The GENESIS platform, its Distribution, and Web Services

Stephen Rank, David Nutter, Janet Lavery, and Cornelia Boldyreff

The GENESIS Project

- IST-funded EU project (Durham, Rome, Salerno, Sannio, MoMA, SchlumbergerSema, LogicDIS)

- Open-source platform

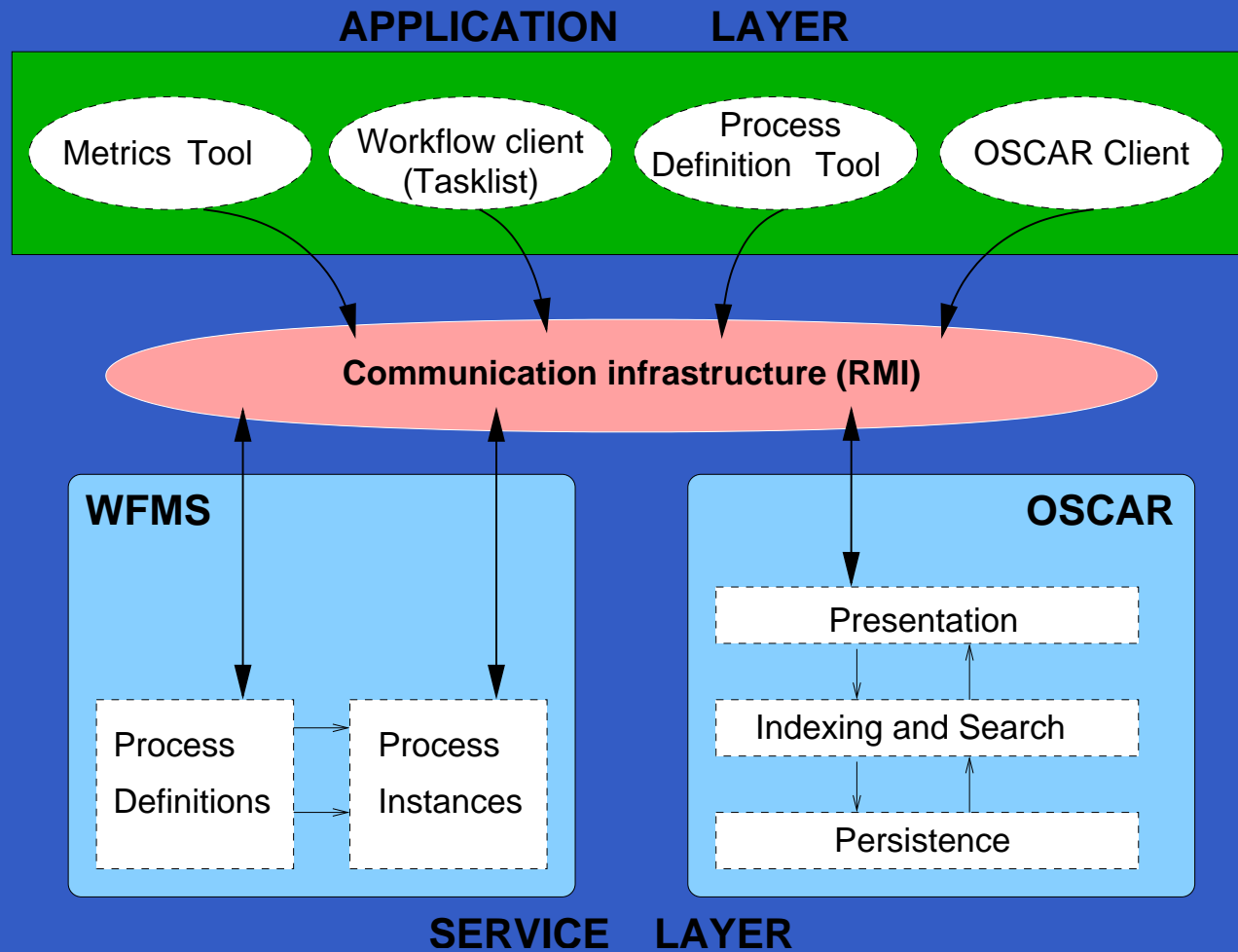- Support co-operation and communication among software engineers

The GENESIS Platform

- Loosely-coupled tools

- Process-aware, but process-neutral (aims to be "non-invasive")

- Distributed, but centralised

- Main components: *Workflow*, *Artefact*, and *Resource* Management Systems

The Durham Contribution: OSCAR

- Artefact manangement system

- "Everything is an artefact"

- Artefacts as (XML) documents and (Java) objects

- Artefact relationships help provide traceability

- Use artefact store as repository for "active" and "historical" projects; useful for evolution

Original Architecture

APPLICATION   LAYER

Metrics Tool

Workflow client
(Tasklist)

Process
Definition Tool

OSCAR Client

Communication infrastructure (RMI)

