University of New York Tirana

Faculty of Engineering and Architecture

Rruga e Kavajës, pranë 21 Dhjetorit (Sheshi Ataturk)

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Master of Science in Computer Science

Distributed Systems

Examination Topics

Chap. 1

1. **Distribution Transparency**
2. **Distributed Systems scaling**
3. **Properties of a transaction**
4. **Nested transactions and how these are handled**
5. **Transaction Processing Monitors**
6. **Organization of Sensor Networks**

Chap. 2

7. 3-tiered client-server architectures
8. Vertical and horizontal distribution
9. P2P networks
10. Adaptive middleware

Chap. 3

11. Virtualization.
12. The architecture of a three-tier server cluster.

Chap. 4

13. The middleware in the reference model and the services of a middleware.
14. RPC and components involved. Step-by-step execution of RPCs.
15. Continuous media
16. Approaches for the synchronization of streams.

Chap. 5

17. Iterative and recursive look-up
18. Hierarchical location services
19. DNS organization and structure

Chap. 6

20. Physical clocks
21. Logical clocks
22. Token-based solutions
23. Permission-based approaches and centralized algorithms
24. Bully algorithm

Chap. 7

25. Pull and push-based protocols
26. Consistency protocols

Chap. 8

27. Failure models
28. Failure masking by redundancy
29. Models for process resilience

30. The Byzantine agreement problem
31. Reliable-Multicasting Schemes
32. Hierarchical reliable multicasting
33. Checkpointing.

Chap. 11

37. Sketch and describe the client-server architecture of NFS.
38. Describe the Google File System.

Chap. 12

39. Describe the CGI architecture.
40. Describe web-proxy caching.
41. Describe the schemas for replicating web applications

Chap. 13

42. Describe the overall approach of a publish-subscribe system.
43. Describe the overall security approach for a publish-subscribe system.