

Mobile computing (TOE 811)

Assignment -03

Note : Attempt All Questions:

1. What are the primary challenges in managing data within mobile computing environments, and how do they differ from traditional computing systems?
2. Explain the role of synchronization in mobile data management and the challenges associated with it.
3. Discuss the trade-offs between synchronous and asynchronous replication methods in the context of mobile computing.
4. How does data replication affect the synchronization process in mobile devices, especially during network partitions?
5. What are the key factors to consider when designing adaptive clustering algorithms for dynamic network environments?
6. Discuss the challenges associated with maintaining cluster stability in highly mobile wireless networks?
7. Compare and contrast the CODA file system with traditional file systems in terms of availability and fault tolerance.
8. How does CODA manage conflict resolution when reconciling changes made during disconnected operations?
9. How can systems be designed to handle data synchronization after periods of disconnection effectively?
10. What strategies can be implemented to minimize data loss during unexpected disconnections?

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Assignment -04

Note : Attempt All Questions:

1. How do mobile agents enhance the efficiency of distributed systems in mobile computing environments?
2. Evaluate the role of mobile agents in facilitating disconnected operations and offline processing.
3. **Evaluate the trade-offs between security and fault tolerance in the design of mobile agent frameworks?**
4. **What are the implications of host failures on the reliability of mobile agent-based applications, and how can systems recover from such events?**
5. Discuss the challenges of maintaining data consistency and integrity during mobile transactions, especially in the presence of intermittent connectivity?
6. Evaluate the effectiveness of optimistic concurrency control mechanisms in mobile databases?

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Assignment -05

Note : Attempt All Questions:

1. Discuss the challenges of maintaining network stability in mobile ad hoc networks (MANETs) and propose potential solutions?
2. What are the primary security concerns in ad hoc networks, and how can they be addressed?
3. Compare and contrast range-based and range-free localization techniques in terms of accuracy and resource requirements?
4. How does mobility affect localization accuracy in ad hoc networks, and what strategies can mitigate this?
5. **How do contention-based and contention-free MAC protocols differ, and what are their respective advantages in ad hoc networks?**

6. **Analyze the impact of hidden and exposed terminal problems on MAC protocol performance.**
7. **What strategies can be employed to ensure fairness and efficiency in MAC protocols for ad hoc networks?**
8. How do routing protocols handle route maintenance and error recovery in highly dynamic ad hoc networks?
9. Discuss the criteria for selecting an appropriate routing protocol based on specific network scenarios.
10. Explain the working principle of the Global State Routing protocol and its approach to maintaining routing information?
11. Compare DSDV with reactive routing protocols in terms of routing overhead and latency?
12. How does DSR handle route caching, and what are the implications for network performance?
13. Discuss how AODV ensures loop-free and up-to-date routes in ad hoc networks.
14. Compare OLSR with other proactive routing protocols regarding efficiency and resource utilization?
15. Define Quality of Service (QoS) in the context of ad hoc networks and its significance for various applications?