

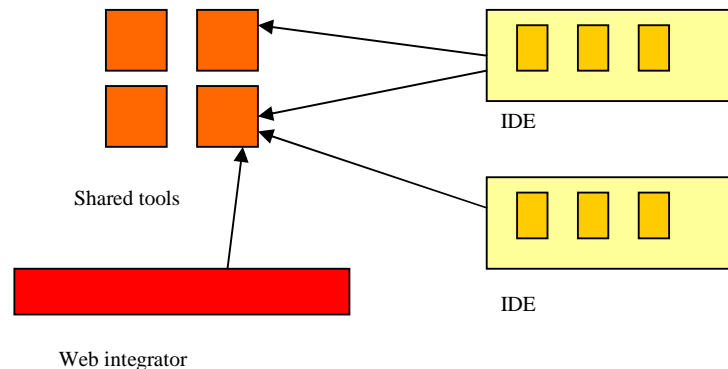


A problem in Development Environment: Tool Integration

The complexity of software development, today, brings us to introduce the concept of Distributed Development Environment (**DDE**), something that is beyond the traditional IDE. The DDE is the complete set of applications, whether or not distributed, which are used to address all the phases of software development in a developing group. A DDE is composed at least by: a set of shared tools (several people can access the same information concurrently), a set of IDE (a tool for individual productivity, generally targeted to a specific platform or O.S.), office applications, and possibly, one web integrator (a common user interface to a set of shared tools).

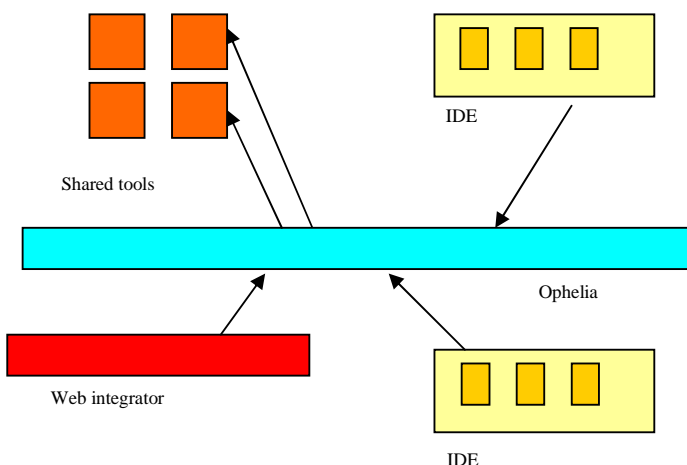
There is no such a product capable to do everything required by the DDE. We assume that this type of product can only be obtained by putting together different products, and with a high and expensive level of customization.

The problem is their integration: how do the single parts interact? When a single standard for communication among tools does not exist, the communication protocol can be different with each couple, consequently often that interaction will be lacking.



The Ophelia Solution

The solution we are proposing is the Ophelia technology. Ophelia acts as a mediator, defining a sort of channel where the information is exchanged. The final objective is to offer complete solutions to problems, and not to define new communication standards.



Advantages for *software houses*:

- Increases the process automation
- Allows a high degree of customization and simplify the integration of the home-grown tools

