

# Air Traffic Control

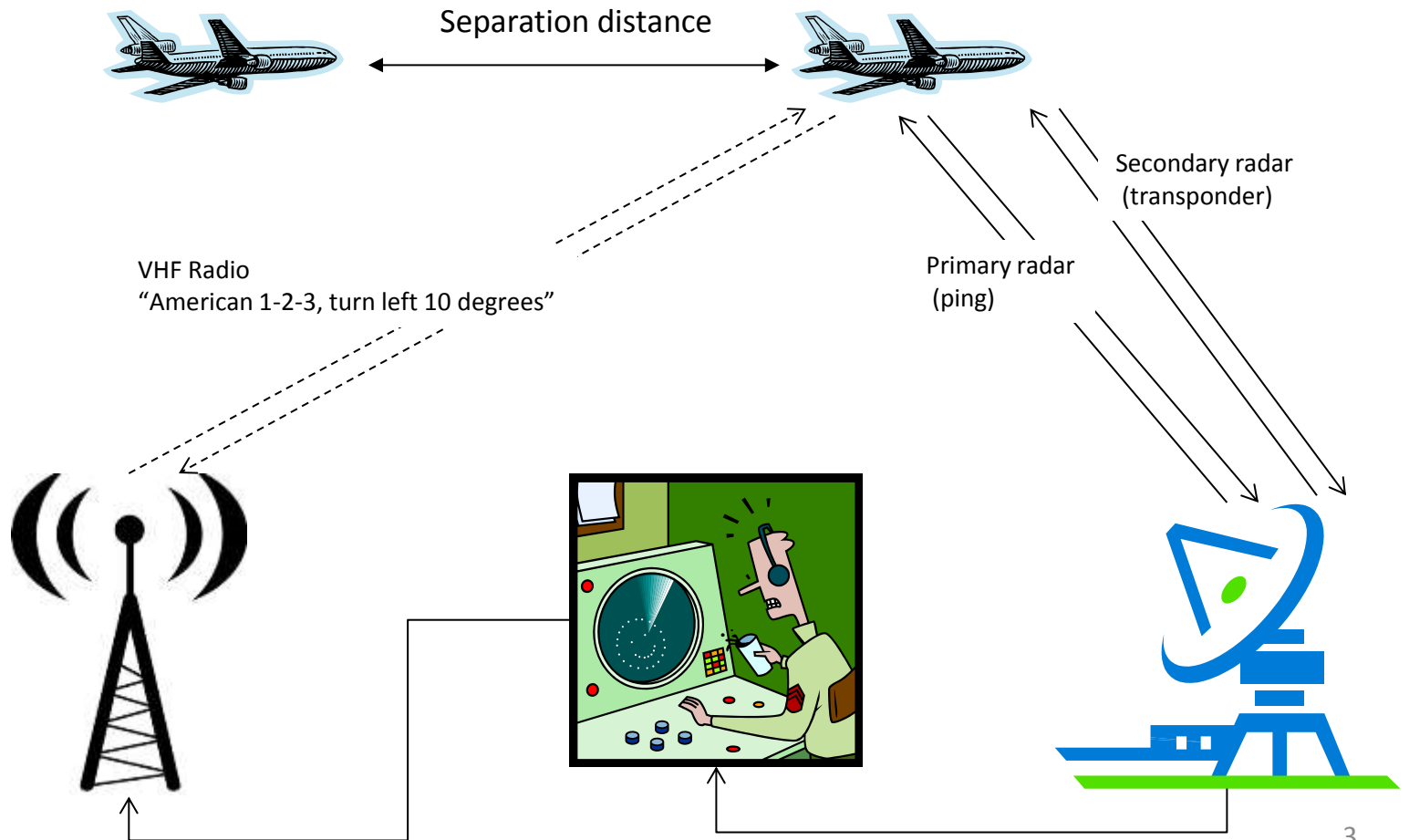
Lance Sherry

SYST 460/461

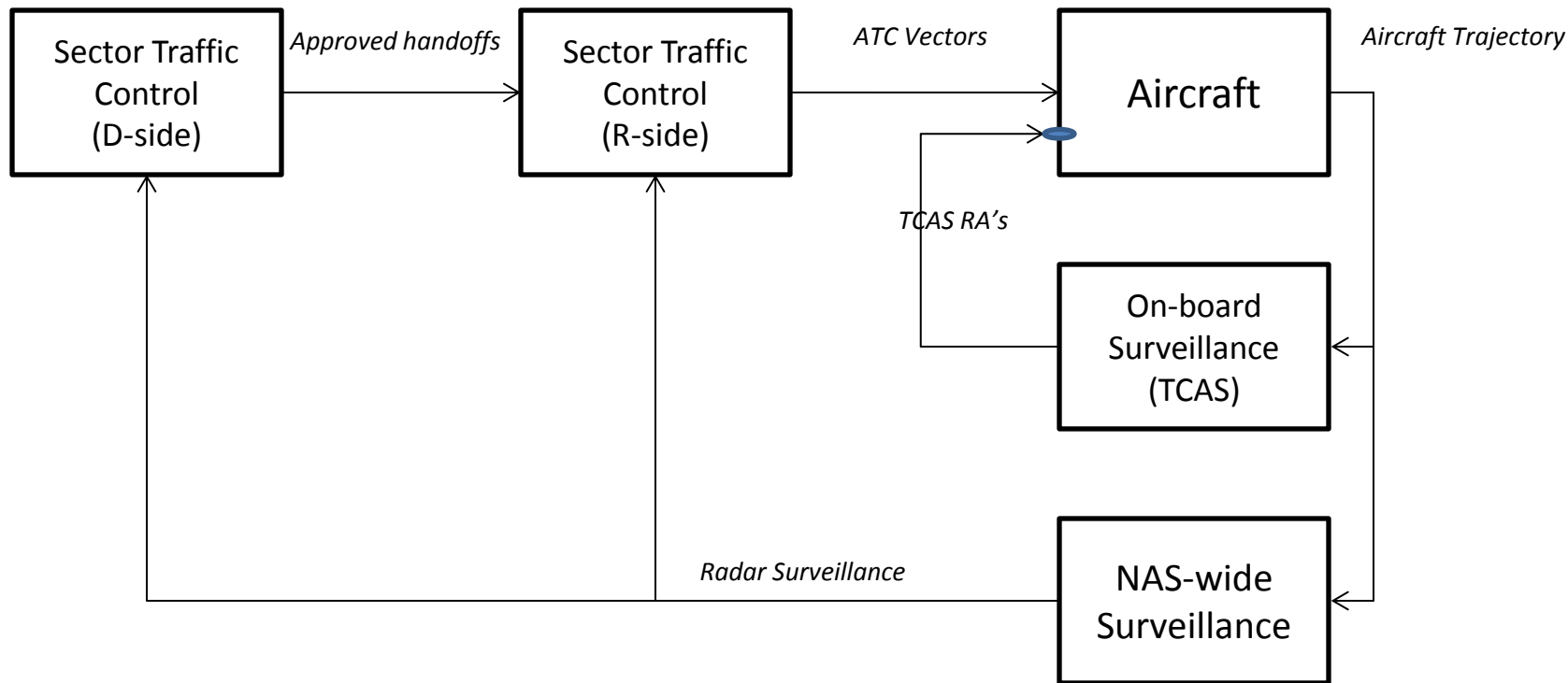
# Air Traffic Control

- Objectives:
  1. Separate Aircraft
  2. Use airspace efficiently (i.e. manage flows)
- Method
  1. Closed-loop control of aircraft (i.e. positive control)
  2. Flow management

