ANSA Phase III

ANSA Update

Andrew Herbert

Abstract

Presentation for ANSAworks 1995

APM.1435.02	**Approved**	31st March 1995
	Briefing Note	

Distribution:
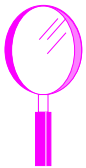
Supersedes:

Superseded by:
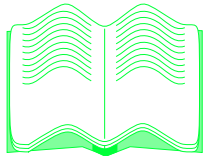
ANSA Update

Andrew Herbert

Chief Architect

March 1995

Since ANSAworks '94

New driver - electronic commerce

Revised work plan

ANSAware/RT

Matchmaking Service Prototype

CORBA-WWW tools

This Talk

- **ANSA - a quick reminder**

- **Work programme - vision, objectives, activities**

- **Distributed Interactive Multi-media Architecture**

  - *ANSAware/RT talk on Wednesday*

- **Information Services Architecture**

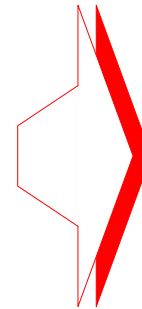 - *talk on Objects and WWW on Wednesday*

- **Federation and Repositories**

ANSA

Harvest research

Build on current technology and open standards

Intercept new requirements

Vision

Architecture

Technology

Standards

The ANSA Consortium

ANSA Consortium

Computer vendors

Telecoms vendors

Telecoms operators

Systems integrators

End users

SPONSORED SHARED PROGRAMME

Core Team

Founded in 1985

Barclays Bellcore BNR BT DRA GEC GPT FT HP ICL Iona Telefonica

Research prototypes

prototypes animations
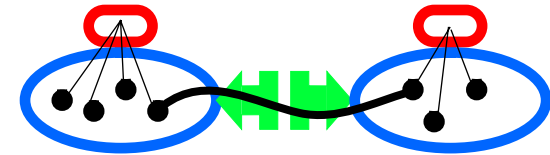
Technology transfer

projects consultancy

secondment training

Lead key standards

The ANSA Architecture

Trading and Federation

   Controlled interoperability

Selective Transparency

   One size does not fit all

Service   Infrastructure
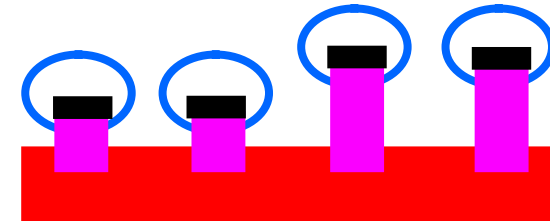
Abstract & Automate

   Tools replace APIs
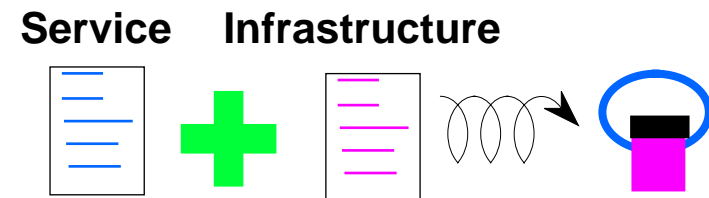
Modular Engineering

   Architected internal interfaces
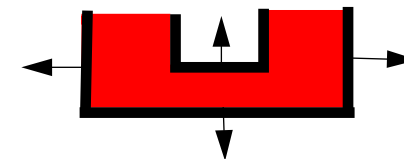
Distributed Object Environment for Open Systems

