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A Conversation with
Abdul Wahab Teffaha,
Secretary General
Arab Air Carriers
Organization.



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Conquering Chaos

■ By Dave Roberts, Tom Samuel and Kamal Singhee | *Ascend* Contributors

Robust decision-support tools can help airlines quickly recover from unexpected schedule disruptions, keeping passengers satisfied rather than frustrated and disgruntled.

Weather. Storms. Air traffic control. Mechanicals. Delays. Misconnections. Cancellations. Disruptions. Off-schedule operations. Irregular operations. These words or phrases bring forth travel woes and frustrated, annoyed, hungry passengers who feel more like prisoners than customers. It's a story that has become increasingly common in the airline industry.

From the start, irregular operations have been on the scene in aviation. The very first scheduled flight by the Wright brothers had to be cancelled due to a mechanical problem during take off. It

took three days to correct the problem and complete the first powered flight on Dec. 17, 1903.

But that was 1903 — before the technology revolution and automation kicked into high gear. Major advances have been made in aviation technologies that include jet aircraft with multiple redundant back-up systems, and sophisticated weather forecasting and alerting systems to warn of impending problems. In addition, automated airline planning and tracking systems ensure the most complex flights are matched with necessary resources.

All of these advancements and modern systems have not alleviated the delays that still occur, and flight schedules continue to be affected by many different factors. Despite modern developments, the number of delayed flights has recently been on the rise in the United States, and the length of delays has increased.

"Ultimately this is a numbers game," Don Dillman, managing director of system operations control for American Airlines, told the *Fort Worth Star Telegram*.

Dillman, who is also a pilot, oversees the airline's cavernous operations center in Fort Worth, Texas, which moni-

tors and directs every American Airlines flight in the world. When storms assault the network, he said, "it literally becomes a math issue."

Airlines want to minimize the extent of irregular operations for a couple of reasons:

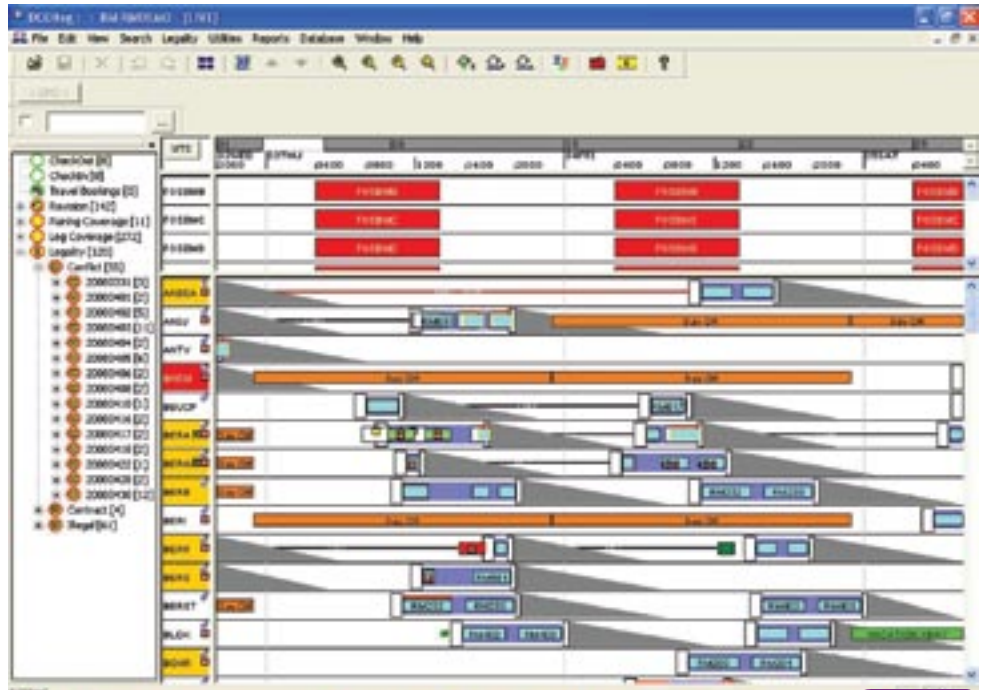
- The disruption to their passengers and the inconvenience it causes — in the short term, not getting home in time, and in the long term, goodwill toward the airline. While many irregular operations, such as weather delays, are unavoidable from an airline's view, how the airline responds to these disruptions is critical in maintaining passenger support.
- The impact on an airline's bottom line since irregular operations add considerable expenses as the airline attempts to return to normalcy.

For many years, airline leaders have thought that they could only be reactive to problems that cause off-schedule operations. They have sought new methods to handle disruptions and minimize their impact. Many plans called for holding spare aircraft in reserve or having spare crewmembers standing by just in case they may be needed. Each of these proved to be very expensive and not as effective as desired.

