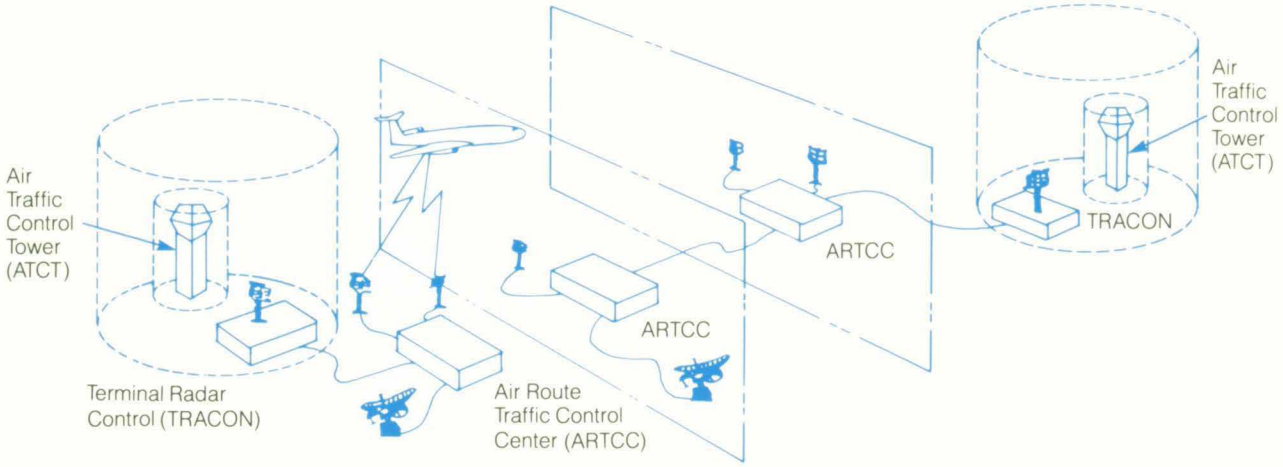
Department of Transportation
Federal Aviation Administration

Host Computer System

Physical and Functional Elements of Air Traffic Control



Air Traffic Control Tower (ATCT)

- Number - 300
- Functions:
  - —Clearance Delivery
  - —Ground Traffic Control
  - —Active Runway and Airport Traffic Within 5 Mile Radius and <3,000′ Altitude
- Physical Elements:
  - —Air/Ground Communications
  - —Interfacility Communications
  - —Weather Instrumentation
  - —Radar Display Equipment
  - —Runway Lighting Controls

Terminal Radar Control (TRACON)

- Number - 186
- Functions:
  - —Radar Separation in Arrival/Departure Flight Phases
  - —Airspace Within 30 Mile Radius and <10,000′ Altitude (Exclusive of ATCT Airspace)
- Physical Elements:
  - —Air/Ground Communications
  - —Interfacility Communications
  - —Intrafacility Communications
  - —Radar Display Equipment
  - —Processing Equipment
  - —Software
  - —Flight Data Entry and Printout Equipment
  - —Radars

Air Route Traffic Control Center (ARTCC)

- Number - 20
- Functions:
  - —IFR Traffic
  - —Radar Separation in Enroute Flight Phase
  - —Procedural Separation Outside Radar Coverage
- Physical Elements:
  - —Air/Ground Communications
  - —Intrafacility Communications
  - —Radar Display Equipment
  - —Processing Equipment
  - —Software
  - —Flight Data Entry and Printout Equipment
  - —Direct Access Radar Channel (DARC)
  - —Radars

The Stages of Air Traffic Control Automation

9020 System

- IBM 9020 Computers
- Radar Displays
  +
  Flight Strips

Host Computer System — 1987

- Host Computers (IBM 3083's)
- Rehosted 9020 Software
- Radar Displays
  +
  Flight Strips

Advanced Automation System — 1990's

- Host Computers (IBM 3083's)
- Rehosted 9020 Software
  +
- AAS Sector Suite Consoles
  - —Initial Sector Suite System
    +
- Electronic Display of Flight Data

- Full Advanced Automation System Including TRACON Consolidation, ATCT Modernization and AERA

