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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**

# **ORB evaluation presentation, Feb/Mar 95**

**Mike Beasley**

### **Abstract**

This documents contains a set of slides for a presentation based on APM.1194 (Comparison of CORBA-compliant platforms).

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APM.1418.00.01

**Draft**

24th February 1995

Request for Comments (confidential to ANSA consortium for 2 years)

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**Distribution:**

**Supersedes:**

**Superseded by:**





# **ORB Comparison**

## **Work in Progress Report**

**February 28, 1995**  
**Mike Beasley, ICL secondee**

**Task A3**  
**Accompanying paper: APM.1194**



## Objective

- Know what CORBA-compliant products exist
- Know how they compare in terms of compliance and facilities
- Recommend one for new prototyping work
- *Evaluation document (APM.1194) updated as new products/versions arrive*



## Products Compared (last time)

- **Orbix 1.1**
  - from Iona, now a sponsor
- **ACAS 2.1**
  - from DEC
- **DOME**
  - from Object-Oriented Technologies Ltd., Leamington Spa



## Conclusions (last time)

- **Orbix came out best**
  - full CORBA implementation, including repositories
  - well documented and supported
- **ACAS wasn't bad**
  - no IDL or stubs
  - methods as scripts, support for Windows and DDE
- **DOME's CORBA compliance was unimpressive**
  - very limited IDL support
  - no standard ORB interfaces



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## Products Compared (this time)

- **Orbix 1.2 (and beta release of 1.3)**
  - from Iona
- **ILU 1.7**
  - free from Xerox
- **ORBeline**
  - from PostModern Computing, Mountain View, CA
- **DAIS 2.1 (pre-release)**
  - from ICL
- *We have not obtained new versions of DOME or ACAS (now Object Broker)*
- *Nothing from Expersoft, HP, ...*



## Supported Hardware/OS

HW/OS	Orbix	ILU	ORBeline	DAIS
SunOS4	Yes (4.1)	Yes (4.1.3)	Yes	Yes
Solaris 2	Yes	Yes (2.3)	Yes (2.3)	Yes (2.3)
HP/UX	Yes (9.x)	Yes (mdrb!)	Yes	Yes (8.x, 9.x)
OSF/1	Yes (3.0)	Yes (untested)	Yes (2.0)	available internally†
other UNIX	IRIX, AIX, Ultrix, UnixWare, Sinix	IRIX, Linux (Xerox) AIX, DG/UX, SCO others should work	AIX, UnixWare VxWorks, LynxOS, pSOS	SVR4 Sparc, SCO AIX soon UnixWare, Pyramid†
MS Win 3	Yes (3.1)		Yes (3.1)	Yes (3.11)
OS/2				Yes (2.1)
NT	Yes (3.5)		Yes (3.5)	soon
VMS				Yes (6.1)
Mainframes			Cray	VME SV 294

