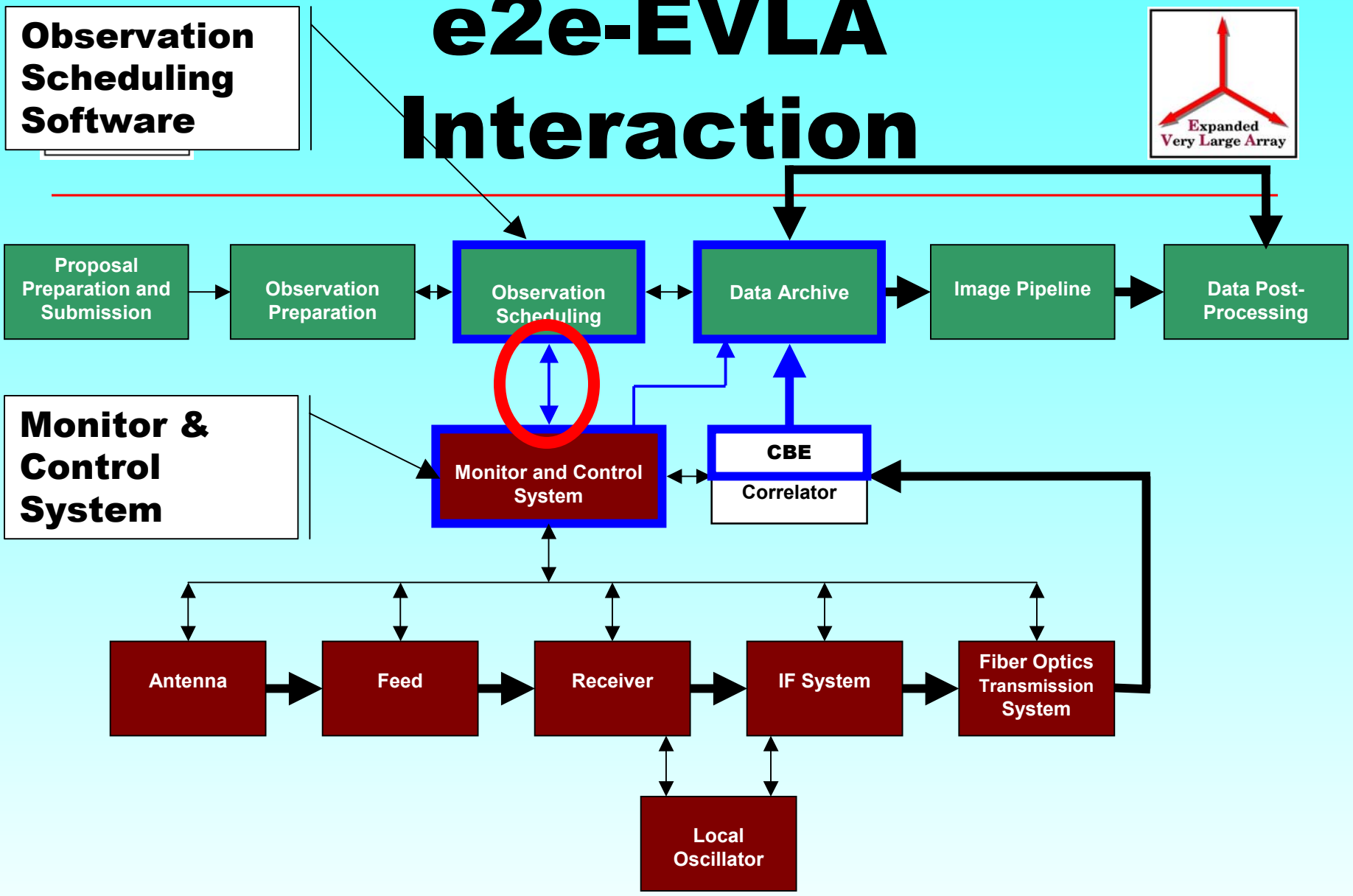
EVLA Data Processing PDR

Observation Scheduling

