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## **Training**

# **Architecture (Intro to ANSA)**

**Yigal Hoffner**

### **Abstract**

The business problem addressed is...

The technical problem created by that business problem is ...

The solution being offered is....

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APM.1645.00.02

**Draft**  
Briefing Note

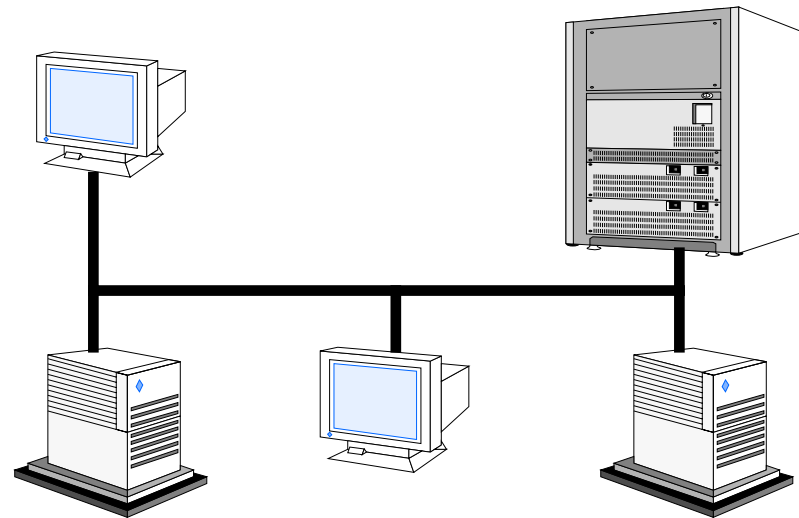
2nd November 1995

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**Distribution:**  
**Supersedes:**  
**Superseded by:**



# Distributed Systems Architecture





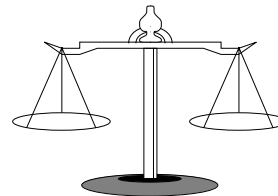
## In this session

- *Explain the use of an architecture as a framework for developing distributed systems*
- *Explain the components of an architecture*



## Distributed systems and coping with change

- *How do distributed systems help businesses cope with change?*
- *How do distributed systems balance*
  - *the demands of change...*
  - *...and the demands of continuity?*





## The demands of change

- *Pressures for change make distributed computing necessary, as well as possible*
  - in the near future, most systems will be distributed
  - world-wide business requires world-wide systems
- *Information networks are the starting point...*
- *... how to build systems to coordinate information from many sources?*
  - diverse sources: old systems, new systems, and other organizations' systems
  - separate sources: from different places at different times



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## The demands of continuity

- *Preserving investment*
  - in people, and the legacy systems they use
- *Bridging the old and the new*
  - evolution not revolution



## The technical challenge

- ***Provide a framework for systems that:***
  - integrate products from many vendors
  - are owned and managed by many organizations
  - can grow larger than the international telephone network
  - can evolve gracefully
  - allow different kinds of applications to interwork
  - preserve the investment in existing technology
  - have lower development and operating costs
- ***... This framework is an architecture for Open Distributed Processing***



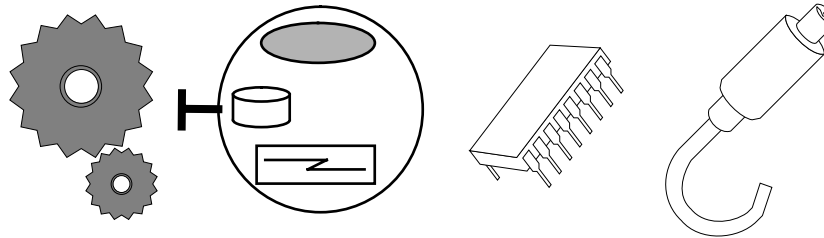


## Other demands on the architecture

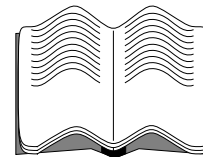
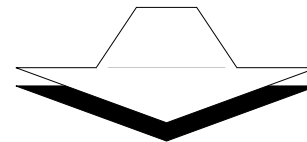
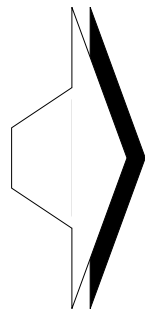
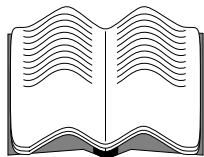
- *Must be easy to use and understand*
- *Must be widely applicable*
- *Must be durable and long-term*
- *Must be practical and proven*
- *Must be vendor-neutral*
- *Must be backed by the authority of international standards*

