Data Warehousing Report 1

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In our star scheme we decided to analyse two facts, logbook and aircraft usage.
Initially we divided aircraft usage into two different facts, Flights stats which grouped all the kpis concerning flight statistics (FH,TO,DYR,CNR,TDR,ADD) and Maintenance which grouped the kpis concerning aircraft maintenance (ADIS, ADOSS, ADOSU, ADOS).
However, we later realised that the facts shared the same two dimensions, i.e. aircraft and time, so we decided to combine them into a single fact concerning the use of aircraft in general.

The dimensions we considered in our star scheme are three.
The first is the Time dimension, which has three levels: day, month and year. In this way it is possible to analyse the facts with different granularity of time.
The second dimension is Aircraft which has manufacturer, model and aircraft code. In this way every fact can be analyzed for each aircraft, model and manufacturer.
The last dimension we have chosen to put in our star scheme is Report.
Report represents a report made by a person with a certain role and an airport, in this way we do not uniquely associate a person to an airport (which can be limiting especially for pilots) and there can be two different reports made by the same person but in two different airports.

The second fact that we decided to include is Logbook that uses time, aircraft and report dimensions.
In this way each logbook is represented by a report (with relative information about the person who made the report, his role and the airport in case the role is M), a Time dimension and the relative aircraft for which the report was made.
The Logbook fact serves us to analyse the kpis related to the logbooks (RRH,RRC,PRRH,MRRH,MRRC).
We decided to represent the logbook as a single unit and calculate the KPIs by query instead of directly saving the related KPIs as attributes of the logbook table in order to save memory.

We decided to create materialized views for aircraft per month and per year, one for each fact.
We decided to create only those per month and per year and to consider only the aircraft because probably analyzing the statistics of a certain aircraft (instead of a certain model or manufactuer) can help to make different decisions about that aircraft (such as changing it if it undergoes too many unplanned maintenance interventions). We decided to create these materialized views because these will probably be the most frequently requested queries.