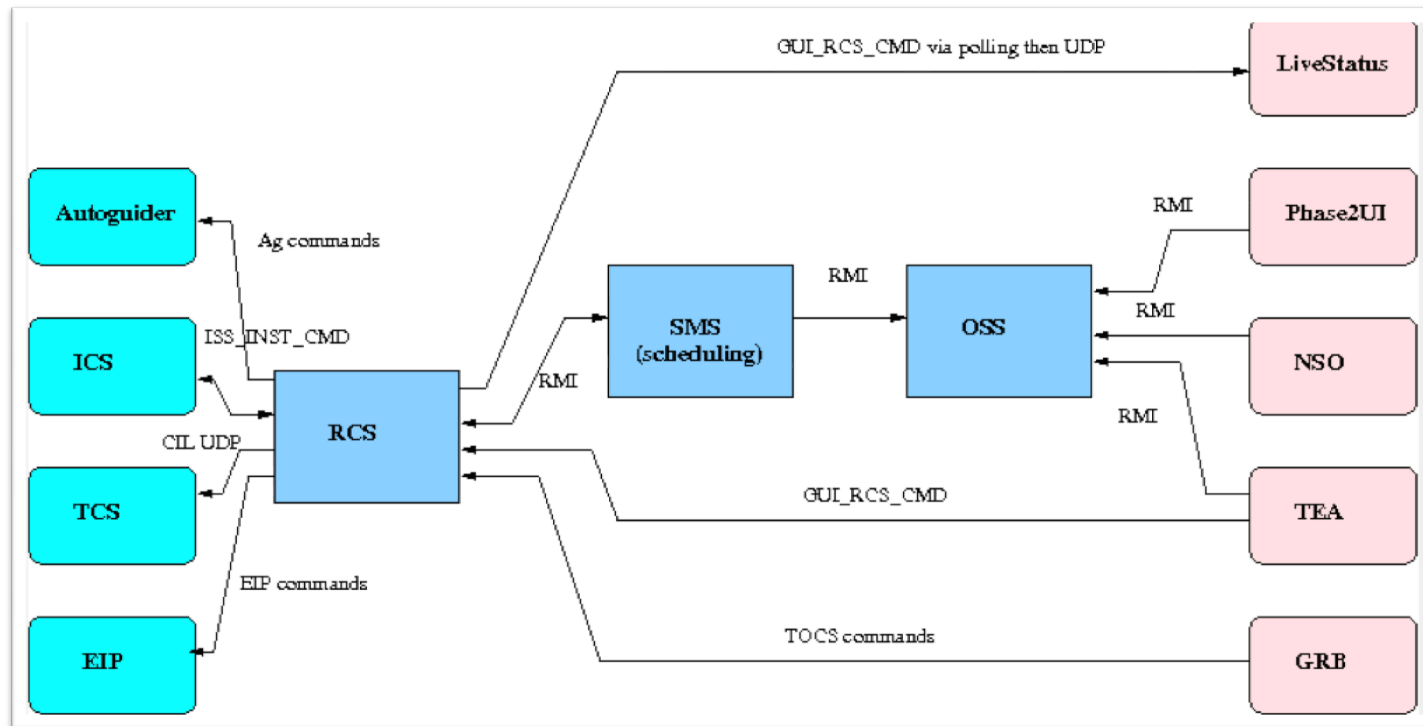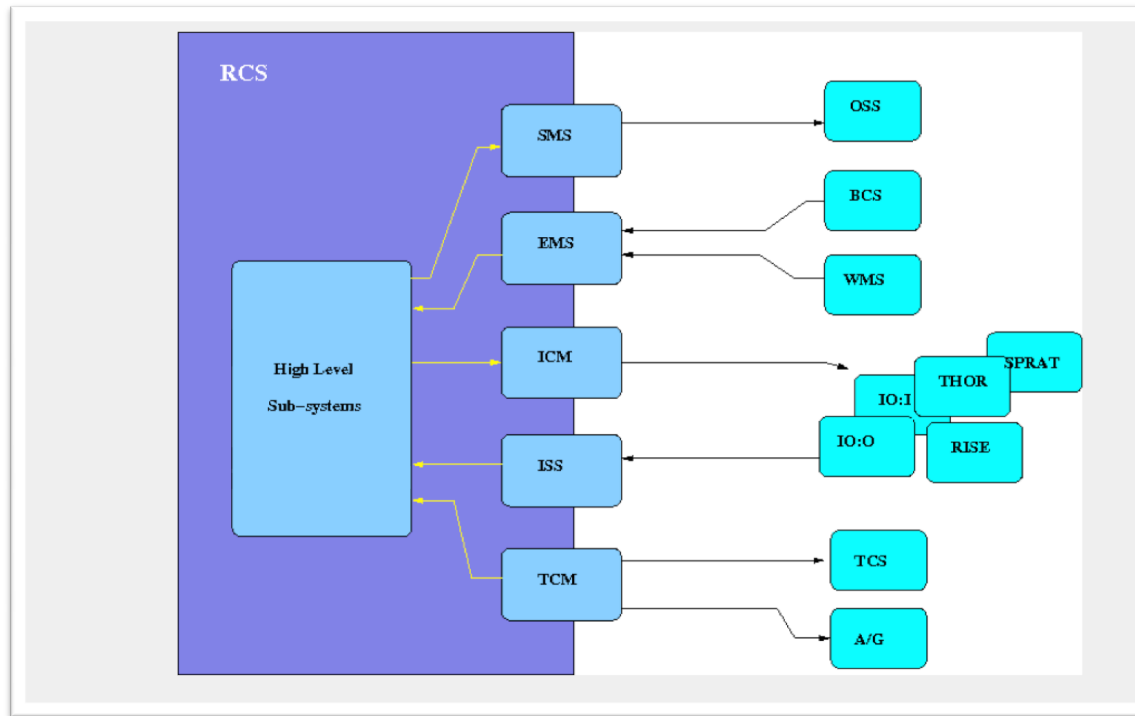# Robotic Control System

