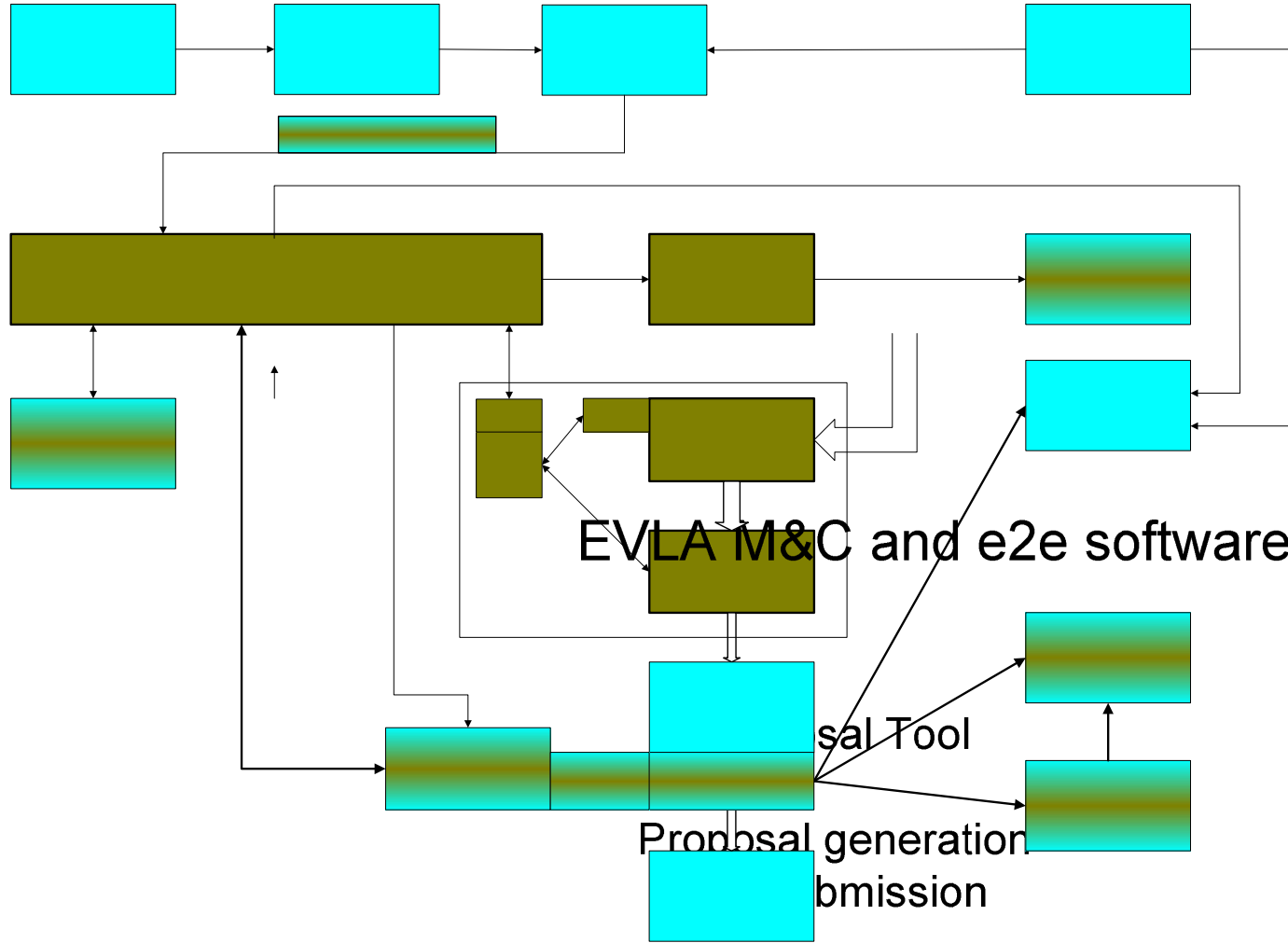


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# EVLA Monitor & Control

# EVLA M&C and e2e Software

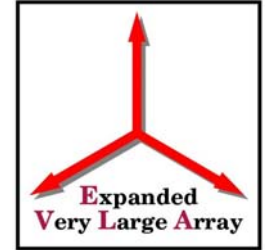


Observation  
Program  
submission  
Scheduling

