Poseidon House
Castle Park
Cambridge CB3 0RD
United Kingdom

TELEPHONE: **Cambridge (01223) 515010**
INTERNATIONAL: **+44 1223 515010**
FAX: **+44 1223 359779**
E-MAIL: **apm@ansa.co.uk**

Training

ANSAwise - CORBA Futures

Chris Mayers

Abstract

Organizations adopting CORBA need to know the status of CORBA; what is possible, and what specifications are still in progress.

This module of the ANSAwise training programme gives a snapshot of OMG work in progress on CORBA and related technologies.

[Ideally, product information should be included here too.]

[Because CORBA specifications are being added to, this presentation needs to be kept up to date. Since OMG TC meetings are every two months, this means every time this presentation is delivered. The stable content of this presentation should be transferred back into other training presentations.

If there is little to say in this presentation, it can be delivered as part of the Course Roundup instead.

[The coverage of Microsoft COM and OLE overlaps considerably with that in the “Objects in Distributed Systems” presentation. The two should be merged.]

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Briefing Note

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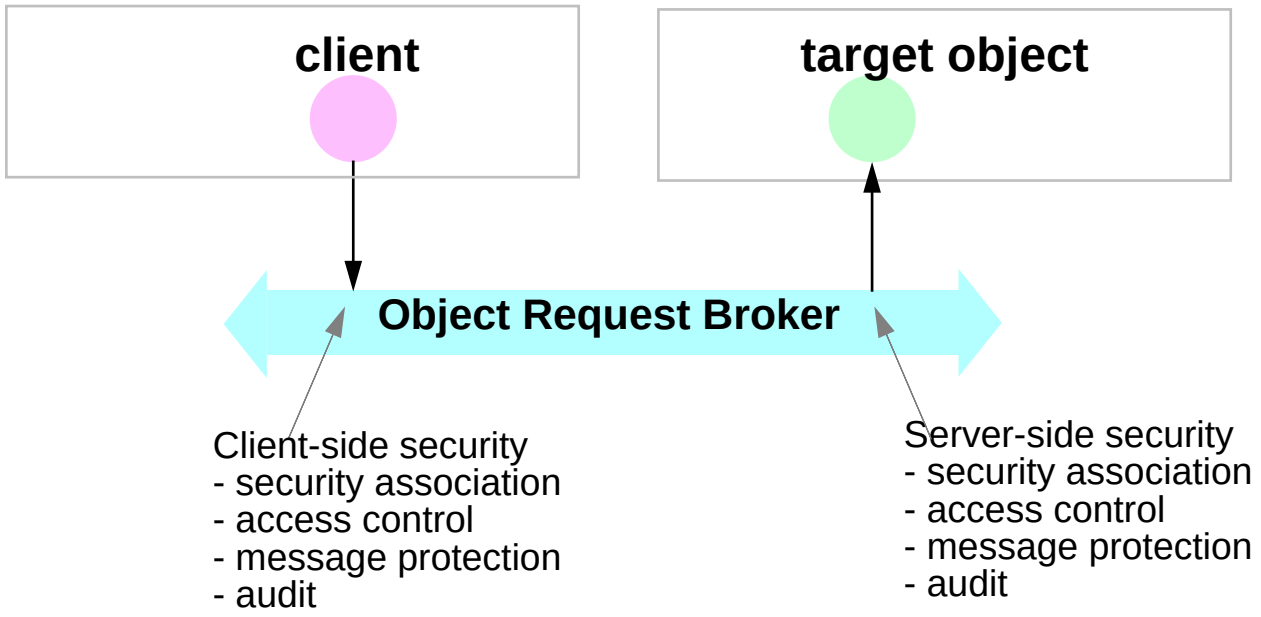
CORBA Futures