Top Level Overview

RCS WITHIN OVERALL SYSTEM

Communications paths and message types passed between systems. Note the variety of different mechanisms.

SYSTEMS CONTROLLED AND MONITORED BY RCS.

High level sub-systems not shown in detail.

SUB-SYSTEMS - LOW LEVEL

- TCM (Telescope Control and Monitoring)
  - Provides information about telescope capabilities and a hook to attach status listeners. Monitors TCS and Autoguider.
- ICM (Instrument Control and Monitoring)
  - Provides information about instrument capabilities and hooks to attach status listeners. Monitors instruments for health and connectivity.
- EMS (Environmental Monitoring System)
  - Provides information about sky conditions (seeing, photom) and weather (WMS, BCS, Dust).Updated using DPRT results.
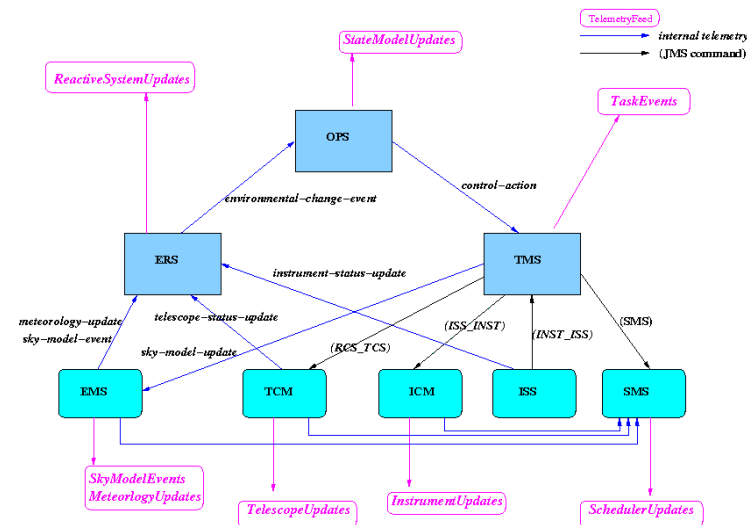
SUB-SYSTEMS - HIGH LEVEL

- ERS (Environmental Reactive System)
  - Accepts telemetry from the EMS, TCM, ICM.
  - Filtering of inputs.
  - Triggers rules which feed into State Model.
- TMS (Task Management System)
  - Controls the operations of the telescope.
  - Makes decisions on what to do, when and how.
- OPS (Operations subsystem)
  - Finite state-model fed from ERS environmental change events .
  - Operations Manager performs actions through TMS.

INTERCONNECTIONS

- Comms with external systems
  - via JMS - serialized objects and CIL.
- Recent sub-systems
  - communicate via RMI through..
    - EnvironmentChangeListener
    - MeteorologyUpdateListener
    - TelescopeUpdateListener
    - InstrumentUpdateListener
    - SkyModelListener
    - ControlActionImplementor
    - others....
- Most sub-systems generate external telemetry feeds.

PACKAGES

(rcs packages are found under: ltdevsrv: ~dev/src/rcs/java)

High Level

- ngat/rcs/
- ngat/rcs/tms
    - ngat/rcs/tms/events
    - ngat/rcs/tms/manager
    - ngat/rcs/tms/executive
- ngat/rcs/ers
- ngat/rcs/ops
- ngat/rcs/newstatemodel

- ngat/rcs/calib
- ngat/rcs/sciops
- ngat/rcs/tocs
- ngat/rcs/pos

Low level

- ngat/rcs/comms
- ngat/rcs/control
- ngat/rcs/telemetry
- ngat/rcs/iss

External sub-systems

(not under rcs source tree)

- ngat/tcm
    - (~dev/src/ntcm)
- ngat/ems
    - (~/dev/src/ems)
- ngat/icm
    - (~dev/src/icm)
- ngat/net/cil
    - (~dev/src/cil)

(Semi)-Obsolete

- ngat/rcs/emm
- ngat/rcs/oldstatemodel
- ngat/rcs/oldscience
- ngat/rcs/scm
    - ngat/rcs/scm/collation
    - ngat/rcs/sc m/detection