Use Case Document –Emergency Response for climatic change– V1.0

Kerala State Disaster Management using IBM Intelligent Operations Center

Presented by:

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1. Introduction to User Story

This user story talks about providing analysis and managing response activities for any climatic change in the past by leveraging the capabilities of Koppen Geiger.

This section of the documents explains the requirement of the user story and what we are trying to achieve from this user story. Below are the details of the user story:

Sno.	What is required?	Why is it required?
1.	See on Geo Map the places that have experienced any climatic change in the past	We can 1. Monitor the area for any climatic change 2. Keep track of surrounding assets around any affected area due to disaster 3. Deploy emergency response team to the affected area
2.	Be able to get the data of any disasters occurred in the past 1. Data coming from database	We can 1. Get appropriate data of all the disaster events 2. Plan for future response actions at the time of any disaster event
3.	Be able to get best routes from one place to other for quick response	We can 1. Intimate appropriate departments and officers to take necessary routes 2. Make the response team ready for the rescue operations 3. Aware the public to take safety precautions on roads
4.	See on Geo Map the assets available around the affected areas. For example 1. Colleges/schools 2. Police Stations 3. Hospitals 4.Bus Stations	We can 1. Rehabilitate public to a safe location 2. People who needs medical attention can be sent to nearest hospitals 3. Availability of beds, Occupancy of Schools, Colleges and other assets etc can be determined
5.	Get historic data of any disaster event occurred in the past	We can 1. Get the historical data of disaster event for evaluation 2. Analyze the data for determining the priority areas of interest

2. Objective and Understanding of User Story

The key objective of this user story is to assist and analyze any disaster caused in the past with actionable intelligence which will aid in taking proactive steps for the management of disaster events with smart decision making and quick response to the event.

The main objective in implementing this user story aims to address the following:

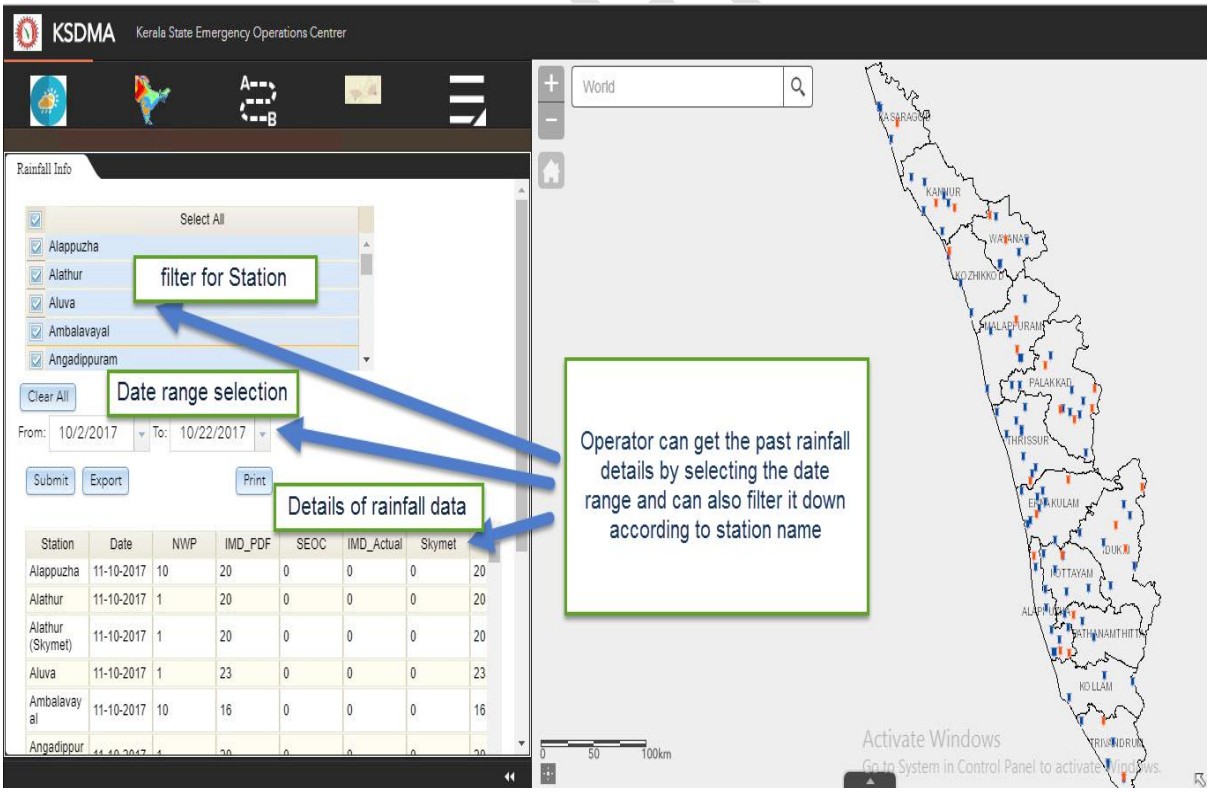
- Effective utilization of available nearby resources like schools, hospitals, police stations, bus stations etc.
- To include response action for faster operations.
- To continuously monitor the status of the climatic change and take necessary actions or dispatch required amenities and resources effectively.
- Improve overall safety and security measures.
- Decrease the number of human loss and loss to the state and improve the quality of living.

