SIMES - 961620
Système d'Information Multimédia
Pour l'Environnement Subsaharien

Storing new information

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Abstract :

The present document describes mechanisms available in the generic SIMES platform to store new documents either produced by processing tools activated from the platform, either being parts of an existing data base, or being available somewhere in an acceptable electronic format. The approach relies on the following architectural choices Web, Coldfusion, Corba, and Com.

Résumé :

Ce document décrit les mécanismes mis en place dans la plate-forme générique SIMES pour stocker des nouveaux documents, qu'ils soient issus de traitements activés depuis la plate-forme, qu'ils constituent une base de données déjà existante, ou qu'il soient sous forme d'un document électronique dans un format acceptable. L'approche s'appuie sur les choix d'architecture suivants : Web, Coldfusion, Corba, and Com.

Storing new information

1.   Introduction

The SIMES platform being intended to support environment applications, we firstly identified the functionalities which seemed common to these various applications.

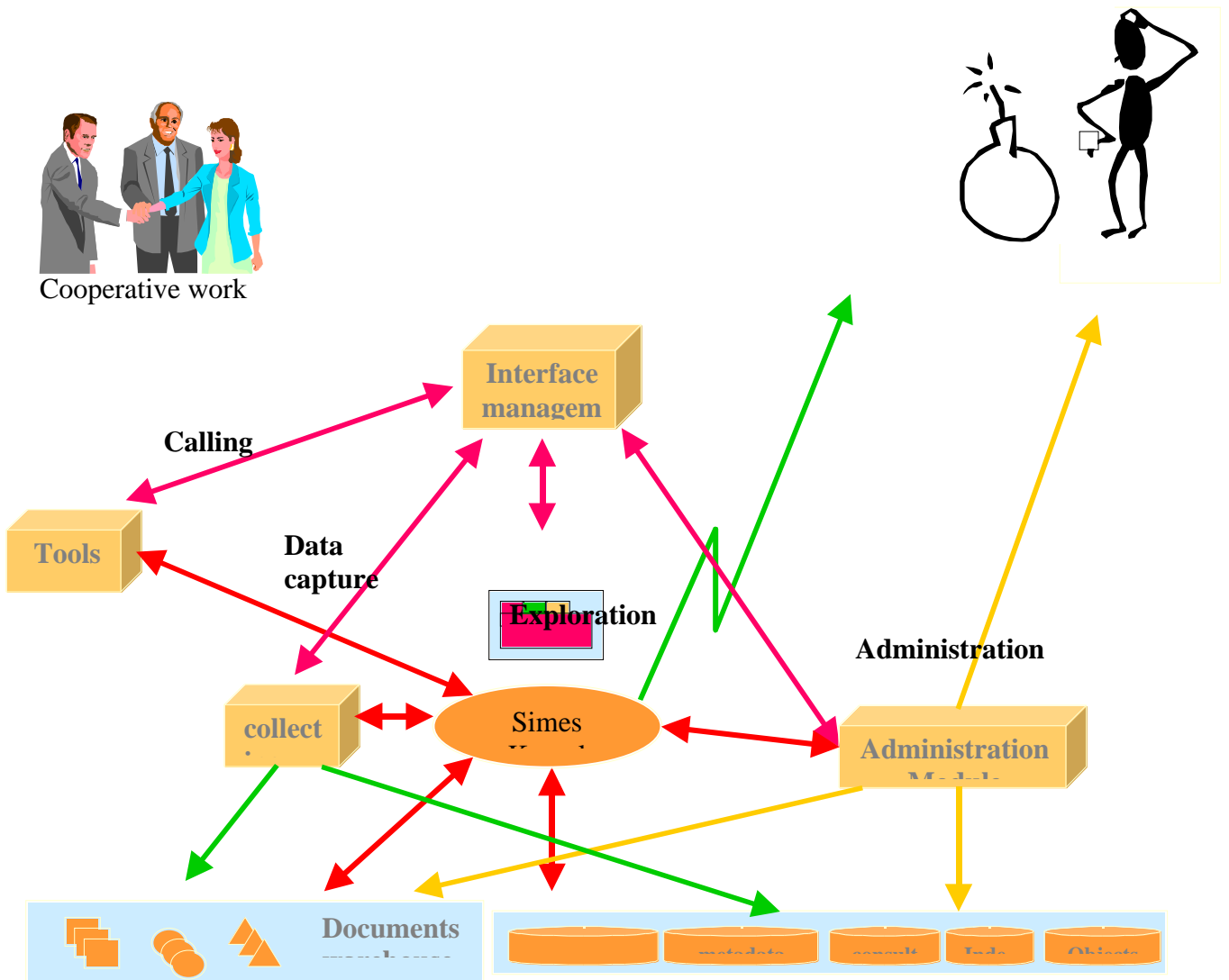The applications considered are the following ones :

