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ANSA Phase III

FlexiNet--Design of the Application Coordination

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Abstract

Application Coordination is a major component of the FlexiNet project. This presentation describes, at first, the general aim of the FlexiNet project, and the role of the Application Coordination in the project. Then, it focus on the design of the Application Coordination.

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4th August 1997

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

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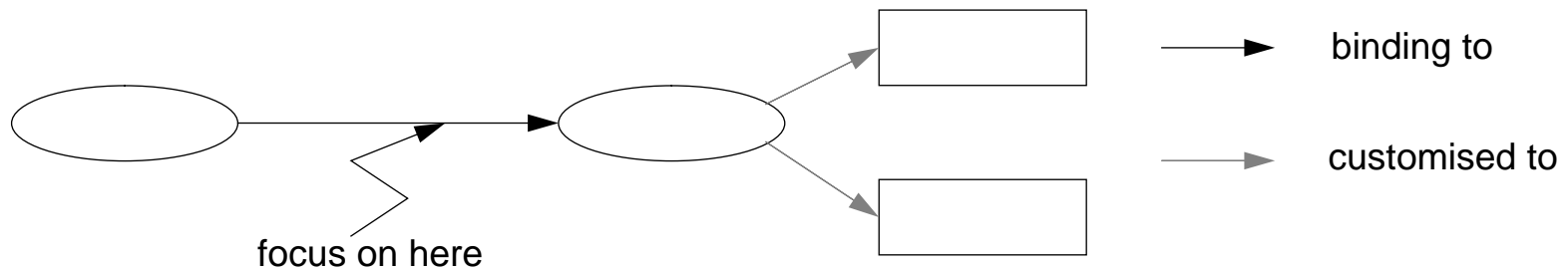
Design of the Application Coordination (for comments)

Zhixue Wu



Focus of FlexiNet

- **Focus on the flexibility of the communication between components, not of the components themselves**
 - **access control: security checks**
 - **object binding: registration, selection**
 - **transport selection: RMI, ORBs**
 - **reliability: basic transaction**
 - **semantics: best try, at least once, at most once, exact once**
 - **application coordination: dynamic deployment**



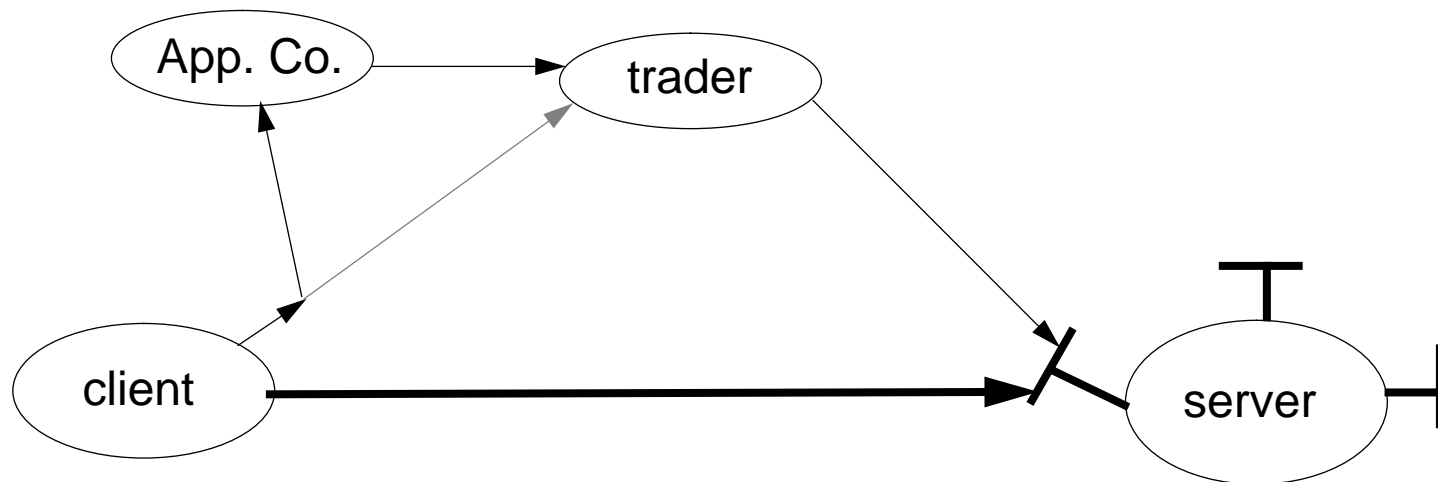
Goal

- Users do not need to concern about the above issues
- Users do aware distribution, but in a mechanism independent way (know what they do, what they prefer, but not how to do, or in which way to do)
- FlexiNet provides a framework to integrate user's code with the appropriate mechanisms to solve those issues
- Users should be allowed to choose or even provide their own mechanisms, if they prefer



