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**Poseidon House  
Castle Park  
Cambridge CB3 0RD  
United Kingdom**

TELEPHONE:  
INTERNATIONAL:  
FAX:  
E-MAIL:

**Cambridge (01223) 515010  
+44 1223 515010  
+44 1223 359779  
apm@ansa.co.uk**

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## **ANSA Phase III**

# **Jade: Project Overview**

**Youcef Laribi and Ashley McClenaghan**

### **Abstract**

The Jade project is about *Service Access and Provision on the Internet*. Jade aims to fuse corporate CORBA infrastructures into the ubiquitous Web by developing software which will allow Java (Web objects) to access CORBA objects. The core component of this software is a CORBA IIOP engine, written entirely in Java.

This document outlines the scope, design, deliverables and dissemination plan for the Jade project.

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APM.1691.00.01

**Draft**

15th January 1996

Project Management (confidential to ANSA consortium for 2 years)

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**Distribution:**

**Supersedes:**

**Superseded by:**



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The authors acknowledge the help and assistance of their colleagues, in sponsoring companies and the ANSA team in Cambridge in the preparation of this report.

## Architecture Projects Management Limited

Poseidon House  
Castle Park  
CAMBRIDGE  
CB3 0RD  
United Kingdom

TELEPHONE UK  
INTERNATIONAL  
FAX  
E-MAIL

(01223) 515010  
+44 1223 515010  
+44 1223 359779  
[apm@ansa.co.uk](mailto:apm@ansa.co.uk)

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# 1 Scope

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## 1.1 Service Access and Provision on the Internet

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*"Customers won't buy software, they'll buy services."*

Internet growth is continuing at a staggering pace. Already it has become an important medium for businesses. Service providers in the banking, travel, retailing, insurance, TV and publishing sectors are clambering to go on-line as they realize the marketing and service provision potential of the Internet.

The Web is fastest growing part of the Internet, and Service providers have begun to create multimedia Web sites to tap into the growing number of on-line customers.

Until recently customer access to on-line services has been limited. Customers have had to interact through static pages and simple fill-in form interfaces because of the limited capabilities of the technologies used to build the Web. But things are changing fast. Recent technologies -- such as Java, Netscape plug-ins, VRML and HTML3 -- have opened up many new opportunities for doing business on the Web.

The aim of the Jade project is:

- to realize the potential of the Web and develop new opportunities for *Service Access and Provision on the Internet*.

Towards this aim, Jade will:

- harness new Web technologies (focusing on Java), and
- integrate the existing corporate solutions (focusing on CORBA).

## 1.2 Motivating Observations

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Jade's solutions are very closely linked to developments in Internet technologies. With this in mind, below we list a number of our observations on Internet related technologies which help explain Jade motivations and design decisions.

### 1.2.1 Connectivity

- The Internet is the largest information network that ever existed and will, during the next decade, be a major focus for service provision.
- The Web is the killer application in the Internet.

### 1.2.2 Web Operating Systems

- Web browsers, such as Netscape, are set to become the new Net based operating systems.

### 1.2.3 The Web Programming Language

- Java has gained a widespread following as the language for programming Web based applications. Many software companies have licensed it from Sun. (JavaScript and Visual Basic Script are possible rivals.)

### 1.2.4 Integration and Access Technologies

Efforts are underway to provide interworking through Java between each of the following technologies and the Web.

- OLE is the desktop integration technology. provide interworking between OLE and the Web through Java.
- SQL is the database access technology. \* CORBA is the corporate integration technology (Jade's focus).

## 1.3 The Core Idea

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Jade's core idea for *Service Access and provision on the Internet* is to allow service providers (like banks, high street retailers, travel agencies, libraries, on-line music and video stores, traffic information systems, etc.) to offer their on-line services to their customers through Web based, downloadable user interfaces.

Initially Jade will focus on providing Web access to CORBA based services.

In Jade, a downloadable user interface (to an on-line service) will be implemented as a Java applet. To enable such an applet to talk to it's CORBA based server, Jade will develop a CORBA IIOP package for Java. This package will be written entirely in the Java language itself and so will be downloadable and portable across all Java supporting platforms.

We envisage the following scenario:

1. The service provider constructs a CORBA based service.
2. The service provider programs a customized user interface to the service using Java and Jade's CORBA IIOP package.
3. The service provider uploads the user interface to the Web.
4. The customer sees the service advertised on the Web, and downloads the self-installing user interface from the Web.
5. The customer accesses the service through the customized user interface.