In this session

- **Survey the work in progress in the Object Management Group**
  - **specifications under development...**
  - **...CORBA Language Mappings**
  - **...CORBA and Microsoft's OLE**
  - **...CORBA Security**
  - **...other ORB issues**
  - **...CORBAservices (Object Services)**
  - **...CORBAfacilities (Common Facilities)**

The new OMG organization

- **Domain Technology committee handles the issues of specific vertical markets**
- **Platform Technology committee handles CORBA, Object Services, and (horizontal market) Common Facilities**
- **Architecture Board oversees the two committees, insuring the integrity of the Object Management Architecture**
- **Existing Task Forces are continuing to run**

CORBA Language Mappings

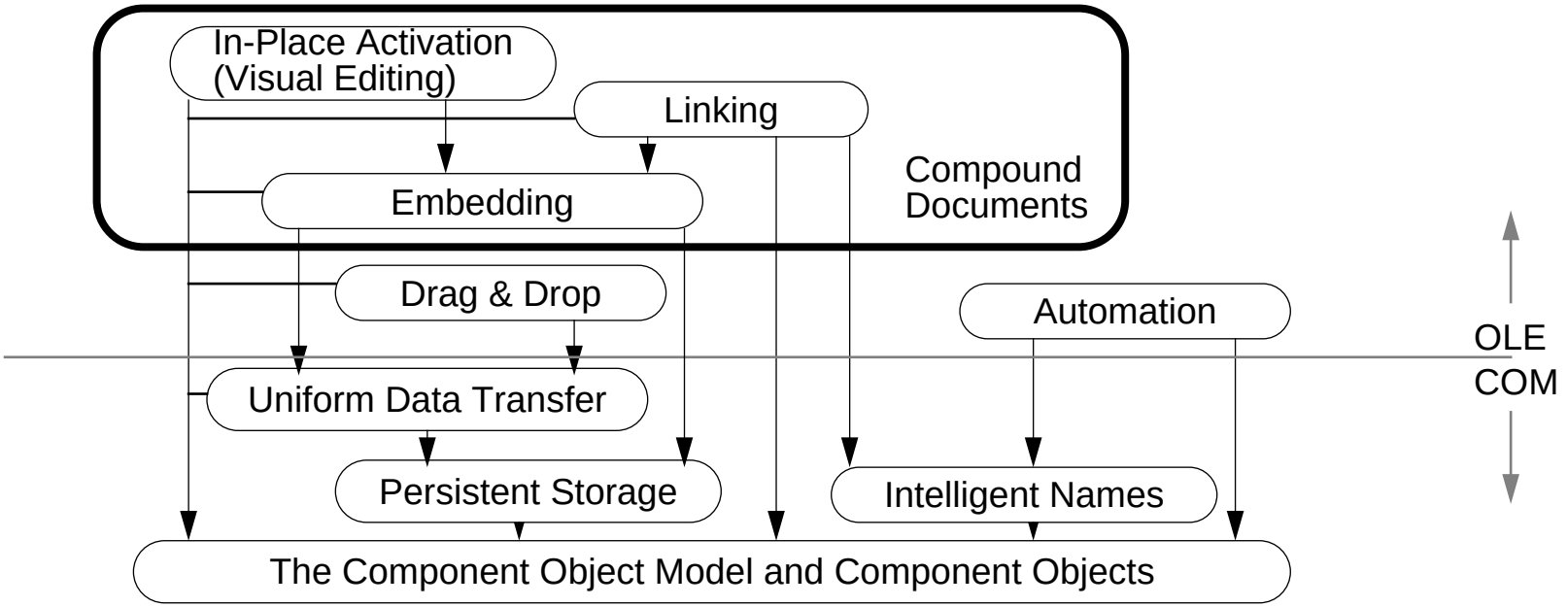
- C, C++ and Smalltalk are already specified
  - C++ Mapping 1.1 Revision now adopted
- Ada has been specified and adopted too
  - note that the mapping is for Ada 95, not Ada 83
- COBOL 85 (not Object COBOL) has an RFP out
- Java has an RFC out, submitted by Sun

CORBA in the Real World

- Microsoft own the desktop with Windows 3.1/Windows NT
- Microsoft are tackling the application server with Windows NT
- Microsoft do not yet have a solution for linking to the complete enterprise
  - CORBA fills the gap...
  - ... how to link CORBA with the Microsoft world?