Boyd Waters, NRAO

e2e-EVLA Interaction



e2e-EVLA II

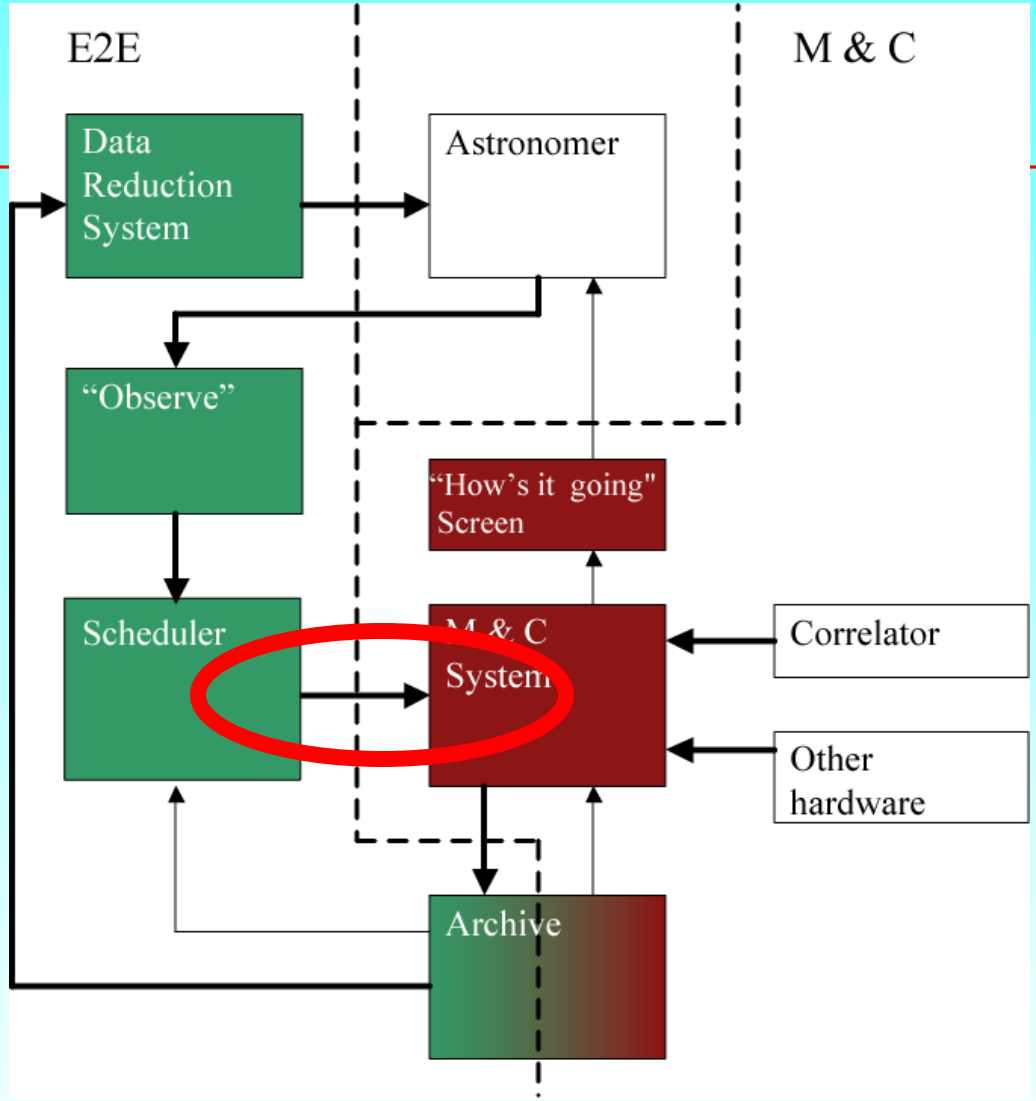