SBs, including



# Requirements

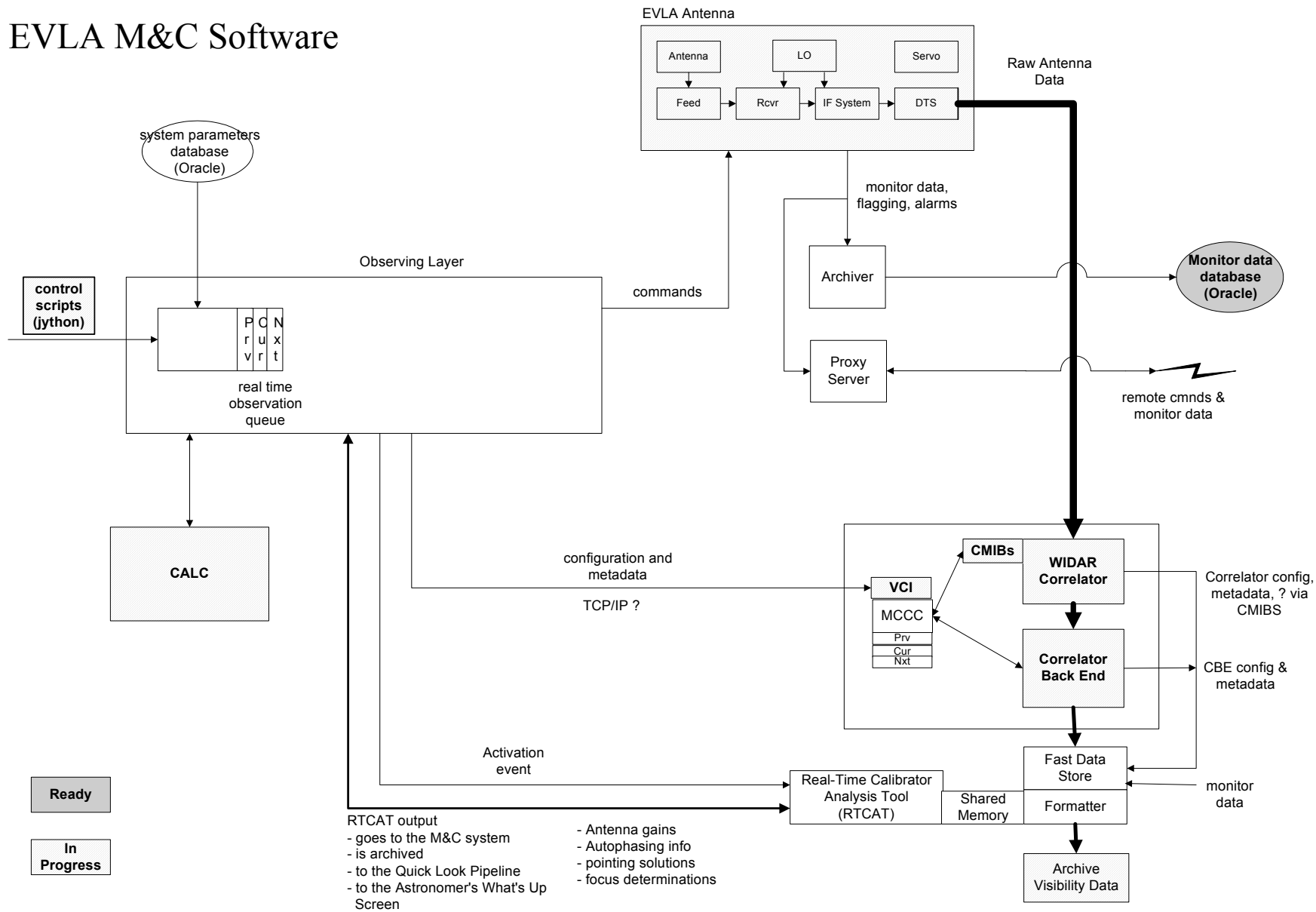


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We now have requirements produced by the NRAO user community rather than Computer Division internally generated documents.

