

29 Lecture - CS410

Important Subjective

****Question 1:****

Explain the concept of microservices architecture and how it benefits networked applications.

****Answer:****

Microservices architecture is a design pattern where an application is broken down into small, loosely coupled services that can be developed, deployed, and scaled independently. This approach improves scalability, maintainability, and flexibility in networked applications.

****Question 2:****

Describe the role of MQTT (Message Queuing Telemetry Transport) in IoT communication.

****Answer:****

MQTT is a lightweight messaging protocol used for communication between IoT devices and servers. It ensures efficient, reliable, and real-time data exchange, making it suitable for low-bandwidth and high-latency networks.

****Question 3:****

What is cloud integration in network programming, and how does it enhance application deployment?

****Answer:****

Cloud integration involves connecting applications and services to cloud platforms. It enhances application deployment by providing scalable infrastructure, easy resource management, and access to various cloud services for improved performance and efficiency.

****Question 4:****

Explain the significance of analyzing network protocols in optimizing network performance.

****Answer:****

Analyzing network protocols helps identify bottlenecks, security vulnerabilities, and areas for optimization. It ensures efficient data transmission, reduced latency, and improved overall network performance.

****Question 5:****

How does encryption contribute to network security, and which encryption protocol is commonly used in secure communication?

****Answer:****

Encryption converts data into a secure form to prevent unauthorized access. TLS (Transport Layer Security) is commonly used for secure communication over networks, ensuring data confidentiality and integrity.

****Question 6:****

Discuss the advantages and challenges of using microservices architecture in networked applications.

****Answer:****

Advantages of microservices include better scalability, easier maintenance, and flexibility. Challenges include increased complexity in managing multiple services and potential communication overhead.

****Question 7:****

What are RESTful APIs, and how do they facilitate communication between different software components?

****Answer:****

RESTful APIs use HTTP methods to allow software components to communicate and exchange data in a standardized and flexible manner. They enable interoperability and integration between different systems.

****Question 8:****

Describe the role of load balancing in ensuring high availability and performance in networked systems.

****Answer:****

Load balancing distributes network traffic across multiple servers to prevent overloading and ensure efficient resource utilization. It enhances system reliability and responsiveness.

****Question 9:****

Explain the concept of OAuth and its importance in securing API interactions.

****Answer:****

OAuth is a protocol that enables secure and controlled access to resources without revealing user credentials. It enhances API security by providing authorized access to data while maintaining user privacy.

****Question 10:****

How does MQTT differ from traditional messaging protocols, and why is it well-suited for IoT applications?

****Answer:****

MQTT is lightweight, efficient, and designed for low-bandwidth, high-latency networks. Unlike traditional messaging protocols, it minimizes overhead and is well-suited for resource-constrained IoT devices, enabling efficient and reliable communication.