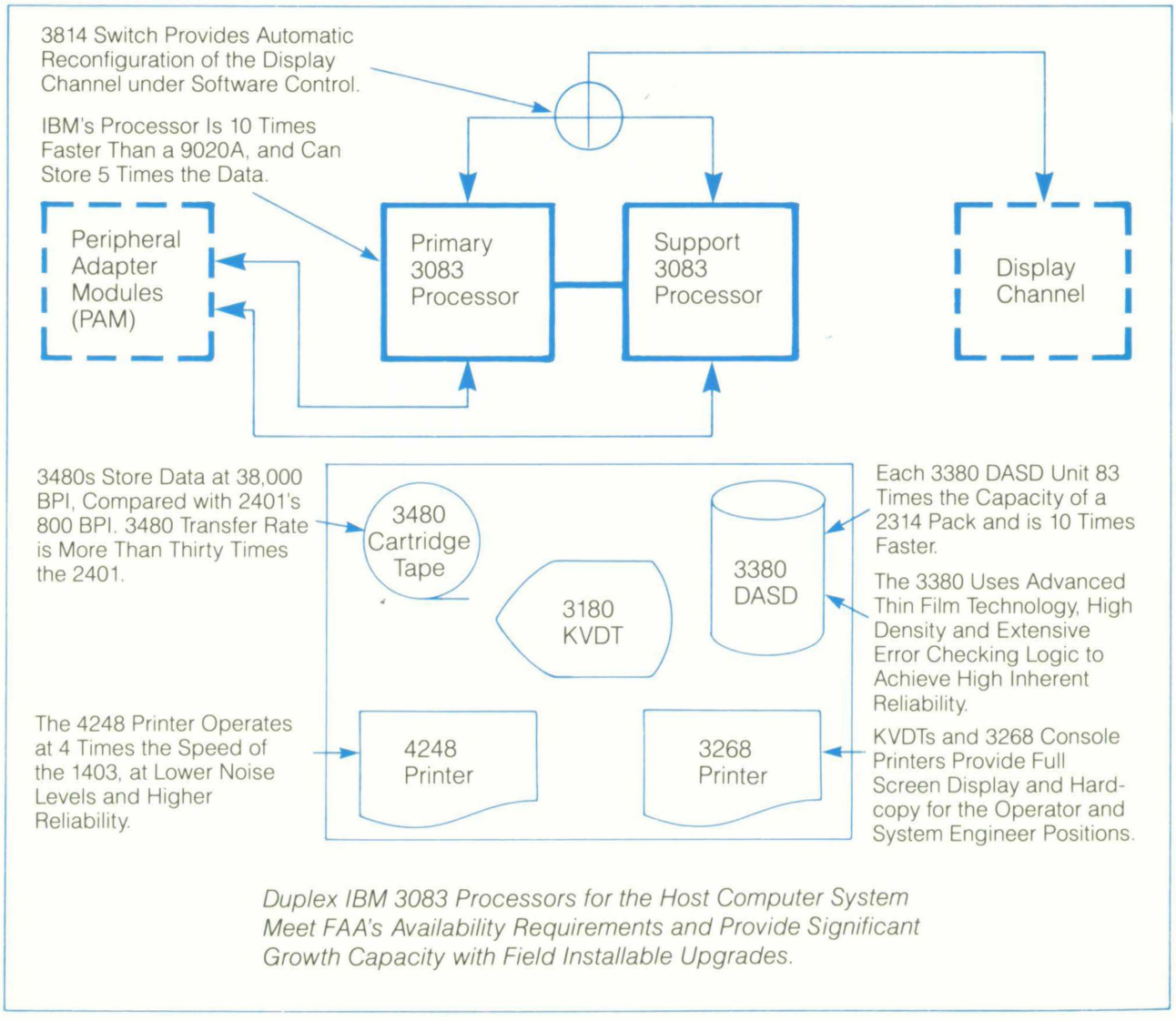
9020 System

- Largest, Most Complex Real-Time Data System of its Kind in the World
- Outstanding Record of Success in Enroute Air Traffic Control for 10+ Years
- 9020 Central Computer Complex (CCC) *Safely* Handles Over 30 Million IFR Flights Per Year

