

## **Tutorial 1**

### **Introduction to Distributed Systems**

1. What is the role of middleware in a distributed system?
2. Explain what is meant by distribution transparency and give examples of different types of transparency.
3. Why it is sometimes so hard to hide the occurrence and recovery from failures in a distributed system?
4. Why it is not always a good idea to aim at implementing the highest degree of transparency possible?
5. What is an open distributed system and what benefits does openness provide?
6. Describe precisely what is meant by a scalable system.
7. Scalability can be achieved applying different techniques. What are these techniques?

### **Architecture of Distributed Systems**

8. If a client and a server are placed far apart, we may see network latency dominating overall performance. How can we tackle this problem?
9. What is a three-tiered client-server architecture?
10. What is the difference between a vertical distribution and a horizontal distribution?
11. In a structured overlay network, messages are routed according to the topology of the overlay. What is an important disadvantage of this approach?