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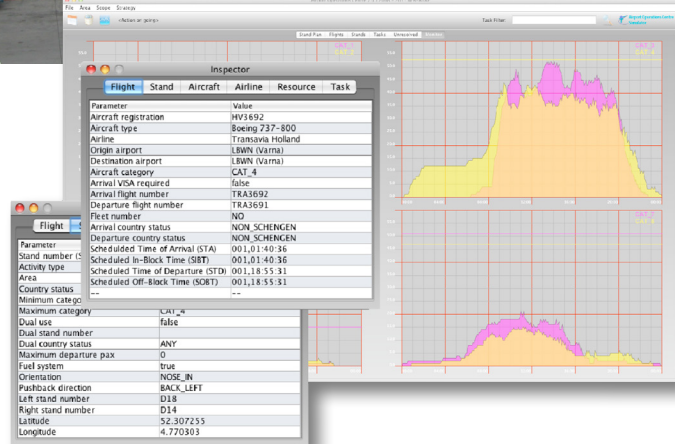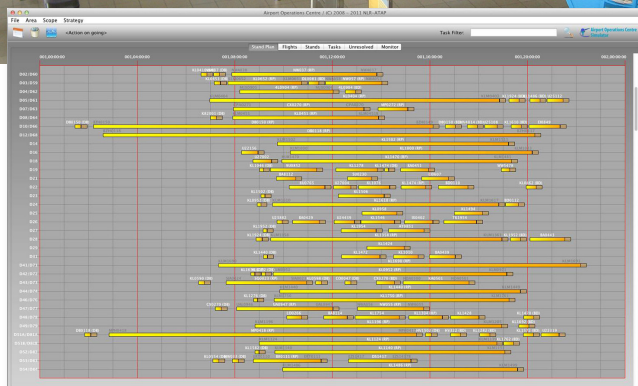# Airport Operations Management

REDUCE DELAYS AND SUSTAIN CAPACITY

Efficient airport operations are an important factor of today's air transport system. Airport operations are strained by the increasing number of flights and air travellers while sustaining punctuality, performance, and safety. Integrated airport operations management with an Airport Operations Centre (APOC) is an essential step forward in the optimal use of all airport resources and facilities, the reduction of aircraft turnaround times and flight delays, and the reliability of the airport capacity during peak periods and under all weather conditions. NLR has developed an APOC R&D system called SmartPort to develop, evaluate, and validate new airport operation concepts and procedures.

With this APOC system airport operation concepts, elements, procedures, and functions can be evaluated. For example:

- Airport Collaborative Decision Making (A-CDM)
- Route Planning Function (RPF)
- Variable Taxi Time Calculation (VTTC)
- Collaborative Pre-Departure Sequence Planning (CPDSP)
- Departure Management (DMAN)
- Demand and Capacity Balancing (DCB)
- Performance-Based Airport Management (PBAM)

Other areas in the scope of the APOC system are:

- Analysis of airport design, capacity, delay, performance, and quality-of-services;
- Optimisation of aircraft pushback/pull/towing procedures;
- Optimisation of operational processes and process flows;
- Identification of operational bottlenecks.

The APOC system currently comes with two major airport airside modules:

- Stand Management: the planning and control of the allocation of airport gates and buffer positions to aircraft. The APOC Stand Manager is based on the operational stand allocation rules and regulations of an airport (see figures above).
- Turnaround Management: the planning and control of the aircraft ground handling processes. The APOC Turnaround Manager is based on the operational ground handling procedures of an airport.

The APOC system is based on the A-CDM standards as described in the EuroCAE ED-141, ED-145, and ED-146 documents. The APOC system is fully based on freeware technologies like Java, Swing, and Eclipse and can run on any computer system. The APOC system has a Technology Readiness Level of about 4.