- Fishing in the Niger Central Delta : it is an observatory offering services to collect information in specific files or data bases.
- Processing satellite or aerial images or ground photographs from various sources, using specialised tools, public or specifically developped within SIMES and applied on images and photographs related to the Niger Delta.
- Integrated modelling of the Niger Delta, demonstrating the need to agregate data of different natures (hydrology, biomass, agriculture, population migrations, etc…) into one or more semantical models allowing knowledge elaboration.
- The Senegal river valley application, showing a global modelisation approach of all data regarding the river and handling processes creating new information.
- The National Herbarium of Cameroon, showing the needs for data structuring (depending on a predefined taxonomy) and, again, knowledge extraction by an expert system.

Functionalities required on the platform can be sketched as follows:
- Access to local data bases, and files
- Access to distant observatories
- Access to any kind of software for environment
- Calling tools (image processing, statistics, systemic modelling, expert systems, etc…)
- Storing documents
- Session and workspace management
- Exchanges with colleagues (groupware)
- And obviously feeding the data warehouses.

Relying on the architecture described in D1.1, and its complement D 1.3, it is possible to build a functional architecture for the SIMES systems, as is shown on figure 1 below.

Figure 1 : Functionnal architecture of the platform

Cooperative work

Calling

Interface managem

Tools

Data capture

Exploration

collect

Simes

Administration

Administration Module

Documents warehouse

metadata   consult   Inde   Objects

All these functionalities could be realised by first identifying a set of basic common mechanisms. This is what has been done in WP3.

The result is shown on figure 2, in which the layer "Conceptual interface" represents, simultaneously, the fact that these functionalities have been defined as objects with their relations, and that the underlying mechanisms are offered on the platform. They use the concepts of working session, activity, working space, user, right, role, warehouse, portfolio, view, history, etc. With these concepts, all the identified usage categories can be supported, and specifically the different warehouses filling procedures.