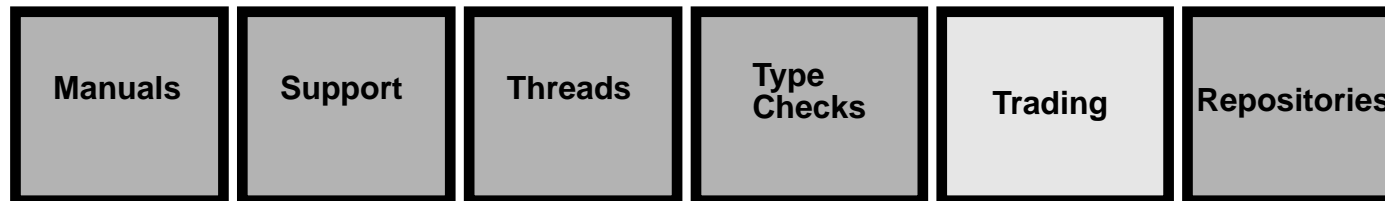
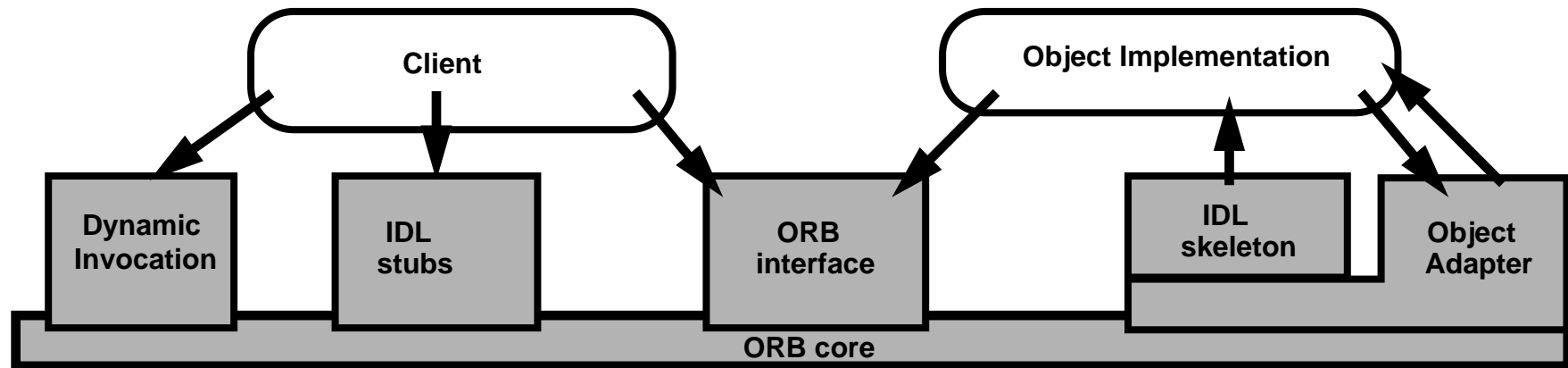
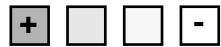




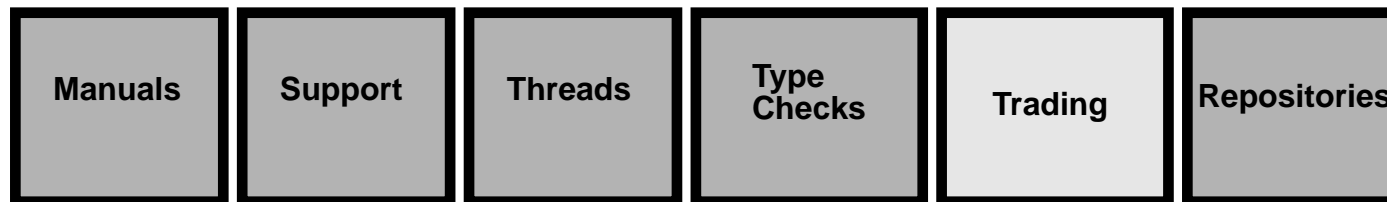
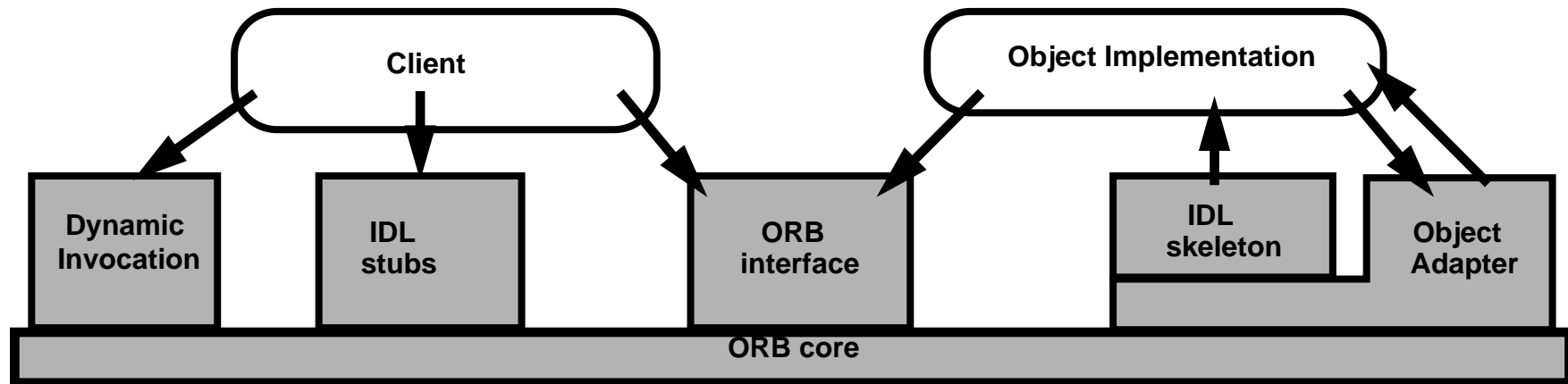
## Basis of Comparison

