A Tool to Support the Planning of Ground Delay Programs with Uncertain Arrival Capacities

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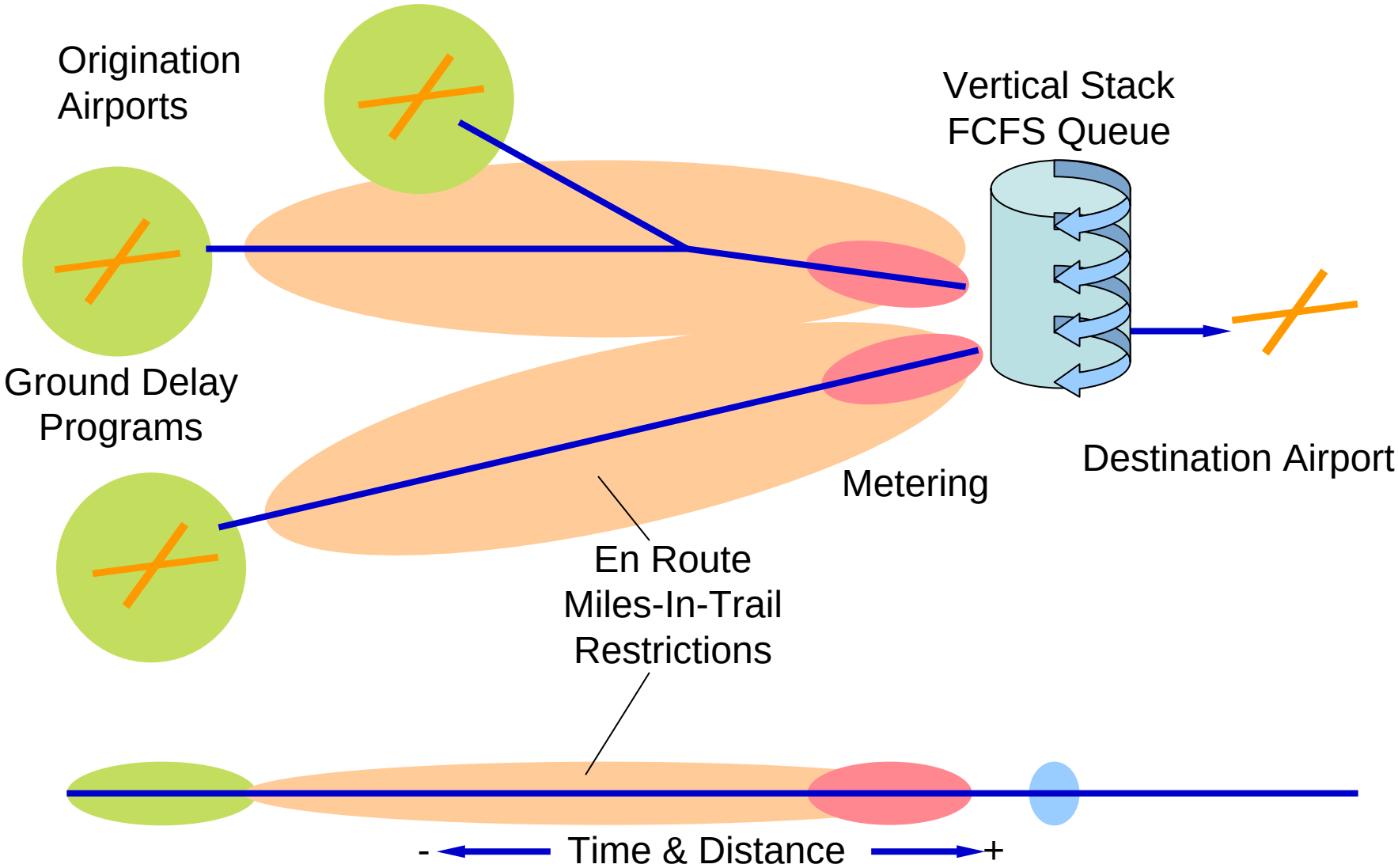
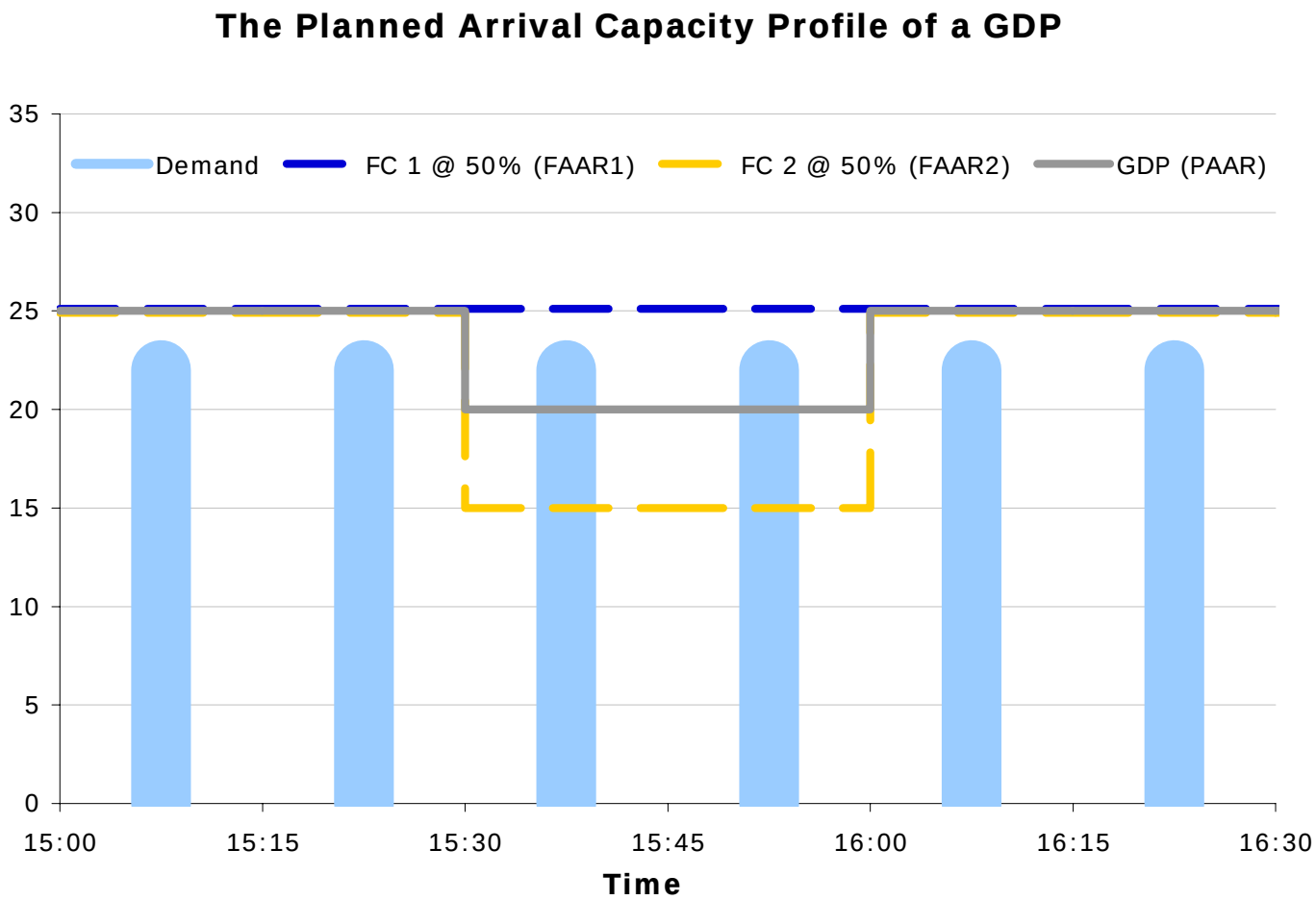
Ground Delay Programs require more advance planning than other ATFM tools



