Hyperactive Grey Objects

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Abstract
Previous papers on Grey literature by the authors have described (1) the need for formal metadata to allow machine understanding and therefore scalable operations; (2) the enhancement of repositories of grey (and other) e-publications by linking with CRIS (Current Research Information Systems); (3) the use of the research process to collect metadata incrementally reducing the threshold barrier for end-users and improving quality in an ambient GRIDs environment. This paper takes the development one step further and proposes 'intelligent' grey objects.

The hypothesis is in 2 parts: (1) that the use of passive catalogs of metadata does not scale (a) in a highly distributed environment with millions of nodes and (b) with vastly increased volumes of R&D output grey publications with associated metadata; (2) that a new paradigm is required that (a) integrates grey with white literature and other R&D outputs such as software, data, products and patents (b) in a self-managing, self-optimising way and that this paradigm manages automatically curation, provenance digital rights, trust, security and privacy.

Concerning (1) existing repositories provide catalogs; harvesting takes increasing time ensuring non-currency. The end-user expends much manual effort / intelligence to utilise the results. The elapsed time of (i) the network (ii) the centralised (or centrally controlled distributed) catalog server searches (iii) end-user intervention becomes unacceptable.

Concerning (2) there is no paradigm currently known to the authors that satisfies the requirement. Our proposal is outlined below.

Hyperactive combines both hyperlinking and active properties of a (grey) object. Hyperlinking implies multimedia components linked to form the object and also external links to other resources. The term active implies that objects do not lie passively in a repository to be retrieved by end–users. They 'get a life' and the object moves through the network knowing where it is going.

A hyperactive grey object is wrapped by its (incrementally recorded) formal metadata and an associated (software) agent. It moves through process steps such as initial concept, authoring, reviewing and depositing in a repository. The workflow is based on the rules and information in the corporate data repository with which the agent interacts. Once the object is deposited, the agent associated with it actively pushes the object to the end-users (or systems) whose metadata indicate interest or an obligation in a workflowed process. The agents check the object and user (or system) metadata for rights, privacy, security parameters and for any charges and assure compatibility.

Alternatively the object can be found passively by end-user or system agents.

The object can also associate itself with other objects forming relationships utilising metadata or content. Declared relationships include references and citations; workflowed relationships include versions and also links to corporate information and research datasets and software; inferenced relationships are discovered relationships such as between documents by different authors developed from an earlier idea of a third author.

Components of this paradigm have been implemented to some extent. The challenge is implementing – respecting part two of the hypothesis - the integration architecture.

This surely is harnessing the power of grey.