During the early years of aviation, the only solutions were based on human endeavors (manual) and, in most cases, were handled by each individual airport independently of other airports in an airline's system. In the mid 1960s, airlines began to consolidate the oversight of their day of operations into a central location in one of their major cities. These system operations control centers consisted of staff members responsible for overseeing the operations of the airline from a macro view.

Even with this consolidation, the airline was still based on a manual operation. With the advent of computers and information technology, the manual system shifted to automation during the next 30 to 40 years, enabling the airline's SOC staff to have better control over the day of operations as well as flights, aircraft, crews and passengers. Reaction to problems was more exact, quicker and involved multiple airports at the same time.

Today, irregular operations are a very hot topic among airline leaders as well as the traveling public. Passengers are demanding that airlines better handle irregular operations while minimizing, if not eliminating, the impact on them. The belief is that today's technology should be able to handle any set of circumstances.



The Sabre® Rocode® Crew Management System offers easy access to view the status of flight crew in a live environment, showing warnings for any legality items, training issues, travel and hotel bookings as well as make amendments to the working patterns that are required to keep the operation on time and on schedule.

At the forefront of airline automation for day of operations and the management of its SOC with its movement control and crew management solutions, Sabre Airline Solutions® is addressing the root causes of irregular operations and has developed new tools to enable airlines to minimize the impact of off-schedule operations.

These solutions address passenger needs when flights are cancelled, delayed or diverted while helping airlines develop and execute a recovery plan to return to normalcy at the earliest possible moment.

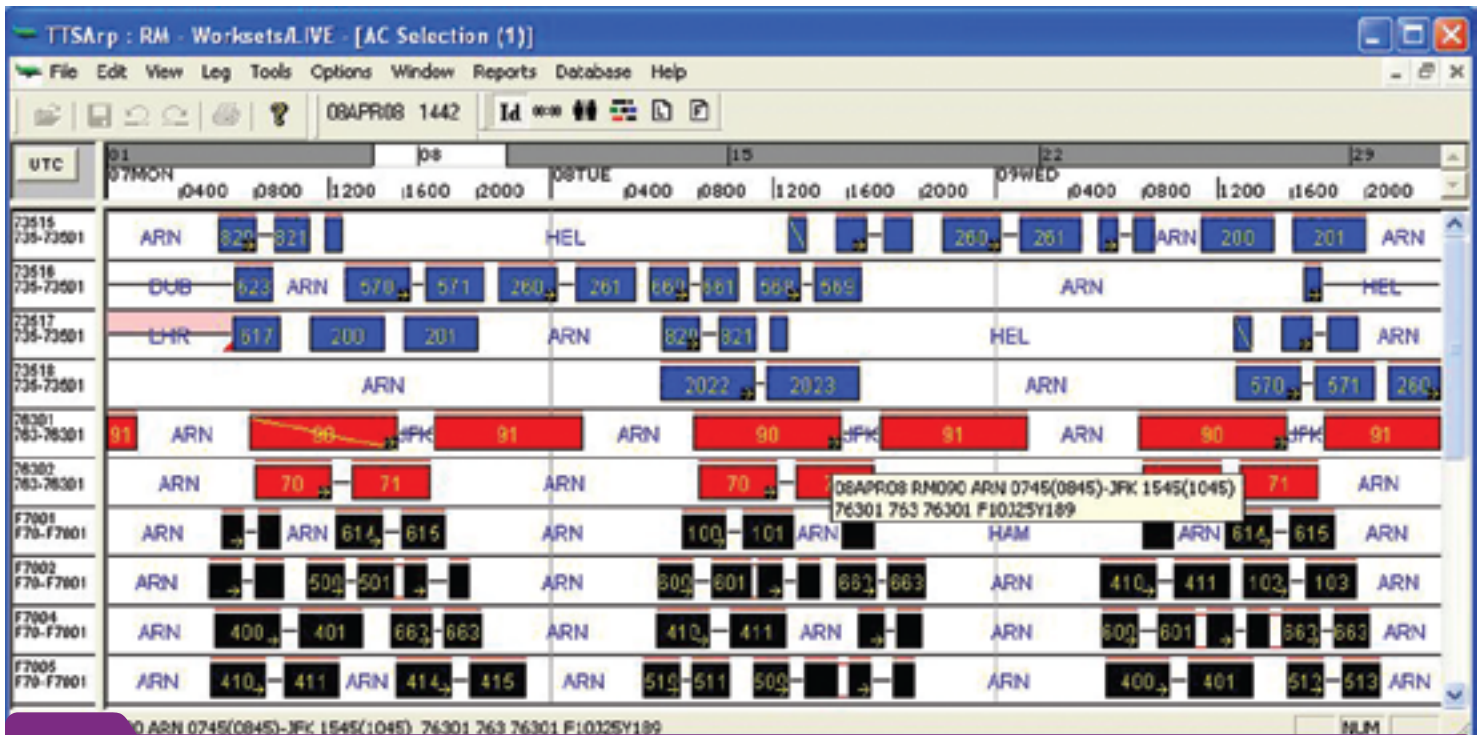
Decision Support

Aircraft, flight crews and passengers are the primary components affected by irregular operations that must be addressed to return an airline to its schedule. Sabre® Decision Manager considers aircraft maintenance routings, crew connection assignments, passenger origin-and-destination itineraries, operational constraints (air traffic slots, airport slots, curfews, gates, weather alerts) and relevant market considerations (coverage, revenue, equipment requirements). Decision Manager has been developed to seamlessly integrate with Sabre® Movement