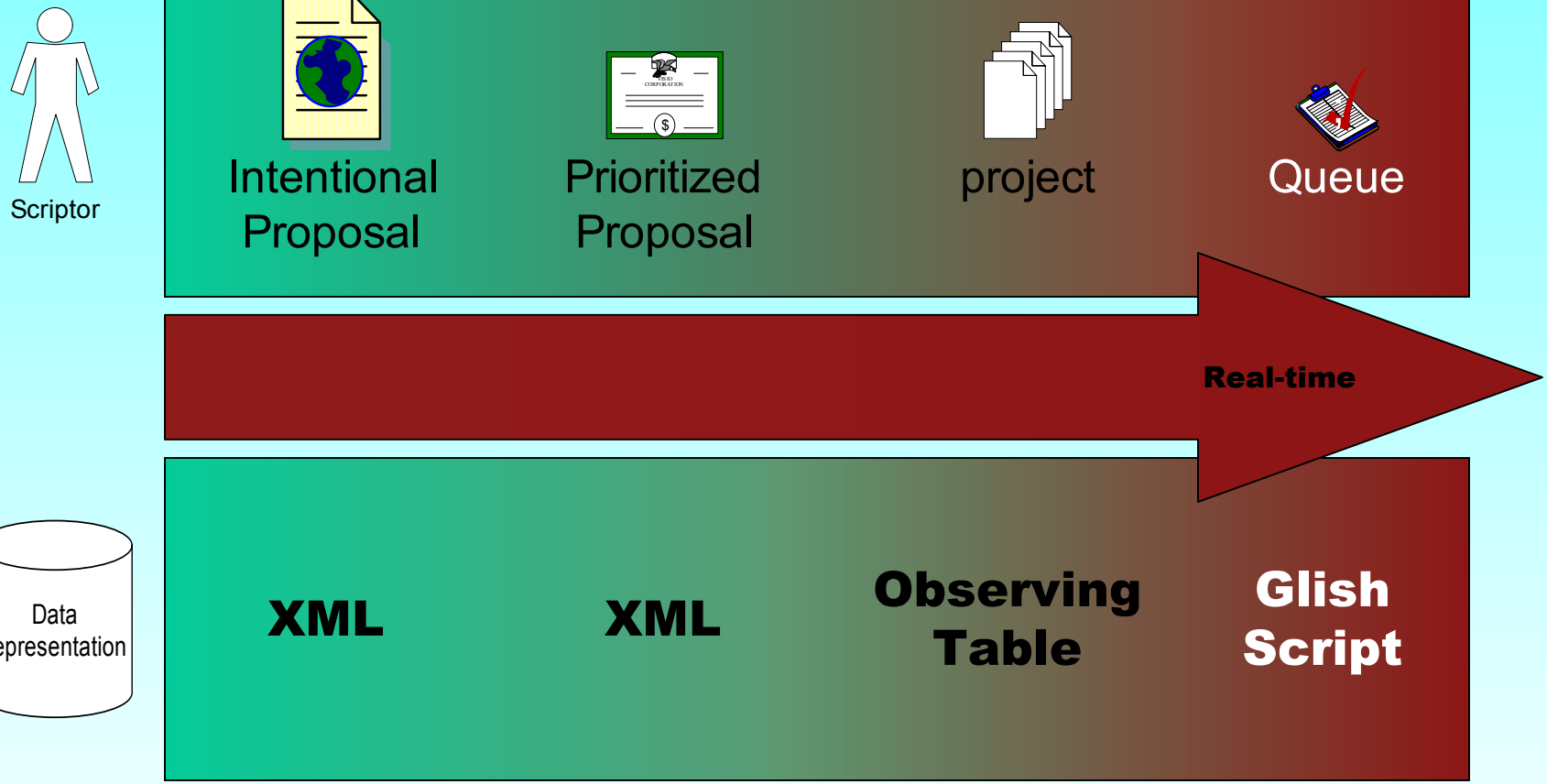
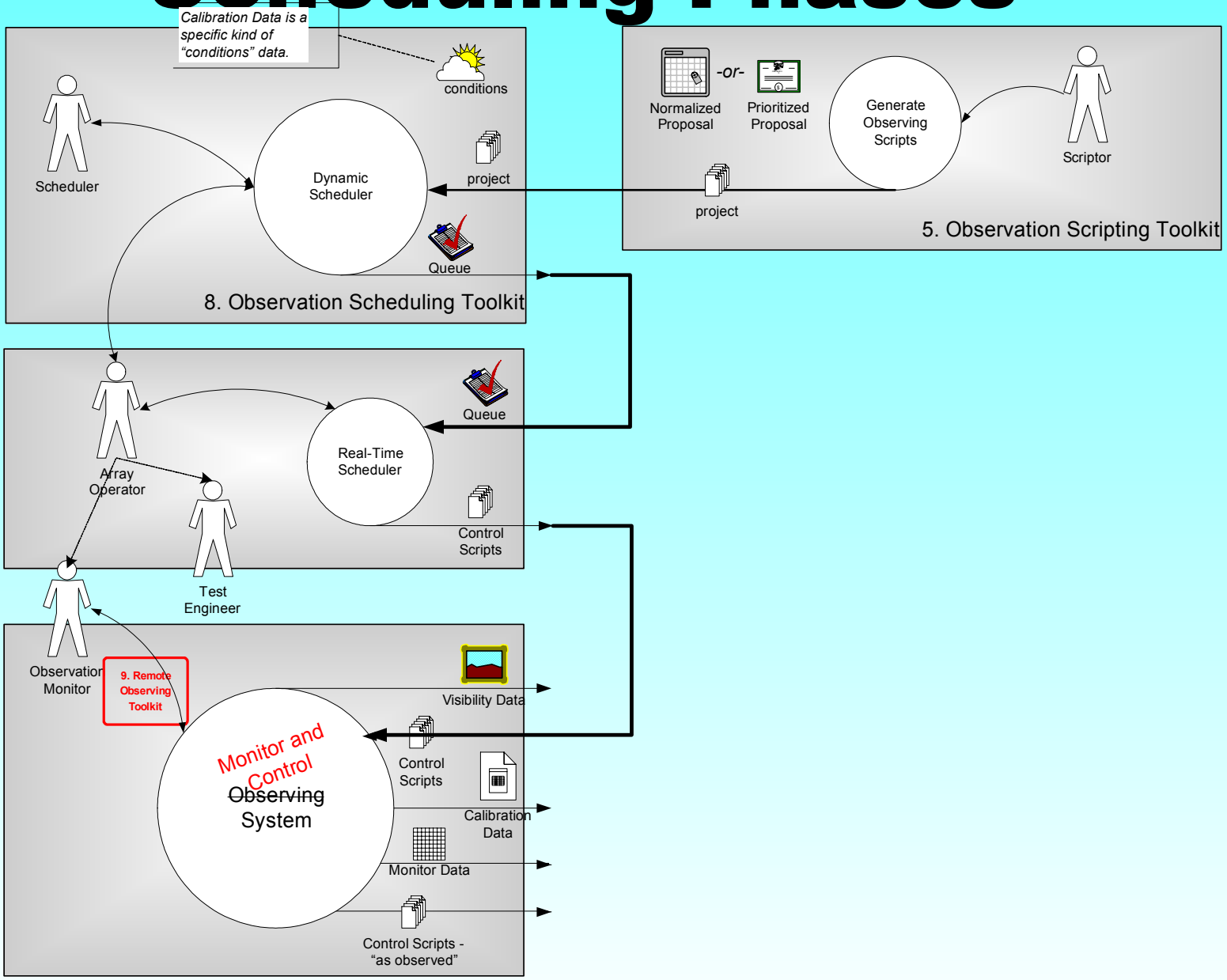