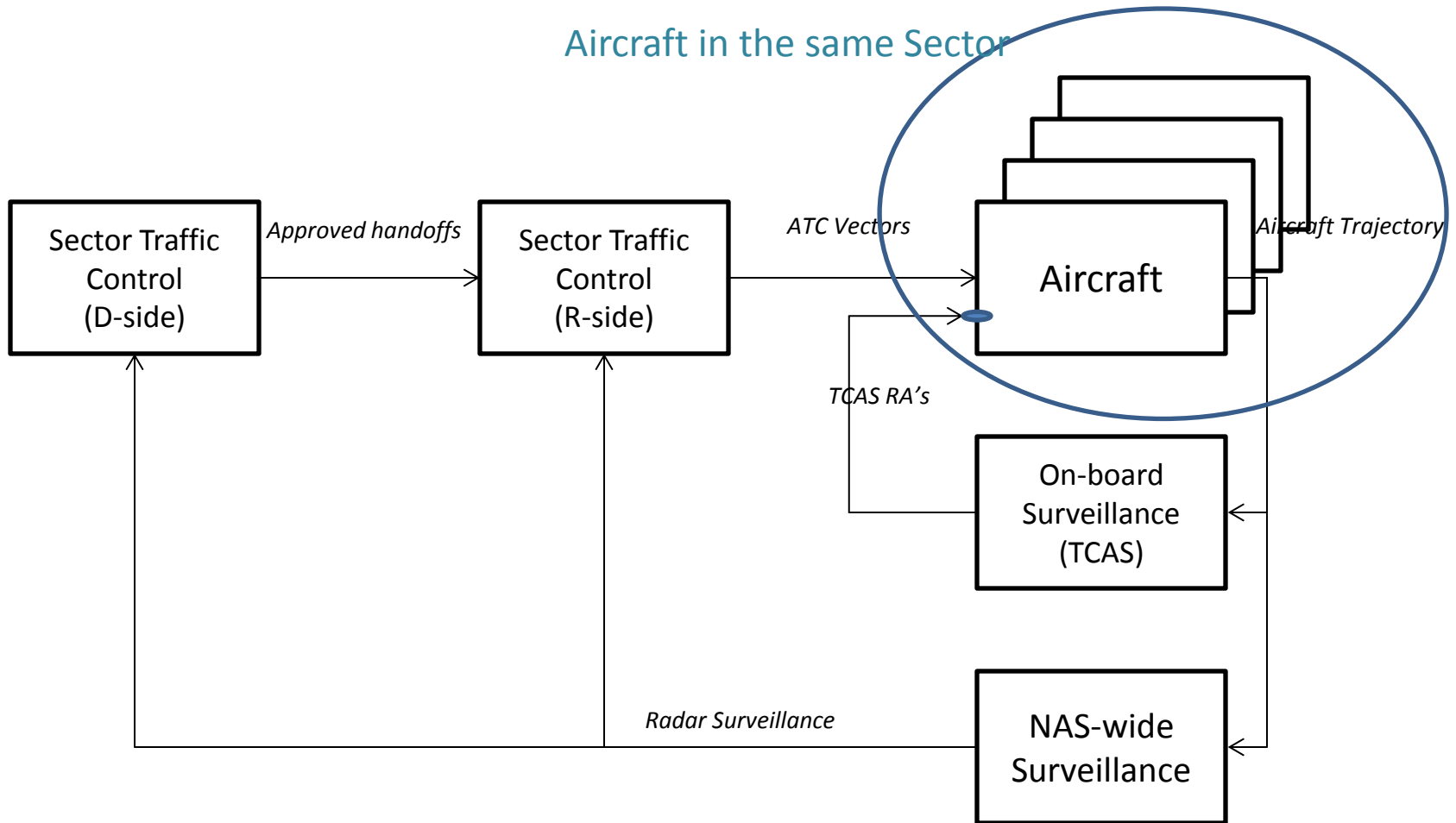
# Closed-loop Control



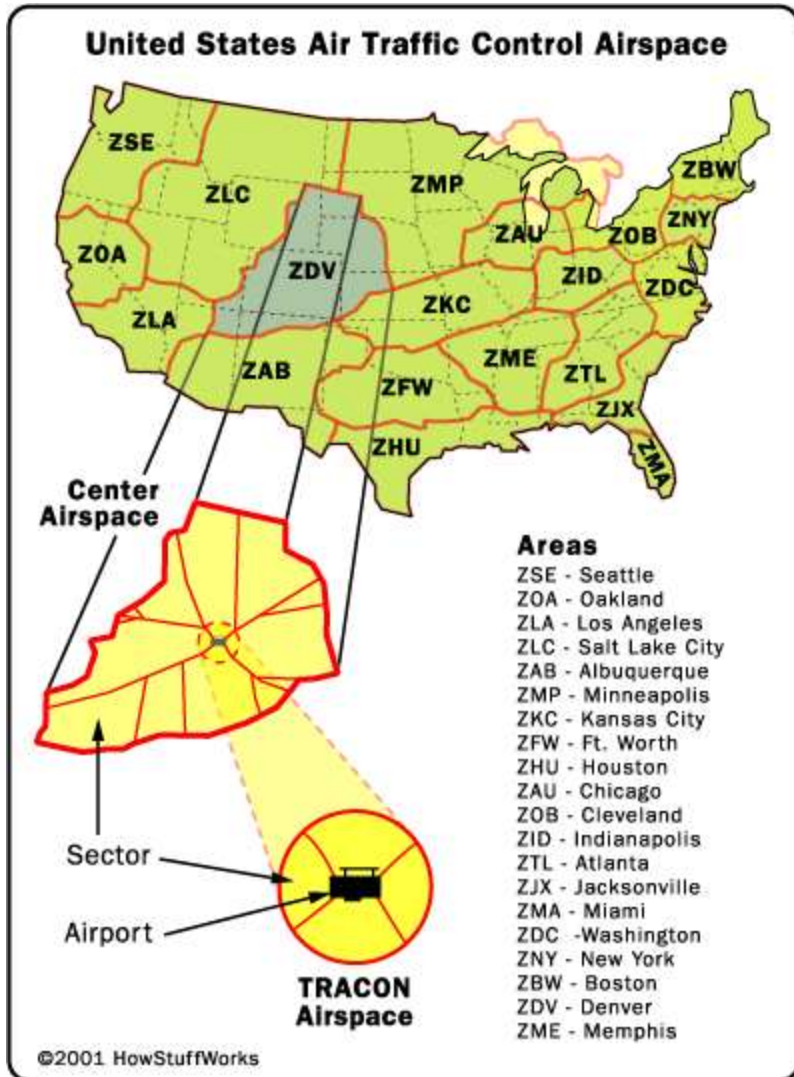
# Closed-loop ATC



