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Operation Control System from Lufthansa Systems supports flight operations with AI for the first time in the aviation industry // IT solution for airline ground operations presented with optimized features

- NetLine/Ops ++ aiOCC as a pioneer in aviation IT: For the first time, a decision assistant supports with reinforcement learning
- NetLine/HubControl Optimisation: controlling the entire hub thanks to real-time data
- NetLine/HubControl Turnaround Manager (TAM) streamlines ground operations during turnaround through improved on-time tools
- NetLine/HubControl Passenger Connection Manager (PCM) secures critical transfer connections

Raunheim, 15th December 2022. Lufthansa Systems recently welcomed more than 455 participants to its traditional Airline Forum. Under the motto "We are mastering the challenge together!" the specialist for aviation IT presented the latest developments in the aviation industry. The main focus was on innovations in the NetLine product range, which featured significant IT innovations.

Innovation through artificial intelligence: The new NetLine/Ops ++ aiOCC

Flight operations controllers make complex decisions every day. They react to unforeseen events to minimize the impact of schedule disruptions. To find the best solution, several information sources must be analyzed within minutes. The recently introduced NetLine/Ops ++ aiOCC module uses the possibilities of artificial intelligence. It translates information from various sources into concrete, actionable recommendations.

It monitors all events around the aircraft, rotation, passengers and crew and detects delay risks at an early stage. NetLine/Ops ++ aiOCC makes timely suggestions to proactively adjust the flight plan and thus increases the efficiency of flight operations in an innovative way. NetLine/Ops ++ aiOCC automatically generates suggestions to improve the overall operation and provides the Operations Controller with additional information on the impact of the proposed solution. Based on NetLine/Ops ++ data and using the methods developed in aiOCC, the Operations Controller is able to fully recapitulate planning, operations and performance at the end of the day.

Pioneers thanks to innovative IT: Reinforcement Learning

NetLine/Ops ++ aiOCC is based on reinforcement learning, a machine learning method for extracting cause and effect from data and providing data-driven decision support. The decision assistant is trained on a large amount of historical data. Lufthansa Systems is thus the first IT provider in the aviation industry to use reinforcement learning to derive meaningful recommendations.

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Latest technology on the ground: NetLine/HubControl Passenger Connection Manager (PCM) and Turnaround Manager (TAM)

NetLine/HubControl enables airlines to have continuously predictable and controlled operations by incorporating situational awareness of ground operations, real-time decision support and sophisticated integration with business processes. The NetLine/HubControl Passenger Connection Manager (PCM) focuses on providing the hub controller with a transparent and detailed view of inbound and outbound flight connections at each hub with a focus on categorising connections according to feasibility and optimal use of resources.

Don't miss the connection: Support (not only) in case of flight irregularities

Based on passenger information such as status, booking class, fare, as well as "ease and cost of recovery", NetLine/HubControl allows you to prioritise flight connections and take action to recover otherwise missed connections. When connections cannot be recovered, NetLine/HubControl helps to make a decision to prioritise passengers based on relevance and select the best solutions for each passenger (stopover, rebooking on other airlines flights, etc.) through a cost evaluation algorithm (airfare, hotel, meals, vouchers, etc.). NetLine/HubControl helps to find the most cost-effective solution even in stressful situations.

Optimisation of ground operations during the turnaround through improved on-time tools

NetLine/HubControl Turnaround Manager (TAM) provides necessary tools to manage ground operations between each flight. TAM bridges the gap between airport resources and airline turnaround operations, providing enhanced on-time performance recovery tools with realistic ground times and delay management. To ensure accurate ground times, TAM enables the customisation of a turnaround task list for operations, communication between OCC and ramp agents is facilitated through an embedded chat platform via TAM. By integrating automated data sources or manual inputs, TAM captures the status of ground operations and identifies critical paths for individual turnarounds. This enables the Operations Controller to allocate resources to the required location to reduce the duration of each operation.

In doing so, NetLine/HubControl uses the concept of a fully flexible and configurable application so that all categorisations, cost calculations, PAX relevance, available metrics and other variables and calculations are fully configurable. In addition, the NetLine/HubControl user interface can be configured to display all types of data entries in the flight database, providing a complete overview of the entire hub.

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About Lufthansa Systems

Lufthansa Systems GmbH & Co. KG is a leading airline IT provider determined to shape the future of digital aviation. It draws its unique strengths from its ability to combine profound industry know-how with forward-looking technological expertise and has lived by its slogan “We’re into IT” for more than 25 years. A wholly-owned subsidiary of the Lufthansa Group, the company offers its more than 350 customers an extensive range of successful IT products and services for the aviation industry, many of which are market leaders. Lufthansa Systems’ pioneering portfolio covers all of an airline’s business processes – in the flight deck, in the cabin and on the ground. As a tech company and airline IT provider, Lufthansa Systems is committed to identifying its own environmental footprint and improving that of its airline customers across the globe. Headquartered in Raunheim near Frankfurt/Main, Germany, Lufthansa Systems employs around 2,400 people at its locations in 16 countries.

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