3. Proposed solution to User story

By following the best practices and leveraging IBM IOC, will meet the requirements stated in the user story by building solution using IBM IOC and the high level use case that is required for operator to monitor, manage and provide various functionality to manage any event as well as gives quick response mechanism for emergency situations occurred at the time of disaster.

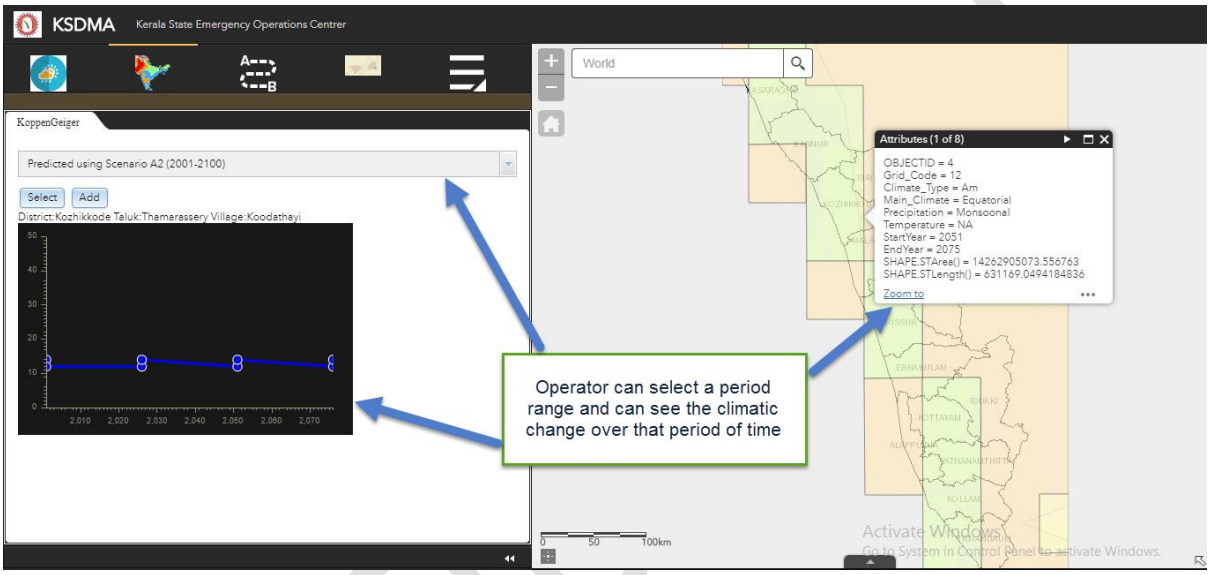
STEP 1: To get rainfall information over a period of time:

- ✓ The operator can view the past rainfall data for a specific period of time on browser and also can get interpolation map for selected data.