9020/Host Computer System Comparison

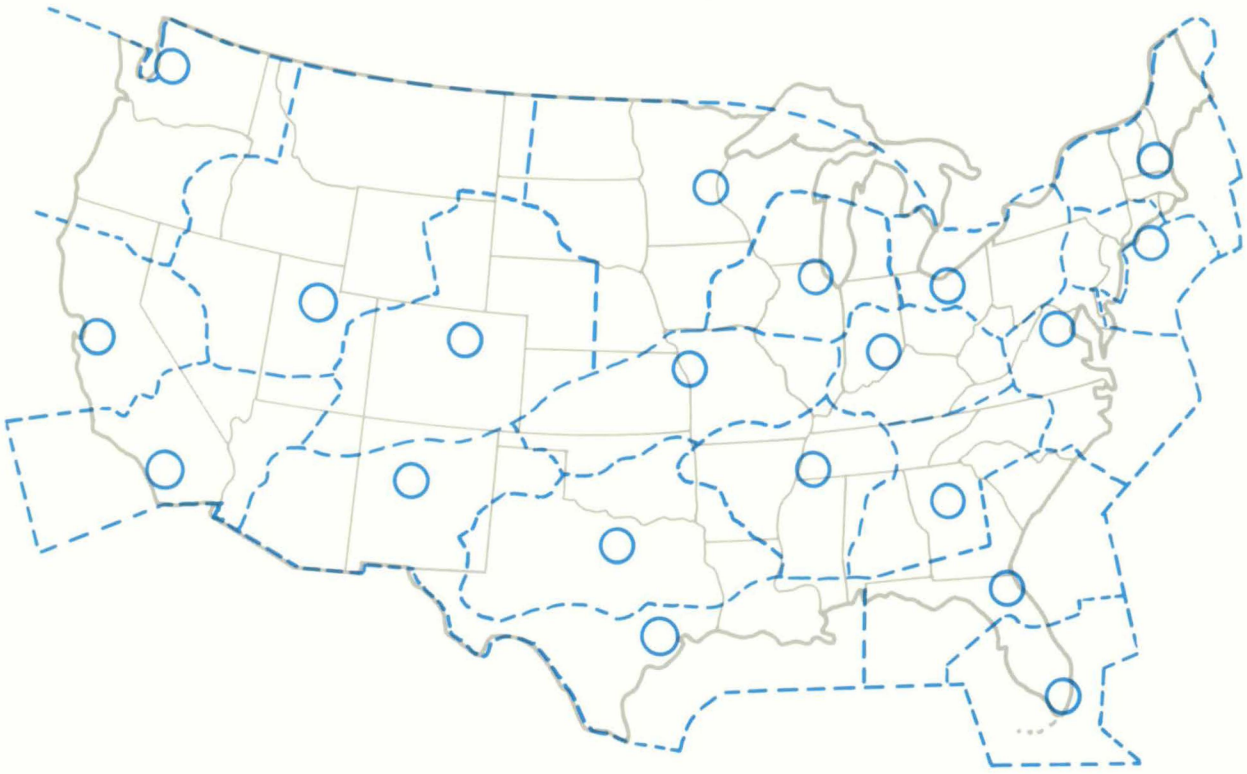
	9020	Host Computer System
Memory	3 MB	16 MB
CPU Power	≈ 2 MIPS (D) .8 MIPS (A)	≈ 7.0 MIPS
Channels	2 Byte Mux 4 Selector	3 Byte Mux 13 Block Mux (Selector)
HDW Size	6000 Sq. Ft.	≈ 2500 Sq. Ft.
Disk	100 Mbytes	6 Gigabytes
Tape	800 BPI (14 Units)	38,000 BPI (12 Units) 800 BPI (2 Units)
Terminals	1052/TTY	KVDT

Host Computer System



Duplex IBM 3083 Processors for the Host Computer System Meet FAA's Availability Requirements and Provide Significant Growth Capacity with Field Installable Upgrades.

20 ARTCCs in the Conterminous United States System



Host Computer System Master Milestone Schedule

1984	1985	1986	1987	1988

Acquisition Phase Schedule

AP Contract Award
Software Upgrade
Contract System Test
FAATC Acceptance Test
ARTCC Deployment

Seattle
Houston
Denver
Boston
Leesburg
Chicago
Oakland
Albuquerque
Memphis
Cleveland
Atlanta
Miami
Los Angeles
New York
Kansas City
Minneapolis
Indianapolis
Jacksonville
Fort Worth
Salt Lake City

National Airspace System Plan

"A comprehensive plan, updated annually, that addresses the compelling problems of how best to accommodate spiraling demands for aviation services and constrain costs.

"Safety, capacity, productivity, and economy will be realized chiefly through higher levels of *automation*, consolidations of major facilities, and the application of rapidly changing and lower-cost technologies in telecommunications."

Typical Host Computer System