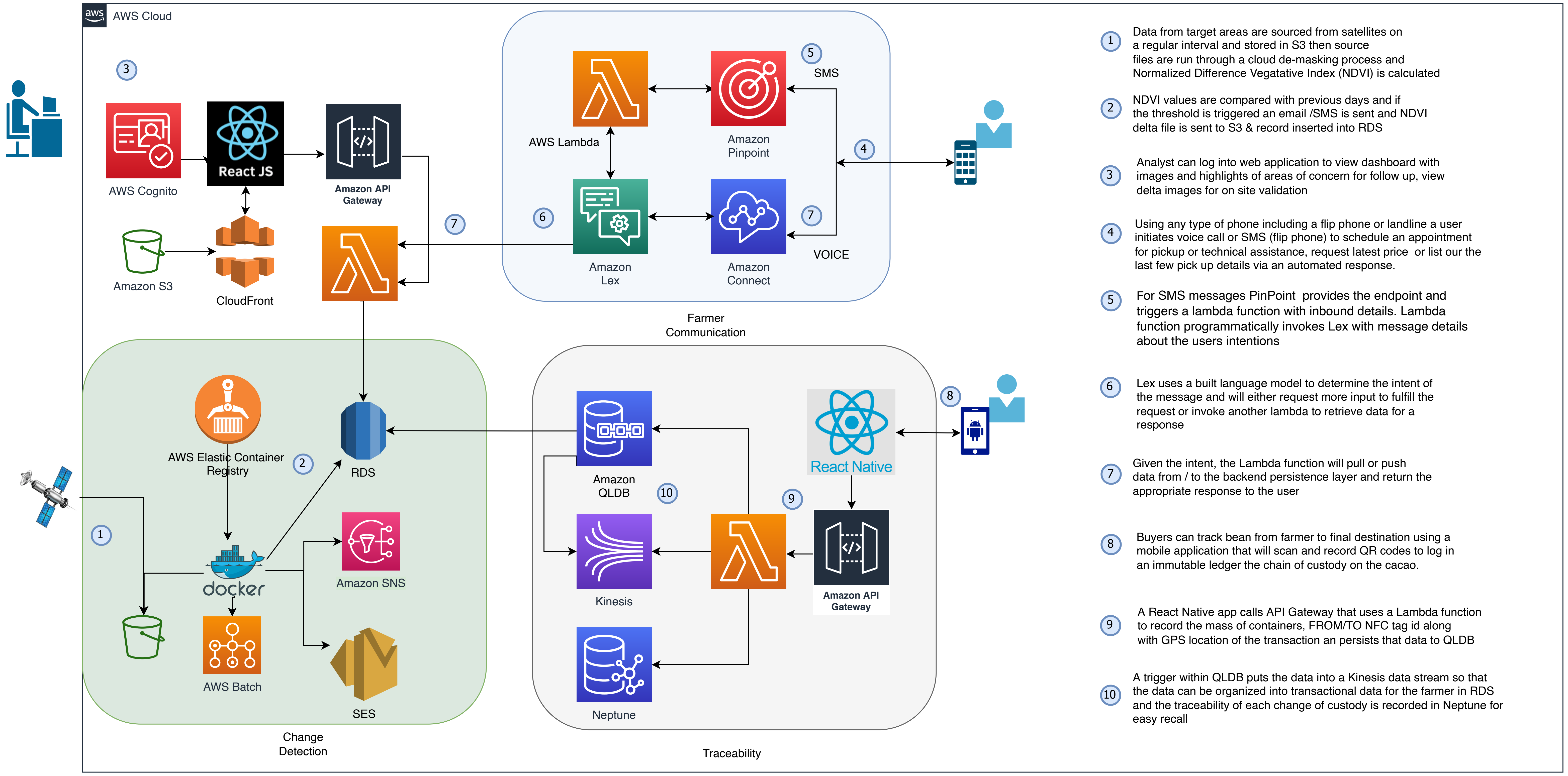
Cocoa Traceability and Supply Chain

Architectural Diagram



1 Data from target areas are sourced from satellites on a regular interval and stored in S3 then source files are run through a cloud de-masking process and Normalized Difference Vegatative Index (NDVI) is calculated

2 NDVI values are compared with previous days and if the threshold is triggered an email /SMS is sent and NDVI delta file is sent to S3 & record inserted into RDS

3 Analyst can log into web application to view dashboard with images and highlights of areas of concern for follow up, view delta images for on site validation

4 Using any type of phone including a flip phone or landline a user initiates voice call or SMS (flip phone) to schedule an appointment for pickup or technical assistance, request latest price or list our the last few pick up details via an automated response.

5 For SMS messages PinPoint provides the endpoint and triggers a lambda function with inbound details. Lambda function programmatically invokes Lex with message details about the users intentions

6 Lex uses a built language model to determine the intent of the message and will either request more input to fulfill the request or invoke another lambda to retrieve data for a response

7 Given the intent, the Lambda function will pull or push data from / to the backend persistence layer and return the appropriate response to the user

8 Buyers can track bean from farmer to final destination using a mobile application that will scan and record QR codes to log in an immutable ledger the chain of custody on the cacao.

9 A React Native app calls API Gateway that uses a Lambda function to record the mass of containers, FROM/TO NFC tag id along with GPS location of the transaction an persists that data to QLDB

10 A trigger within QLDB puts the data into a Kinesis data stream so that the data can be organized into transactional data for the farmer in RDS and the traceability of each change of custody is recorded in Neptune for easy recall