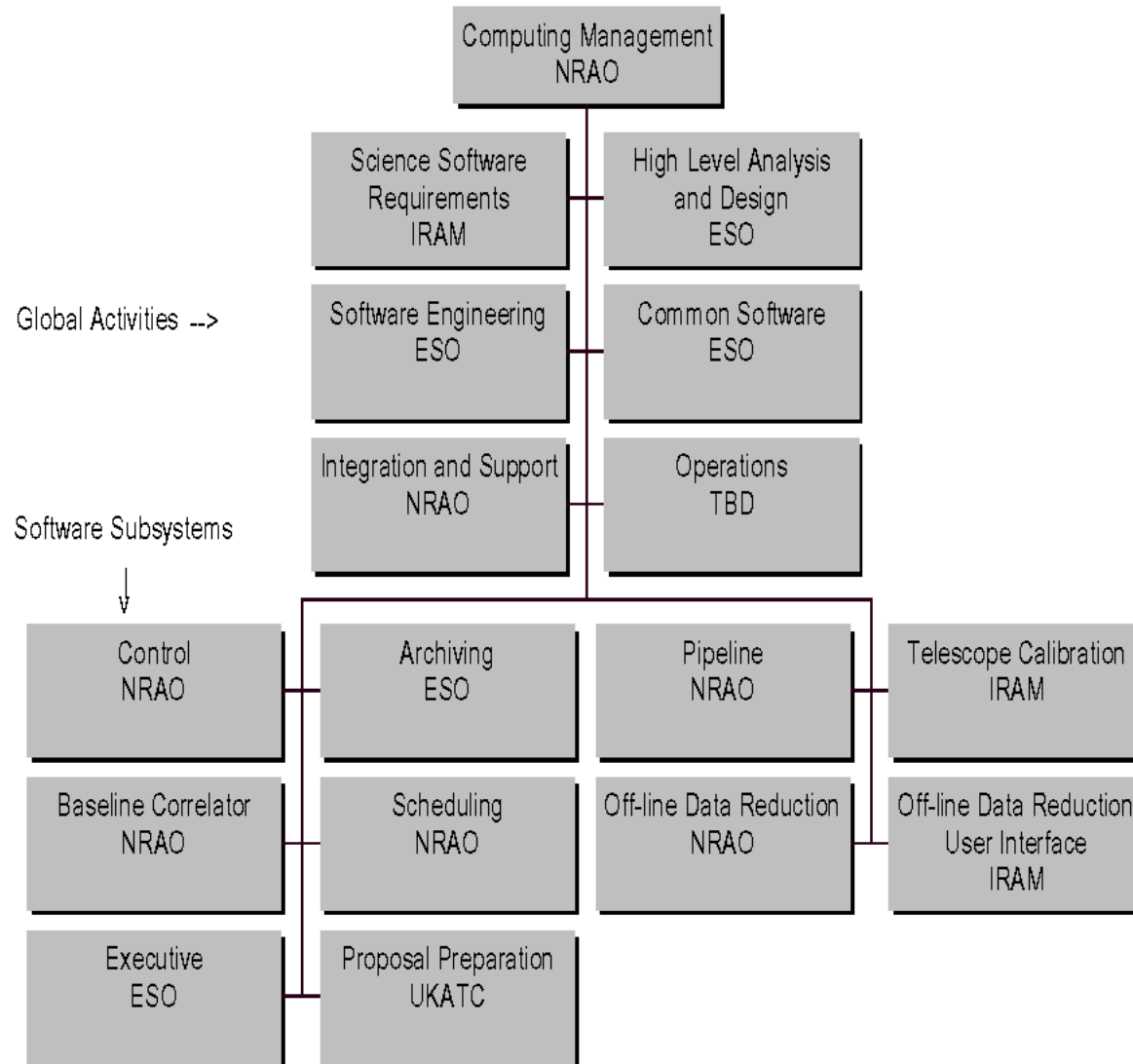


ALMA Software Development Groups



Current Status (General)

- About $\frac{1}{2}$ the groups have been activated
 - Also about $\frac{1}{2}$ the staff
- Final ALMA software capabilities are now well defined (by the SSR)
- “Data flow” (pipeline, archive, ...) design and implementation activities are in early phases
 - Not funded in Phase 1
- Control, correlator, and common (“infrastructure”) software have had several releases aimed at ATF support
 - M&C hardware interfaces mature
 - Software tests with Vertex ACU, in-house simulator, NRAO/Steward 12m telescope.
- AIPS++/IRAM tests nearing conclusion.
 - Final report next few weeks, apparently successful

Why are we here?

(Computing meetings)

- Phase 2 software management meeting
- Science Software Requirements meeting

Software Management Meeting

- Discuss 15 draft software development group agreements (“contracts”)
 - Goal: approve all by start of construction
 - Purpose of this meeting: discuss problems discovered while preparing drafts (e.g., incompatible delivery schedules)
- Two-customer model
 - Science, via a per-subsystem project scientist appointed from the SSR
 - Software group, via deliveries to an integration team and regular “contract performance” meetings
- 6-month software release cycle and yearly incremental CDR’s
- Initial delivery of all subsystems to interim science operations

Science Software Requirements Meeting

- Phase 2 (Subsystem scientist) organization
- “Core program” discussion (from ASAC)
- Elaborated pipeline and archive requirements review responses
- Simulator requirements and prioritization
- AIPS++ “audit” plans
- AIPS++ benchmarking plan

Recent activities by development group

- Computing management
 - Phase 2 software management and subsystem agreement draft template review
 - Based on IEEE 1058
- SSR
 - Off-line requirements review completed
 - Elaborated pipeline and archive requirements review started
 - Simulation requirements and prioritization started

- High-level analysis and design
 - Initial Software Analysis reviewed (but not yet revised)
 - Architecture/high-level design document in pre-review
 - External consultant hired
 - Overview of approach (favorable)
 - Advice on technical issues (emphasize Java, container-based approach)
 - Prototyping activities in Java
 - To provide a technical architecture baseline

- Software Engineering
 - ALMA SE practices document reviewed (but not yet revised)
 - Tool investigation (e.g., memory errors, metrics)
 - Computer hardware and software standards draft
 - Monthly software problem report/software change control board meetings
- Common software
 - Version 1.1 software release (for ATF)
 - Solaris, Linux & VxWorks
 - Major software reuse from accelerator control system

- Control software
 - Version 0.2 release (antenna motion)
 - Vertex ACU acceptance tests
 - Embedded software (optical telescope, holography) and other ATF tasks
 - Final ATF computing/network equipment ordered
- Correlator software
 - Test correlator simulation and common software integration
 - Test correlator may be abandoned
 - CAN software for baseline correlator LTA control

- Archiving
 - Design concept distributed internally
 - ALMA requirements are different from those of a traditional astronomical data center
- Proposal preparation (observing tool)
 - Some prototyping activities
 - Design concept and prototype description document under review
- Off-line data reduction
 - AIPS++/IRAM feasibility study nearing completion (next few weeks)