Ground Delay Programs are subject to uncertainty

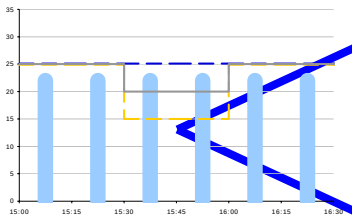
- Ground delay programs are implemented when arrival demand is expected to exceed capacity
  - Demand is forecast based on incomplete information
  - The underlying demand will change in response to the GDP
- The capacity of an airport is a result of local atmospheric conditions
  - Weather forecasts tell us what may happen
  - New technology is being developed to create probabilistic forecasts
- Demand and capacity information is periodically updated

A complete set of arrival capacity profiles form a “scenario”

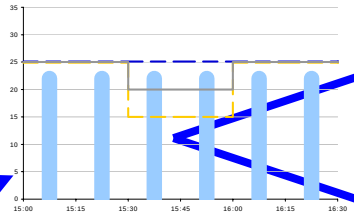


Scenarios evolve as new information becomes available

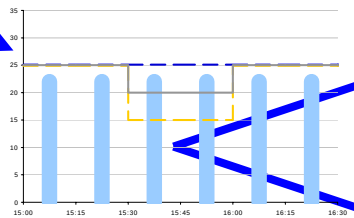
12:00 Noon | **1:00 PM** | **2:00 PM (?)**



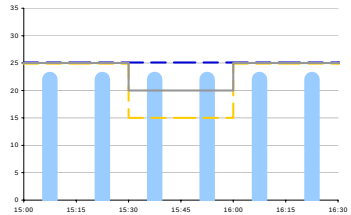
“It may rain at 3:00 PM”



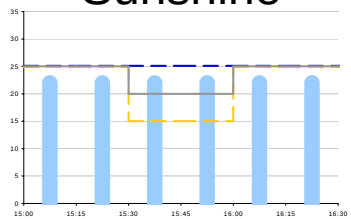
“It will probably be sunny”



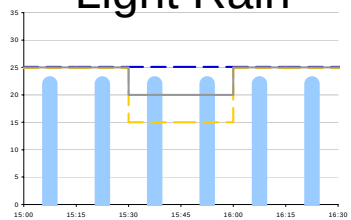
“It will probably rain”



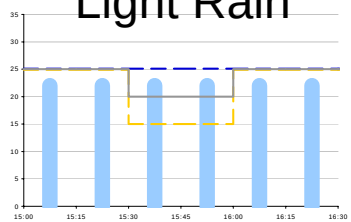
“Sunshine”



“Light Rain”



“Light Rain”



“Heavy Rain”

The Big Picture

- We seek to create a tool to assist with the development of ground delay programs under uncertainty

- Using available information
  - Probabilistic forecasts
  - An understanding of how these forecasts can change over time

- Assist traffic managers in the development of a GDP
  - What are the likely outcomes?
  - How could a proposed program be revised if the forecast changes?