

AWS Certified Solutions Architect: Associate - 7.0 Databases and AWS

filename: amazon-acsa-7-3-dynamodb

Title: Amazon DynamoDB

Subtitle: AWS Certified Solutions Architect: Associate

7.3 Amazon DynamoDB

- Basics
 - Fully managed NoSQL database
 - You define a read/write capacity and upload your data
 - Capacity is assigned per-table
 - 1 capacity unit = 4KB of read or 1KB of write
 - DynamoDB automatically provisions enough infrastructure to provide that capacity
 - Automatically configures high-availability (Multi-AZ)
- NoSQL (Diagram)
 - Data is stored differently than relational databases
 - Each record must have a primary key
 - All other values (attributes) are optional
 - Schema is not predefined
 - Data types
 - Enforced by the application, not by DynamoDB
 - Only the primary key has to have a strictly defined data type
 - Two types of Primary Keys
 - Partition Key
 - Consists of one attribute
 - The key itself (sometimes called a hash key)
 - DynamoDB builds an unordered hash index on this attribute
 - Partition and Sort Key
 - Consists of two attributes
 - The key itself (sometimes called a hash key)
 - The sort key (sometimes called a range key)
 - Secondary Indexes
 - Global Secondary Index
 - Provides an alternative partition and sort key
 - Can be created at any time
 - Local Secondary Index
 - Same partition key but a different sort key
 - Can only be created at table creation
- Two Modes of Data Consistency
 - Types
 - Eventually Consistent Reads
 - Strongly Consistent Reads
 - Type is specified during the read request
- Scaling and Partitioning (Diagram)
 - Partition key is used to distribute data
 - New partitions can be added as the database scales
 - Partition Limits
 - Around 10GB of data
 - 3,000 read capacity units
 - 1,000 write capacity units
 - Some room for bursts, but not reliably
 - Partitions can be split, but not merged
- DynamoDB
 - Fully integrated with IAM
 - IAM policy can restrict access to a table
 - Conditions can restrict access to items/attributes
- DynamoDB Streams
 - Provide a list of all changes in the last 24 hours
 - Allows applications to act on new data
 - Can be enabled/disabled