An Artefact Repository to Support Distributed Software Engineering
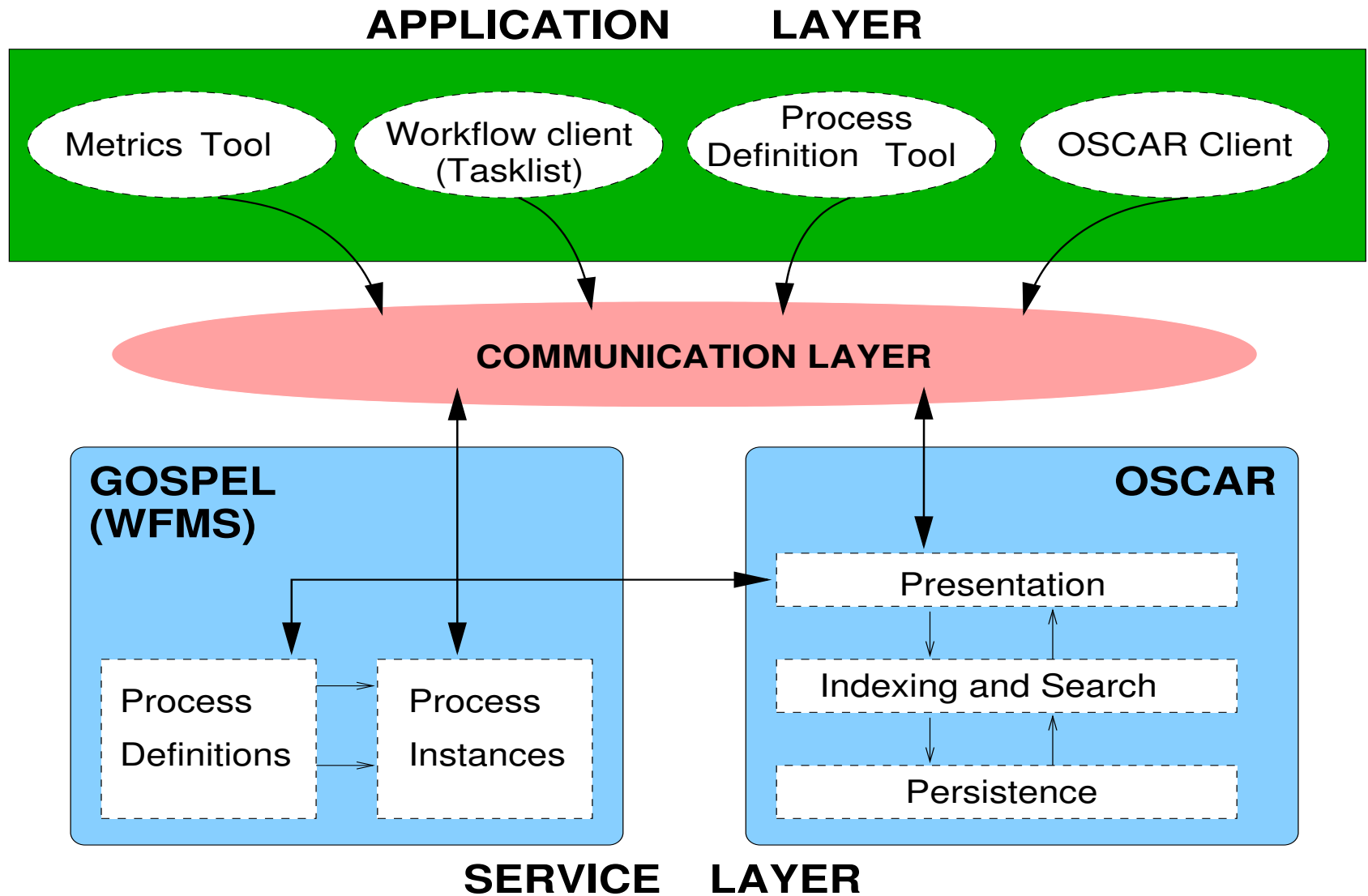
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Introduction

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)

APPLICATION LAYER

Metrics Tool

Workflow client (Tasklist)

Process Definition Tool

OSCAR Client

COMMUNICATION LAYER

GOSPEL (WFMS)

Process Definitions

Process Instances

OSCAR

Presentation

Indexing and Search

Persistence

SERVICE LAYER

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

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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.