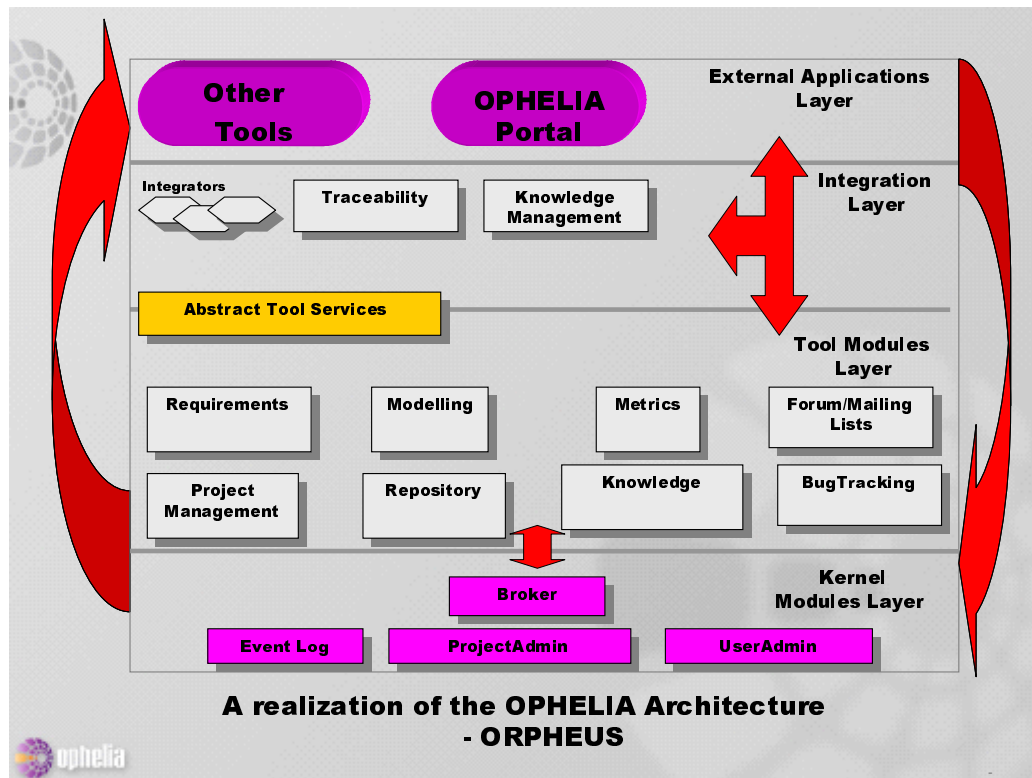
Advantages for *tools and IDE vendors*:

- Reduces development costs, because there is only one communication protocol to implement.
- Extends the native functionalities of the tools, allowing a seamless integration with existing and future inter- tools applications.

The advantages of Ophelia are not only technological: Ophelia consortium gives high priority to the relationship with open source communities and commercial companies, listening to their needs and suggestions and

proposing itself as a partner rather than a competitor, focusing only on the integration.

The architecture of an Ophelia realization



- 4-layer architecture model
- Kernel delivers basic services for the administration of projects and users, and controls communication between modules
- Tool modules layer provides a uniform representation of a development environment. It defines a set of well defined interfaces into specific discrete tools, using tool virtualization to permit easy tool interchangeability, e.g. the modeling tool is currently realized by ArgoUML but using the same interface ArgoUML can be replaced by Rational Rose.
- Integration layer explicitly provides the mechanisms to support tools inter-operability through the use of integrators independent of the tools realization.

An existing tool can be easily integrated inside an Ophelia enabled platform at the cost of writing an adaptor. The adaptor acts similarly to the "device driver" for the hardware of the PC. The tools interfaces are designed in a way to make them simply implemented, while Ophelia takes care of several integration tasks (event desynchronizing, firewall traversal, etc.), mainly through the Abstract Tool Services. This integration gives the tools the advantage to use the services provided by the applications located at the integration layer. Significant samples are the Traceability module and the knowledge module. The first one provides explicit relationship tracking between the modules, and the objects they produce, while the Knowledge module manages all the know-how in the development environment.

The **OPHELIA** (Open Platform and methOdologies for devELopment tools IntegrAtion) project is a European-funded research project that aims to produce a framework to support the information systems development lifecycle.

The framework, referred to as the OPHELIA platform, will provide a mechanism for the integration of tools in a distributed environment through the definition of a set of CORBA interfaces. This will enable users to establish customized OPHELIA solutions that best fit their development environment. The platform will deliver the potential for data management, traceability and decision support across international boundaries.
Internet: <http://www.opheliadev.org/>

The **OPHELIA** consortium is

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 AZERTIA, Spain (<http://www.azertia.es>)
 GUTURA, Germany (<http://www.gutura.de/>)
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