

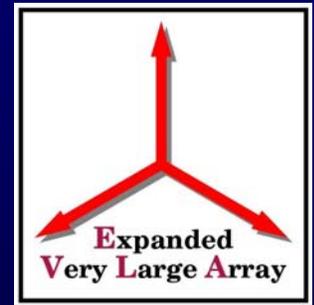
Scientific Requirements

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EVLA Project Scientist for Software



Documents



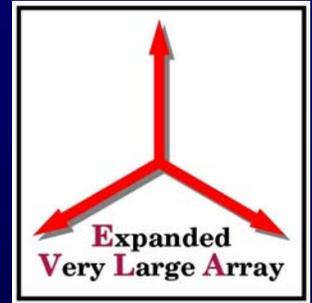
A number of documents have been written which lay out in detail the software requirements, including scientific, operational, and engineering:

- e2e;
- Post-processing;
- M&C (“real-time”);
- operations (not scientific, but related);
- engineering (not scientific, but related);

- These all incorporate priority and timescale;
- All available via the EVLA website (computing memos);
- All “living documents”;
- An active ESSC (“EVLA Scientific Software Committee”) is important – might incorporate the “subsystem scientist” concept (see later slide);
- Invite input from the outside community on them.



Priority & Timescale



Priorities are:

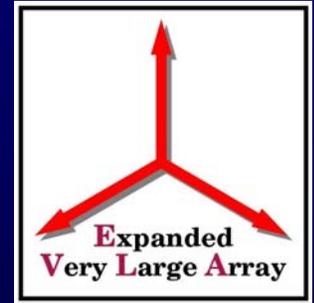
- 1 - essential;
- 2 - important;
- 3 - desirable.

Important milestones/timescales are:

- now;
- prototype correlator: 2006 Q1;
- interim correlator: 2007 Q2;
- shared-risk science observing: 2008 Q2;
- full science operations: 2009 Q2.



Use Cases



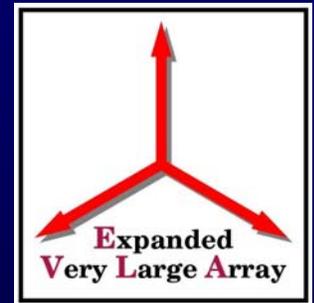
In addition, a number of use cases have been written, outlining the way that a scientist will interact with the instrument for at least some standard modes. These are contained at:

<http://www.aoc.nrao.edu/~bbutler/work/evla/usecases/>

These are produced when requested by the programmers and management of the ECD.



Deliverables

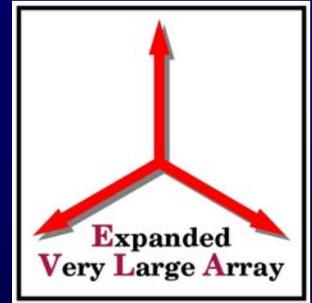


subsystem	first release	alpha release	beta release	full release	driver
Proposal	Aug-06	Mar-07	Aug-07	Mar-08	2
Observation Prep	Dec-06	Jun-07	Mar-08	Mar-09	3
Scheduling	Dec-07	Jun-08	Mar-09	Dec-11	4
Monitor Archive	Mar-04	Dec-04	Jun-05	Dec-05	1
Science Archive	Dec-05	Mar-07	Mar-08	Mar-09	3
Pipeline	Mar-08	Mar-08	Mar-09	Dec-11	4
Observation Status	Mar-06	Dec-06	Jun-07	Mar-08	2

drivers: 1 - multiple EVLA antennas; 2 - shared risk observing; 3 - full science operations; 4 - completion of construction



Requirements Audit(s)



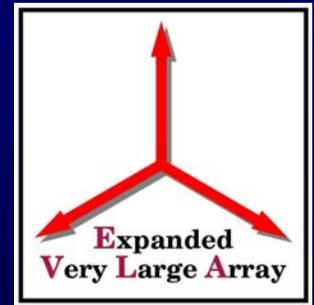
We have, over the past year, done a requirements audit, to assess required manpower both for programming and scientific staff (this excludes post-processing, which we are preparing to do now).

Gustaaf will talk at more length about this.

We are prepared to do this again, revising the priorities and timelines in the existing documents, first without consideration of available manpower, then taking the available manpower estimates from ECD management into account.