- **CORBA compliance**
  - IDL and language bindings (C, C++)
  - API for BOA and ORB
  - repositories
- **Programming issues**
  - ease of use
  - concurrency
  - type safety guarantees
- **Administrative Issues**
  - repositories
- **Implementation of Echo and SimpleBank**
  - SimpleBank passes object references around

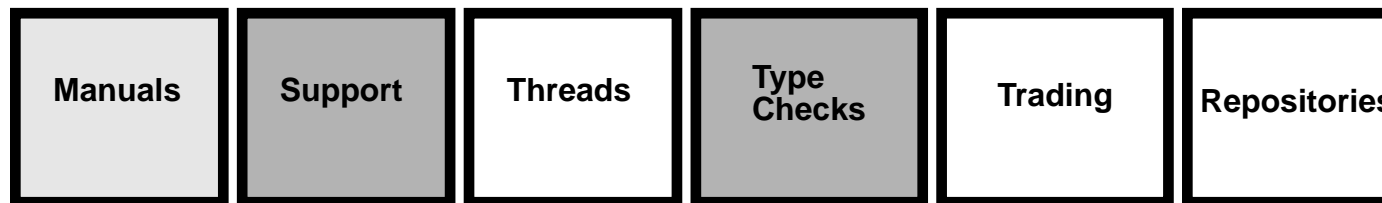
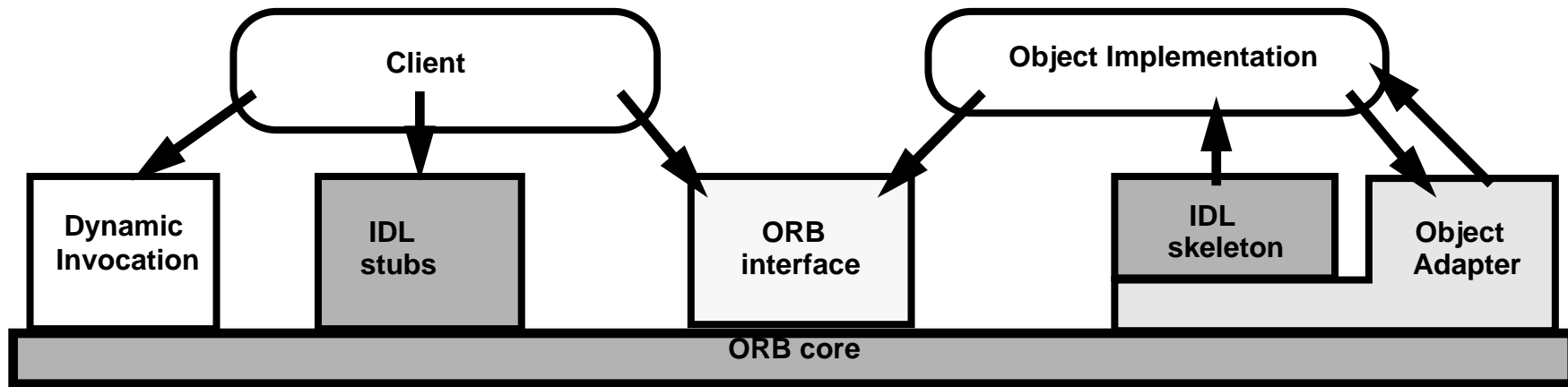
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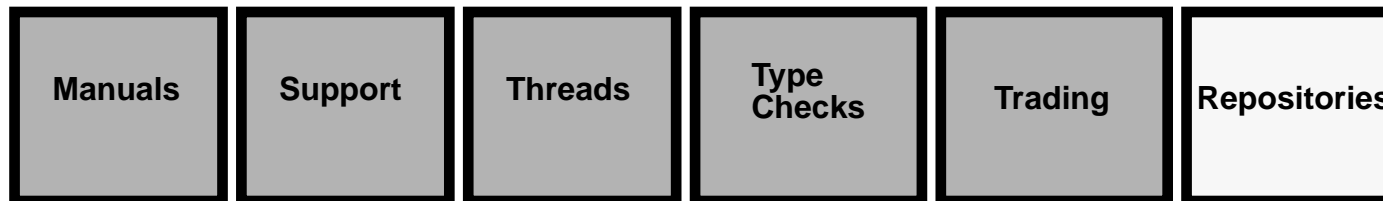
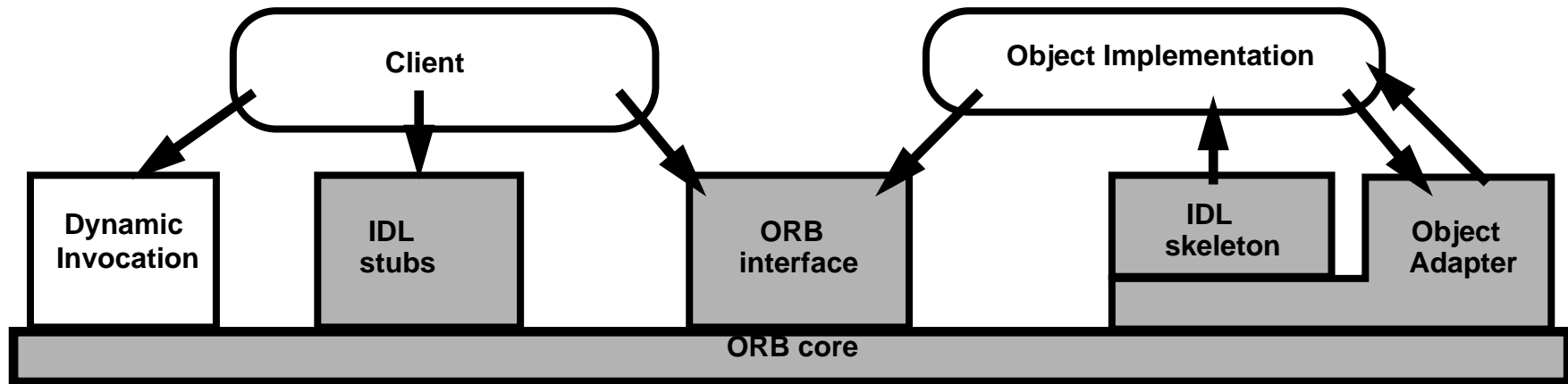
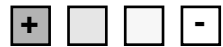
# ORBeline



# ILU



# DAIS





## Conclusions

- **Orbix and ORBeline are best for CORBA compliance**
  - full CORBA repositories
  - support for C++
  - => good choice for research/prototyping
- **DAIS has good features for 'real world' use**
  - heterogenous databases, transactions, security
  - => good choice for real applications
- **ILU is free !**
  - can port it yourself to any UNIX
  - support for C, C++ and more exotic languages

# Notes for APM.1194 - ORB comparison

## Slide 1 (Title Page)

No comment.

## Slide 2 (Objective)

No comment.

## Slide 3 (Products compared last time)

No comment.

## Slide 4 (Conclusions last time)

Could talk about my conversation with Chris Nugent at Object World 1993.

## Slide 5 (Products compared this time)

Orbix - had 1.3 beta on HP/UX only

ILU - tried 1.6.4 but problem in C++ stub generation

ORBeline - free to universities, competition with ANSAware here

DAIS - say that it's based on ANSAware.

