

Computing Issues: Scientific Requirements

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EVLA Project Scientist for Software

(starting 2003-Oct-01)



Restructured Computing

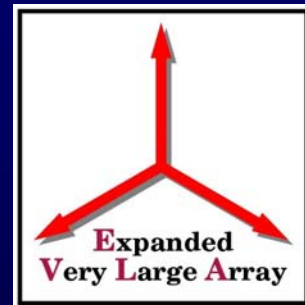


It was recognized that the EVLA project needed to pay more attention to software issues (this was one of the five main points of the EAC report from June, 2002). Several changes have been made to effect this, as explained by Jim & Gustaaf. One of these changes is the creation of a new position called “EVLA Project Scientist for Software” – me. I start October 1. Duties include:

- 🍷 Delivery of **scientific software** requirements to EVLA Computing Division (ECD) and Interferometry Software Division (ISD);
- 🍷 In charge of testing and acceptance of this software;
- 🍷 Technical resource for programmers;
- 🍷 Algorithm study.



EVLA Scientific Software Guiding Principles



Primarily:

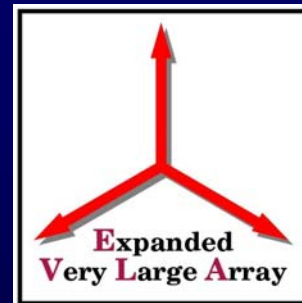
- ☛ Maximize scientific throughput of the instrument;
- ☛ Ease of use;
- ☛ Commonality amongst NRAO instruments.

furthermore:

- ☛ **Must** be able to do what we can do with VLA;
- ☛ Must be usable by both experts and novices.



EVLA Scientific Software Elements



 Proposals (preparation, submission, handling);

 Observation preparation;

 Scheduling;

 Observation monitoring;

 Archiving;

ECD (e2e)

 Post-processing:

 Automated (pipelining);

 'Regular' processing.

ISD (AIPS++)

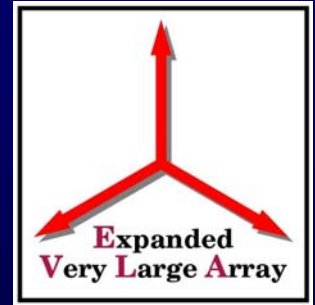
 M&C.

ECD (M&C)



How will we do this?

part 1

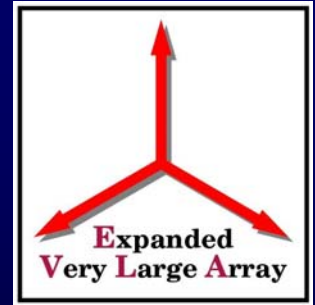


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- 📡 Scientific requirements documents
 - e2e – completed;
 - Post-processing – completed in draft form;
 - M&C – to be completed;
 - These all incorporate priority and timescale;
 - All available via the EVLA website;
 - All “living documents”;
 - An active ESSC (“EVLA Scientific Software Committee”) is critical – might incorporate the “subsystem scientist” concept;
 - Invite input from the outside community on them.
 - 📡 Requirements audit



How will we do this?

part 2

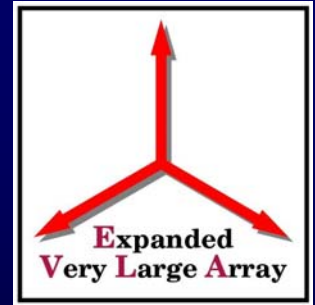


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- 📡 Planning, and definition of “deliverables” from the ECD and ISD – confronting requirements with manpower (via audit).
 - 📡 Testing and Acceptance – have ideas, but criteria and formal process are still to be determined. The process will include:
 - Internal (programmers themselves);
 - Internal (ESSC; other scientific staff);
 - External (community).
 - 📡 Synergy with ALMA is critical for post-processing (but note that we have some EVLA specific things to be developed: algorithms, heuristics, etc...). It is also important in e2e areas.

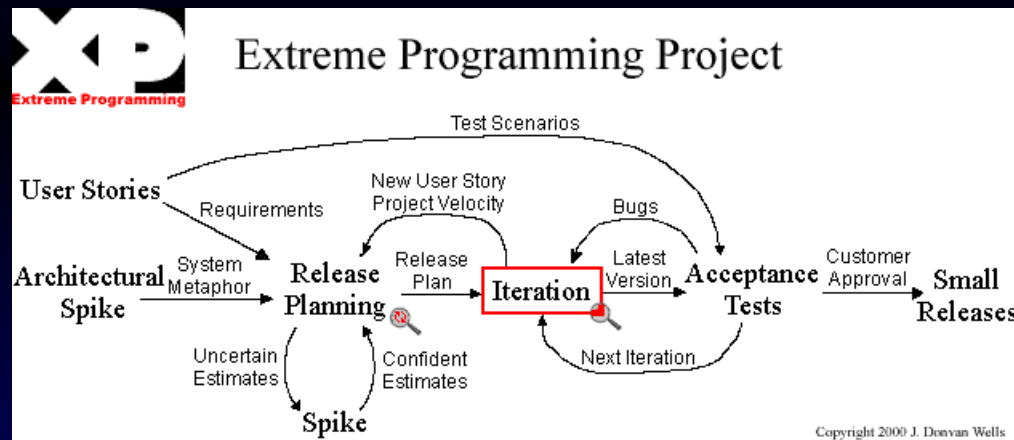


How will we do this?

part 3



There will be close interaction amongst myself, the ESSR, the ECD (and its constituent IPTs), and the ISD. The process might look something like that for eXtreme Programming (XP):



The timescale on the entire loop should probably be < 2 months (significantly shorter than the old 9 month spiral model cycle) – but the precise timescale is still to be determined (by discussion amongst appropriate folks).



Does this address the points from 2002-Jun-10/11 EAC meeting?

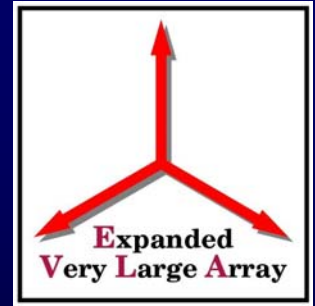


- 📡 Much more astronomer involvement. (Started – EVLA SSR; myself; Myers; Frail; Shepherd; NAUG...).
- 📡 Clear definition of deliverables. (To be done, but in plan).
- 📡 Milestones, preferably quarterly. (To be done, but in plan).
- 📡 Alternate organizational models. (Done).
- 📡 Prioritization. (Started [done?], in requirements documents).
- 📡 Measure of “completion” of AIPS++. (To be done, but in plan – ALMA; NAUG; our own input...).

We believe that all these points have been addressed.



Uncertainties



- ☞ Overall computing structure (will settle down over time, almost certainly).
- ☞ Identifying ESSC members and assigning effort.
- ☞ e2e manpower – is it enough?
- ☞ AIPS++ – note ALMA drop-dead date of June 2004.
- ☞ Can we keep up with data rate & required computing?