Situation

Client

Peaceland is a country that takes great pride in its effort to bring peace, happyness, and harmony to all its citizens.

To do so they heavily rely on their peacemakers. A governmental agency dedicated to make peace around the country. To do so they bring assistance to any agitated person and help them to recover peace. More generally they help citizen to stay in line with their country harmonious goal

To help its peacemakers squads, Peaceland engineers have created a working autonomous drone called peacewatcher.

They need you to create the program that will receive and manage peacewatchers's data.

This program must

- store every peacewatcher data
- trigger alerts
- enable peacemaker officers to performs analysis on peacewatcher data

Drone description

Each peacewatcher sends a report every minute.

One report contains

● peacewatcher id
● peacewatcher current location (latitude, longitude)
● name of surrounding citizen (identify with facial recognition) with their computed «peacescore»
● words heard by the peacewatcher in its surrounding

Alert

When a citizen peacescore is bad your program must trigger an alert with location of the peacewatcher and the name of the agitated citizen.

Peacemakers will take it from there and help the person to find peace.

They may send him to a peacecamp. In such camb citizen learn to reach happiness following the ideas of the beneveland leader of Peaceland. Or they will put him in a sustainable and never ending peace state.

This alert must be triggered as quickly as possible because an agitated citizen may spread its lack of peace to other citizens. Thus the peacemaker reaction must be as fast as possible.

Statistics

Peacemakers are convinced that we need to keep every peacemaker report in order to make statistics and improve their Peaceland harmony. But they still don't know what kind of question/statistic they will want to address.

Peaceland engineer estimate that when the first wave of peacewatcher will be operational the sum of all there daily report will weight 200Gb

Failed
 attempt

To create a POC of the program Peaceland hired a team of data-scientists and Despite all their efforts, this team have not been able to set up scalable program that can handle the load.

Preliminary questions

1) What technical/business constraints should the data storage component of the program architecture meet to fulfill the requirement described by the customer in paragraph «*Statistics*» ?
   So what kind of component(s) (listed in the lecture) will the architecture need?
2) What business constraint should the architecture meet to fulfill the requirement describe in the paragraph «Alert»
3) What mistake(s) from Peaceland can explains the failed attempt?
4) Peaceland has likely forgotten some technical information in the report sent by the drone. In the future this information could help Peaceland make its peacewatchers much more efficient. Which information?

Project

Peaceland understands this is beyond their team limits, it can not put in place a programm to deal with the drone's data. Peaceland asks you for advice to design an architecture allowing them to create a product they could sell to different police forces.

It's up to you to report and recommend the right architecture.

Based on the preliminary question your solution is very likely to include :
- at least one distributed storage
- at least one distributed stream
- at least two stream consumer