Distributed Object
Platform

Real-time
Dependable
Data

Application

Supporting Services

OLE 2

HTTP
OPENDOC

Desktop
Wrapper

Database
Wrapper

SQL

XA

Mgt
Wrapper

Network
Wrapper

SNMP
CMIP

Signals, streams
Connections
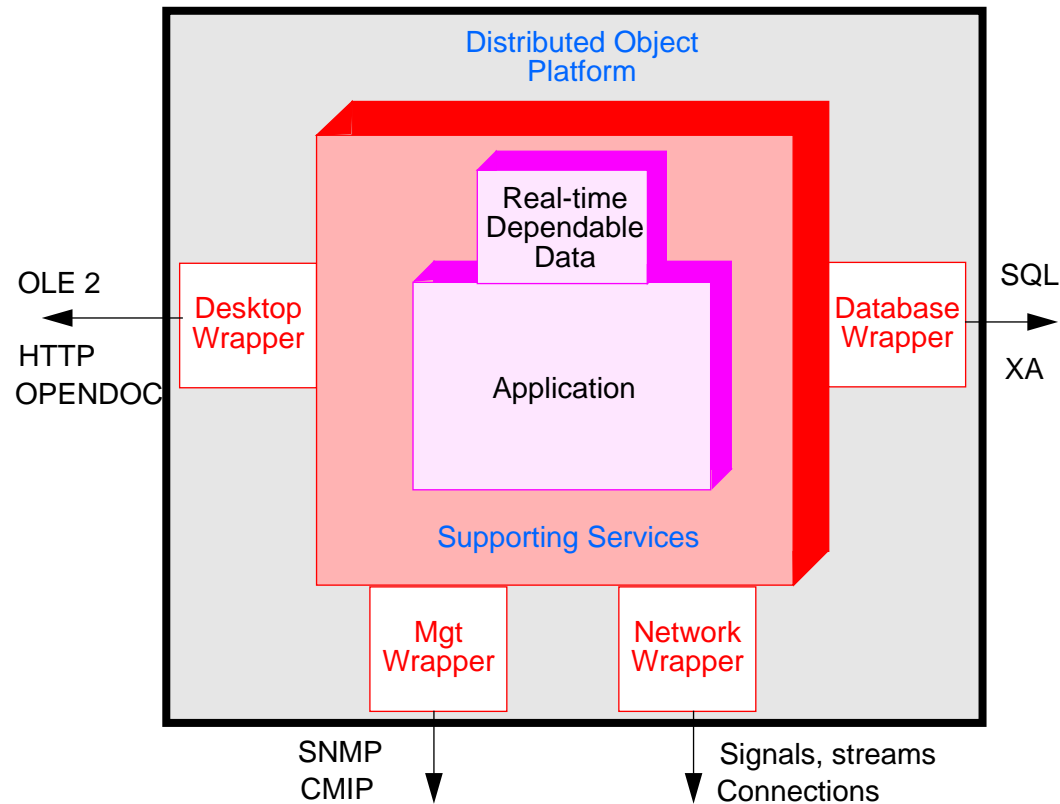
- **Information service system**

- **Business process support system**

- **Systems management system**

- **Interactive multi-media system**

ANSA Vision 1994-6

- **Business is about to be revolutionized by open, global, networks**

  - *FORESIGHT, Bangemann, NII, CSPP, NRENAISSANCE*

- **Networked computing will be as big an IT revolution as personal computing was in the 80's**

- **Networked computing demands new approaches to systems integration**

  - *convergence of telecoms and computing*

- **Federated distributed objects - ANSA - provide the key**

  - *network linking and embedding*

The Integration Challenge

Work groups

Desktops
Compound documents

Workflow

ELECTRONIC COMMERCE

Open networks

Brokers

WWW
Scripts

Commercenet

Interactive multi-media

Broadband

Quality of Service

SYSTEMS INTEGRATION

Embedded Systems

Home

Transport

Healthcare

Enterprise systems

Databases
Events

Business applications

FEDERATED DISTRIBUTED OBJECTS

Mobile terminals

Laptops
Agents

PDAs
Offline ops

9

Technology Needs

Commercial information services

Trading and Federation of services and information

Support services: availability, reliability, security, reconfiguration, remuneration, migration, load-balancing auditing............

Platform with well-defined QoS guarantees & support for time-critical applications: interactive multimedia etc.

