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# ascend

Taking your airline to new heights



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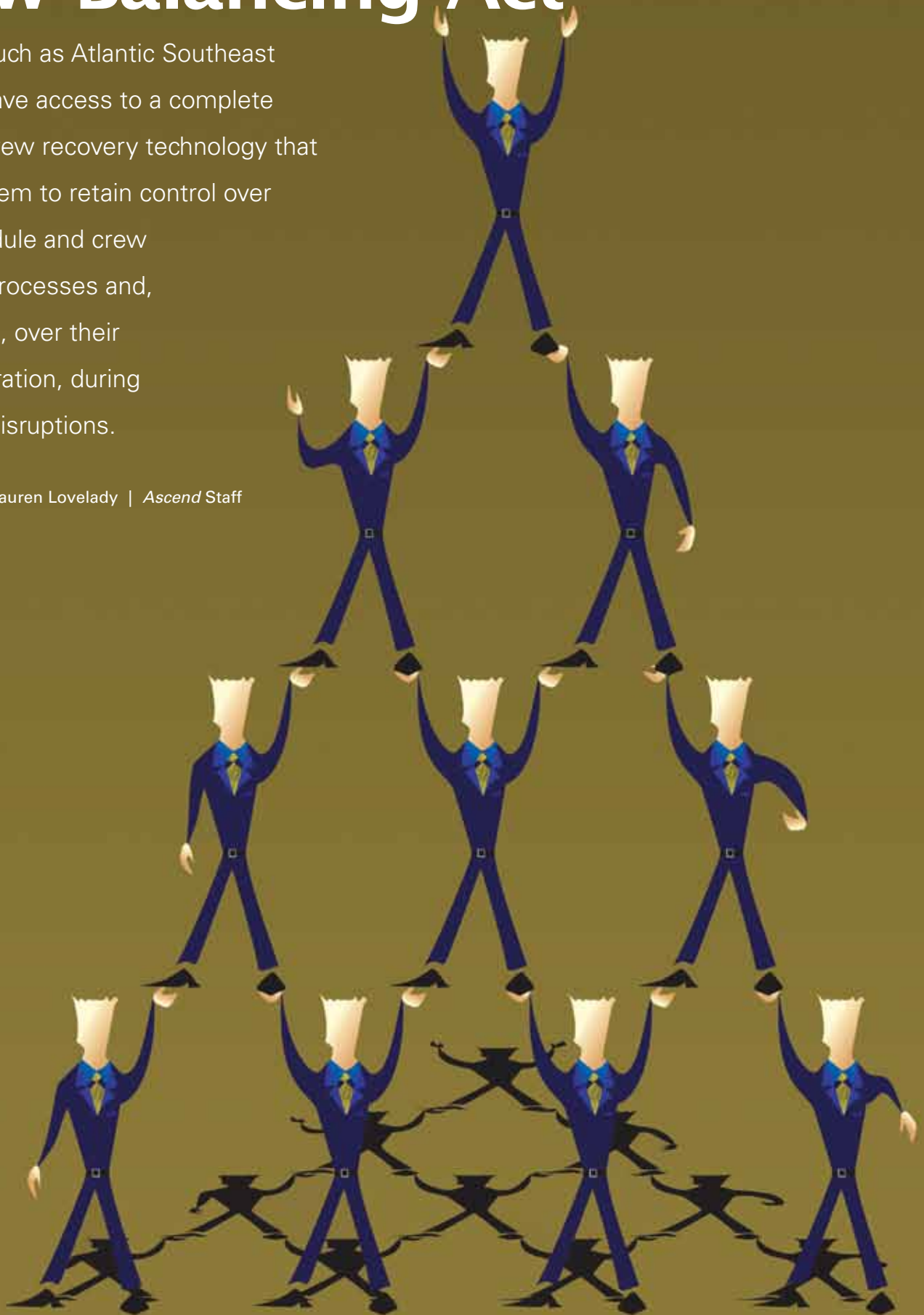
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# Crew Balancing Act

Carriers, such as Atlantic Southeast Airlines, have access to a complete range of crew recovery technology that enables them to retain control over their schedule and crew recovery processes and, in essence, over their entire operation, during schedule disruptions.

