

ENHANCED SOLUTIONS FOR AIRCRAFT ROUTING & FLEETING

Enhancement tools to the Routing and Fleeting models are proven to increase reliability, quality of flows generated by reducing the runtime for a large network of flights.

Routing solutions on the following key areas:

Stitched Routing:

The main disadvantage of DAILY or WEEKLY routings are the basic assumptions that flights are repeated daily or the week is repeated. It may be possible very late in the schedule-building period that some fleet changes occur. We may not want to re-route for the whole period. This is called patching or correcting routing for certain dates. This can also be implemented on a rolling time horizon for the whole month.

Routing Reliability Improvement Tool:

Taking into consideration the Routing to be fixed, how to improve the reliability by retiming flights without breaking the flows. Our tool decides the incentives for maximizing reliability through allocation of the optimum turn time while developing the turns. We compute the percentage reliability improvements for every additional minute of ground time added to the turn. This tool is found to increase the reliability of the ROUTING planner considerably.

Reducing Gate capacity and overnight constraints:

Gate constraints are needed to put a limit to the capacity of gates at a particular instant of time. Gates can have different capabilities (the different types of sub-fleets it can serve). Strings (fleeted flights) arriving at a station should be checked for capacity violation of the number of gates that the particular fleet can use. If there is a capacity violation, then a set of gate constraints is added to the model. A particular solution is to prohibit the number of constraints to be added to the model, which reduces the solution time.

OUR SOLUTION – FEATURES

Stitched Routing

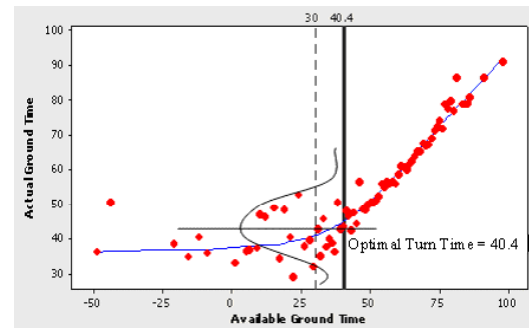
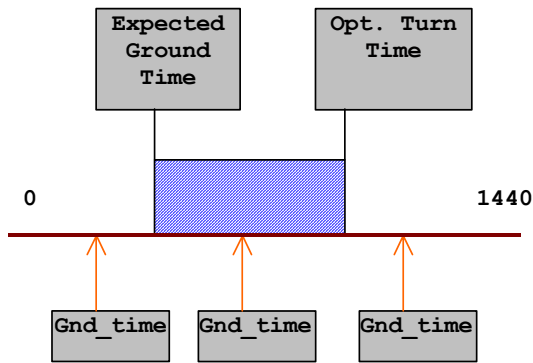
- Given any start and end date, routing solution generated for the period is stitched to the existing (monthly) solution.
- Can be used to find routings on a rolling time horizon (for a month)

Routing Reliability Improvement Tool

- Retimes flights without breaking existing flows generated from Routing solution.
- Decides incentives for maximizing reliability.
- Can be applied pre and post routing phases to maximize reliability.

Reducing Gate capacity and overnight constraints

- Reduce the number of constraints generated due to gate capacity violation.
- Reduce the number of overnight constraints.



Reliability calculations for different ground times

Actual ground time Vs Available ground time for an aggregate.

Benefits

Stitched Routing

- Increase schedule versatility. Re-fleeting changes can be introduced on a late stage in schedule building. We need not re-route the entire period (say a month).
- The routing solution takes 1-2 minutes for around 25 international flights for a sub-fleet operating DAILY and 10-15 minutes for 250 domestic flights for a sub-fleet operating DAILY.

Routing Reliability Improvement Tool

- A trade-off between reliability and profitability

Reducing Gate capacity and overnight

- Reduces the solution time considerably

ABOUT SKYTECH

SkyTECH Solutions provides IT consultancy services and develops niche software solutions for global airlines and airports. SkyTECH is an established player in the airline/airport IT domain.

Based in Chicago, SkyTECH has 3 Offshore Development Centers (ODCs) in India at Kolkata, Mumbai and Chennai. SkyTECH's offshore development infrastructure is certified to ISO 9001:2000, SEI CMM Level 5 and ISO 27001:2005.

SkyTECH's diverse client base is geographically spread in the USA and Asia-Pacific, and includes some of the largest airlines, airports and IT consulting firms

