# Weather Monitoring System (WMS)

Overview

1. **Introduction and Context**

WMS is a distributed system for collecting weather data and forecasting short weather patterns. The system will include thousands of weather stations, at least 10 weather-data servers, and multiple foresting servers. End users will a local program to request/view slices of recent weather data and request/view forecasts.

Every weather station must be able to discover the addresses of operational severs. Weather servers also must be able to discover each other. The weather stations gather readings, like temperature, wind direction and speed, barometric pressure, precipitation, and visibility every couple of minutes. Each station tries to send that data to at least two different weather-data server every 30 minutes.

The weather-data servers share their weather data with other weather servers, so most of the servers have most of the data most of the time and all the data is replicated in at least two places.

Authorized weather forecasting servers can download weather data, in bulk, from weather-data servers at any time. They can grab slices of data based on geographically regions and date ranges.

Make sure your protocols are efficiency. Are make sure the protocols can handle stations and servers going offline and coming back online.

Each weather station will have an Internet connection through radio or cellular medium.

1. **Actors and their Goals**

There are two primary actors for WMS: weather measurement hardware and weather professionals. The weather measurement hardware has the goal of providing regular measurements to the system so they can be aggregated, viewed by weather professionals, and used in forecasts. Weather professionals have the goals of a) viewing any slice of weather data by date, geographic area, or measurement type and b) viewing forecasts for a geographic area.