■ By Lauren Lovelady | *Ascend Staff*



Unexpected disruptions resulting from severe weather patterns, aircraft maintenance issues, security challenges, system congestion and crew unavailability can wreak havoc on an airline's daily operations. According to statistics from the U.S. Department of Transportation, on a typical day, approximately 10 percent of a carrier's scheduled revenue flights are affected by some type of irregularity. These disruptions can impact all aspects of an airline's operations but are particularly detrimental to its basic resources — aircraft and flight crews, both of which may end up at the wrong place.

Getting a carrier back on schedule requires those overseeing the airline's operations to make real-time decisions, while under pressure, that may impact flights and crews for hours and even days to come. Crew recovery, in particular, is a tedious process that must balance flight schedule modifications with resource availability to generate a solution that satisfies all operational and crewmember considerations while minimizing costs. The quality of the solution is determined by the airline's ability to effectively utilize the operational data already available from its computer systems.

To assist with this process, *Sabre Airline Solutions* recently introduced *Sabre AirCentre Recovery Manager*, a robust, comprehensive real-time decision-support system that integrates aircraft routing, crew availability and network constraint information to effectively generate optimal crew reassignments for revised schedules. By minimizing the impact of operational disruptions on aircraft, crews, flights and maintenance schedules and, ultimately, passengers, the proposed solutions help airlines:

- Reduce additional recovery costs,
- Minimize lost operating revenue,
- Improve resource allocation and utilization,
- Improve on-time performance,
- Increase customer satisfaction.

*Recovery Manager* also enables carriers to pre-plan — minutes or even hours ahead — for anticipated schedule disruptions. In the case of Atlantic Southeast Airlines, the launch partner for *Recovery Manager*, both anticipated and unexpected schedule disruptions are a routine part of daily operations.

The airline operates more than 900 scheduled daily flights as a Delta Connection and United Express carrier at some of the world's busiest airports, including Atlanta Hartsfield-Jackson, Chicago O'Hare and Washington Dulles. These airports are prone to air traffic congestion coupled with extremes in weather conditions, depending on the season. Winter storms can be devastating to Atlantic Southeast Airlines' Chicago O'Hare and Washington Dulles operations, while spring and summer thunderstorms can leave the carrier's Atlanta schedule in shambles.

To effectively deal with these disruptions, Atlantic Southeast Airlines needed a robust solution to facilitate the return of its



***Recovery Manager*, which minimizes the impact of operational disruptions on aircraft, crews, flights and maintenance schedules, brings significant benefits to airlines by reducing additional recovery costs, minimizing lost operating revenue, improving resource allocation and utilization, boosting on-time performance and increasing customer satisfaction.**

schedule and crews, which are based in Atlanta and Washington, back online as efficiently as possible.

Throughout the design and development of *Recovery Manager*, crew scheduling and tracking managers from Atlantic Southeast Airlines and *Sabre Airline Solutions* employees participated in a series of workshops based on agile development principles to review the airline's business requirements and build acceptance criteria for the solution. As the project progressed, the airline provided feedback and suggestions.

### The Solution In Action

When challenged by a potential or existing schedule disruption, crew trackers/schedulers in an airline's operations control center must work closely with aircraft dispatchers and flight control officers to place the carrier's schedule and crews back on track as quickly as possible. *Recovery Manager* supports this process, integrating with all *Sabre AirCentre* crew management systems and *Sabre AirCentre Movement Control* to automatically retrieve and analyze information vital to generating the most feasible, desirable and cost-effective solutions. *Movement Control* interfaces with an airline's reservations system to display real-time flight information, including:

- Flight number and date,
- Aircraft assignment,
- Fuel data,
- Planned and actual passenger counts,
- Original, revised, estimated and actual departure and arrival times for each scheduled flight.

Users may also manually input this data into *Recovery Manager* from other systems or processes. Proposed solutions are delivered as what-if scenarios in easy-to-read Gantt charts for review and further analysis by crew trackers/schedulers. Proposed solutions can be manually adjusted using the system's drag-and-drop capabilities. Once the user is satisfied with a proposed solution, *Recovery Manager* seamlessly deploys it back to the crew management and movement control systems for publication.