# Closed-loop AATC



# Airspace Organization

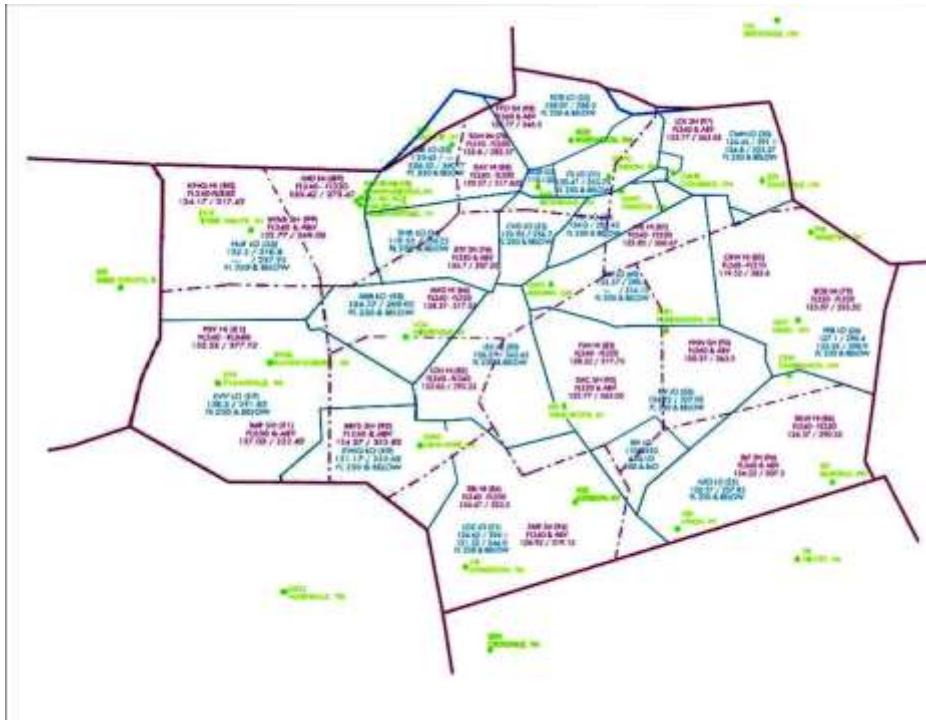


## Airspace

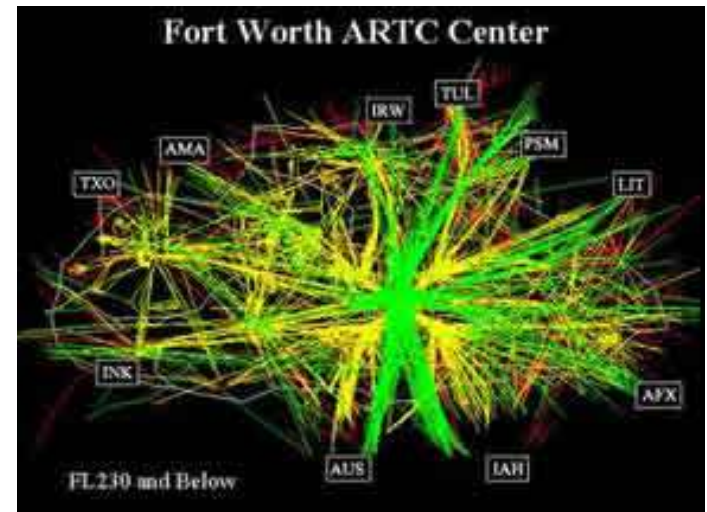
- Centers
  - Sectors
  - TRACONs
    - Sectors
    - Towers
  - Approach/Dep
  - Sectors
  - Ground
  - Ramps