Role of the Application Coordination

- **Intercepts a binding request from a client**
- **Locates the server (partly, say only to the host level)**
- **Finds an appropriate interface of the server intended to bind**
- **Asks the trader to do the binding**



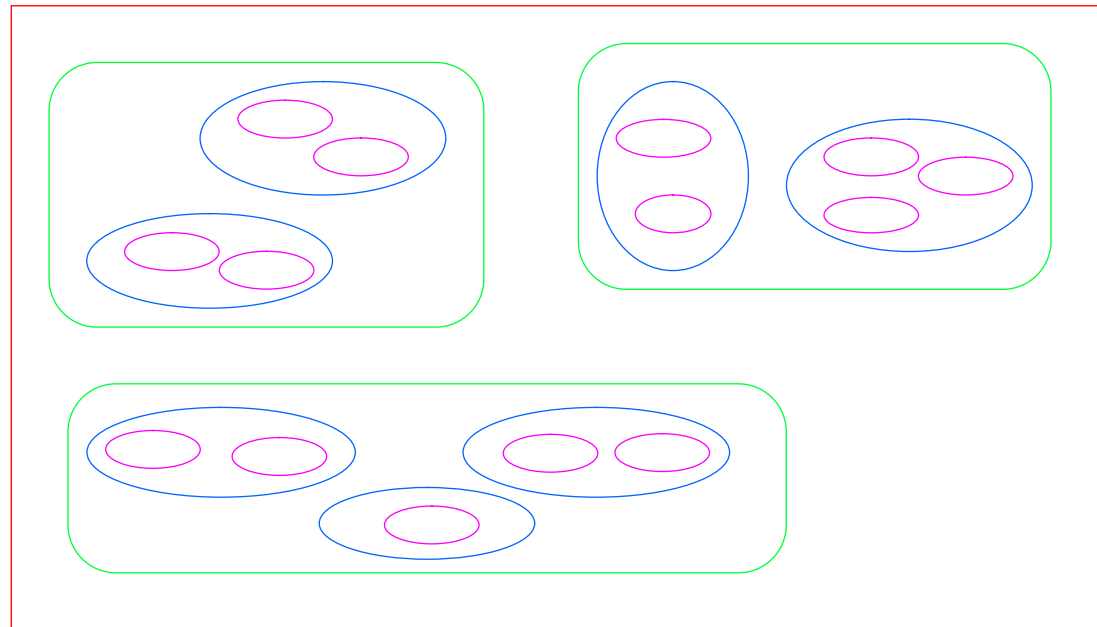
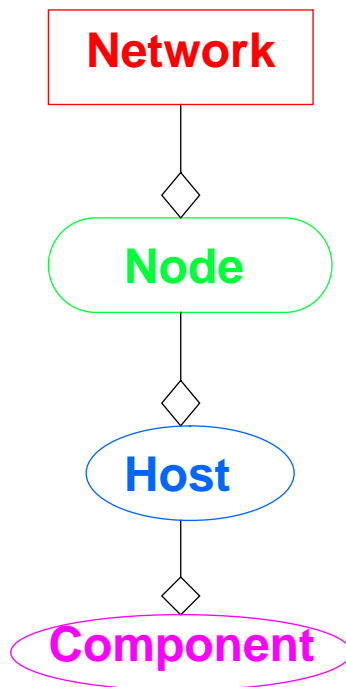
Aim of Application Coordination

- **Aim: to ensure a client component is bound**
 - to the appropriate object
 - via an appropriate interface
 - using an appropriate protocol
 - through an appropriate transport
 - in an appropriate semantics
- An architecture consists of **the set of common, coarse grained components** that provide distinct services and **the set of relationships and dependencies** that exist between them to provide those services in an integrated manner
- An application coordination should maintain information for:
 - each component
 - relationships between components
 - dependencies between components



