Middleware et Tolérance aux Fautes dans les futurs systèmes de supervision et de contrôle THALES

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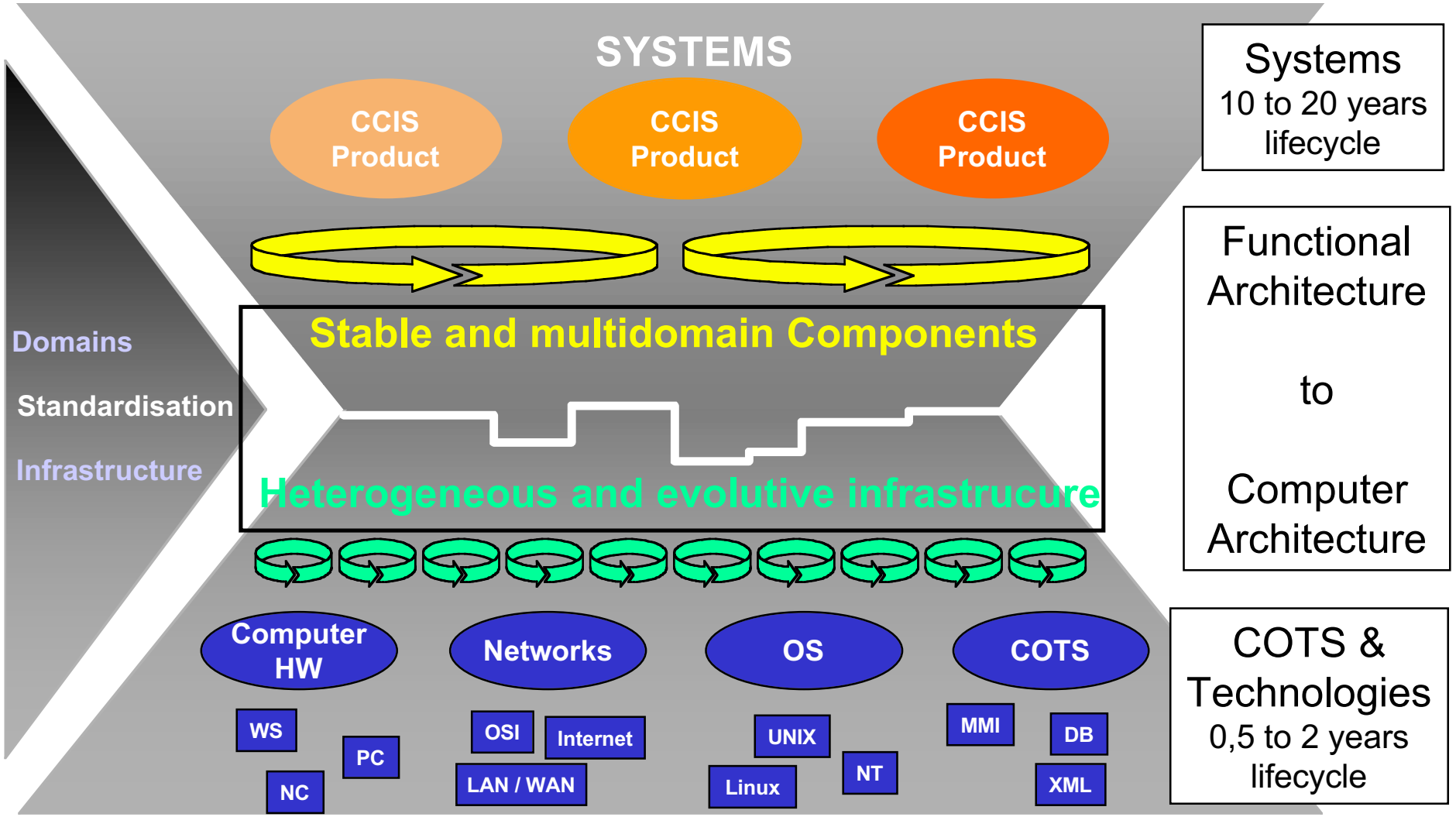
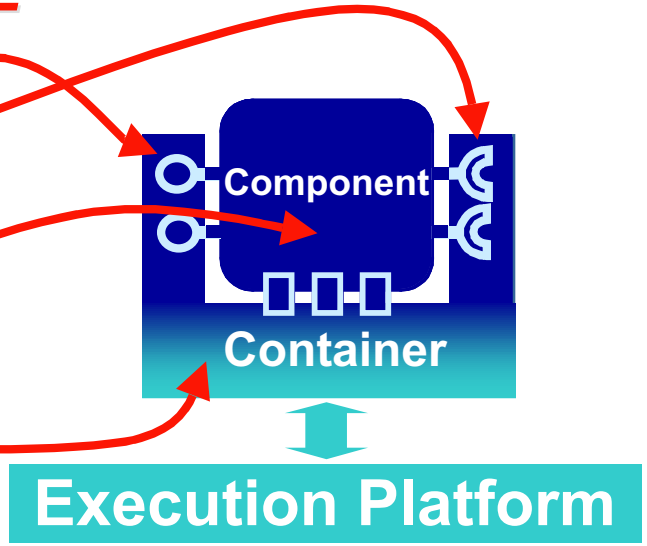
CCIS Architectural issues



