

Q1) How does DynamoDB ensure that it remains available even when an entire data center goes down? Explain. [2 marks]

Dynamo is configured such that each object is replicated across multiple data centers. Specifically, the preference list of a key is constructed such that the storage nodes are spread across multiple data centers.

[Only 1 mark if mentioned some kind of cross-DC replication without alluding to preference list]

Q2) What data structure is used to synchronise two replicas? Give two reasons why it is used. [3 marks]

Merkle Trees

Reason #1: To detect the inconsistencies between replicas faster

Reason #2: To minimize the amount of transferred data

[Any other reason explicitly mentioned in the paper also counts]