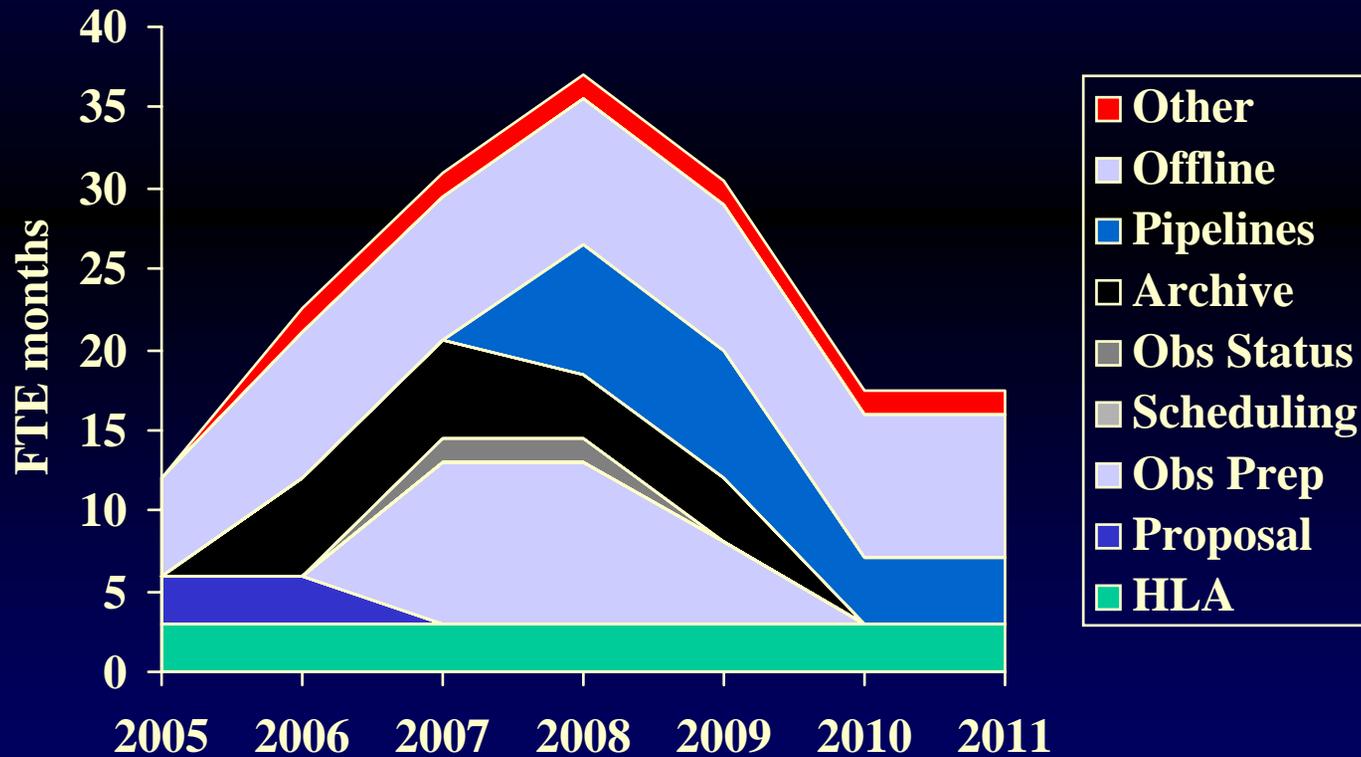
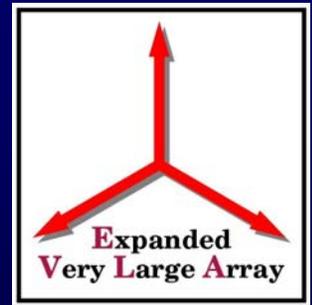
ESSC



An “EVLA Scientific Software Committee” has not been formally constituted at this point. Scientific staff involvement in the past year has been on an ad-hoc (as needed) basis. This has worked reasonably, but we realize we need a more formal structure, and intend to formalize this when needed (within the next year, most likely, given the deliverables). The level of required support from the scientific staff has been analyzed in detail, and is shown on the next slide. ALMA’s concept of “subsystem scientists” may be borrowed.