Broadband Wide Area Network

Local ATM network

Scripts

Intelligent Agents, Brokers

New Requirements

Interactive Multi-media

Performance

Real-time scheduling · QoS negotiation · **CORBA++**

Streams

Open Networks

Federated naming · Intelligent broking and trading

Cooperative, autonomous management · Security · **MS NETWORK ++**

Distributed Information · **OLE/COM++**

Intelligent information filters and agents · Information servers · Computer assisted business processes

Embedded Systems

Down scaling

Performance · Predictability · **CORBA--**

Events/Signals

1994-6 Work Plan

Public electronic commerce and information services

Distributed control and management of information networks

ANSA

Explore, scenarios, animations

Prototype, extend, validate

1994-6 Work packages

DIMMA

40%

Federation

**Tech.
transfer**

30%

**Info.
Services**

30%

Distributed Interactive
Multi-media Architecture

Information Services
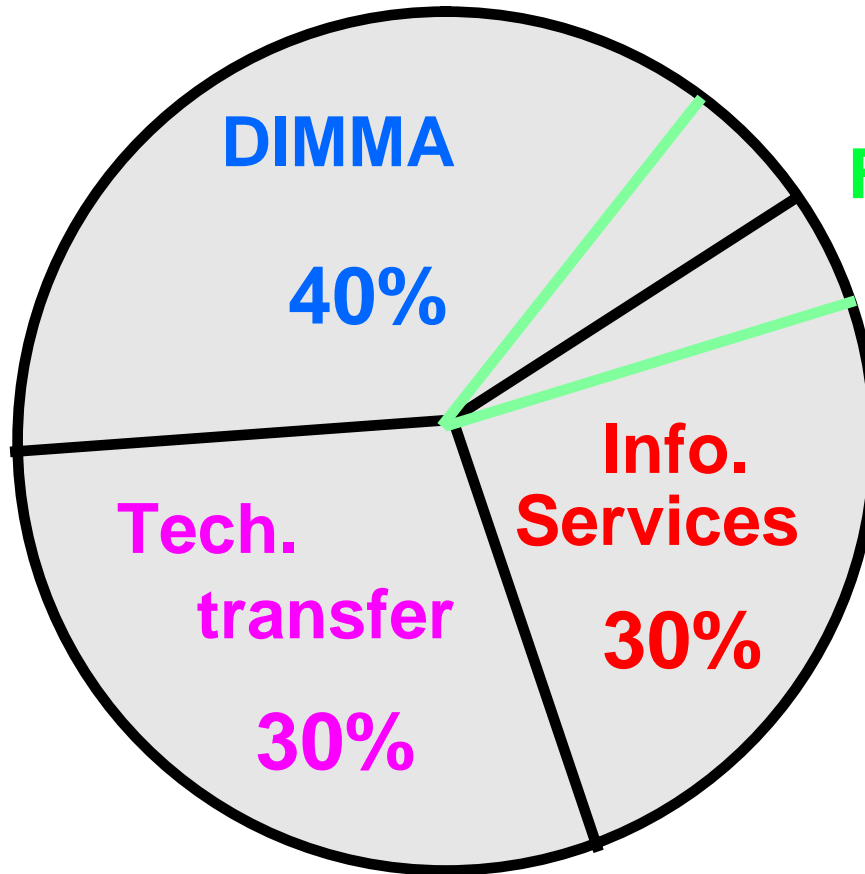
(Federation)

Distributed Interactive Multi-media Architecture

- **interaction models:**   *client/server (many-to-one) + streams*

- **invocation models:**   *call/reply (RPC) + signals (message passing)*

- **control model:**   *asynchronous + synchronous programming*

- **binding model:**   *implicit + explicit*

- **QoS model:**   *addresses non-functional requirements*

- **scheduling model:**   *resource separation, priority & deadlines*

Implementation Master Plan

TINA Personality Module	Synchronous Objects	Asynchronous Objects	CORBA Personality Module

Distributed Multi-media Object Runtime

Real-time

Explicit binding   Nucleus

Streams   Capabilities

QoS control

		ORBLITE	ORBIX	ANSAware 4.1	ANSAware RT	DCE

OSF/1	Nemesis	Chorus	Generic	Phase III	RETINA	DCAN	?