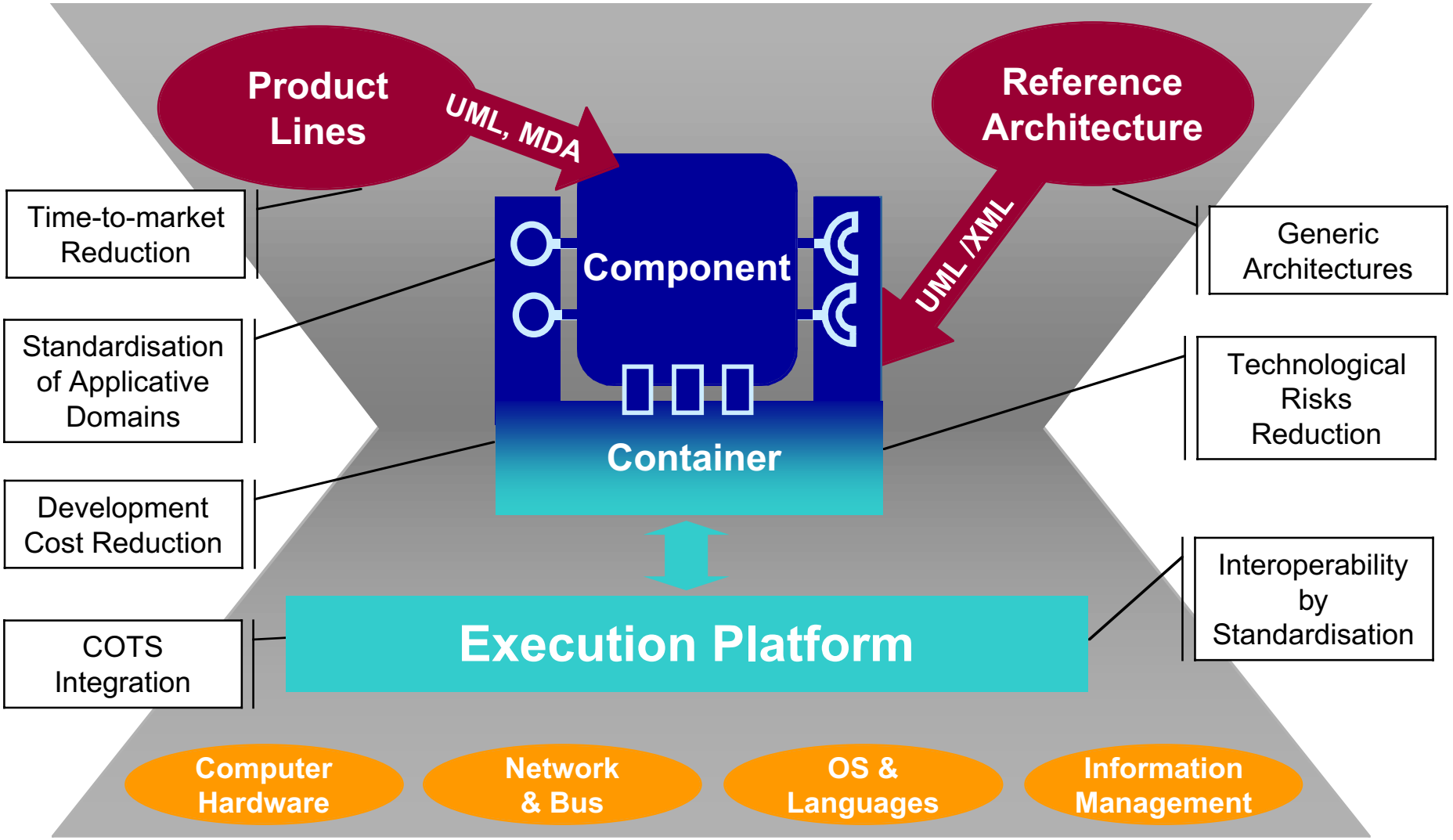
THALES Pilot Programmes

- Software Engineering: ***MIRROR***
  - Model-based development
  - Product lines

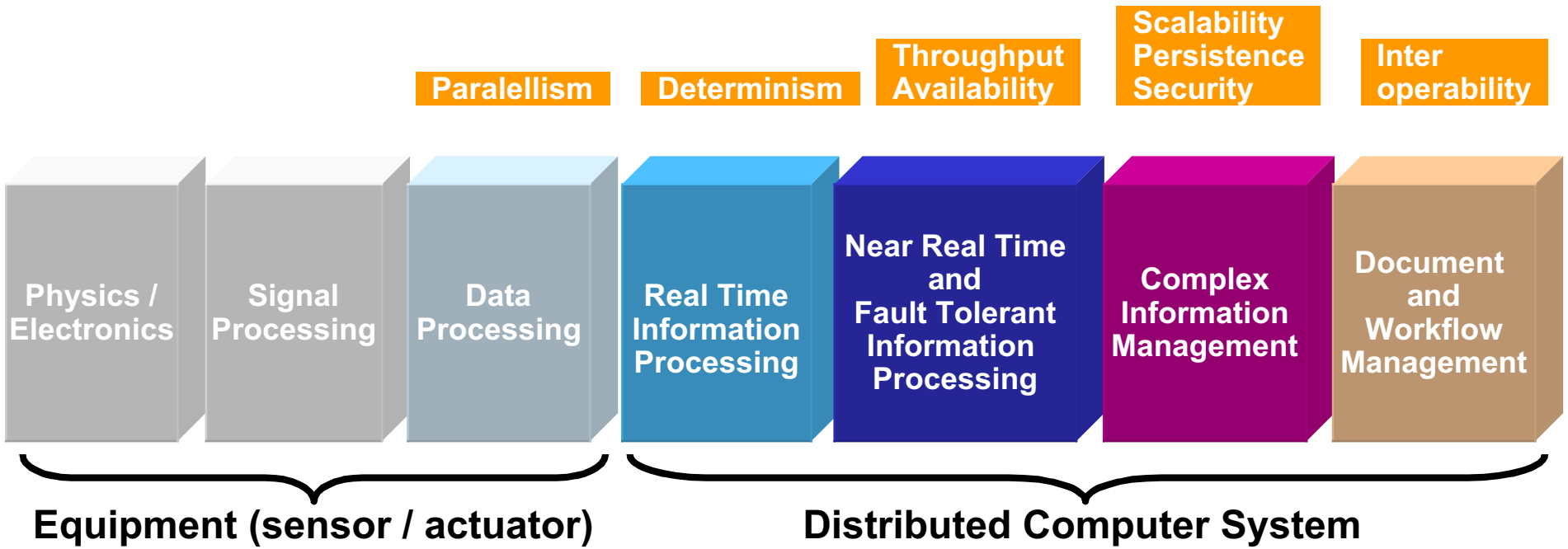
- Software Architectures: ***ALICE***
  - Component-based middleware
    - explicit description of:
      - provided services
      - requested services
    - separation of concerns:
      - functional properties
      - non-functional properties
  - Easier deployment, reuse