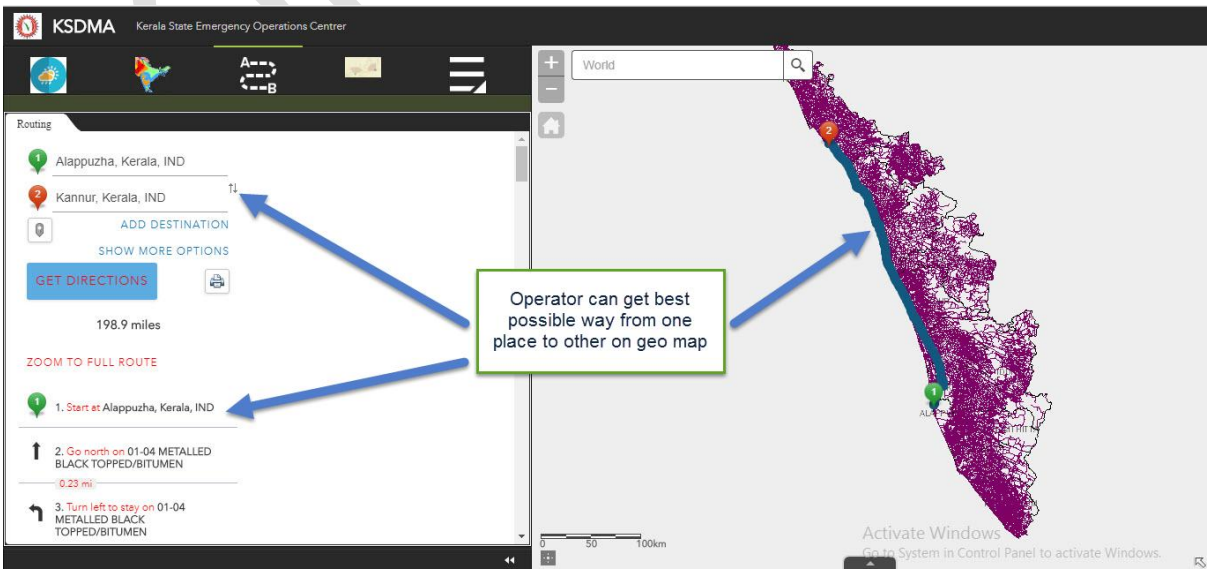
STEP 2: To get climatic change information for a specific period of time:

- ✓ The operator can select a period of time which shows the climatic change in that period and can get the climatic change information of a specific place on clicking on it.