Diagram Design: B. Clark

Observation Scripting Path



Scheduling Phases



Dynamic Scheduling

Structure the Observation…

…so that we can…

Respond to Events on a Short Time Scale

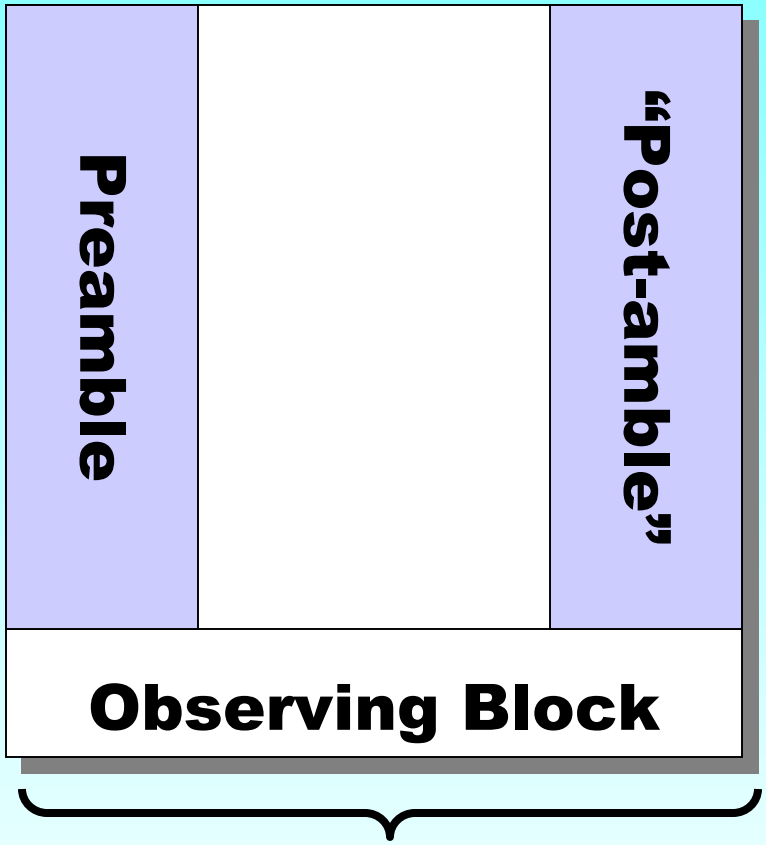
Changing conditions (e.g. weather)

