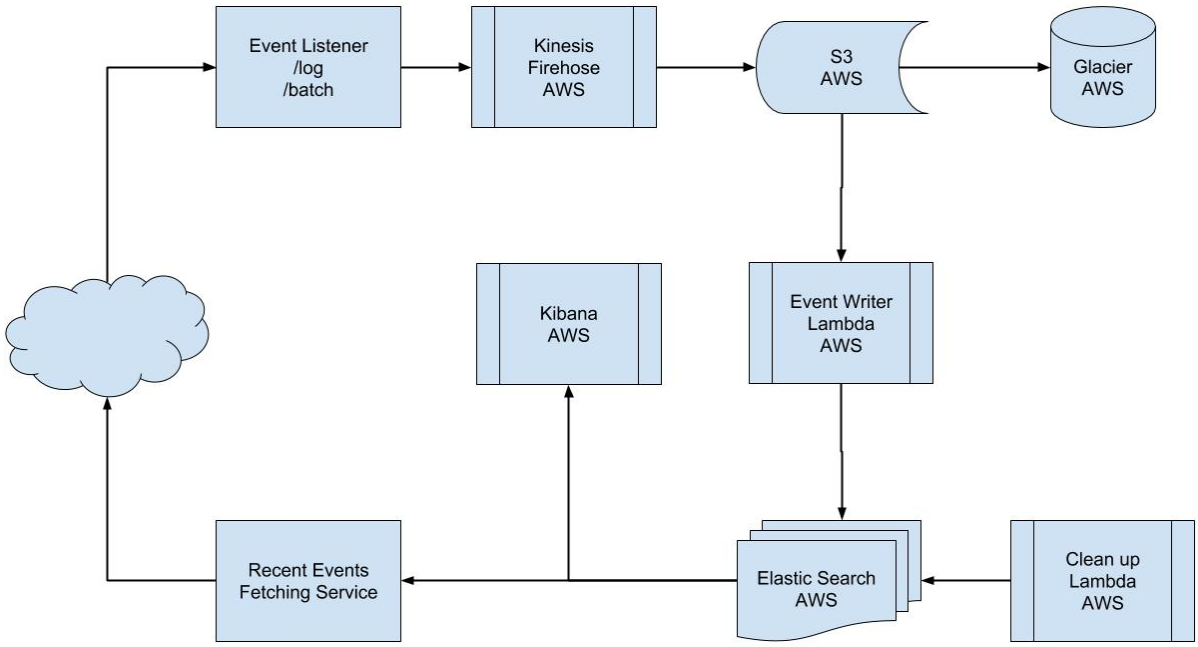
Challenge 2

The diagram below shows the overall architecture of the required system:



A few notes to supplement this architecture:

- A thin event listener client provides endpoints for real-time and batch processing of events. The listener throws these events to Kinesis Firehose service in AWS.
- All events processed by Firehose are stored in S3 for a scalable, distributed storage.
- All objects in S3 have a lifecycle configuration of transiting to Glacier after 1 month. This is because 4000 events per second each of which is 1 KB equate to roughly 1TB of data over the period of a month.
- A Lambda transferring most recent events from S3 to Elasticsearch triggers every minute and transfers recent events of a user.
- Elasticsearch indices the events by timestamp and user ID.
- A Lambda cleaning up Elasticsearch can trigger every five minutes and drops all events older than five minutes.
- Data from Elasticsearch can be visualized in Kibana.
- A service also interfaces with Elasticsearch to provide users last 100 events.