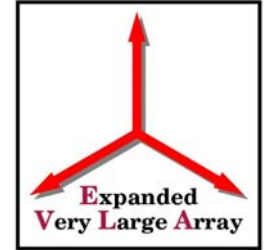
- EVLA e2e Science Software Requirements, April 15, 2003
- EVLA Data Post-Processing Software Requirements, July 3, 2003
- EVLA Array Operations Software Requirements, June 6, 2003
- EVLA Engineering Software Requirements, August 8, 2003
- EVLA Science Requirements for the Real-Time Software, to be started 9/2003
- Scientific Requirements for the EVLA Real-Time System, Sept, 2000

# EVLA M&C Software





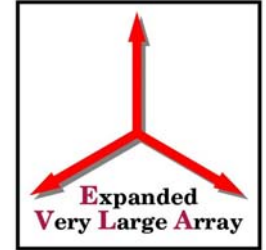
## Antenna MIBs



- MIB – Module Interface Board
  - Refers to the TC11IB processor board that will be used to control antenna subsystems
  - 96 MHZ processor
  - 1.5 Mbytes on-chip RAM
  - 8 Mbytes Flash
  - SPI bus
  - GPIO (parallel I/O lines)
  - Ethernet Interface



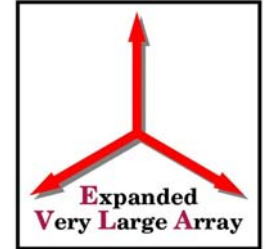
## Antenna MIB Software



- 
- Quality of the MIB software is seen as crucial to the quality of the EVLA M&C software
  - The MIB software consists of:
    - Systems software
    - MIB framework software
    - Module software



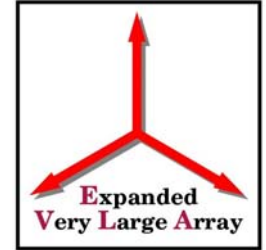
# MIB Systems Software



- RTOS kernel
- Network stack
- Telnet server
  - Automatically activates the shell
- Shell
  - Shell provides memory display and memory modification
  - Shell is being extended to provide module specific commands & displays
- All of the systems software is up and running on MIB hardware



## MIB Framework Software

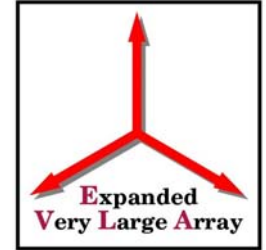


- 
- Common to all MIBs
  - Device definition, instantiation, and initialization
  - A data port, broadcasts monitor data
  - A service port
    - Accepts time-tagged commands
    - Information services
  - C++, ASCII text, XML, Xpath (likely),





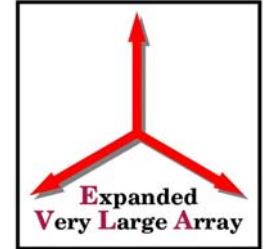
# MIB Module Software



- 
- HW module specific, chiefly written in C
  - Responsible for
    - Device Control
    - Collection of monitor point values
    - Warnings, errors, alarms
  - L301 (12-20 GHZ synthesizer) module software has been tested
  - L302 (10.8-14.8 GHZ synthesizer) module software currently under development



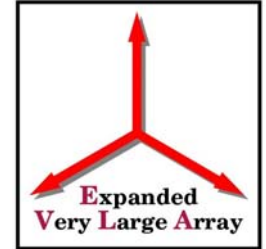
# Device Browser



- Generic, discovery-based, remote client application
  - Obtains a list of all devices connected to a MIB
  - Obtains a list and description of all monitor and control points associated with a device
- Can display any/all monitor point values for a device
- Can modify monitor point attributes
- Can be used to command devices
- Peek/Poke capabilities
- Multiplatform, written in Java



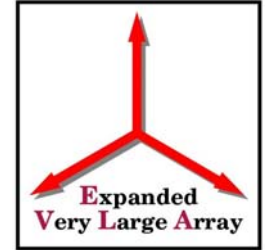
## ALMA/EVLA Cooperation



- 
- At the low levels there is little commonality between the AMLA & EVLA M&C systems. The differences are driven by differences in the hardware.
  - We hope sharing can occur at the higher levels of the two systems.
  - Ralph Marson of ALMA and I have agreed to begin monthly meetings to explore the possibilities for sharing designs and code at the higher levels of the two systems.



## Questions/Issues



- 
- Are we headed in the right direction ?
  - Overall design ?
    - Have we now positioned ourselves to produce a high quality overall design?