History of the Air Route Traffic Control Center

Historically, en route air traffic control was initiated by airline companies before World War II. Flights were separated by time and altitude and tracked by means of estimated times over radio beacons posted on flight progress strips arranged by time and set in a vertical bay.

Eventually the U. S. Bureau of Air Commerce took over the system from the airlines and created the first government air traffic control system, based on similar non-radar procedures and tracking and reporting systems.

In 1938 the Civil Aeronautics Agency was founded and took over the air traffic control system, however the procedures and techniques generally remained the same.

After the 1956 crash of two airliners over the Grand Canyon, the Federal Aviation Agency (FAA) was formed which took over the ATC system and modernization began to take place. Although tower controllers had been able to talk directly to pilots for some time, en route controllers had to relay clearances and receive position reports through airline company dispatchers or through the FAA's Flight Service Station (FSS) operators. Radio facilities to enable controllers to talk directly to pilots were among the first improvements to be put in place.

Also, aircraft on IFR flight plans are able to proceed in visual conditions at altitudes of their choice with a clearance "on top." At the time of the Grand Canyon crash, even jet powered aircraft operating in the flight levels could get on top clearances. That procedure was a principle factor in the crash and led to "Positive Control Airspace" (PCA) FL180 and above. Because of the speeds of the aircraft involved, non-radar procedures were unwieldy (standards called for ten minutes between aircraft; some 80 miles for a typical jet), even with the development of aircraft installed Distance Measuring Equipment (DME) and the reduced separation available between DME equipped aircraft (20 miles).

The answer was RADAR (RAdio Detection And Ranging). Already installed in many approach control facilities, en route radar was installed in the centers and by the mid 1960s most facilities had 100% radar coverage at high altitude (PCA). Although some remote or rugged areas are still without radar coverage at lower altitudes, the vast majority of IFR traffic today enjoys radar services from takeoff to landing. Aircraft are afforded 1000 feet vertical separation or five miles radar separation (three miles when close to an airport and under a TRACON's control), significantly increasing the capacity of the system.Throughout the development of the ATC system, the basic tool has been the flight progress strip for most operations. The local controller may use other methods for VFR traffic, but the entire IFR system is based on the strip. On it is recorded the callsign of the flight; the type, speed, and electronic equipment of the aircraft itself; its altitude; its route of flight; and relevant times.

Chicago ARTCC History

Chicago ARTCC started at Midway Airport in the late 1950's. As the need for increased personnel and equipment arose, Aurora, Illinois was selected for the new operating location for Chicago ARTCC. The building was completed in a period of 5 years and personnel transitioned into the new facility in 1962. Several modifications/additions to the original structure were added to the original structure after 1962.

Up until the late 1960s, virtually all strips were handwritten. Some facilities had equipment that would mechanically process a limited number of flights, and Washington Center was using a prototype computerized strip processing system, but by 1974 automated strip processing was in place in all the en route facilities, with data transfer capability between en route centers; between centers and TRACONs, and between centers and FSSes.

Also in the late 1960s, automation was being developed in radar presentation also; ARTS (Automated Radar Tracking System) in the TRACONs, and what was generically called **NAS (actually National Airspace System)**, but commonly used as a synonym for automation in general and computerized radar processing in particular) in the centers. By the mid '70s, the ATC system was virtually completely automated in flight plan processing and radar presentation.

Chicago ARTCC Today

"Our vision is to be the flagship air traffic facility, setting the standard of excellence in safety, customer service and accountability to the public."

ATC in the 21st Century is learning to do without strips as they are being replaced with computer displayed aircraft lists. Direct data link with some aircraft is on the horizon, but controllers still use radio and multiple types of radar to monitor the airspace under their direction. When controllers must leave their seats, the next controller immediately reviews the strips or computer displayed aircraft lists and contacts the pilots to confirm any discrepancies in that information and the radar display.

Chicago Center transitioned all sectors to URET (User Request Evaluation Tool) in December 2005. This milestone was achieved through the joint efforts of the facility management and NATCA. The facility-wide implementation of URET allowed the integration of the flight strip reduction patch to the Host system. This software upgrade has significantly reduced the number of printed flight progress strips and will generate significant cost savings

Chicago Center is an ATC-12 level facility. It provides service to the Chicago and Milwaukee Metropolitan areas and 16 underlying approach control facilities. The center's 8 areas of specialization are comprised of 28 high altitude sectors and 20 low altitude sectors.

Chicago Center has engaged in an annual strategic planning process since 2001. The Chicago Center "Strategic Plan" outlines facility-level goals that correspond with those in the Administrator's Flight Plan and ATO Business Plan, and includes specific strategies and actions to achieve Increased System Safety, Greater Capacity and Organizational Excellence.