# Keywords

- Paradigms(范型)
- ion(抽象)
- Encapsulation(封装)
- Message Passing(消息传递)
- Remote Procedure Call Model (RPC, 远程过程调用)
- Distributed Objects Paradigms(分布式对象范型)
- The point-to-point message model(点对点)
- The publish/subscribe message model(发布/订阅)
- Remote method invocation (RMI,远程方法调用)
- Network services / Web services (网络服务)
- Object request broker (对象请求代理)
- Object spaces (对象空间)
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### Outline

- Paradigms(范型) and ion(抽象)
- Paradigms for Distributed Applications

#### ions

- ion is the idea of encapsulation(封装), or detail hiding.
- Use ion when it is not necessary to know the exact details of how something works or is represented.
- ion plays a very important role in programming.
- We often want to model, in software, simplified versions of things that exist in the real world without having to build the real things.

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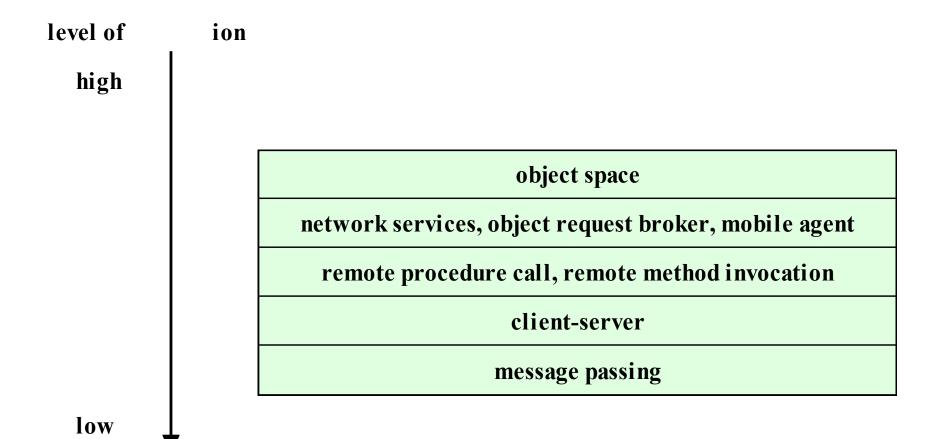
#### ions

 In software engineering, ion is realized with the provision of tools or facilities which allow software to be built without the developer having to be cognizant of some of the underlying complexities.

### Paradigms for Distributed Applications

- Paradigm means "a pattern, example, or model."
- In the study of any subject of great complexity, it is useful to identify the basic patterns or models, and classify the detail according to these models.

## Distributed Application Paradigms



### Outline

- Paradigms and ion
- Paradigms for Distributed Applications
  - Message Passing(消息传递)
  - The Client-Server Paradigm
  - The Peer-to-Peer Paradigm
  - The Message System Paradigm
  - Remote Procedure Call Model(远程过程调用)
  - The Distributed Objects Paradigms(分布式对 象范型)

# An Example Application

- Example
  - Online auctioning system
- Simplify the system to one that
  - Handles only one auctioned item per session.
- Do NOT take into account
  - Details of implementation
  - UI & data store
- Focus on the distributed computing aspects of the service layer

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## The Message Passing Paradigm

- Message passing is the most fundamental paradigm for distributed applications.
  - A process sends a message representing a request.
  - The message is delivered to a receiver, which processes the request, and sends a message in response.
  - In turn, the reply may trigger a further request, which leads to a subsequent reply, and so forth.

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