

Good morning everybody. I'd like to welcome you all to sunny California and beautiful downtown Berkeley. I'm proud to represent United Airlines, the host of this conference and one of your best customers. Yes, customers, because the work that you have done to this point and that will continue during this important conference is crucial to us and to other airlines, airspace users, and service providers. All of us are struggling to understand and to quantify the real value and benefit mechanisms of CNS/ATM - the air traffic management environment of the future.

I am fortunate to have a special perspective on this issue from three distinct vantage points; as a member of the senior management team at United, a member of the FAA/Industry Free Flight Steering Committee, and as an active Boeing 777, 767 and 757 Captain flying domestic and international routes. I'm going to share some observations with you that I hope will shed more light on the context of your work, and provide additional motivation to complete your objectives.

I've been an airline pilot for 32 years and a military pilot for 5 years before that. While there have been many changes in aviation, and of course every other aspect of life, air traffic management has remained remarkably the same for those nearly 40 years. Human controllers watch radar traffic in rigidly bounded sectors and manually intervene with pilots using VHF radio communications to maintain separation among aircraft. With TCAS now acting to back up this manual system

of air traffic management, the skies have remained remarkably safe over these many years.

But the “status quo” in air traffic management also has an ugly side. No change means no growth. All attempts to add more flights to the system are met with increased operational restrictions - restrictions which are necessary to maintain safety in a system that will not change. You only need to look across the bay to San Francisco for a dramatic illustration of the impact of in action on our industry. Flight delays, cancellations, schedule disruptions and excessive flight times are so severe that the very viability of a modern airline operation is threatened. Our management team is weighing options on a daily basis to make business sense out of this bad situation.

From the pilot’s standpoint, I can see why the operation is so bad. It is rooted in the structure of our operating environment. The layout of runways, the procedures for using those runways, the organization of airspace, control sectors, airways and other procedural routings create the restrictions which limit our operations. In spite of great advances in aircraft navigational capability, our flight paths are still constrained by the inability of the air traffic management infrastructure to cope with greater flexibility or increased volumes of traffic.

This is no secret, of course. Under the auspices of RTCA, our industry got together in a series of task force efforts to outline the changes that will be necessary to modernize the National Airspace

System so that it may accommodate growth and increased flexibility. That, and parallel international efforts, created FANS, or CNS/ATM as we now call it, and the operating concept of reduced restrictions to flight that we call Free Flight. The Free Flight Implementation Steering Committee is tasked with recommending the series of changes that must take place to remove the existing restrictions to flight, and finally achieve Free Flight. In this forum the tough questions must be answered that affect budgets, people's jobs, and the "culture" of the operation.

To implement CNS/ATM, first and foremost, budgets must be approved and resources allocated to alter the status quo. Whether that takes place in an FAA Joint Resources Council session, a so-called JRC, or in an airline corporate boardroom, the business case must be made. This is tough, because the things that must be purchased are very expensive and the operating capability enabled by these purchases is at best vaguely understood by the decision makers. The mechanism that connects the new systems to the postulated operating capabilities is even more foreign to those in the board rooms, which makes this whole complicated business very hard to do, indeed.

Too often, the focus of these discussions is on the tools themselves. What I mean by the tools is the C, N, and S of CNS/ATM. That's a natural thing because it is these tools that cost money. Data communications systems, GPS and FMS upgrades for navigation, and controller workstations that integrate ADS and ADS-B with radar are all expensive. By themselves, they have no benefit. And that's the rub.

Everyone knows, at least conceptually, that ATC has got to change. But the changes that are being proposed have no intuitive benefit since they only enable this air traffic business to be done differently, more efficiently.

The airlines can calculate their costs, but the benefits are out of their control. The FAA can calculate its costs, sort of, but their analysis branch doesn't work in ATC or have in-depth knowledge about even current ATC practices, let alone the postulated environment. The operations people have a pretty good idea of what needs to be done, but don't speak the language of finance. The architecture people love to discuss technologies, but are uncomfortable in operations discussions. This is where you come in. No single organization to date has had the expertise or the wherewithal to put this connection together, this business case that links the tools of CNS to the operating capabilities of ATM in a Free Flight environment. If there ever was a classic multi-disciplinary task, this is it.

The Free Flight Steering Committee accepted a proposed architecture and roadmap for ATC modernization. But gaining an understanding of how the CNS tools will affect operations and impact the many constituencies of the Steering Committee occupies much of the group's time. This demands an agreed-upon operating concept. The Select Committee, that reports to the Steering Committee, has provided that. The FAA Administrator's Task Force on NAS Modernization also made recommendations which, after a year of industry coordination,

emerged with the title Free Flight Phase I. Other development work which started out as Halaska, and later, Flight 2000 has been totally re-defined and now goes by the name Safe Flight 21.

When acting on these many recommendations, as an airline member, my goal is always to choose paths that make good business sense to United and our industry. Our past record in business case development has often fallen short of the mark when air traffic management improvements are being evaluated. Many times we lacked needed data. Trying to hold other things equal while changing one element is always difficult. We have had trouble segmenting the analysis for airlines or other users or service providers. Simply put, there has been no one group with the breadth of expertise or the continuity to do this work.

It seems to me that the C/AFT is the best and possibly the only team constituted to develop these business cases from the airline perspective. You can provide a very great service to our industry in filling this need. You bring a cross section of airlines, aircraft manufacturers, and air traffic services providers together. As an informal group, you are not encumbered by the protocols and red tape of other organizations. Through your efforts to date, you have developed a reputation within the industry as a group which objectively portrays the impacts of CNS/ATM investments on the airline and other stakeholders. The processes you have begun, which define and assign value to the incremental steps of modernization are particularly helpful in

overcoming the “status quo” mentality with limited steps of small incremental risk. And finally, closer to home, the products of your work appear to offer me a sound framework to use in our own business cases for CNS investment.

Let me close with this rather sobering thought. Those of us who fly know the limitations of the air traffic management system intimately. They are as real and as much a part of our operation as the fuel we burn and the time we take to get from A to B. Our industry has been aware, at every level, of the problem and solution, at least in terms of architecture and operating concept for many years. The full ICAO Air Navigation Commission agreed to the FANS concept in 1991 and declared the implementation should start. Now, seven years later, we have precious little to show for it. The reason is, the business case is difficult to make. But if we don't make it, and let the current system continue into the next millennium, the pain of delay and inefficiency we already feel in flight operations will continually increase as the stranglehold of air traffic management becomes tighter and tighter. You hold the key to unlock that stranglehold. I wish you every success in your conference and hope for the speedy conclusion of this most important work. Thank you.