# Sectors

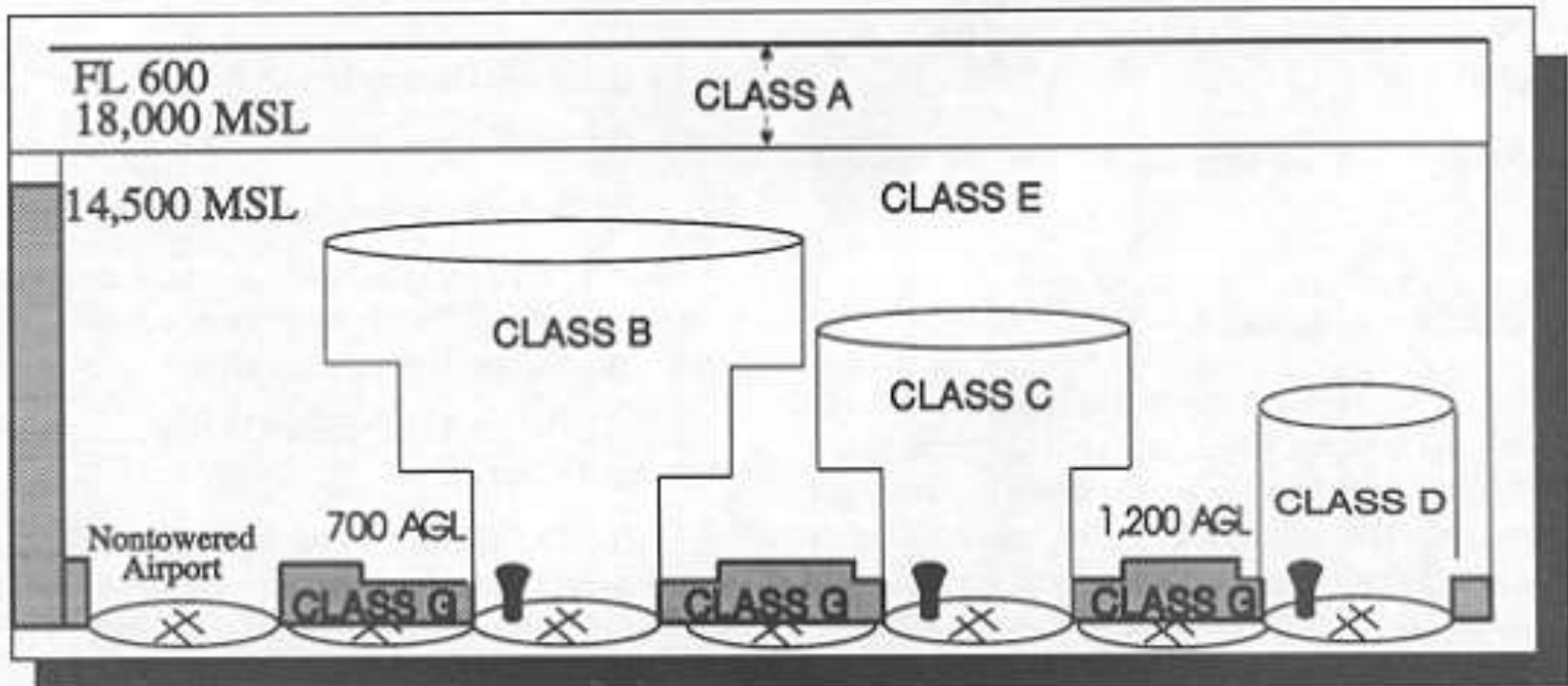
ZID Sectors



DFW Flows



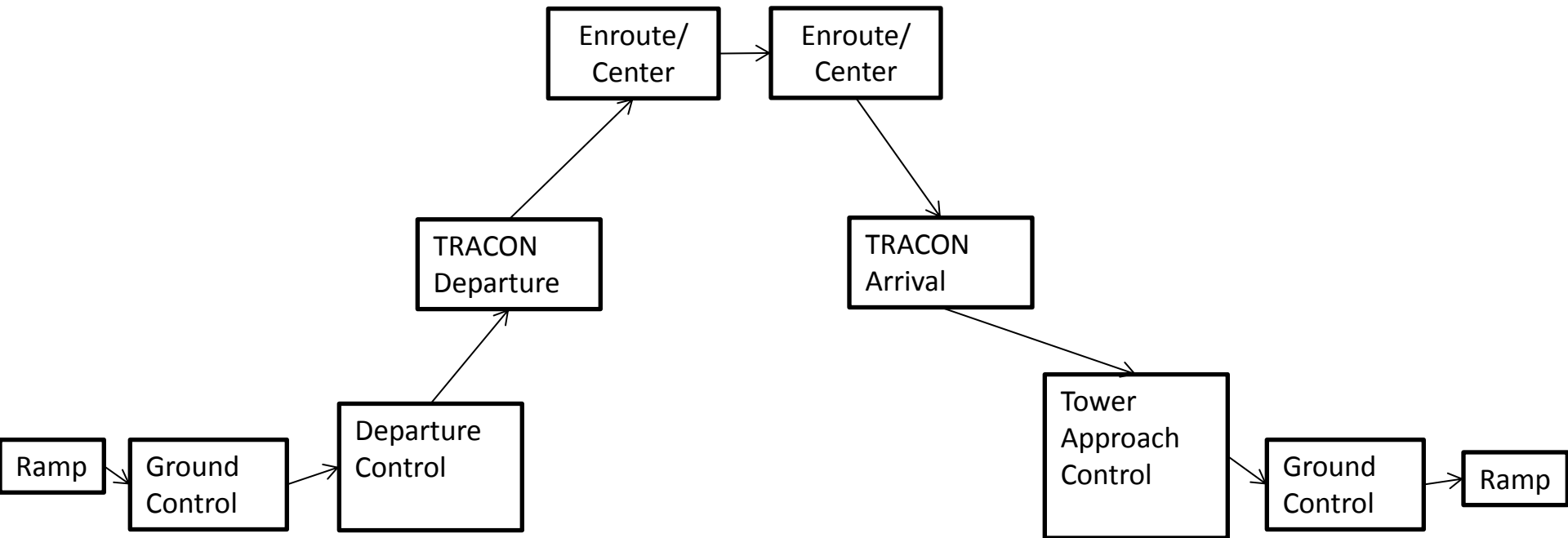
