The Rebeca Notification Service

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Asynchronous Communication
- Direct communication too inflexible
  - does not scale
  - does not evolve
  - Hard-wired configuration does not adapt

Application Examples
- Radio broadcasts, news ticker
- Financial information, monitoring in general
- Application integration

Publish/Subscribe Communication
- Producers publish notifications
  - Not directed to any receiver
- Consumers subscribe for notifications
- Addressing: channels, subjects, content
- Characteristics:
  - Time decoupling
  - Space decoupling
  - Flow decoupling

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Rebeca
- Generic publish/subscribe framework
- Distributed Notification Service
- Network of brokers
- Route notifications to subscribers

Routing
- Content-based routing
  - Static network or dynamic peer-to-peer
- Covering, merging

Involved Issues
- Routing efficiency
- Engineering of implicit interaction
  - Lost control
  - Increased inherent complexity
- System management
- Caching and data management
  - Notification lifecycle
- Fault tolerance
  - Link or broker failures and misbehavior
- Security

Broker implementation
- Diverse requirements, e.g., high efficiency, small footprint, etc.
- Component-based broker implementation
- AOP enabled modularization
- Quality of service
  - Guaranteed delivery
  - Real-time constraints