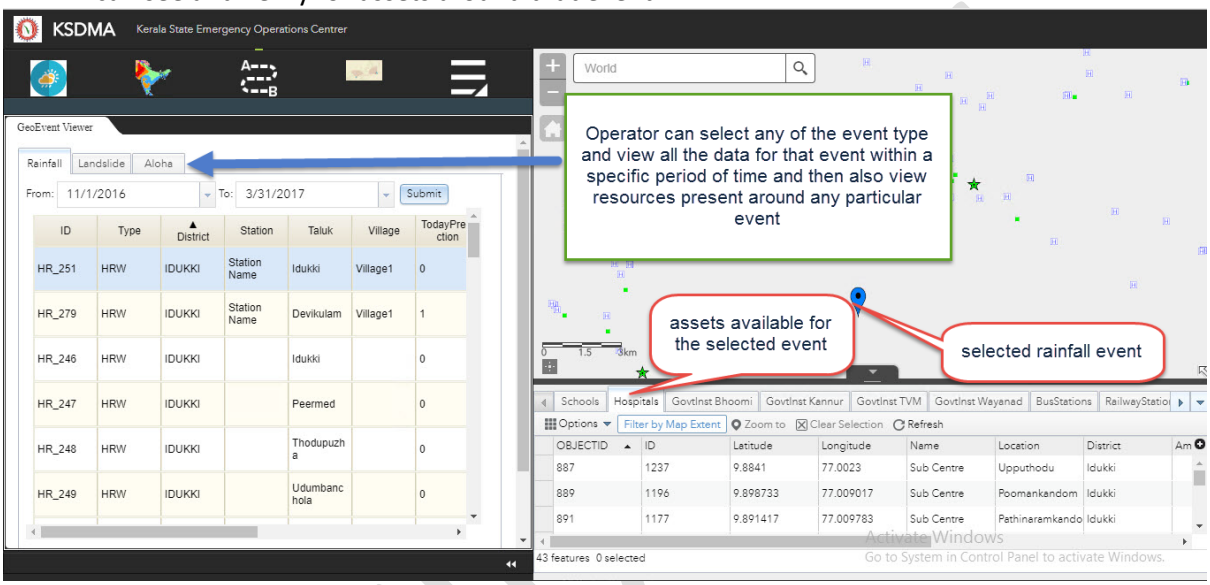
STEP 3: To get routing information for best possible way.

- ✓ Operator can get data about road transport from one place to another and can get a reliable possible way between two places which will allow field operation team to provide faster response.



STEP 4: To see event details for different types of distaster:

- ✓ Operator can view different types of event details like aloha or rainfall for a date range and can see and verify for assets around that event.



Solution will provide integrated data visualization, real-time collaboration, and deep analytics that can help leaders prepare for problems before they arise and to coordinate and manage problems as they occur, to improve the efficiency of operations.

Solution delivers the following major functions:

- Visual workspace
- Events and incident management
- Resource, response, and activity management
- Status monitoring
- Collaboration, instant notification, and messaging
- Reports
- Semantic model
- Preventive mechanism

This solution makes supervision and coordination of complex sub-systems more effective. The solution helps you evaluate the effectiveness of the decisions and applied procedures and make improvements. The solution helps to:

- Handle events and alerts, in both emergencies and non-emergencies.
- Organize response teams, enabling fast and clear communications between team members.

- Define and provide standard operating procedures for handling the different situations that arise, with the correct assignments, which are based on legal requirements or historical experience.
- Track the progress of the performance of those procedures, including the results of the actions.
- Locate resources with the required capabilities to handle the events.
- Enable the continuous improvement of the organization's services and responses.

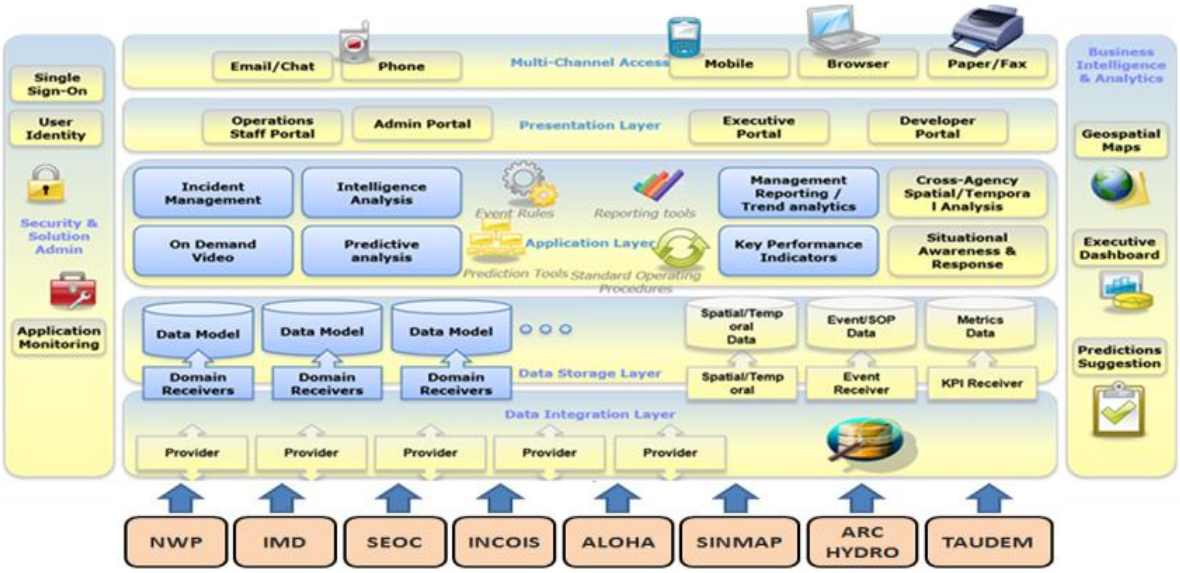
4. Solution Features, Functions and typical use case description