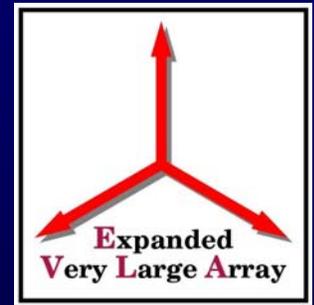


Scientific Staff Effort





Testing & Acceptance



Testing and Acceptance – have ideas, but criteria and formal process are still to be determined. The process will include:

- Internal (programmers themselves);
- Internal (ESSC; other scientific staff);
- External (community).

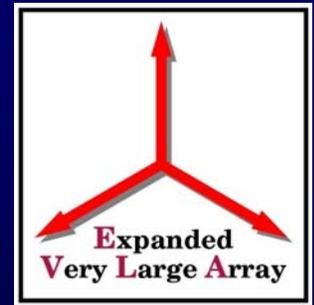
It will certainly include testing the software against the requirements.

Steve & Joe will talk a bit more about the plan for post-processing.

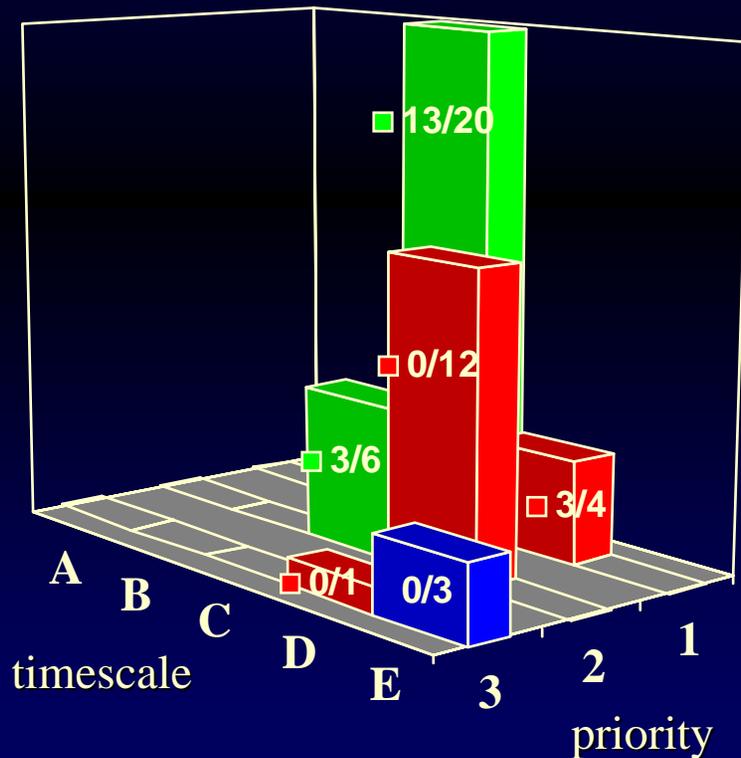
We have much to learn from ALMA here, but it is not clear to what extent we will formalize things as they have done.



Testing & Acceptance: An Example



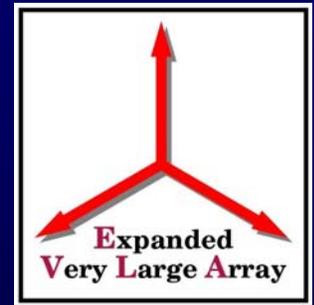
20.4



Dale Frail took the newly developed Proposal Tool and confronted it with the EVLA requirements (even though it is not being designed right now for the EVLA), and obtained the results shown in the chart to the left.



Post-Processing

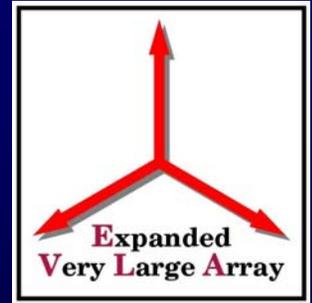


We have a requirements document for post-processing, based on the ALMA document. However, we have many significant differences from ALMA. We are currently planning to do a requirement-by-requirement comparison of the two documents, to determine the level of overlap.

Joe, Steve, and Sanjay will talk about post-processing at much greater length.



Issues



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- 🏆 Identifying ESSC members and assigning effort (we need more than is currently available - see Frazer's talk);
 - 🏆 Testing and acceptance plan.