### Features And Capabilities

Each time a scheduled flight is disrupted and subsequently delayed, an airline must determine if each crewmember on the flight can complete his or her assignment based on prevailing operating conditions and crew-specific needs and regulations without becoming illegal. Extending duty periods or utilizing move-up, reserve or deadheading crews may result in significant penalties that translate into equally significant costs. The additional costs must be weighed against the revenue contribution of the flight to the network, not just the number of passengers on the aircraft, during the schedule rebuilding process.

Using a powerful combination of what-if capabilities, optimization-based algorithms and an extendable, flexible rules engine, *Recovery Manager* evaluates these factors and generates proposed solutions based on user-defined parameters, giving airlines full control over the schedule rebuilding process and crew reassignments.

Unlike other pairing-based solutions in the marketplace, *Recovery Manager* solves schedule

disruptions at a roster-based level. Proposed solutions consider crew availability, preferences, expenditures and pre-assigned activities such as training, vacation and rest times. The system also determines the minimum cost of reassigning disrupted crews to revised flight schedules based on monthly hours flown, current partial pairings flown and future assignments. Penalties for extended duty periods and deviation from planned flight assignments can be incorporated. Government, business and contractual regulations can also be considered in the process.

In addition, *Recovery Manager* enables crew trackers/schedulers to view detailed information about move-up, reserve and deadheading crewmembers and restrict their selection by domicile, rank and qualifications as well as the percentage in each category to include in schedule reconstruction. Specific crewmembers and deadhead flight candidates can be removed from the proposed solution as needed.

If an airline decides it is beneficial to extend crew duty periods, the system will notify crew trackers/schedulers regarding the allowable length of the extension before or after assignment periods as well as the penalties for exceeding these thresholds. Based on the detailed information available for each crewmember, *Recovery Manager* also helps users prioritize the order in which crewmembers are incorporated into the schedule recovery process.

*Recovery Manager* generates multiple reports, providing crew trackers/schedulers with a comprehensive view of this information before deploying the proposed solution back to *Sabre AirCentre* crew management systems and the *Sabre AirCentre Movement Control* system. Reports include:

- Solution summary report — An overall summary of the proposed solution including the number of disrupted, move-up and reserve crews utilized; number of deadheads and ground transport required; modified pairings; and segments and pairings that remain uncovered;
- Consumption report — A summary of the disrupted and moved-up crewmembers (regular and reserve) and their crew bases and ranks as well as the distribution of pairing types for each category of reserve crews;
- Positioning report — A summary of deadhead (online and offline) flights and ground transportation required for crews;
- Accommodation report — A summary of overnight (layover) and daytime hotel rooms required for crews;
- Utilization report — A summary of deadhead promotions, trip extensions, unscheduled overnights and reserve assignments.

*Sabre Airline Solutions* will continue to expand the capabilities of *Recovery Manager* to meet the needs of various types of airlines worldwide. Future plans call for the addition of cross-rank recovery, in which various levels of



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**Atlantic Southeast Airlines, which operates more than 900 scheduled flights as Delta Connection and United Express, is the launch partner for *Recovery Manager*, a solution designed to help airlines optimally manage both anticipated and unexpected schedule disruptions. The technology enables carriers to pre-plan, minutes or hours in advance, for expected schedule disruptions.**

crewmembers can be reassigned together as well as augmentation and downranking.

Augmentation involves the assignment of crewmembers based on the length of a flight and/or number of passengers onboard. In some cases, downranking may be used to cover a specified crewmember position with a higher-ranking crewmember, such as when a captain is assigned to serve as a co-pilot on a designated flight.

To fully experience the benefits of *Recovery Manager*, airlines may need to rethink their existing business processes and current technologies. Solution consulting offered by *Sabre Airline Solutions* helps carriers facilitate the integration of the system into their operations to receive the maximum value from their IT investments.

While schedule disruptions will likely always be part of “normal” daily airline operations, a carrier’s ability to effectively manage the challenges presented will determine its success. *Recovery Manager* provides airlines with a comprehensive set of user-defined parameters, enabling them to retain control over the schedule and crew recovery process and ultimately, their entire operation. **F**

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