Proposed Approach

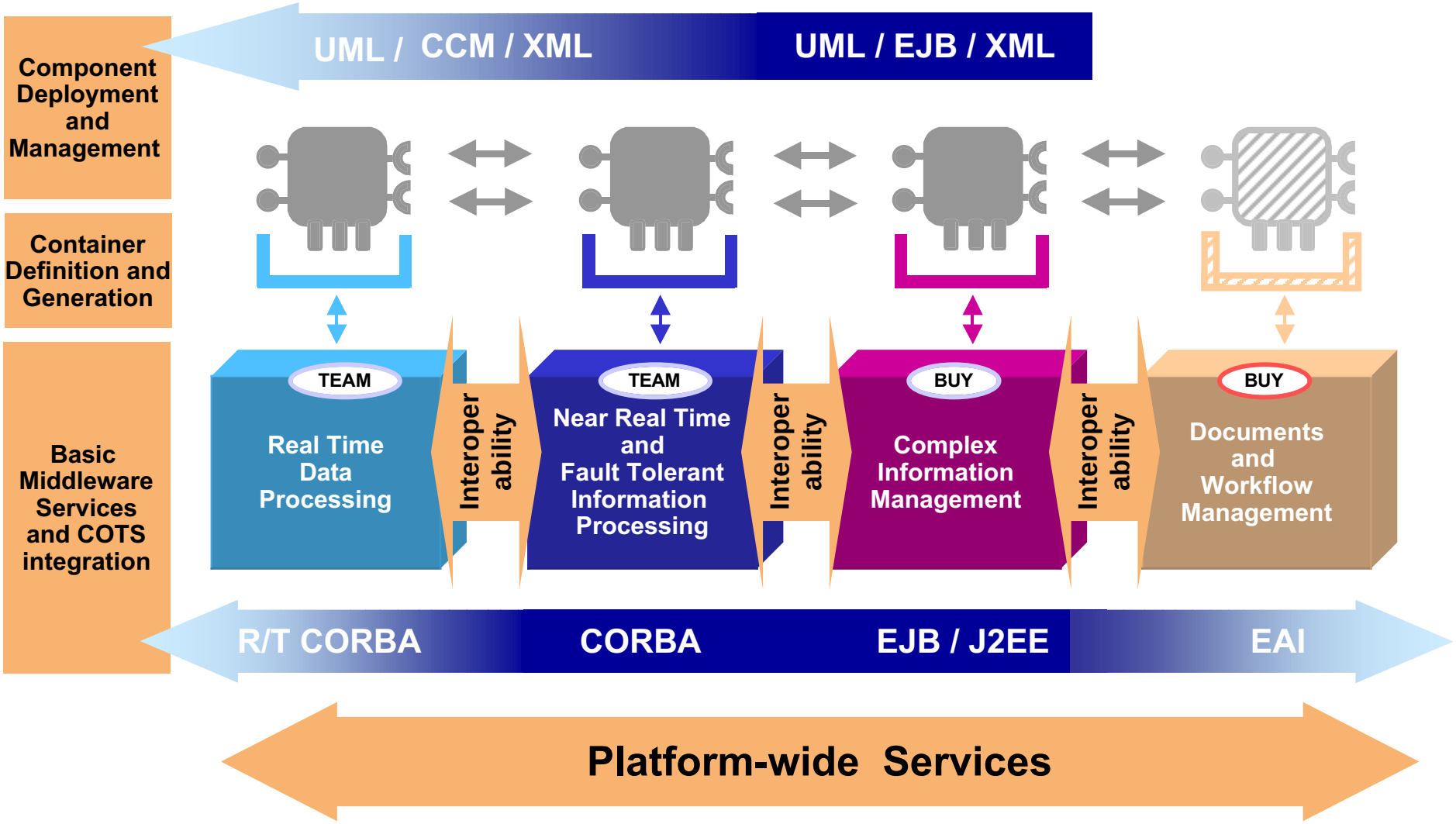


Multi-Segments Systems



- Different segments
  - Different non-functional properties
  - Different technologies of middleware
  - Different approaches

