Dynamo DB

Data Model

```
### Table
    - Collection of data items
    - Infinite
    - Schema less

### Item
    - Key
        - Primary Key
        - Partition Key & Sort Key
    - No Limit on number of Attributes
    - Max size 400kb

### Attribute
    - Attribute name and value
    - Value can be single value or set
```

Operations

```
- CRUD Table
- PutItem - create or update single record
- BatchWriteItem - batch insert, replace, delete - NOT ATOMIC, up to 25 items,
max 16 MB
- GetItem - Eventually consistent by default, can be strongly consitent
- Query - filters on a primary key or a secondary index, more efficient than
Scan,can be strongly consitent
- Scan - performs full scan,can be strongly consitent
```

Scaling

```
- Throughput
    - Read and Write capacity
    - Table level
    - One partition
        - 3000 Read Capacity Units
        - 1000 Write Capacity Units
    - Capacity units are equally distributed over partitions
    - Burst capacity
- Size
    - 10GB per partition
```

Best Practices

```
- Partition Keys with large number of distinct values
- Bucketing (like Hbase hot keys), predefined number. Sharding for writes.
- TimeSeries - Hot/Warm tables, tables by month,
- Cache hot read keys, you can use lambda to update lambda
```

DynamoDB Streams

```
- Time Ordered sequence of database changes
- Change log
- Durable Queue
- Kinesis Stream
- Max 24 hour retention
- Can be used to trigger lambda
- Can be enabled or disabled at any time
```

Secondary Indexes

```
- Global Seconday Index:
    - new partition and sort key
    - can be deleted at any time
    - eventually consistent
    - you can have multiple Global Secondary Indexes
    - have separate write capacity unit from main table
- Local secondary index
   - same partition key, different sort key
   - can only be created when you create a table
   - eventually consistent
   - consumes table capacity units
   - can be more than one
```

Encryption

```
- No AWS provided mechanism
- Only client side encryption
```