been designed exactly with the idea to eradicate this practice, the functionality of the same one only gets worse slightly if it is used.
- The copies of resources and descriptions (copies of such) do not have the same bibliographical interest and therefore they have clearly a separated treatment.
- The warehouse of descriptions of each donantonio server is visible in anywhere of the network.
- The servers can generic (they reply everything) or be specialized(they gather only certain type of information of local interest).
- The facilities of replication through queries designed properly allows to redistribute the load of servers according to the necessities
- Any resource located through donantonio is accessible via Internet.
- The location of a resource in the network donantonio cannot be guaranteed, but if in its dorsal thorn (subnet of generic servers).
- The clients donantonio could be other servers, Web interfaces or a client program in any classic language.
- redundancies between servers can be designed (a server can provide itself with two identical servers filtering duplicates) who fortify the network against faults of some nodes.

8. Tools to develop

- description editor
- semi/automatic creator of descriptions
- description publisher
- description replier
- description manager
- queries engine
- user tool for navigation and information retrieval;
- fiules replier (on a preset query) (it organizes one query/metadata-reply in a hierarchy of resources what are copy of the original ones)

9. Donantonio Terminology

9.1. Elements

Resource

file or document accessible through a URL.

Description

metadata file of a resource, accessible through a URL.

Repository

collection of resources or copies of resources.

Library

collection of descriptions or copies of descriptions.

9.2. Types of donantonio agents

Server

node acting like adonantonio server.

Client

node acting like donantonio client o donantonio pure client.

Actor

node that simultaneously acts like donantonio client and server. *NOTE: maybe this agent is formally dispensable.*

10. The Donantonio metaphor

An incomplete metaphor of the things Donantonio could support is the "astral metaphor".

10.1. The astral metaphor

If we believe to some astrologists, the physical body has an astral body (the soul). In some circumstances the soul can travel without its physical body. But soul and body are linked with a silver bow. The astral body (the soul) can travel to any place of the world and ever is linked to his body, which is still sleeping somewhere on the Earth. But if the silver bow get broken, the soul is not linked to its body anymore. It's the death for its body.

10.2. Equivalence between Donantonio metaphor and the astral metaphor

For Donantonio thinking, documents are the body, descriptions are the astral bodies of its documents and are linked to it by a URL.

If the link get broken the description lost all its usefulness and the documents die forgotten in somebody hard disk.

The principal idea is that while resources are sleeping in some place, their souls are traveling along the world, being processed and shared between Donantonio appliances. Donantonio add the ubiquity faculty letting several duplicated souls for a only resource

11. Who's Don Antonio?

Don Antonio is the librarian of the high school were I had my bachelor degree.

I like this name because it's different and sounds funny and like a note of color and joy in front of the cold names of the protocols and applications of Internet.

12. Bibliography

- XML
- DC
- RFC 2413 (DC)
- RDF
- Those of the automatic classification.

- LuCAS URL
- from the draft of the style book of Insflug
- to the LuCAS glossary
- ldp-core.dtd: <http://casbah.org/cgi-bin/cvsweb.cgi/XML/DTDs/ldpCoreMetaML.dtd> Created by Kendall Clark in XML. It supposes a previous step to RDF version.

DC

<ftp://sunsite.rediris.es/docs/rfc/24xx/2413> <http://purl.org/DC/>

DocBook

<http://www.docbook.org>

DTD

TACATACA

GNU

<http://www.gnu.org> <http://www.fsf.org>

LuCAS Glossary

<http://LuCAS.HispaLinux.ES/Otros/glosario/Glosario/glosario.html>

GPL

TACATACA

ISO

International Standars Organization

LDP

<http://www.linuxdoc.org>

LDP-es

<http://LuCAS.HispaLinux.ES>

LuCAS

<http://LuCAS.HispaLinux.ES>

Metalab

<http://metalab.unc.edu>

RDF

<http://www.w3.org/Metadata/RDF>

RFC

<ftp://sunsite.rediris.es/docs/rfc/>

SQL

TACATACA

URL

Uniform Resource Locators <ftp://sunsite.rediris.es/docs/rfc/17xx/1738>

SGML

TACATACA

XML

<http://www.w3.org/XML/>

W3C

<http://w3.org/>

A day in the life of a resource in the Donantonio network

Ismael Olea

Note: this is only one a partial vision that it tries to be ilustrative. Almost nothing for these times.

A day in the life of a resource in the Donantonio network

by Ismael Olea

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Note: this is only one a partial vision that it tries to be illustrative. Almost nothing for these times.

1. A resource is published in a inet server (with a URL)
2. Creation of the resource bibliographical description
 - manual creation
 - assisted by a metadata editor
 - semiautomatic, through a key word extraction program,
3. Publication of the description in inet (with a URL)
4. Registry of the description in a Donantonio server (Suggestion: probably the server must distinguish between:
 - reviewed revisions
 - descriptions nonreviewed
 - copied descriptions of other Donantonio servers)
5. The Donantonio server:
 - archives a copy of the description in his public warehouse.
 - feeds with the description his data management system.
6. The Donantonio server attends Donantonio queries
7. The Donantonio client who sent the query gathers of the consulted server like a result a series of descriptions that match it.
8. The Donantonio client can archive the result of the query in his own warehouse or can access to the resource(s) through an URL.

Note: how do you see it?, it explains something to you? :-?

Donantonio's applications

Ismael Olea

Examples of donantonio's applications

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Donantonio's applications

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Examples of donantonio's applications

1. Dorsals

Dorsal networks can be built to guarantee the availability of all the descriptions registered in a donantonio network:

Donantonio's Dorsal

network of servers in which is always possible to locate any given resource registered in Donantonio.

Generic Server

donantonio's server which is part of the network's Dorsal.

Specialized Server

donantonio's server which replies only a part of the descriptions that keeps the dorsal of the donantonio's network, and therefore, it cannot be part of this dorsal.

2. Resources Replication

The system will allow, by means of a previous selection (by queries), to make a local replication of the selected resources.

Of this form, by means of Internet standard protocols and others specifically designed for this system, a local copy of the resources will be able to be made that are from our interest (for example, they fulfill a certain taxonomic search criterion) with the purpose of creating a local e-library.

3. Tolerance to fails of the network

The design of the network servers will give a reliability to the system. That is, a fall of a server will not necessarily stop the localization of a resource, when its description is replicated in other servers.