

**AdaBroker**  
**An open source CORBA suite**  
**for Ada 95**

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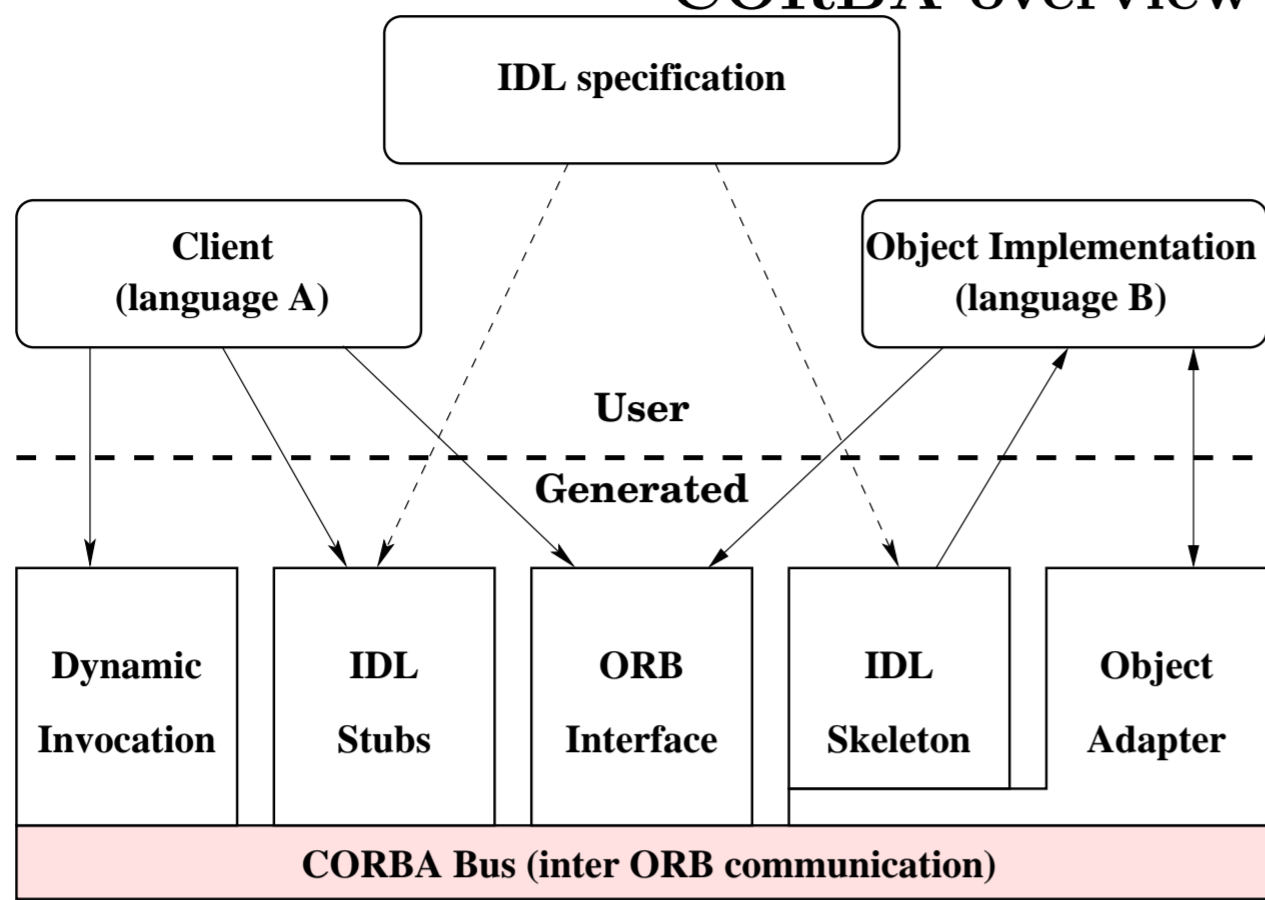
## CORBA

Industry standard specification of platform for distributed object-oriented applications.

Reference model:

- IDL and language mappings;
- stubs, skeletons, object adapters;
- ORB;
- protocols;
- services:
  - Common Object Services, Common Facilities;
  - Domain Interfaces.

## CORBA overview



## CORBA development process

1. Objects are described by an IDL contract.
2. IDL compiler generates stubs and skeletons in target languages.
3. Object implementations are created by implementation of skeleton's methods.
4. Clients can use stubs to invoke operations on (possibly remote) objects.

## Why CORBA?

- Distribution is a requirement
- Distributed OO middleware hides some of its complexity/tediousness

## Applications examples

- scientific data acquisition (IN2P3);
- telecoms (Iridium);
- desktop integration (GNOME).

## The Ada 95 standard mapping

<b>IDL</b>	<b>Ada</b>
modules	packages
types	types
interfaces	tagged types
interface inheritance	tagged type derivation

## AdaBroker

- CORBA tool suite
- Free software (GPL)
- Written in Ada 95
- Targeted at Ada 95

## AdaBroker features

### Core ORB features

- CORBA 2.0 ORB
- GIOP 1.0
- IIOP 1.0
- Portable Object Adapter
- IDL → Ada compiler

### Services

- Interface Repository
- Dynamic Invocation
- COS Naming
- COS Events
- COS Time
- GNOME Applet Library

## Project history

Development as a succession of student projects at ENST.

When	What	
1999Q1	0.8	based on omniORB and Sun parser
1999Q2	0.9	new ORB, POA, still Sun parser
1999Q3-present	1.0	New compiler, many new features & services

## The first C++-based version

Ada binding to omniORB's communication library.

CORBA Object management in Ada, compliant with standard binding.

Problems encountered:

- Ada  $\longleftrightarrow$  C++ interfacing. Thread libraries incompatibilities.
- C++ IDL front-end from Sun: hardly maintainable. Licensing issues.

## **Second version: all-Ada ORB with a POA**

CIAO (ENST research project: CORBA/DSA gateway generator) required a POA.

Reimplementation of a complete ORB in Ada.

Still used Sun's front-end.

### **3rd version: an Ada front-end for new services**

Development of new services and functionalities: objects-by-value (CORBA 2.3), interface repository, dynamic invocation.

Required IDL compiler support; Sun front-end not suitable for extension.

Reimplementation of the IDL-to-Ada compiler in Ada.

## CIAO

An application developed with AdaBroker: CIAO.

CORBA Interface for Ada 95 distributed Objects.

Gateway generator for Ada DSA services.

Based on AdaBroker and ASIS.

### **Current status**

- Students have completed ENST cursus.
- Maintained as a research testbed at ENST.
- Community has demonstrated interest in the product.
- Seeking further involvement of users with development.