Real-time RPC	CORBA-CIOP	Other RPC

IDL Master Plan

APM.1435.02   Approved   Briefing Note   31st March 1995
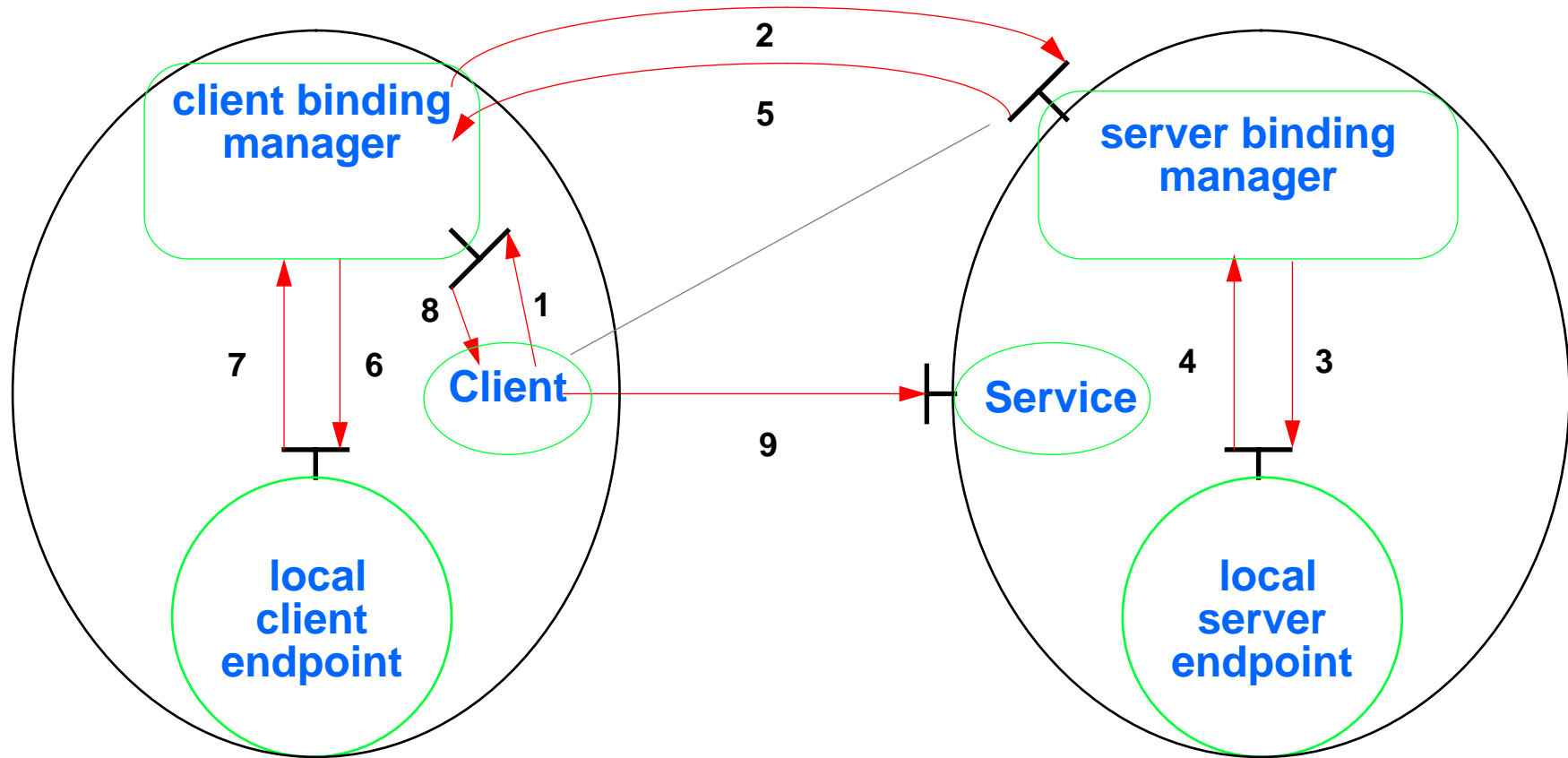
Streams