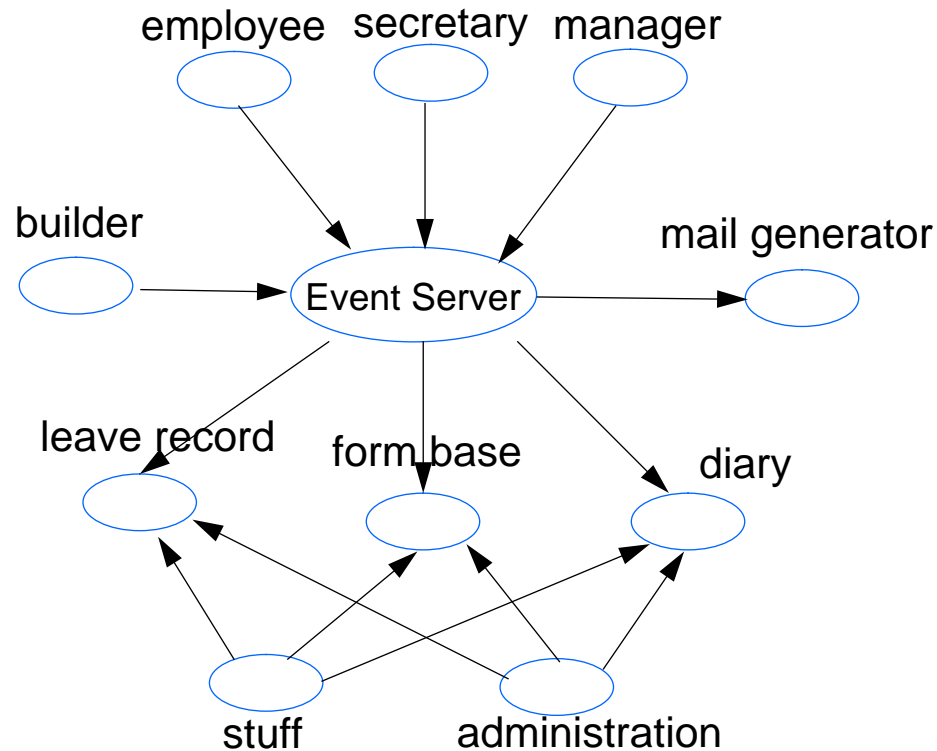
Physical Architecture

- The network where the components are deployed
- Only those nodes and components involved in the application
- Application coordination is responsible for physical placement



Logical Architecture

- The relationship and dependencies between components
- Kinds of relationship: client/server, peer
- Application coordination is responsible for the logical architecture

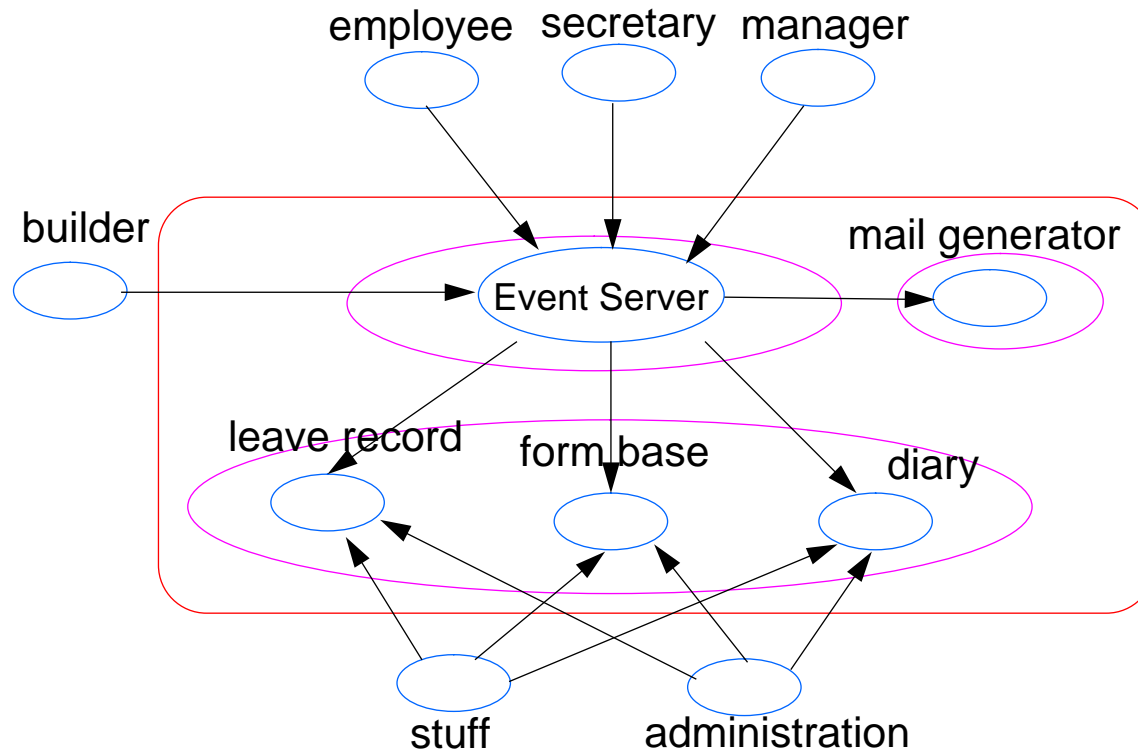


Architecture of an electronic leaving request system



Deployment

- Deploy components over the network, maintaining the logical relationship
- Client component may be created dynamically at any node
- Location of a server component can be changed dynamically



Information to Keep

- **For server components**
 - location: host.node
 - interfaces (different interface with different non-functionality)
 - accepted protocols
 - access control policy
- **For client component**
 - the role
 - the allowable capability
- **For a connection**
 - security requirement
 - reliability requirement
 - access semantics
 - transport options



Architecture of Application Coordination