ALICE



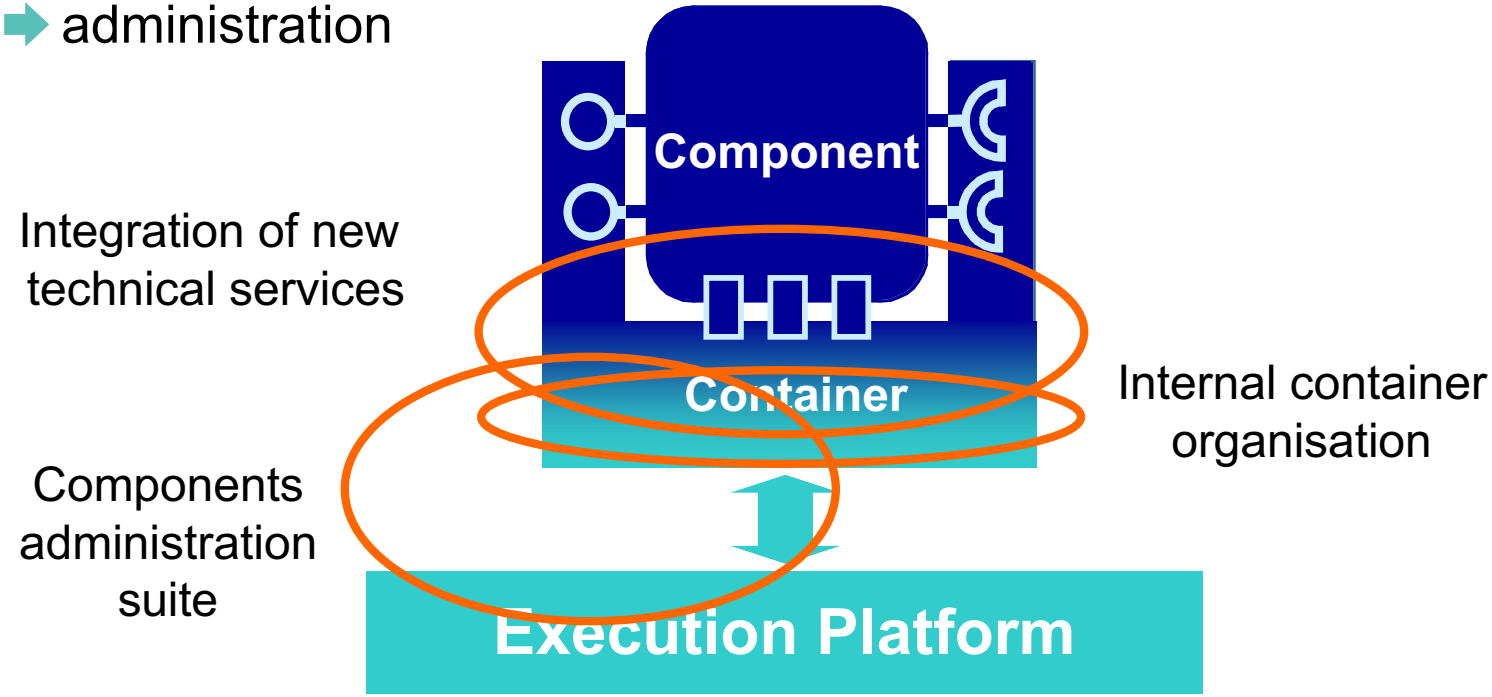
THALES

NRT Segment: Why CORBA?

- Only middleware standard that
  - is non-proprietary
  - supports actually heterogeneity (platform, languages)
  - is suitable to integrate smoothly legacy
- Not only plain **synchronous** method call (C/S)
  - supports **asynchronism** (events)
  - supports **deferred synchronism** (AMI)
  - will support soon **data distribution**
- CORBA is evolving towards more 'technical' features
  - CORBA-RT
  - Fault Tolerant CORBA
  - Data Parallel
  - ...
- CORBA => CCM (part of CORBA 3)
  - In the process of being enhanced...

CC Model - Areas of investigation

- CCM is a good organisational model...
  ...that deserves enhancements to fulfil our requirements
  - integration of new technical services
  - administration



=> PERCO (PowERed COrba) = a framework...

- ...to configure, deploy and execute near real-time and fault-tolerant distributed applications
- Based on the following principles:
  1. Multi-domain
  2. CORBA Component Model
     - Extended to our requirements - support for other technical services
  3. Value-added execution platform (services)
     - Modularity - flexibility
  4. COTS integration
     - OMG standardisation active participation
  5. to be used with a UML tool chain (Pilot Programme MIRROR)
     - To ease the application development
     - to support MDA

Fault Tolerance in PERCO

- Based on Fault Tolerant CORBA
- Pragmatic approach: preliminary study
  - What are the actual needs of the THALES units?
  - What are the actual market offers?
  - Define what is missing and needed
- Must be kept separate from the application code
  - Technical property to be embedded inside the containers
  - Support from the Administration Suite
  - Support at modelling level (MIRROR/ALICE)
- To be started early 2003