DataStax on WeatherStation

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El Atacama Large Millimeter/submillimeter Array

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WeatherStation

- The weather station data is not only used to correct antenna pointing during scientific observations
- But also used by other applications in ALMA and other institutions distributed in the world.
- The amount of concurrent requests could degrade the performance of the web services and increase the latency of data delivery

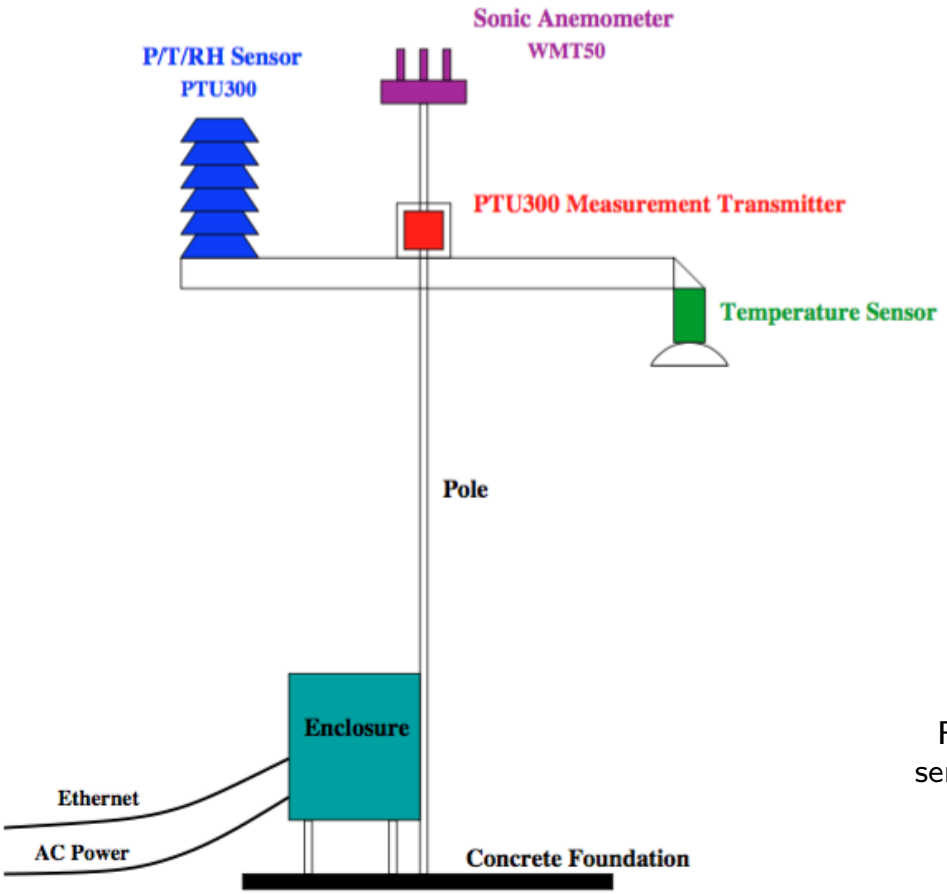

Figure 1: Sketch of a standard weather instrument installation.

Figure 2: Clockwise from top: PTU300 P, T, and RH sensor, HMT330MIK meteorological installation kit, and WMT50 sonic anemometer.

Today

- 6 years ago, 3 weather stations
- 11 weather stations -> too many data insertions into the Oracle relational database
- Migrate the persistent storage of weather data into Cassandra cluster

