# Exercise Sheet 4: Designing Scalable Cloud Architectures

## Questions and Answers

### 1. Scalable Design Principles: Outline the principles of designing scalable applications.

**Answer:** Principles include designing for statelessness, decoupling components, using managed services, implementing caching mechanisms, and leveraging auto-scaling and load balancing.

### 2. Load Balancing: Explain the role of load balancers in a scalable architecture.

**Answer:** Load balancers distribute incoming network traffic across multiple servers to ensure no single server becomes a bottleneck. This improves application reliability and performance by balancing the load.

### 3. Microservices: Discuss how microservices contribute to scalability.

**Answer:** Microservices break down applications into smaller, independent services that can be developed, deployed, and scaled independently. This allows for more granular scaling and better fault isolation.