# Architectural construction

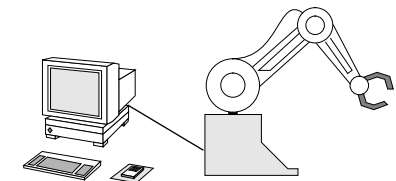
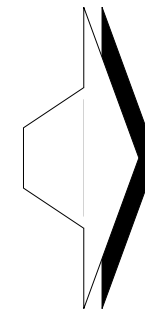
Basic building blocks



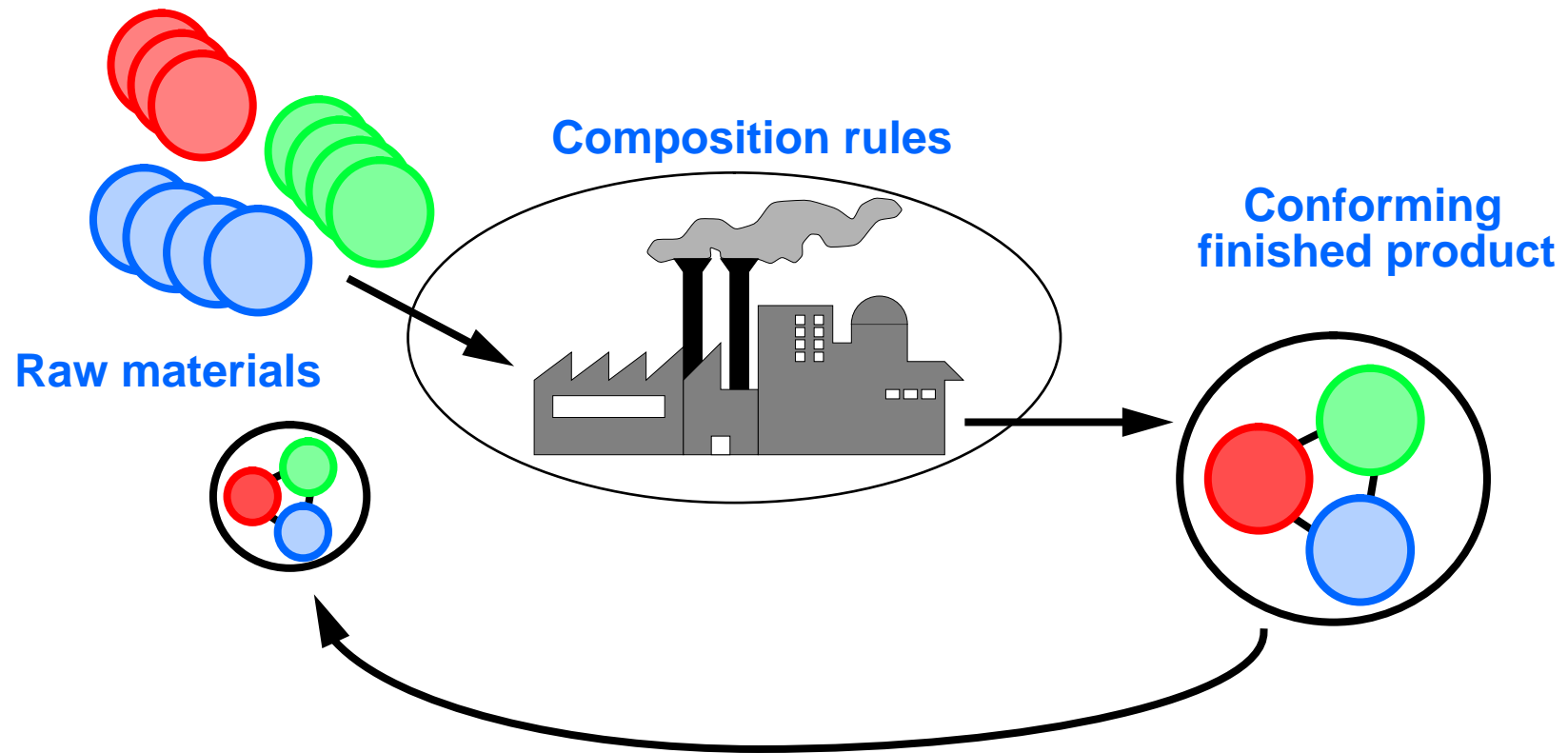
Combination rules



Recipes



# Architecture for reuse





## In the architecture there should be...

- ***Components***
  - standard functional building blocks, and tools to assemble them
- ***Rules***
  - embodying principles and assumptions
- ***Recipes***
  - for satisfying commonly-occurring requirements
- ***Guidelines***
  - for making design choices and trade-offs
- ***Concepts***
  - clearly defined and delineated



## The architecture should leave you to decide...

- *Which products to use*
- *Which software development methods to use*
- *Which user interfaces to provide*



## Architectural principles - Summary

- *Distributed systems have different properties to centralized systems*
- *Different applications need different solutions*
- *Unnecessary complexity should be masked from the applications*