Figure 2 : Conceptual integration

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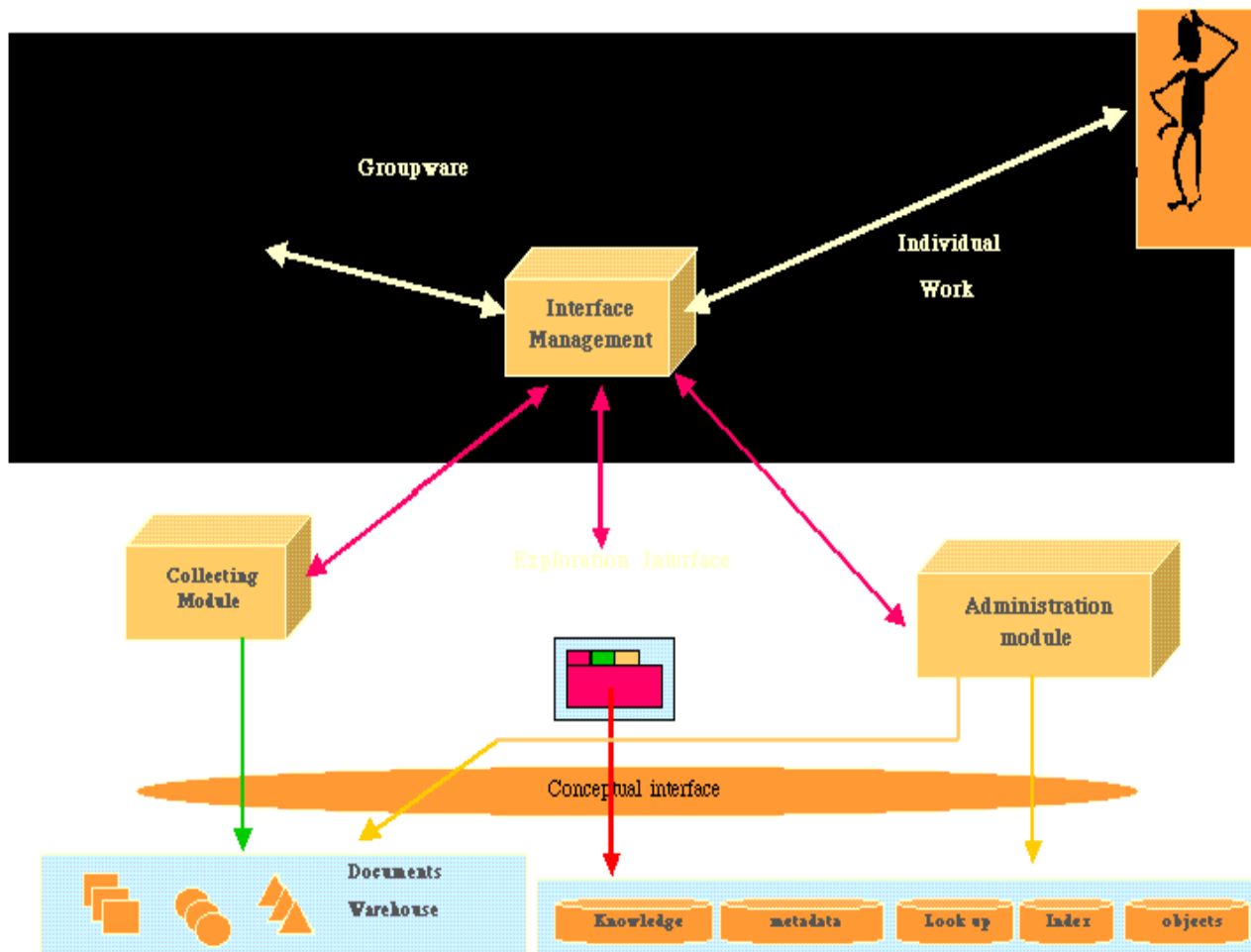
2.   Documents warehouses filling

2.1.   Addition of files

The cooperation space allows any user having the appropriate rights to manage the shared files -
i.e. to store a new file, to modify an existing file, to edit its descriptive form, to remove it-, all
from an ordinary Web browser. Similarly the user can, with the appropriate rights, move a file
from one category to another one, re-organise the categories, define new categories, etc.

2.2.   Addition of data bases

The platform relies on the ColdFusion technology from Allaire. It allows to build dynamic web
sites and to interface them with data bases provided they are compliant with SQL and ODBC
standards, and implemented on one of the widely used DBMS's (Access, Oracle, etc.). A simple
form allows to describe the parameters of the data base and the Coldfusion server allows then to
access the data base. One ought then to modify the exploration space in order to include in it this
new base.   A guide for data base addition on the platform is also delivered (included in
deliverable D 19).

2.3.   Addition of data produced by the platform tools

The tools on the platform give access to primitives for modifying the cooperative space with the
same controls as for an access through the web. So tools can store their results. A guide for
tools encapsulation will allow to simply describe this interface. Some tools will be able to go
further. It is the case for instance for the image processing tools. An image on the SIMES
platform can be in different states ,depending on the processes it has already undergone.

Figure 3 hereafter shows the current state of the interface for the data capture facility in the case
of documents.

Figure 3 : Data capture facility interface

Level 2
Categories

List of shared des
documents with some
buttons to see, modify,
move, delete …them
depending on the rights

Access
path
to the
current

Shared
documents
management
and
browsing
inside one
category

Level 1
Categories

Transverse
Categories

The schema below shows the successive states of an image undergoing successive processing steps. These steps will be implemented and the successive images states automatically managed. The storage of the image processing results encompasses also updating this states. In addition an image is represented by a directory containing the set of the different transformations results.

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| Image of grey levels (standard format TIFF) | → Segmentation into regions → | **Image of labels** (in TIFF format) the points in the same region have the same label |

Contours detection

Image of contours (binary) The points on the contours are at 1 ,the others at 0

Contours Chaining

Chains of contour points are ASCCII files containing the sequence of chains coordinates with separator (* /ex)to separate chains

Segments of identified contours ASCCII files containing the sequence of segments defined by the two extreme points, with a separator between points coordimates (# for example) and between two segments another separator (* for example).