B
efit a pilot can say “we’re ready for takeoff,” all systems must truly be “go.” Behind that “go” are complex systems that must work together or planes remain on the ground.

An airline’s operations represent a complex and multifaceted process — requiring both collaboration among numerous groups within the carrier’s supply chain and communication with customers and service providers. Different procedures performed on the day of operations — both in the air and on the ground — are interlinked by complicated relationships. Quite often, their effect on one another can be very difficult to predict.

In addition, weather, special events, security incidents, labor actions, catastrophes and other irregular events require continuous refinements to plans. It becomes critical to reevaluate different scenarios and select the best strategy within an extremely short timeframe.

On the day of operations, operational plans are developed in two different environments:

- The airline operations control center (OCC), also referred to as the systems operations control center (SOCC) or the integrated operations control center (IOCC)
- The hub control center (HCC), also commonly known as the airport control center (ACC) or hub control (HC)

The OCC is responsible for overall network operations and processes as well as people involved in activities in the air. The HCC focuses on ground operations at a station.

A carrier with several airports might consider having several HCCs. This may include consolidating operations of a few airports under one HCC.

There are several organizational and administrative setups for OCCs and HCCs. In all of them, consistency and availability of information for decision-making processes is crucial for organizing efficient operations.

Common Ground: In The Air

Bringing Together OCC And HCC through Common IT Support

By harmonizing OCC (activities in the air) and HCC (ground operations) activities, airlines can enhance their IT scope and reach.

By Sergey Shebalov / Ascend Contributor

Process Separation Between OCC And HCC

Similar to the OCC, the operational data and decision-making process for HCC operations can benefit significantly from integration. In addition, the IT tools and infrastructure used by the HCC enables two-way communication with multiple parties who support those operations.

Sabre Airline Solutions offers an integrated hub control decision-support system that includes four management capabilities — schedule management, passenger and payload, aircraft turnaround and management and resource management. They are based on a unique optimization engine and employ a “same-feel” user interface.

Schedule Management

Schedule management is responsible for tracking flight operations during the day and reacting to disruptions by adjusting arrival and departure times and gate assignments. The module interacts with aircraft tracking and movement management solutions as well as irregular operations management used by an airline’s OCC.

Patient And Payload

Passenger and payload management handles passengers, luggage and cargo connections using information from the departure control system and aircraft tracking and movement management solutions. In advance, multiple transfer and recovery options are identified, and information is collected for their accurate evaluation. For example, possible transfer options for passengers might include:

- Regular terminal transfer, including an analysis of hard-staff parking that consists of a bus trip from an aircraft to a terminal, transfer within the terminal (or between terminals, as required) and possible transfer from the terminal to an aircraft.
- Fast terminal transfer is similar to regular transfer — except that transfer within a terminal is assisted by assigning designated personnel and equipment. It might also invoke going through

OCC and HCC Responsibilities OCC is responsible for operations on a network level while HCC is focused on operations in and around the airport. Depending on the origin of a disruption, either OCC or HCC acts as a leader in recovery procedures.

OCC Responsibility

The operations control center is responsible for overall network performance and operations management.

There are six primary components of operations management controlled by an OCC.

1. Schedule management tracks flight operations and reacts to disruptions by adjusting arrival and departure times, diverting or canceling flights.
2. Flight management extends schedule management to individual flight operations. It ensures that each flight has an optimal trajectory, complies with airport, airspace and aircraft restrictions, and manages disaster recovery needs.
3. Aircraft management starts with logical lines of flying created by a planning department. It assigns those lines to specific tails, while adhering to operational and maintenance restrictions.
4. Maintenance management keeps track of and updates flying hours, cycles and calendar-day counters for each tail. It also schedules maintenance activities to ensure that all tails are fully eligible to fly their assignments.
5. Crew management controls tactical planning, tracking and recovery procedures for cockpit and cabin crew. It also includes access capabilities that enable two-way interaction between the OCC and crewmembers.
6. Passenger and payload management monitors expected passengers and cargo loads by receiving continuous updates from revenue management or inventory systems. On the day of operations, it interacts with the departure control system, controls critical connections and special-service requests, and interacts with the reaccommodation system to create new itineraries for disrupted passengers.

All these activities are automated within Sabre AirCentre "Enterprise Operations," a suite of solutions that supports:

- Movement control,
- Crew management and services,
- Flight operations,
- Weight and balance,
- Flight tracking,
- Maintenance control,
- Irregular operations management.

These products provide an integrated environment for decision-making and collaboration.

HCC Functionality

Operating on a more detailed level than the OCC, the hub control manages the overall operations framework defined by the OCC. HCC implements this framework by managing ground resources required for aircraft turnaround activities, passenger and payload connections, terminal operations, and other processes.

The HCC must also provide feedback to the OCC on decisions that might result in various effects at the network level.

Process Separation Between OCC And HCC

OCC and HCC Responsibilities OCC is responsible for operations on a network level while HCC is focused on operations in and around the airport. Depending on the origin of a disruption, either OCC or HCC acts as a leader in recovery procedures.
Aircraft Turnaround Management

Aircraft turnaround management focuses on tasks and processes associated with turning an aircraft around and continuing its operations. It identifies tasks that must be completed between checks-on and check-offs, defines relationships among them, and schedules the tasks. Time interval notation in which each task must be completed. It recognizes “critical tasks” as those that cannot be delayed without causing further delays. Turnaround networks are prepared in advance for each airport, aircraft type, and time of day, among other variables. They might also have other features specific to the conditions under which a turnaround must be performed.

The aircraft turnaround management solution uses an event-tracking mechanism that reevaluates task status each time external factors result in a change in the status of a task, provides additional information on the project, manages and aligns task network schedules, and integrates the turnarounds with the ground crew.