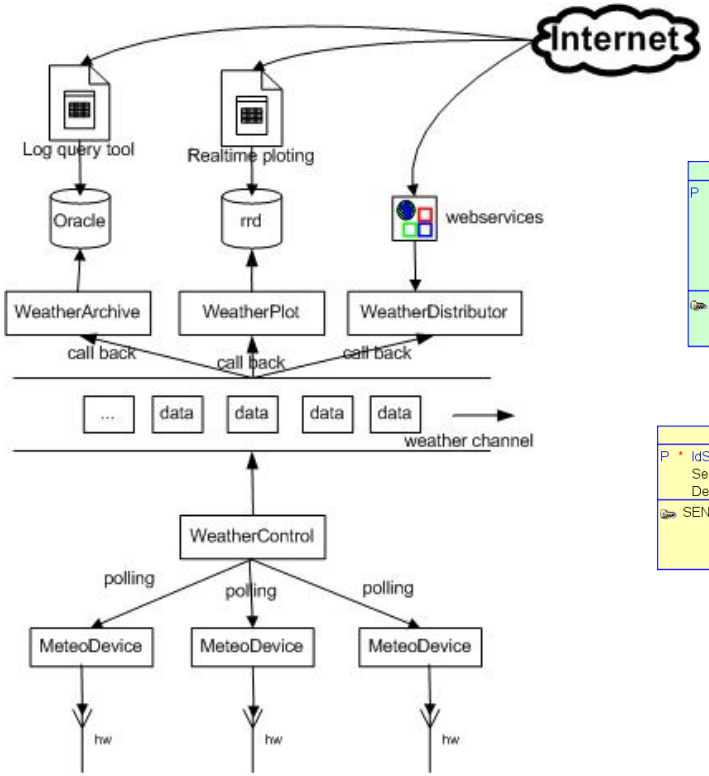

Figure 3: System Schematic.

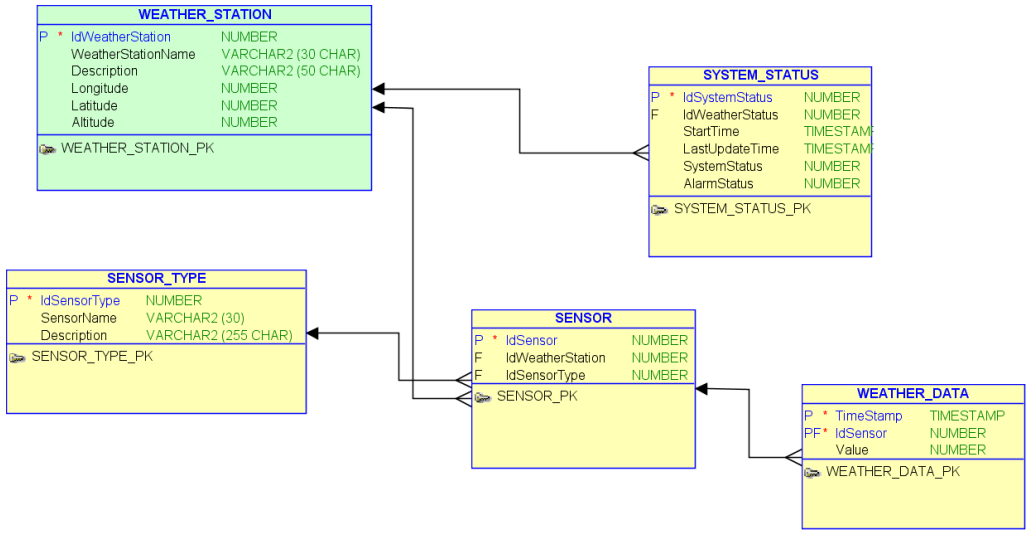

Figure 4: Relational DB.

Objectives

Improvements to the standalone weather station platform.

- Migrate weather data storage from Oracle to Cassandra
- Improve the usability of the existent web interface
- Improve the performance of the web service.

At this point

RecentWork:

```
cqlsh:weatherstation> DESCRIBE TABLES ;

weather_station_by_date  sensor_type      sensor           weather_data
system_status            weather_station  meteo10_by_date
```

```
cqlsh:weatherstation> SELECT * from meteo10_by_date ;

 date                      | dewpoint | humidity | pressure | temperature | winddirection | windspeed
---------------------------+----------+----------+----------+-------------+---------------+-----------
 2016-01-28 19:36:58+0000 |        0 |       10 |      700 |          20 |           120 |         5
 2016-01-28 19:27:02+0000 |        0 |       10 |      700 |          20 |           120 |         5
```

...FeedBack :)