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Flow Management

Air Traffic Flow Management is key to future endeavors relating to increased capacity, reduced fuel burn, operational efficiencies, environmental impact.

Some readers may not be clear about the significant role Air Traffic Flow Management (ATFM) will play in virtually all aspects of the Next Generation Air Transportation System (NextGen). However, as I think about how the current system operates, both in the United States and around the world, I see the importance of continuing the connectivity between the many elements highlighted in publications like the NextGen Implementation Plan, ConOps, and FAA's response to the RTCA Mid-Term recommendations.

At its core, ATFM insures the proper balance of capacity and demand. That is a fairly simple statement but isn't easy to accomplish in a complex, dynamic and growing system. However, ATFM is a great vehicle for the collaborative activities that allow system users to make certain their business case is considered whenever system constraints occur. As we consider the myriad pieces of NextGen, starting with "Best Equipped, Best Served," the application of flow management strategies seems the best place to insure system performance is consistent with the expectations of the providers and users alike.

ATFM is key to any future endeavors relating to increased capacity, reduced fuel burn, operational efficiencies and environmental impact. It is also a catalyst for the sharing of information, which is essential to common situational awareness. This element was key in system improvements since the mid-1990s, beginning with the sharing of live data between system users (airlines) and FAA in 1994.

It's obvious to me that the equipage issue has a long way to go before a harmonious chord is struck. The airlines must be confident in the business case for NextGen equipage and that FAA will provide system enhancements to realize the ROI. From where I sit, ATFM is perfectly positioned to deliver on this. I envision opportunities that will arise where priority is given to those best equipped, whether in terms of time of day, procedural utilization (tailored arrivals/departures), airspace stratification or other service activities. It relates perfectly with the capacity and demand issue to me, if you can envision aircraft "best equipped" vying for system access. ATFM is perfectly positioned to insure the system is ready to place the proper priority on those aircraft and with the reach to insure those not equipped are provided sufficient and timely alternatives, all the while maintaining the system's integrity.

The shifting of greater responsibility to the cockpit, while not yet clearly defined, has many possible attributes, but once again involving ATFM. It doesn't really matter whether the pilot is getting information through data link, or from dispatch through ACARS. The fact is a strategic plan must be developed and delivered to the flight deck, and have enough flexibility for tactical augmentations when necessary. ATFM once again fills the bill, and not just from a command center but across the many service provider facilities. ATFM has integrated centers, Tracons and towers from the ANSP side of the equation, as well as airline operations centers, military and general aviation, so the collective has the same vision of the plan as it is developed, and tweaked throughout the day.

When I think about ADS-B, RNP, RNAV and other technological advances, again I see them all in the ATFM realm. While they all portend a greater degree of efficiency, increased capacity and safety, they all lend themselves to being maximized through ATFM.

Applications from these and other system attributes play both in the air and on the ground, some having more impact than others, but ATFM will be the regulating arm in terms of integrating the myriad pieces into the seamless movement of air traffic. A focus on surface operations, while necessary, must be considered beyond the airport's surface, so as to interface with common departure fixes or down line traffic management initiatives. It's connectivity that matters most in any system.

Today's NAS, where controllers provide safe aircraft separation by issuing tactical clearances to individual aircraft, is reaching its capacity, while actions such as splitting sectors further clearly produce diminishing returns. A new paradigm is necessary to better manage human workload, increase productivity and better leverage advanced automation capabilities.

Restructuring the roles of humans and automation and how they will perform in NextGen is a priority. A distribution scheme that better balances tasks and decisionmaking among service providers, flight crews and flight planners will insure the operational efficiencies NextGen requires. No matter how you slice it, all of the elements that will make NextGen a reality come together with ATFM. **avs**

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