Targets of Opportunity (e.g. GRBs)

…

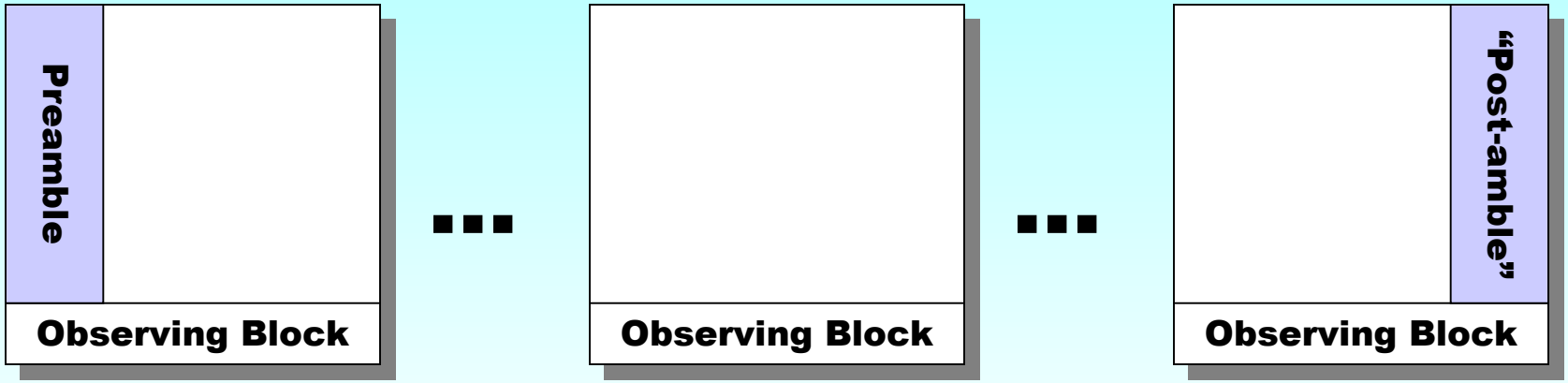
→Block-Based Scheduling

Observing Block



Observing "Session"

- A series of blocks
- Preamble is run ONLY for the FIRST
- Post-amble is run ONLY for the LAST



Observing Block Constraints

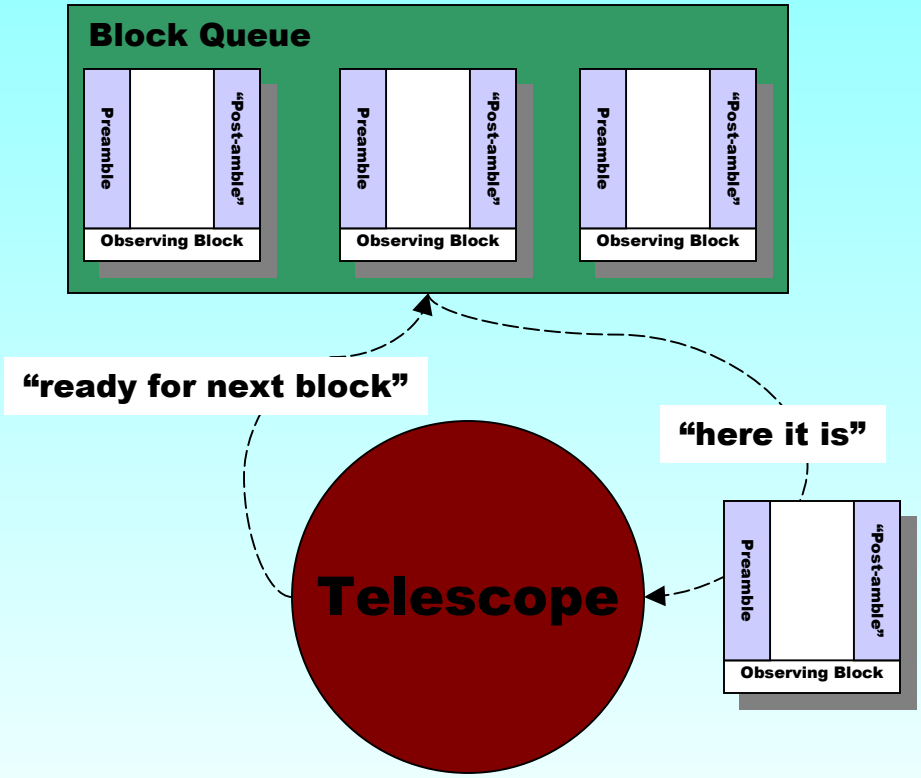
- "Run this block until the calibrations converge"
- "I can't run unless the previous block has run successfully"
- "I MUST run at 16:42:30 GST on 30 May 2002"
  - (fixed scheduling is dynamic scheduling with time-domain constraints)