# Airspace Classes



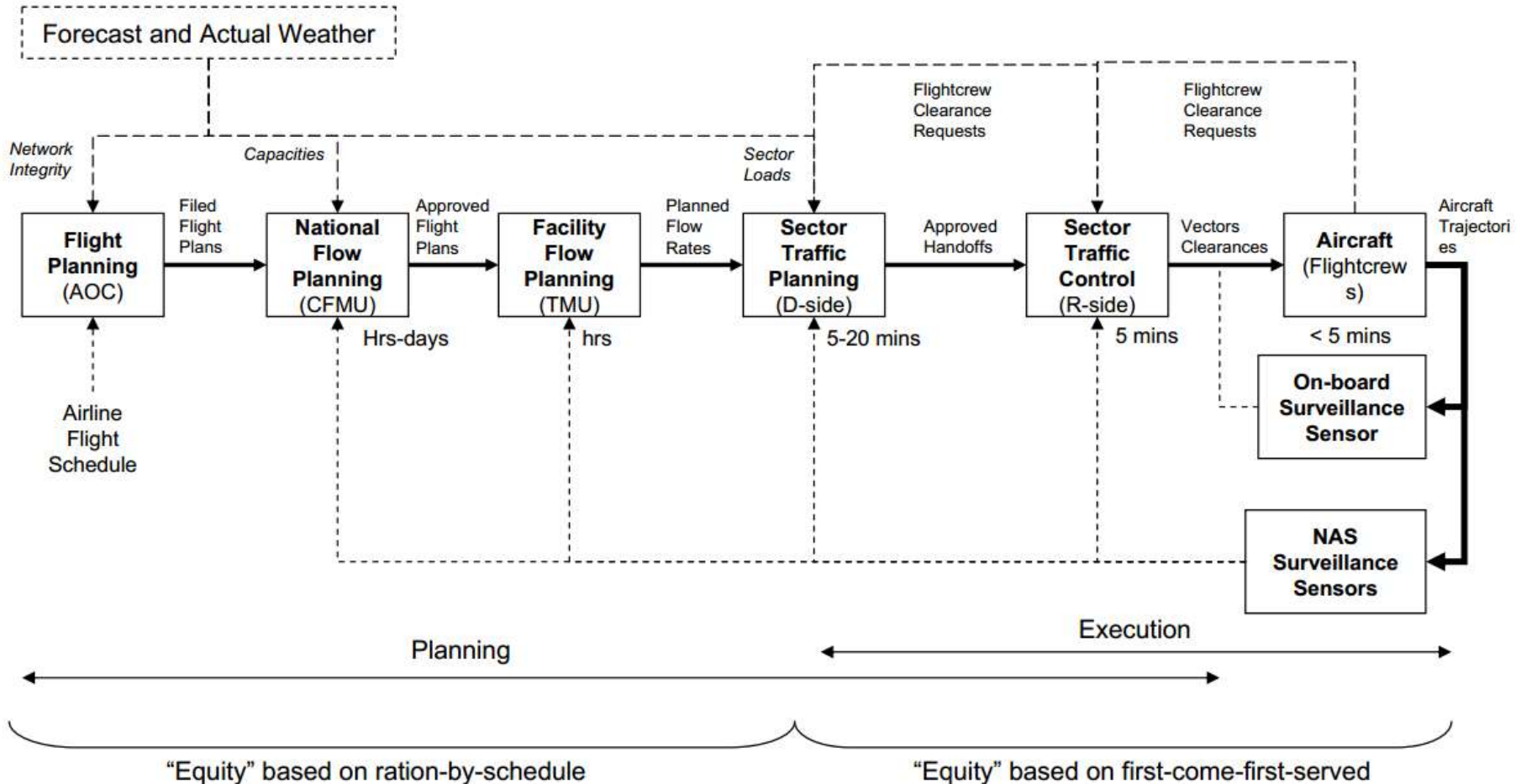
MSL - mean sea level  
AGL - above ground level  
FL - flight level