The following steps describe typical flows through the IBM Intelligent Operations Center solution infrastructure:

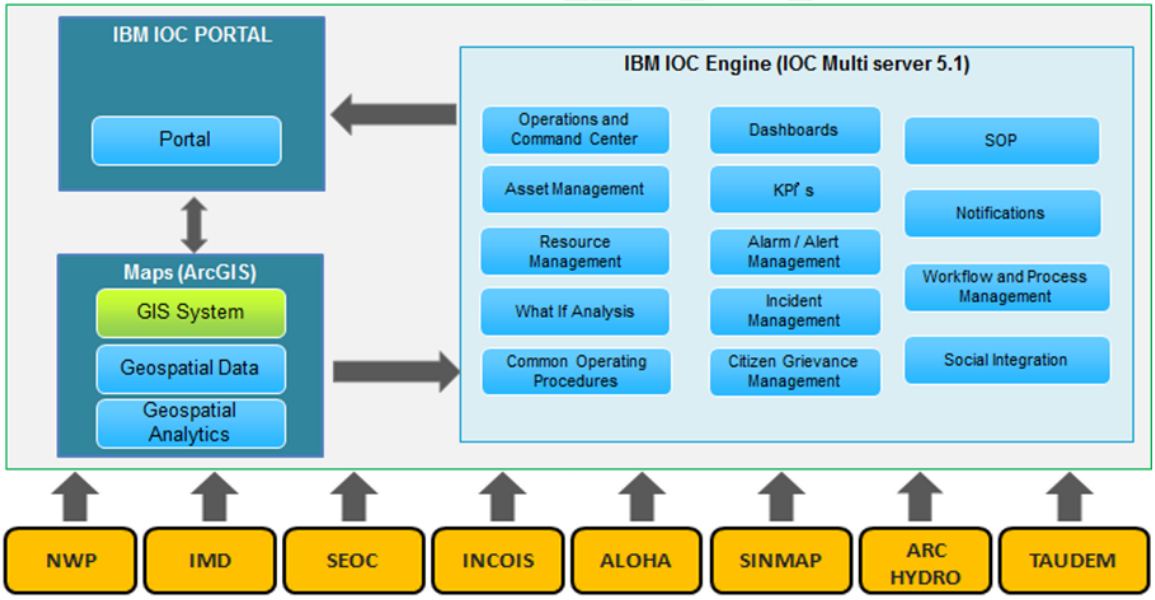
If IBM Intelligent Operations Center receives an event, it performs several actions to mediate or manage the event. Some of the actions include:

- Display the event as an item in the event list.
- Add an entry in the geospatial database and show the event location on the Map on the operator dashboard.
- Check the characteristics of the event against the SOP matrix, which maps event characteristics to specific procedures.
- If the event matches one of the defined SOPs, a new standard operating procedure workflow is initiated and is visible in the IBM Intelligent Operations Center portal My Activities window.
- Correlate events that are received within a specified time and location. For example, trigger a notification whenever two or more events happen within a specific period of time.
- Check the resources and capabilities database, link the event to the appropriate resource, and display the information in the user interface.