Block Templates

- Debug blocks
- Template blocks
- “Default” blocks

Block-Based Scheduler

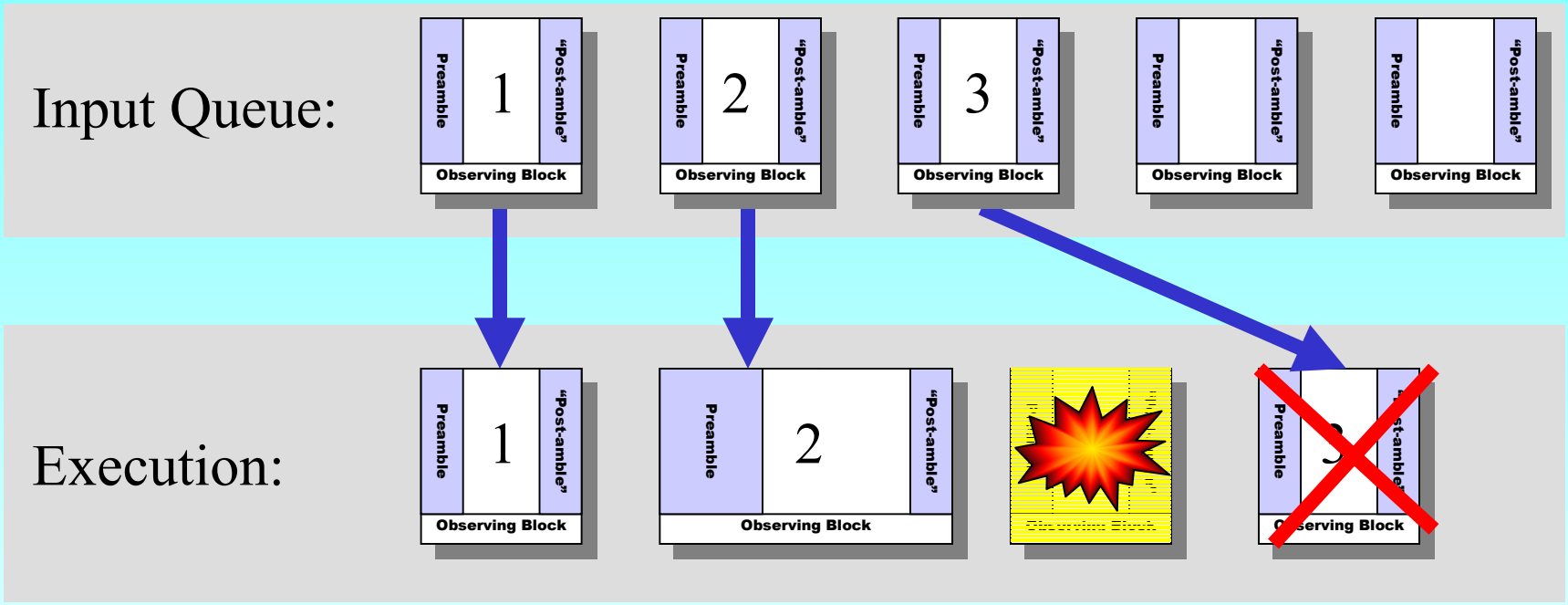
Telescope sees **ONE BLOCK AT A TIME:**



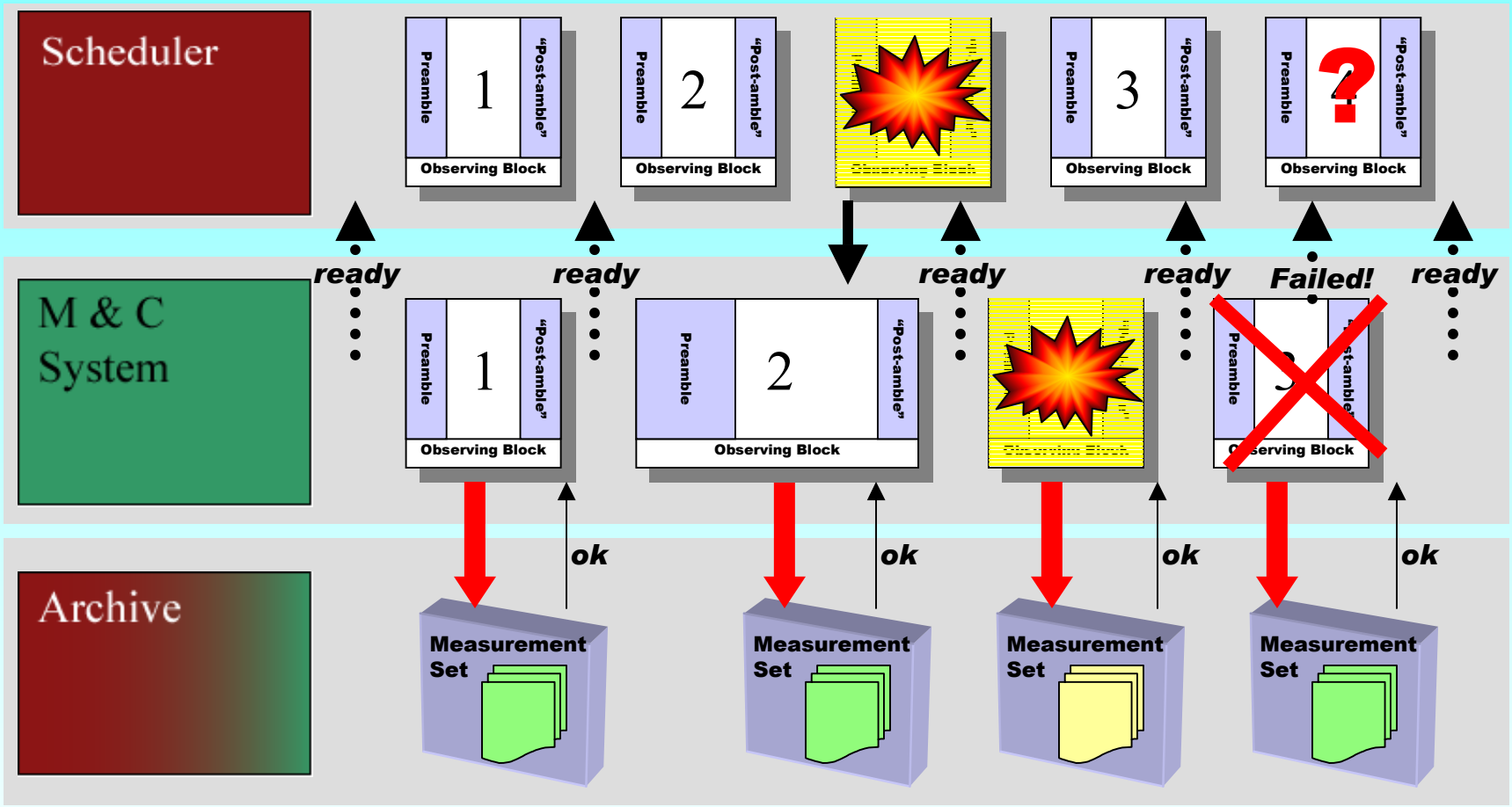
Implications:

- Simplifies the telescope state data
- Telescope reports block execution status back to the block queue
- All "observing logic" is maintained by the Block Queue

Block Execution



Block Execution: Detail



Next Steps

- Gather and Codify Requirements
  - Observing Block constraints
- M&C ⇔Observing System Interaction
  - Formal Model
- Observing System Scripting
  - How instrument commands and observing constraints are expressed