Microsoft's OLE and COM

- **Microsoft's OLE is really a collection of technologies built on COM (Component Object Model)**



CORBA and Microsoft's OLE

- There are two versions of Microsoft's Object Linking and Embedding (OLE)
  - non-distributed (in Windows 3.1, Windows NT 3.51 and Windows 95)
  - distributed (in forthcoming Microsoft operating systems - and others)
- Interworking between CORBA and OLE is covered by an OMG RFP
  - Part A for non-distributed OLE
  - Part B for distributed OLE

Progress on CORBA-OLE Interworking

- Vendors can make submissions against either or both parts
  - letters of intent have been received from 16 organizations...
  - ...most against both Part A and B
- Part A reached a single merged submission and has a fax vote out
- Part B has a list of outstanding questions for Microsoft

Part A (Non-distributed OLE) Interworking - Key features

- Full two-way interworking available between OLE/COM and CORBA
- COM clients can use OLE Automation or “native” COM calls
- Standard mappings provided from OMG IDL to Microsoft IDL (MIDL) and vice-versa
  - and also from OMG IDL to Microsoft ODL (for OLE Automation)

Distributed OLE today

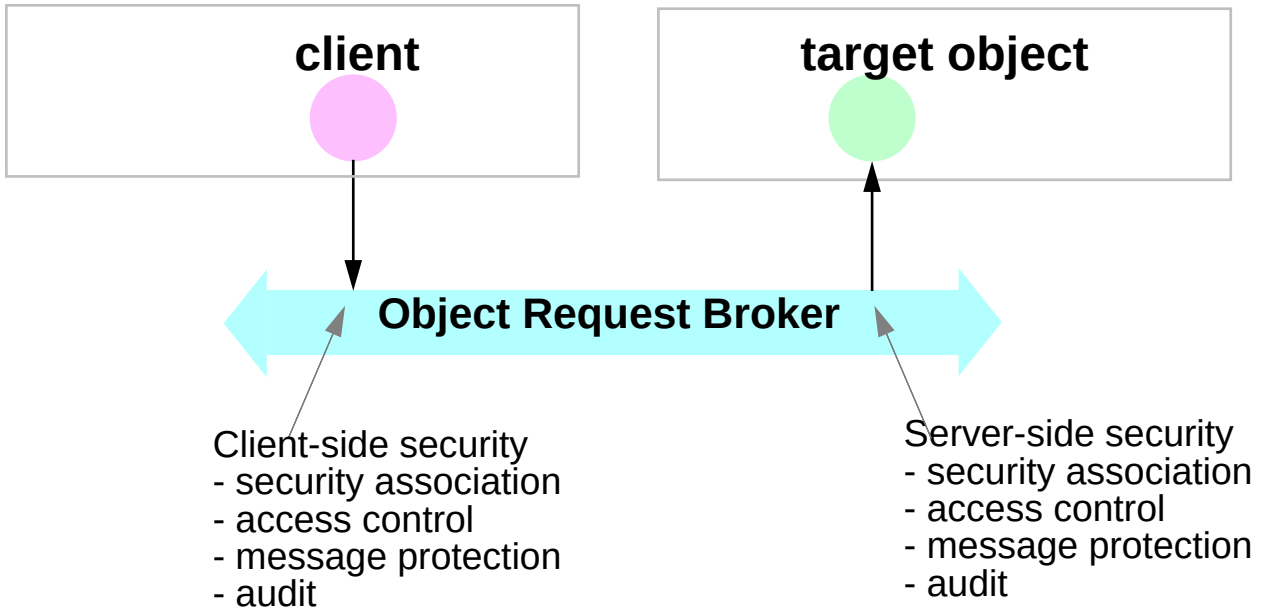
- **Distributed OLE first appeared in late 1995**
  - **in Visual Basic for the Enterprise 4.0...**
  - **... supporting Remote Data Objects (RDOs)**

