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Class Exercises
Module: Distributed Systems
Chapter 1: Overview of Distributed Systems

Question 1: What is the role of middleware in a distributed system?

Middleware's role is to enhance the distribution transparance and improve the single-system view for a distributed system

Question 2: Explain what is meant by (distribution) transparency, and give examples of different types of transparency.

Distribution transparancy is the property of a distributed system where distribution aspects in a system are hidden from users and application.
Example of types of transparancy: location transparancy, access transparancy, failure transparancy, concurrency transparancy

Question 3: Why is it sometimes so hard to hide the occurrence and recovery from failures in a distributed system?

Because we cannot detect if the server is down or that it is slow, so we cannot make user wait forever to have their requests responded. Therefore, the system has to report that service is not available even if it is just slow.

Question 4: Why is it not always a good idea to aim at implementing the highest degree of transparency possible?

Because it will lead to performance loss

Question 5: What is an open distributed system and what benefits does openness provide?

An open distributed system is a system that offers services according to clearly defined rules. The openness provides benefits such as porting ability for applications between different implementations of the same system, interpolating ability with other open systems.

Question 6: Describe precisely what is meant by a scalable system.

A scalable system is a system that can grow in one or more dimensions such as number of components, number and size of domains, etc., without sacrificing performance.

Question 7: Scalability can be achieved by applying different techniques. What are these techniques?

Scaling techniques are: Asynchronous communication, Distribution, Replicate, Caching