DOME - didn't consider it worth continuing with after last time

Object Broker - problems with Non-Disclosure Agreement

Expersoft - no answer to email.

HP - ORB plus is only internal

Any others ? (must run on something supported here; that's why we didn't do IBM)

## Slide 6 (Supported hardware/OS)

This slide is for people to take away with them, not to read during the presentation !

## Slide 7 (Basis of Comparison)

Remember to explain BOA = Basic Object Adapter (ORB interface for server).

Explain why 'repositories' occurs twice - we are concerned with two issues here.

1) are there repositories ? 2) are they compliant ?

Type safety includes trading.

Explain that the implementation of Echo and Simple Bank is mainly for Ease of Use; we had to implement something to find out if the product, manuals and support are any good. Echo was a trivial example as a starting point; Simple Bank is a bit more complicated and makes use of returning interface references and failures/exceptions/abnormal terminations/whatever you want to call them.

## Slide 8 (Orbix)

Compliance:

- CORBA compliance is excellent; it's hard to find fault with it in this respect.

Ease of Use plus points:

- very good documentation and support
- programming in C++
- small binaries where possible, using shared libraries (1.3 beta)
- dynamic servers.

Ease of use minus points:

- you can't have two persistent servers for different objects of the same class running at a time without having to declare things.

Threads:

- threads are supported generically.

Trading and Types:

- clients find servers via the daemon. There is some lack of flexibility here - e.g. can't support different objects of the same class in different servers.
- type safety checking is good: 'narrow' and 'assert'.

Repositories:

- repositories work fine now.

## Slide 9 (ORBeline)

Compliance:

- CORBA-compliance is excellent, comparable to Orbix

Ease of Use plus points:

- very good documentation and support
- programming in C++
- small binaries where possible, using shared libraries
- dynamic servers:
  - smart agent (one on network, found by broadcasting) keeps track of existing servers
  - object activation daemon creates new ones.
- can have two servers for same class - agent will direct you to the right one

Ease of Use minus points:



- mapping of structures and sequences has explicit accessor methods; makes programming more difficult
- nested classes make programming more long-winded
- 'any' implementation is more type safe but harder to use (than Orbix); Orbix lets you cast void\* to struct ptr, whereas ORBeline gives you an object with operations to find names and values of structure members
- exceptions have to be checked for explicitly

Threads:

- there is a separate thread-safe version

Repositories:

- repositories fully supported.

Miscellaneous:

- claimed interoperability with Sun and HP (despite HP's product being 'internal use only' !!).

## Slide 10 (ILU)

Compliance:

- has its own ISL, but IDL-to-ISL translator using Sun front end, invoked automatically on .idl file.

Ease of Use:

- documentation is a bit thin in some areas; support not so good for big new problems (mainly because it's free)
- support for more than just C and C++ (Common Lisp, Modula-3 and Python too)
- large binaries, though as you get the source you could build your own shared libraries if you wanted to
- no automatic server startup.

Threads:

- none

Trading and Types:

- no equivalent of trader - evaluation used string binding handles.

Repositories:

- no repositories.

Miscellaneous:

- it's free !

## Slide 11 (DAIS)

Compliance:

- CORBA-ised ANSAware, with no DII or repositories

- extended object adapter; better control of state, concurrency and life cycle

Ease of Use:

- good documentation and support
- C only at present
- large binaries (because of the structure of ANSAware)
- dynamic servers using the ANSAware NodeManager and Factory services
- multiple comms protocols - as ANSAware + OSI.

Threads:

- threads as in ANSAware, and other concurrency mechanisms.

Trading and Types:

- full ANSAware trader, with properties and constraints and all the usual flexibility.

Repositories:

- no CORBA-compliant repositories, but the Node Manager database is a non-compliant implementation repository.

Miscellaneous:

- alert service, channelling system management information
- configuration service
- transactions (interfacing with mainframe TPMS, also X/Open)
- transparent access to heterogeneous databases
- security - authentication and access control using Kerberos and Sesame.

## **Slide 12 (Conclusions)**

No comment.