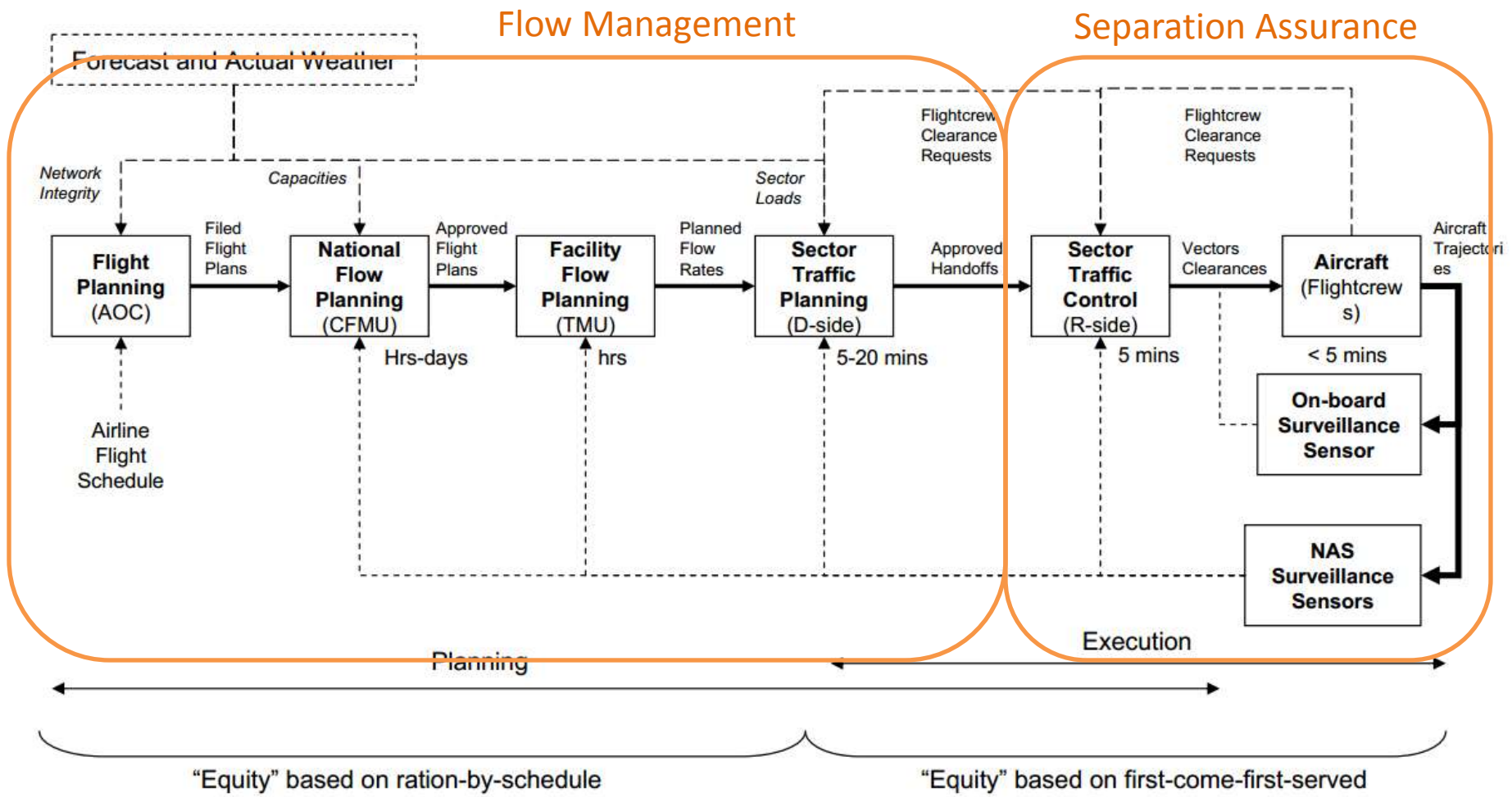


# ATC for a Typical Flight



# Nested-loop Model of ATC





Based on Haraldsdottir, Schwab, Alcabin (2001) and Corker et.al. (2004)

# SWYK - Quiz

1. What role does a Filed Flightplan have in ATC?
2. What principle is used to allocate a slot to two flights arriving at the same time?
3. What principle is used to allocate a slot to flights forecast to arrive at the same time?
4. Explain what problem Traffic Flow Management solves
5. Explain how Traffic Flow Management works.