- *A stream has a set of flows*

- *A flow has a set of frames (or signals) and a direction*

- *A frame has a name and a set of typed arguments*

- *Streams are typed and can be conformance type checked*

- *Frames are transmitted by non-blocking writes and read by blocking reads*
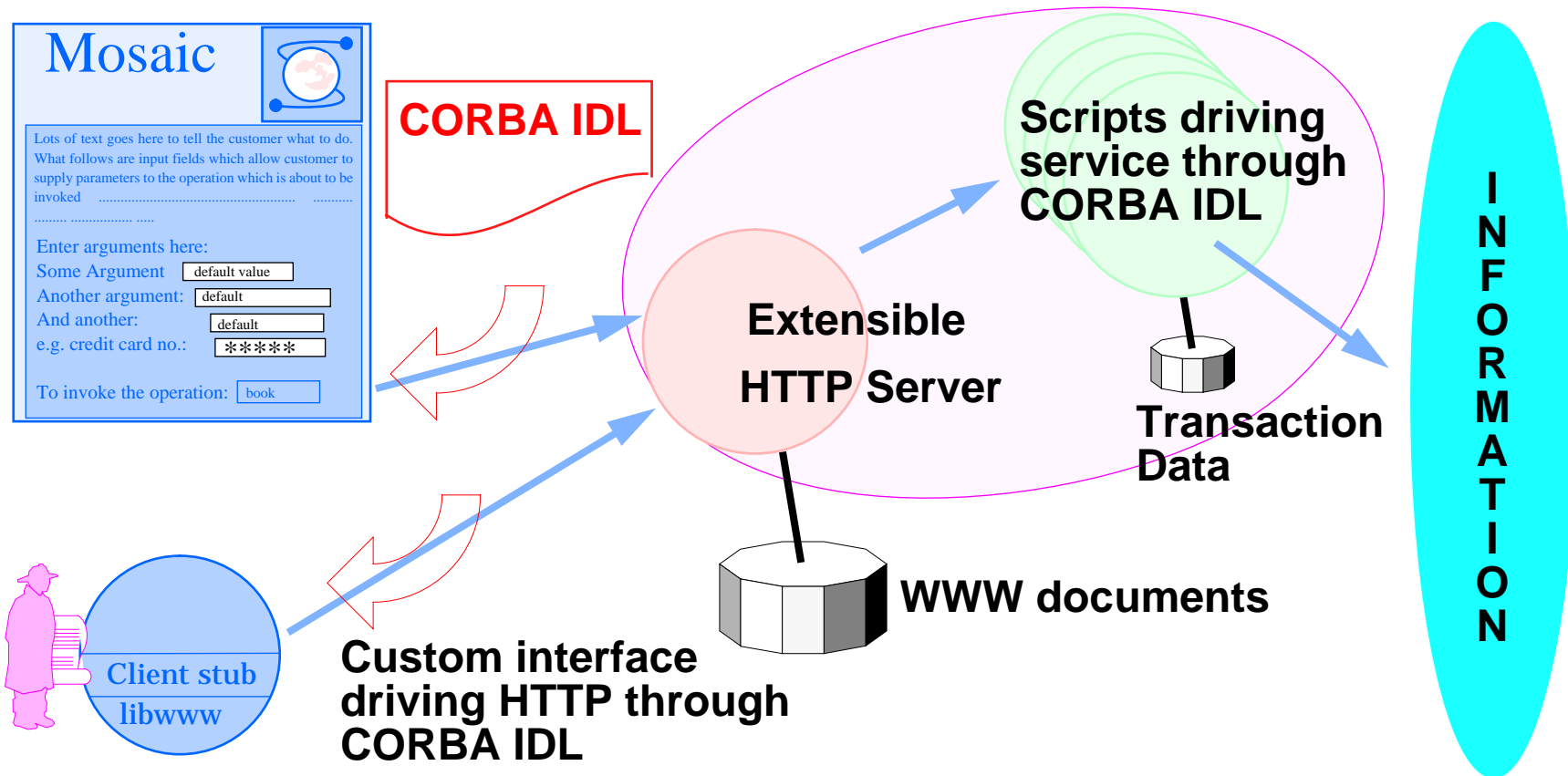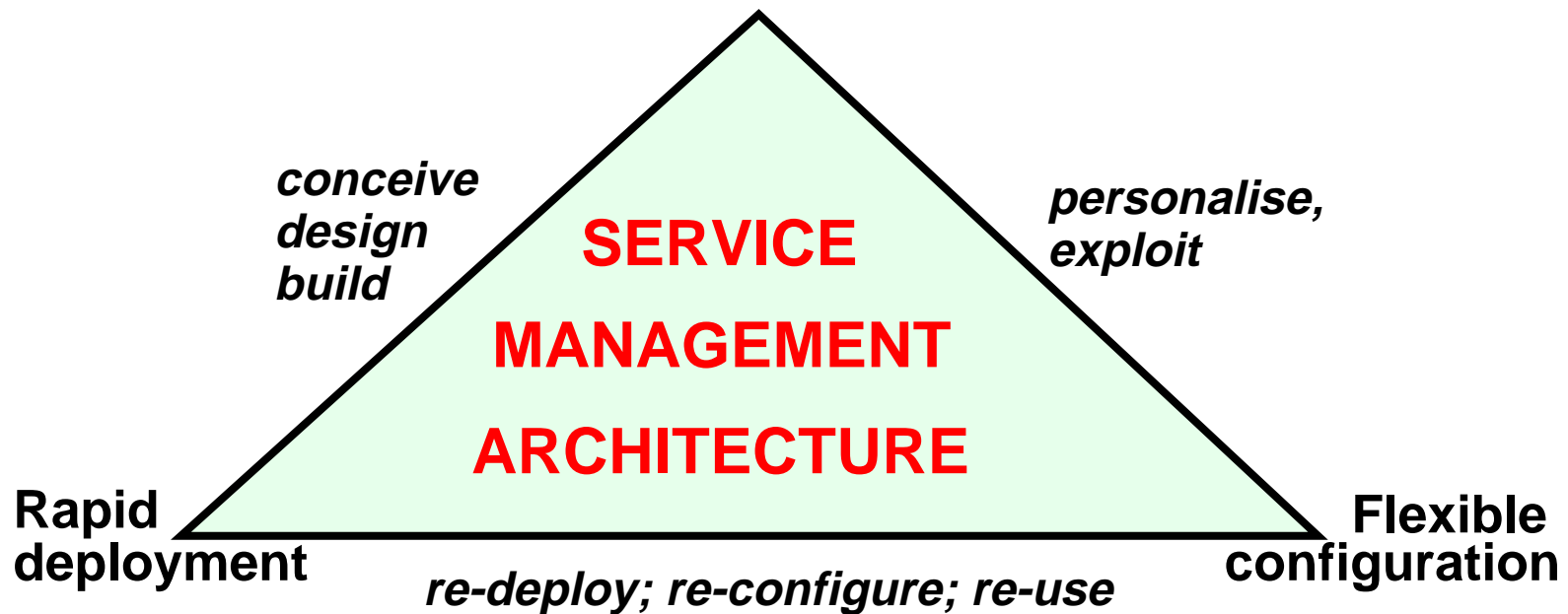
Explicit Binding