## 1.4 Benefits

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### 1.4.1 Benefits to APM

*"The company that pioneered the integration of CORBA into the Web."*

Jade will bring APM publicity and recognition as a company doing practical research using the latest Internet and Object technologies.

### 1.4.2 Benefits to Web Based Consumers

*"APM's Jade empowers Web users by giving them the capability to access corporate information, commerce and entertainment systems."*

The Java component in a Jade based interface will free customers from all software management issues --- Jade interfaces will automatically download and self-install at the click of a button. The Web component in a Jade interface will wrap CORBA based services in an easy-to-use, multimedia interface.

#### **1.4.3 Benefits to Service Providers**

*“APM’s Jade gives you the power to add Web based consumers to your customer base.”*

Jade will enable service providers to expose their services to a large and growing community of Web users, no matter which computing platforms they are using. Service providers can fix bugs, improve and upgrade their customer interface software without having to disrupt customers. The flexibility of the Java component in Jade interfaces also opens up many possibilities for new customer-service interaction models.

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### **1.5 Enabling Technologies**

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#### **1.5.1 Java**

Jade will use the Java language to write the downloadable user interfaces (which will include a CORBA IIOP engine). The choice of Java is motivated by:

- uniform GUIs on the Unix, Windows and Mac platforms
- one version of the client code to maintain, covering for all platforms
- powerful programming language -- object oriented, memory-safe, multithreaded
- no source code is shipped (IPR issues are easier handled)
- security designed into the language
- automatically upgradable code -- users will always download the most up-to-date version of the software
- seamless mobility of code allows runtime decided configurations
- increasing popularity of Java allows us to take advantage from third party developments like Java-OLE and Java-SQL work

#### **1.5.2 CORBA IDL**

Jade will use CORBA IDL to specify the interfaces between the downloadable client programs and server programs. CORBA IDL will allow us to automatically derive the stubs that will hide network protocol details from the coder.

#### **1.5.3 CORBA IIOP**

Jade will use the IIOP --- the standard protocol for CORBA interworking -- for client-server communication.

#### **1.5.4 Java Enabled Browsers**

Jade will target widely used Java enabled Web browsers (such as Netscape Navigator 2.0) as an environment into which Jade user interfaces are downloaded and executed.

Using this toolkit (Java + CORBA IDL stub compiler + IIOP realized in Java), service providers can write, maintain, and enhance client software which uses a rich GUI and can talk IIOP, without requiring expertise in either GUIs (thanks to Java) or network programming (thanks to the Jade's IIOP engine and CORBA IDL stub compiler technology).

## 2 Design

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- Overview (IIOP module all in Java, downloads into a Java environment, i.e. a Java enabled Web browser, for applets to use).
- Java2Corba mapping.
- Structure of the Jade package (with schematic).

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## 3 Deliverables and Dissemination

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The following sections list the Jade deliverables and dissemination objectives.

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### 3.1 CORBA IIOP package written in Java

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#### 3.1.1 Delivery Date

March 28, 1996.

#### 3.1.2 Delivery Medium

To be made available as a downloadable Java package on APM's Web server.

#### 3.1.3 Description

A CORBA2 IIOP package entirely written in Java, together with a few example CORBA enabled applets.

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### 3.2 Downloadable documentation

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#### 3.2.1 Delivery Date

March 28, 1996.

#### 3.2.2 Delivery Medium

To be presented as a set of pages on APM's Web server.

#### 3.2.3 Description

Documents describing the business case, the architectural design of the CORBA IIOP package, and how to program Java applets using this package.

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### 3.3 The use of Jade in an industrial proof-of-concept project

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#### 3.3.1 Delivery Date

1996.

#### 3.3.2 Description

We want to become involved in an exciting industrial project in order to validate and prove the usefulness of Jade.

**3.4 Presentation of Jade to APM**

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**3.4.1 Delivery Date**

March 1996.

**3.4.2 Description**

Presentation to APM staff (and sponsors?) to inform them about Jade.

**3.5 Jade Publicity**

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**3.5.1 Delivery Date**

March 1996, onwards.

**3.5.2 Description**

Publicize the Jade work on the Web, through mailing lists, by giving outside presentations, and by submitting writing a paper.





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## References

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