An Artefact Repository to Support Distributed Software Engineering

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Introduction

The Open Source Component Artefact Repository (OSCAR) is an internet based system designed and built for use within the GENESIS process aware software engineering environment.

- Unified namespace for “active artefacts”
- Abstract services for storing meta-data and ordinary data
- No requirement for tool modifications or process changes (non-invasive)
- Dependable data storage (transactional)

Artefacts within the system are presented as XML, regardless of the underlying storage technology.
The GENESIS platform (1)
**The GENESIS platform (2)**

- An installation of GENESIS includes:
  - A workflow management system to enact processes,
  - OSCAR to store data from workflow processes and other activities.
  - Some communications architecture
  - A set of clients

- OSCAR provides repository services to GENESIS. However:
  - It can stand alone (without a workflow management system)
  - It can present other interfaces than that exposed to the WFMS and communication layer.

- Access to all parts of the GENESIS platform is protected by a single sign on using JAAS.
Artefacts

- Artefacts in OSCAR are versioned collections of information, such as documents and code with associated meta-data.

- OSCAR contains and can access other data besides simple files. This is presented as artefacts:
  - User data (*HumanResource* artefacts)
  - Role information (all HumanResources possess roles,
  - Project and Team data

- Artefacts are connected by user-defined relations

- The XML representation is used as a flyweight for Java objects. Thus:
  - Applications can use the format that suits them best
  - Security can be controlled by the object
  - Artefact behaviours can be inherited & extended
Evaluation of OSCAR
Conclusions

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• We must implement:
  – Authentication (single sign on) and security controls
  – Distributed transactions to coordinate multiple OSCAR systems

• Basic Collaboration is important to ensure that other, grander applications can be constructed successfully.