Information Services

- *WWW is based on viewers, HTTP and libWWW*

- *viewer is a network graphical user interface, not a network operating system*

- *libWWW is monolithic and inextensible*

- *Need an extensible interface to add additional services*

- *Need a programmatic interface to write network applications (e.g. agents)*

Information Services - Object Wrapping

Mosaic

Lots of text goes here to tell the customer what to do.
What follows are input fields which allow customer to
supply parameters to the operation which is about to be
invoked ....
....

Enter arguments here:
Some Argument   `default value`
Another argument: `default`
And another: `default`
e.g. credit card no.: `*****`

To invoke the operation: `book`

CORBA IDL

Extensible HTTP Server

Scripts driving service through CORBA IDL

Transaction Data

WWW documents

Client stub libwww

Custom interface driving HTTP through CORBA IDL

INFORMATION

Federation and Repositories

Short market windows

SERVICE MANAGEMENT ARCHITECTURE

conceive design build

personalise, exploit

Rapid deployment

Flexible configuration

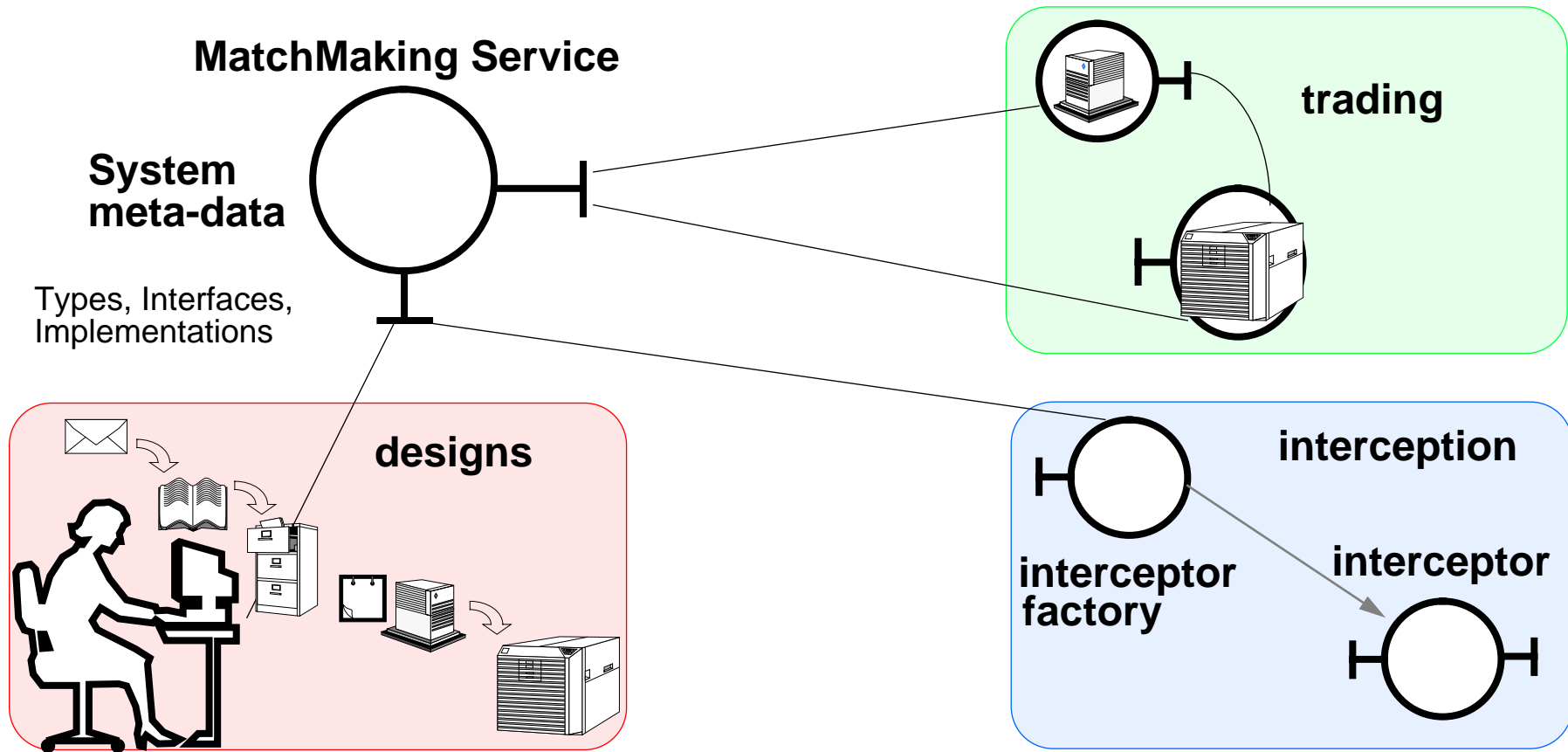*re-deploy; re-configure; re-use*

Systems carry their own model so they can evolve

specifications of components are visible from the system