5. Solution Architecture



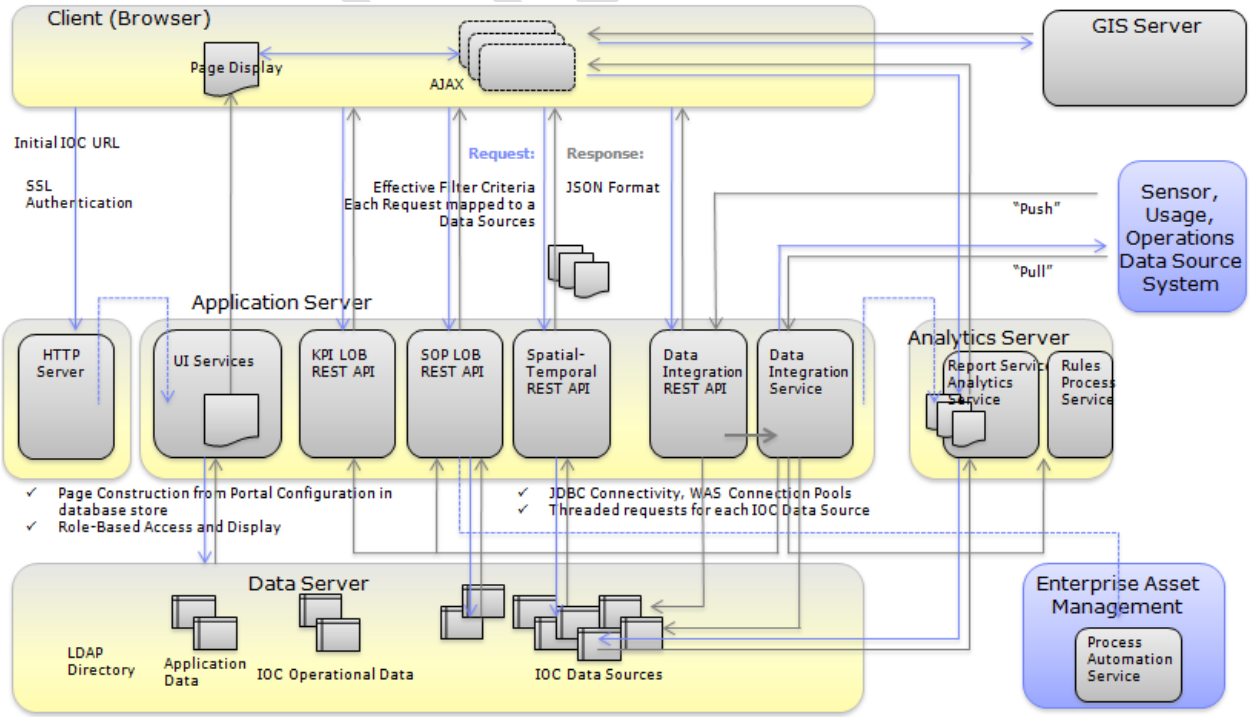
6. Integration Architecture and Approach



Integration approach to this user story is as follows.

1. REST Service based Integration: Alerts / data can be pushed from the subsystem using REST Services exposed by IOC

7. THE IOC 5.1 REQUEST/RESPONSE FLOW ARCHITECTURE



8. Conclusion:

Using this approach, we are able to achieve the following:

- Verifying the details of the any disaster event data if there is any event generated in the past.
- Monitoring for emergency situation and providing quick response to the situation.
- Utilization of state resources and assets in an efficient way at the time of disaster.
- Analyzing the disaster events and giving an insight to emphasize on events which needed to be taken care of.