“Connected Airline” and “Connected Flight Deck” are two of the latest phrases regularly being voiced by the airline industry, which is continually looking to drive down costs and optimize critical areas of operation by connecting the flight deck with ground support.
In the connected economy, airlines are keen to embrace the latest technologies and strive toward a vision based around a connected flight deck. However, the concept of a connected flight deck remains stubbornly in its infancy phase. Therefore, Sabre is partnering with industry leaders in a bid to help move this concept forward. As such, the technology company has developed a mobile solution as part of its “connected-flight” strategy. In addition, it actively supports various new technologies to connect the flight deck with all other aspects of an airline and related entities.

The latest mobile solution, called Sabre eFlight Manager, is an EFB flight-briefing and calculation solution designed to run on commercial off-the-shelf devices known in the electronic flight bag arena as “class 1” devices and include the Apple iPad, Microsoft Surface and Panasonic Tough pad. Among various advanced capabilities, eFlight Manager features digital weather and NOTAM data with automatic color coding, an electronic briefing pack, a digital map and the ability to send fuel messages, as well as an electronic trip log, which is able to record and input actual flight data while en route.

The solution also has an industry-leading option to fully recalculate and optimize the planned flight parameters using the latest available data. This not only provides the latest updates about wind, weather and NOTAMs, but it will also give flight crews more accurate planning figures, which, in turn, could lead to significant cost savings for an airline.

All of the data entered onto the device during the flight can be used to form the basis of a data-warehousing solution, which when used together with the planned data taken from Sabre Flight Plan Manager, can be used to feed into an airline’s fuel-efficiency program and help drive further cost savings. In addition, eFlight Manager supports both iOS and Windows platforms.

**AIRCRAFT INTERFACE DEVICE CONNECTIVITY**

Sabre’s latest development is the integration with Aircraft Interface Devices (AID), which when combined with a complex platform such as eFlight Manager, creates a potential to fundamentally change the operations space. Once an aircraft has left the airport, most flight crews operate in an isolated environment, with total autonomy. Making decisions which, even when considering all safety factors, entails many possible options that may or may not be the best for the company’s bottom line.

With the advancement in connectivity through AID, the airline industry is now quickly evolving to a new level where pilots have regular communication and real-time information from the airline’s in-house systems. This enables them to partner with other departments and gain access to digital data to actively manage flight decision-making that is both safe for and beneficial to the business.

Moreover, airlines are beginning to view the flight-planning workflow from the dispatcher perspective and synchronize key elements of this functionality into the flight deck. As a result, flight crews are able to request and publish real-time updates during their flights. Once mounted in the aircraft, AID provides three additional levels of functionality for an electronic-flight-bag solution:

- **Providing the flight deck with connectivity to the ground.** Although air-ground connectivity has been available for many years through Aircraft Communications Addressing and Reporting System (ACARS), this technology is more than 30 years old. While it will remain an essential component to the airline industry for many years to come, it can only support a limited bandwidth. ACARS is mainly used to transmit critical information such as aircraft movements and engine-health messages between the aircraft and ground support teams such as dispatchers, operations control, air traffic control and air navigation service providers, in a similar manner as SMS/text messaging services traditionally used in cellular phones. Using the latest satellite and broadband technologies, an airline is now able to leverage IP-based communications and significantly increase the available bandwidth while maintaining a cap on traffic costs.

Moreover, airlines are beginning to view the flight-planning workflow from the dispatcher perspective and synchronize key elements of this functionality into the flight deck.
AID allows connectivity across devices within the cockpit via Wi-Fi or wired LAN functionality. eFlight Manager will allow one member of the flight crew to make updates, which will automatically be synchronized to other crewmembers’ devices that are within range. During work breaks, this role can then be assumed by another member of the team, thereby allowing the data input to continue seamlessly.

AID provides access to data being generated within the aircraft-avionics systems such as the flight management system. A multitude of data is generated by the aircraft avionics and by interfacing with AID, which eFlight Manager is able to “read” from the AID data bus and use to auto-populate appropriate software fields within eFlight Manager, such as actual fuel on board, flight level, air speed, wind and temperature data.

Sabre follows a tactical approach with AID manufacturers and is partnering with leading AID vendors to help standardize the process and associated data transfer using the latest airline industry standards published by ARINC. While AID can be factory installed on new aircraft, the overwhelming advantage is that they can be retro-fit into older aircraft during scheduled maintenance checks.

Sabre’s overall goal is to help alleviate the flight-deck workload by automating much of the data entry during regularly planned trip-log updates and fuel checks. This will, therefore, reduce the possibility for human error and, at the same time, focus flight crews’ attention on any discrepancies between planned and actual conditions.

Sabre recently surveyed a number of airlines using Flight Plan Manager that have equipped their aircraft with AID or have connectivity on board. Approximately 70 percent of survey participants are planning to install AID or other forms of connectivity within the flight deck during the next one to three years.
PILOT-DISPATCHER COMMUNICATION

With the introduction of last-minute or in-flight data updates, flight crews will be able to review and fine-tune their flight-planning procedures to adjust to changes triggered by new weather bulletins or traffic congestion along the route or at the destination, during some or all phases of the flight.

The dispatcher maintains the overview on the ground, receiving critical information from other departments in regard to crew, operations or maintenance activities that may also impact the schedule.

Sabre is currently designing a new module within eFlight Manager to manage the communication and streamline processes between dispatchers and the flight deck. Pilot-dispatcher communication will establish a direct link between flight crews using eFlight Manager and the dispatcher on the ground using Flight Plan Manager. The communication is planned to route directly to the desk of the dispatcher working on a particular flight and will allow potential changes to be reviewed and agreed upon.

With the dispatcher maintaining the big picture across the organization, having access to other Sabre technology, such as Flight Explorer (used for flight tracking), ACARS Manager (used as a messaging hub and slot management tool) and Movement Manager (used for flight operations management), any changes can be quickly reviewed and a snapshot of these changes can be synchronized between pilot and dispatchers using this robust tool. As a result, situational awareness is increased, workload is reduced and flight crews are able to perform tactical decision-making maneuvers in tandem with dispatchers.

Robert Turner is senior product manager of marketing and solutions management for Sabre. He can be contacted at robert.turner@sabre.com.

Austrian Airlines Uses New Mobile Flight-planning Technology

Challenge
- Paperless cockpit
- Real-time communication
- Greater efficiency in flight planning

Solution
- Implemented eFlight Manager
- Enhanced Flight Plan Manager

Results
- Increased automation
- Simplified procedures
- Common view between pilots and dispatchers
- Additional fuel savings
- Improved post-flight analysis

Expand the connected flight to the cockpit through eFlight Manager

✅ Trip Download
Airlines can choose between an aircraft- or pilot-centric trip download in a Read Only or Read/Write mode through Crew Substitution.

✅ Flight Briefing
Modifiable Flight Plan, Manager briefing package and digital flight plan, NOTAM and weather data through ARINC 633.

✅ Recalculation Module
More accurate flight-planning results and fuel savings through online/offline recalculation closer to departure time.

✅ Trip Log
Automatically populated trip log with ARINC 633 flight plan to capture in-flight data and ease pilot usage while flying.