implementations of components are available in the system

Combined Repository - Matchmaking Service

MatchMaking Service

System meta-data

Types, Interfaces, Implementations

trading

designs

interception

interceptor factory

interceptor

Matchmaking Service Prototype

- *Implementation environment: Orbix + Allbase (CORBA + SQL)*

- *Support fairly complex data types for properties, with fair extensibility*

- *"Register" property names and associated data types*

    - property profile sets for scaling

- *Provide SQL query facility*

    - essentially gives matching criteria for complex property types

    - essentially allows retrieval of portions of complex properties

- *Support ODP "Export policy controller"*

Federation - Interception

Detect   **Recognize**   **Mark**   **Resolve**

leave   translate   create gateway
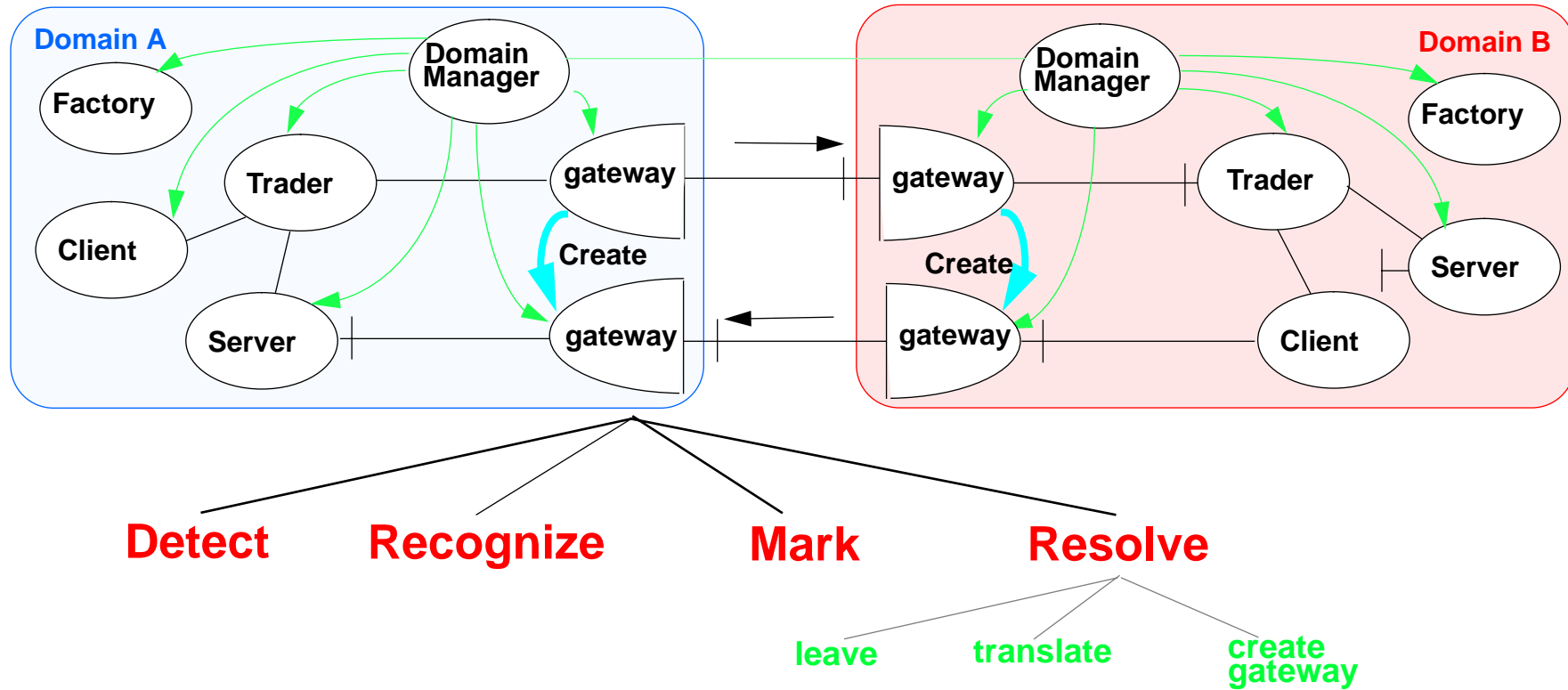
ANSA & STANDARDS

- ***ISO/ITU ODP***

  - now an international standard

  - ODP components - fast-track OMG standards - by helping sponsors

  - new work items (binding, transparency) - contributing, lead by sponsors

- ***OMG***

  - achieved a good result on interoperability

  - watch for other opportunities to contribute (e.g. WWW interface, multi-media)

- ***WWW***

  - create visible presence (by making prototypes available)

  - joined W3O