WFMS

Process

Definitions

Process

Instances

OSCAR

Presentation

Indexing and Search
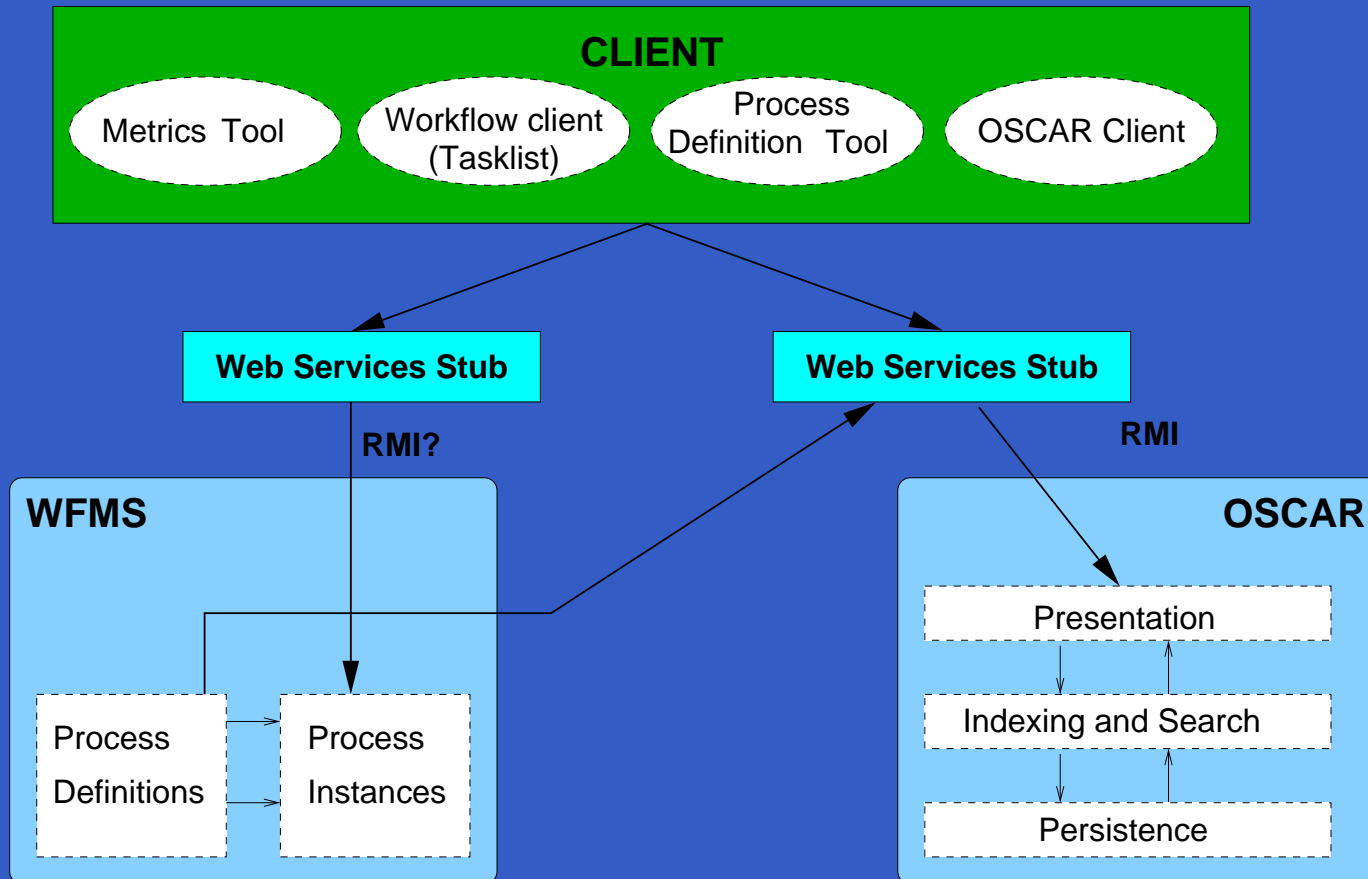
Persistence

SERVICE   LAYER

Problems With Original Architecture

- Tight coupling: want to be able to change components

- Communication across firewalls problematic: restricted to local distribution

Restructuring Aims

- Break tight coupling

- Enable incremental adoption

- Enable broad (*i.e.*, global) distribution

New Architecture

CLIENT

- Metrics Tool
- Workflow client (Tasklist)
- Process Definition Tool
- OSCAR Client

Web Services Stub

Web Services Stub

RMI?

RMI

WFMS

Process Definitions → Process Instances

OSCAR

Presentation

Indexing and Search

Persistence

Issues: Pros and Cons

+ Distribution

+ Decomposition: no longer restricted to exactly one OSCAR for each platform.

- Extra network and processor burden

-? Efficiency (translations, *etc.*)

Further Work

- Evaluation with industrial partners

- Other applications of the tools: e-learning, collaborative design, scientific collaboration for the Grid

- Studies of software development processes and practices

- "Real" distributed SCM