Managed Services in AWS

1. Monitoring - AWS CloudWatch
2. Streaming Data Services - Amazon Kinesis
3. Architecting for the cloud

CloudWatch

Central integrated monitoring services
Free monitoring - added(detailed) monitoring
Organised by log group
Alarm and events can be triggered with the monitored metric present in Cloudwatch
Can also install CloudWatch agent to collect the custom log(logs generated by custom apps)
Red - out of the marked limit on the metric
Yellow no data/ warning
green - under proper limits
Bill limit - alarm trigger (only in N. Virginia)
Events are triggered thru rules
the logs from the Log groups can be exported to S3, Lambda and Elastic search.
Retention period:
<60 seconds =>3hours of retention time
1minute => 15days
5minutes=> 63 days
1hour=> 455
also the data gets aggregated after a certain time period.
Metric deletion is not supported. They can only expire.

Kinesis

Streams
Producer produce the data => Firehose direct the data to the target
Collects files and sequences the files as shards and delivers it to the destination
So like a firehose the source can be connected according to the user choice and the same goes for the destination.

The data in transmission can also be transformed(activities of the glue-ETL)

Streams enable real-time processing of streaming big-data.
The stream can be recorded, read and replayed in the same order.
high level queueing activity can also be handled thru Kinesis stream.

Shards
Sequence of data in a stream
5 per 2MB file
1000per 1kb file

sequence number(unique identification number for shards), partition key(groups the shards together) and blob data

Like the way we used for CloudWatch, a Kinesis agent can be installed on the EC2 and the data can be streamed to Kinesis.
EC2 needs to be given an IAM role for depositing the data to Kinesis.
Path to the logs file which needs to be fetched has to be given in the json configuration file perfectly.

Once the kinesis service is started it reads the data only once. Added data again will be read once. So if the destination of the kinesis stream is not mentioned properly then the data read earlier will not be available at the destination

Architecting

https://aws.amazon.com/architecture/
Reference architecture examples and standardized template for real time use cases.

Data architecture

Business Logic Layer => Data Access Layer => Database/Keyspaces/Schema => Data files
Data of different users should not be accessible but only restricted to a single user - single data structure
The code should be taking care of the above.
Separation of data can level up to physical disk separation, geographical separation etc.,
Sensitivity towards data layer is mandatory and should be given equal importance like designing layer

Serverless architecture

Do not need to worry about the infrastructure, configuration of scalability, endurance and reliability. Write the code (with any function) and deploy directly.
No fixed commitment and fee. Pay according to the usage.
Ex. AWS Lambda , Google cloud functions
use this for short running processes, since the computing time and resources are billed for usage. So short quicky processing can be done with serverless. Long running activities are not recommended.