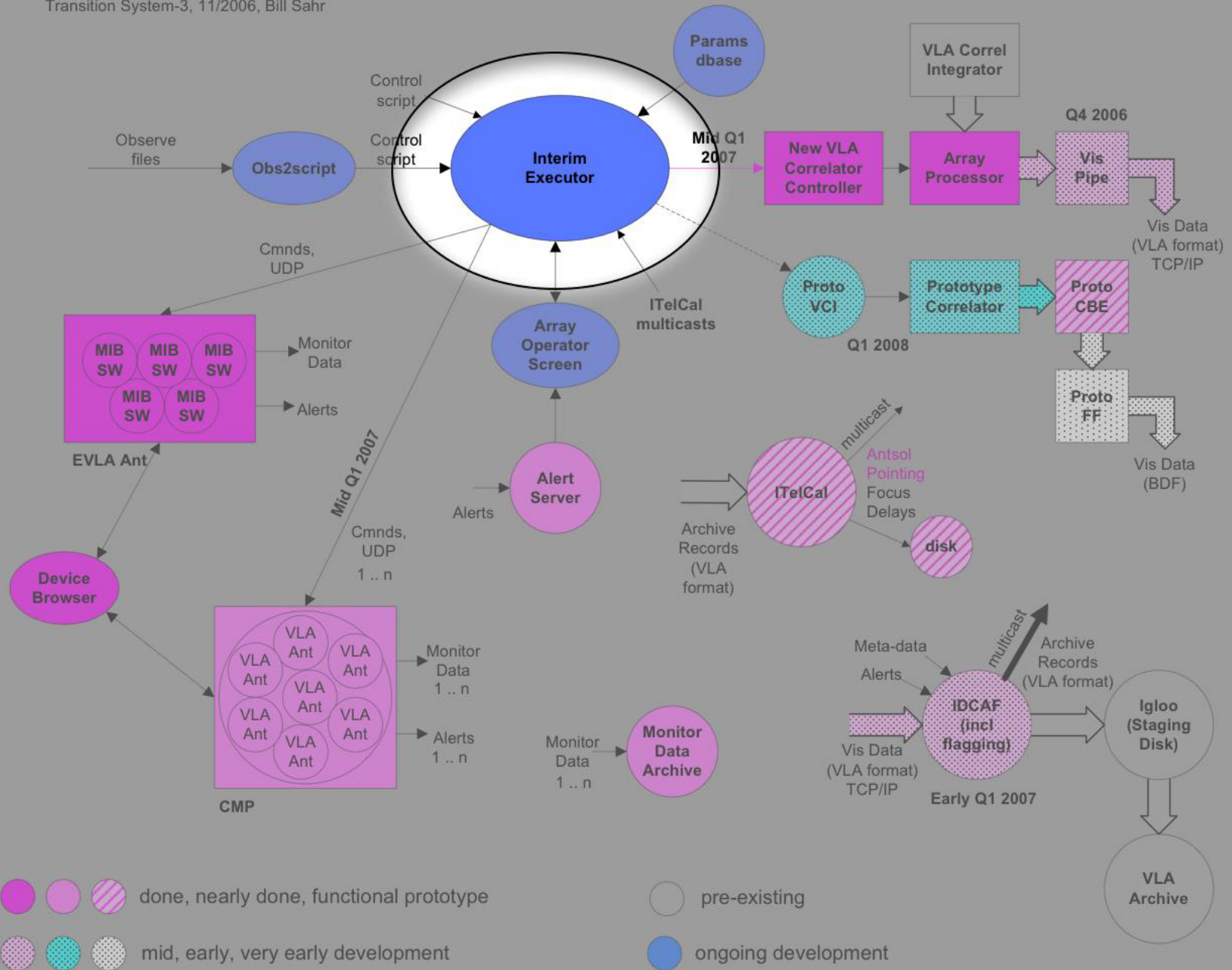


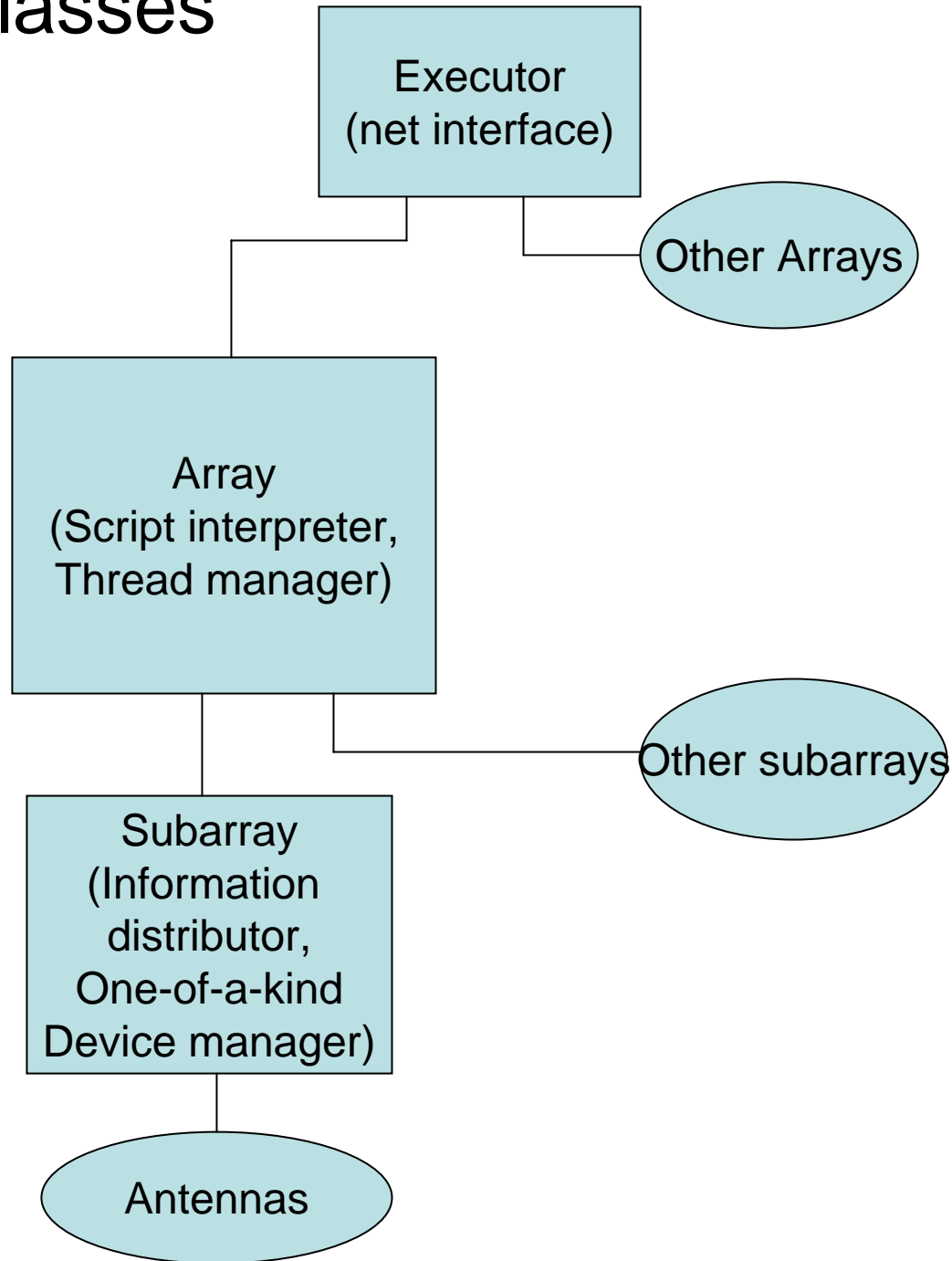
# MONITOR AND CONTROL EXECUTOR

REAL TIME PROGRAM



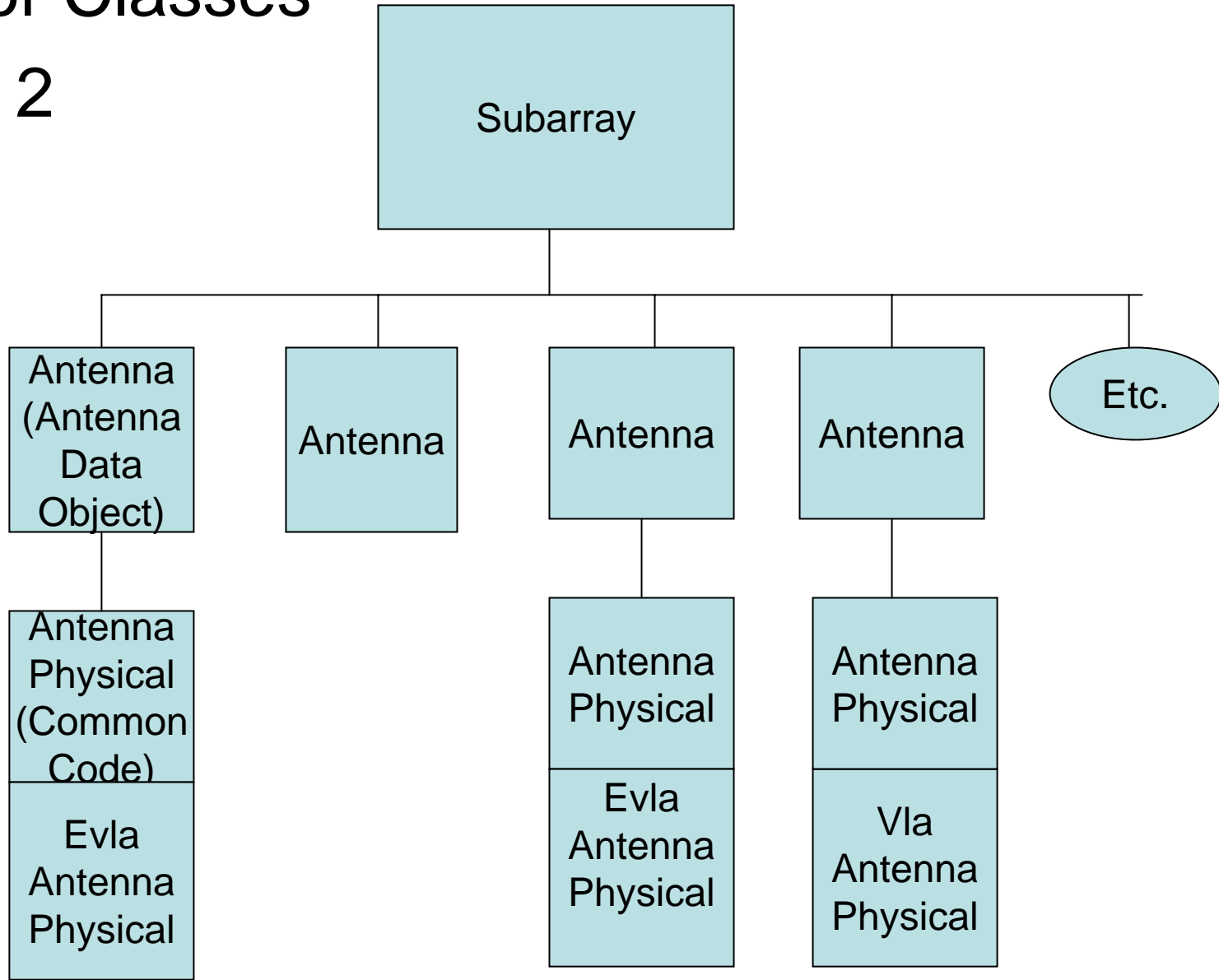
# Major Classes

## Part 1



# Major Classes

## Part 2



# Threads

- Script interpreter thread
- Systole thread – (actually sends data to devices)
- Modcomp listener (for synchronizing with old Modcomp system)
- Weather listener (for getting weather from weather station for calculating refractivity)
- Telcal listeners
  - Pointing, for referenced pointing
  - Phase, for autophasing
- Device listener (Coming soon)

# Device Listener

- Apply round-trip phase measurement to LO phase
- Ensure that antenna always takes the shortest route to new source
- Further in the future
  - Determine if level setting can be skipped
  - Determine if subreflector commands can be skipped
  - Handle flags at start of observation

# Minor Classes

- EvlaMechanicalModel extracts parameters from the parameter database and holds them ready to use
- VlaCorrelator runs the VLA correlator and other VLA one-of-a-kind devices
- Data containers
  - Pointing (az, el, delay, uvw for a particular antenna)
  - LofSetup (for EVLA)
  - VLALofSetup
  - VlaCorrelatorSetup

# Sequence of events

- As soon as an observation starts, script interpreter reads the description of the next one
- The information for the next observation is stored in the Antenna objects
- A description of the observation is sent to IDCAF
- Three Pointings are prepared for the time it is to be executed.
- Antenna objects attached to an AntennaPhysical are cloned and queued in it



# Sequence of events II

- Shortly before the given execution time, when the previous observation has no more commands to send, the Systole thread sends setup information to devices labeled with execution times.
- At regular intervals (currently 10 seconds), the Systole thread sends a new set of fringe rates, phases and accelerations to the L302s, delays and delay rates to the VLA correlator controller, and  $u, v, w$  to IDCAF.