Manager, the Sabre® FliteTrac® system and Sabre® Rocode® Airline Operations Suite and suggests flight delays, cancellations, equipment swaps and diversions to quickly and effectively recover from a schedule disruption.

An effective schedule recovery system has to consider aircraft maintenance, crew scheduling, passenger itinerary, airport resource allocation and network operational constraints to accurately accord typical decision making within an airline. Decisions to cancel or delay a scheduled flight have to be based on the bottom-line benefit to the airline. It's not just important to consider the number of passengers on the aircraft but also what revenue contribution comes from the flight. In addition, an airline controller has to consider all possible solutions including potential equipment substitutions and dynamic flight schedule adjustments. Such decision-making procedures require timely access to passenger itinerary data in conjunction with aircraft and crew assignments.

Because Decision Manager derives all requirement data directly from the centralized flight operations database, suggestions proposed by the system will adhere to prevailing operating conditions



The Sabre® Rocabase® Commercial Planning System is used to construct, optimise, analyze and review future schedules. The application communicates through various media to other parties having an interest in the schedule, and it is the basis for all work taking place in the Sabre® Rocabase® Crew Management System and the Sabre® Rocabase® Airline Operations Suite.

and restrictions. For example, if a particular airport is unable to support operations of a specific aircraft type, *Decision Manager* does not assign this aircraft type to operate into the given airport. Of course, the solution generated by the decision-support system will depend on the integrity and accuracy of the data stored in the centralized database. If an aircraft's minimum equipment list is not updated after a scheduled maintenance event, *Decision Manager* may inadvertently prevent the aircraft from being assigned to a specific flight with special operational requirements. As such, the successful deployment of *Decision Manager* will dictate a well-established data management procedure.

One of the benefits of implementing a decision-support system such as *Decision Manager* is establishing consistent decision making across the airline. In many cases, individual airline controllers make split decisions that have a significant impact on the carrier's profitability. By standardizing the decision-making process, managers can be confident that the optimum decision was made based on suggestions provided by *Decision Manager*.

Reaccommodation

Sabre® Reaccommodation Manager enables airlines to optimally reaccommodate passengers who have been displaced due to flight cancellations, delays or diversions. To accomplish this, the system values each

passenger according to an airline-defined customer relationship management index. Airlines may define the value of the passenger based on various criteria such as fare paid, class of travel, frequent flyer status, miles flown (to recognize high-mileage travelers that may be traveling on a free ticket), passengers on international connections, unaccompanied minors or passengers traveling with infants. The CRM index is used to prioritize passengers to effectively create alternative itineraries that address passenger needs while enabling the airline to minimize disruption-related costs such as hotel expenses, passenger compensation and interline fees. Next, the itineraries are rebooked and passengers are notified via an automated alerting process.

The system is designed to create a rebooking solution based on the list of disrupted flights provided. The overall strategic business objective of a passenger reaccommodation system is to build solutions where an airline can meet customers' needs and contractual obligations while minimizing the overall cost impact due to schedule disruptions.

Reaccommodation Manager simplifies the process of moving disrupted passengers and minimizes schedule changes, resulting in improved customer service. Benefits include:

- Optimized reaccommodation of passengers based on user-defined rules,
- Increased customer loyalty by taking care of premium customers,

- Reduced cost by automating the reaccommodation process.

Reaccommodation Manager provides real-time integration with a flight operations and movement control system, such as *Movement Manager* and *Decision Manager*. Through this integration, passenger coordinators have access to the latest schedule in real time including schedule manipulations made by operations controllers.

Reaccommodation Manager can be deployed as a standalone solution or integrated with a flight operations and movement control system, such as *Movement Manager*.

Decisions that consider all aspects of an airline's operations (resources, costs and revenue) ensure a constant focus on minimizing passenger disruptions and protecting profitability. In addition, the ability to make quick yet accurate operations decisions will enable airlines to maintain their competitive market position. ■

Dave Roberts is senior principal, Tom Samuel is product director and Kamal Singhee is product manager for airline operations for Sabre Airline Solutions. They can be contacted at dave.roberts@sabre.com, thomas.samuel@sabre.com and kamal.singhee@sabre.com.