CORBA Security

- It is a security framework, not a set of cryptographic protocols
  - but still fills 308 pages!
- Extends the structure of the ORB
- Submission now out for a fax vote
- Another RFP will be issued for Secure Interoperability
  - Encryption Protocol RFP

Secure Object Invocation

- **Objects still request the services of other objects via the ORB...**



- **... but with security protection**

Security Functionality

- **Depending on the security policy, this may include**
  - **security association: authentication**
  - **access control: privileges**
  - **message protection: integrity and confidentiality**
  - **audit: accountability**

Conformance to CORBA Security - functionality options

- **Main security functionality**
  - **Level 1: for applications which are unaware of security, or have limited requirements to enforce their own security**
  - **Level 2: for applications that require precise control over their own security**
- **Security Functionality Options**
  - **Non-repudiation: for applications to prove what happened**

Conformance to CORBA Security - compatibility options

- **Security Replaceability**
  - **ORB Services replaceability**
  - **Security Service replaceability**
- **Secure Interoperability**
  - **Standard only (GIOP/IIOP with SECIOP security enhancements)**
  - **Standard plus DCE-CIOP option (using DCE Authenticated RPC)**

Other ORB Issues - 1

- **Server Portability**
  - **RFP has been issued, but much more work to be done...**
  - **...deadlines have slipped again**
- **IDL Type Extensions**
  - **multi-byte characters for non-ASCII natural languages**
  - **longer floating point and integer types**
- **Multiple Interfaces and Composition**
  - **RFP has been issued**

Other ORB Issues - 2

- **Interface Type Version Management**
  - **RFP has been issued**
- **Asynchronous Messaging**
  - **requirements still unclear and in flux**
- **Streams and Explicit Binding**
  - **being pioneered by ANSA via the Telecom SIG**

Dormant ORB Issues

- No work is in hand on
  - Replication
  - Threads
  - IDL Templates
- Vendors may provide proprietary extensions for these

CORBAservices (Object Services)

- Security and Time (RFP 3) have at last been adopted
  - as mentioned earlier
- Change Management (RFP 6) has been restricted in scope to interface type versioning
  - also mentioned earlier
- Trading (RFP 5) has not yet reached a merged submission
- No more RFPs beyond RFP 6 yet planned

CORBAfaciliities (Common Facilities)

- CIL OpenDoc adopted as Distributed Document Component Facility
- The previous Common Facilities Roadmap now has handled
  - (horizontal) Common Facilities, by the Platform Technology committee
  - (vertical) Domain Interfaces, by the Domain Technology committee
- Other Common Facilities in progress include
  - Internationalization and Time Operations (CF RFP 2)
  - Data Interchange and Mobile Agents (CF RFP 3)
  - Business Objects (CF RFP 4)

Summary

- CORBA 2.0 is already available and includes interoperability
- CORBA (the ORB proper) has a number of RFPs needing work
  - but these will not affect interoperability
- CORBAservices specifications are nearly complete
  - CORBA Security is large and complex
- CORBAfacilities still has much work to do

Finding out more

- For more on CORBA work in progress, see http://www.omg.org
- OMG members can find the following working documents on http://www.omg.org or ftp.omg.org (password required!)
  - 95-11-10: Interface Type Version Management RFP (public)
  - 95-12-20: COM/CORBA Part A Revised Submission
  - 95-12-10: COBOL Language Mapping RFP draft
  - orb/96-01-04: Revised Multiple Interfaces and Composition RFP
- For Java, see http://www.sun.com
  - ANSA Phase 3 is also working on Java and CORBA