

## 070524 NGAO System Architecture WBS 3.1.3 Meeting Minutes

Present: Dekany, Flicker, Gavel, Neyman, Wizinowich  
Absent: Bauman

The team initially discussed the status of the System Requirements Document (SRD). There was general sentiment that we could not proceed much further with many of the details in the SRD without significant science feedback on the current draft. Peter lamented the difficulty in securing EC members time to review the document. Rich asked if all WBS 3.1.3 work should be postponed until the SRD was more mature. We agreed to work concurrently. We agreed to dedicate a portion of Team Meeting #7, scheduled for 5/30/07 to a 2-hour SRD session.

During the SRD discussion, we discussed regular times for WBS 3.1.3 team meetings. Peter suggested Wednesdays from 3-5pm PDT. This was generally okay, though Rich had a conflict on 6/6/07. We agreed on Wed 3-5pm PDT, with flexibility on a week-to-week basis.

Rich led a walk-through of WSPS for WBS 3.1.3

### Inputs

We'd already discussed the SRD as input.

#### Observing Scenarios and Use Cases

Peter wondered if these were being formally documented currently. Rich thought that one or another of David LeMignant's work packages alluded to this as a product, but was unsure.

**Action: Wizinowich will review KAON 475 (TBC) and if necessary contact LeMignant (and Max) to understand documentation of use cases – Due 5/30/07**

#### Science Instrument Priorities

Rich wondered where the officially updated list of science instrument priorities could be found. Discussion turned to why was this important and several people commented on the modularity of the system, reuse of subsystems, etc. We agreed that we will assume that the NGAO architecture should be selected to support all 7 of the instruments listed in Adkins presentation from Team Meeting #6 (NIR imager, NIR IFU, Vis imager, Vis IFU, NIR d-IFU, a high-contrast instrument, and KL).

**Action: Gavel will contact Max and Adkins and request a reconvening of the instrument team (or update of recent activities). Gavel will remind Max of the outstanding systems questions submitted by Dekany prior to the last science team meeting at UCSC.**

### Outputs

#### Documentation of the selection process

We agreed that minutes of our 3.1.3 team meetings, presentations, and assignment products would constitute the documentation history of the selection process.

#### Functional Requirements Documents

Viswa wondered about the level of formality we should expect from the NGAO FRD? Peter pointed out the example files posted at the NGAO TWiki.

#### Initial subsystem cost estimates

Rich commented on the import of understanding the cost basis for different candidate subsystems which we'll consider toward fulfilling the functional flow-down. Rich believes understanding the scaling laws will be key to decisions such as reuse or modularity of the system.

#### Technical risk analysis

We discussed the purpose of this risk analysis to better understand the level of formality needed during the 3.1.3 process. Peter thought the primary goal was to inform the drafting of the SEMP for the next phase. We agreed that for WBS 3.1.3, relative qualitative assessment of the risks was sufficient. Rich mentioned

several options and we seemed to prefer the 'likelihood and impact' matrix approach.

#### Methodology

Rich walked through the basic methodology he has proposed for the selection process, as documented in the WSPS. Rich described the rationale for building up candidate architectures by first rank prioritizing candidate subsystems that could fulfill our initial functional allocation for the system. This includes understanding cost scaling and isolating technology risk areas within subsystem (and having alternative subsystems that could meet our needs).

#### Other

A number of small issues were found in the WSPS. Also, Peter had sent Rich comments on an earlier draft.

**Action: Dekany will update and repost the 3.1.3 WSPS – Due 5/30/07**

Peter led a discussion of the relationship between the ScRD, the SRD, and the FRD

Peter advocated a single FRD document containing all subsystem functional requirements. Rich was concerned about single-point bottleneck in the editorial function for the FRD. We agreed to pursue a single FRD document even though it may at times be broken up into delegated subsections, then reassembled by the editor.

We discussed the mechanics of how the performance requirements would flow-down into the FRD subsections. Don suggested a separate meeting to again review the error budgets, but there was concern over available time. We agreed that a starting point would be the error budget allocations in the WFE Budget Technical Report (WBS 3.1.1.5). It was understood that these initial allocations are subject to push-back during the candidate subsystem selection process. Peter wondered how would flow-down from the photometric, astrometric, polarimetric, and high-contrast budget occur? (All thought this was less straightforward than the WFE budget.) Rich suggested that the mechanism for the flow-down would be bilateral meetings between himself and the various 'owners' of the subsystem requirements (sections of the FRD). This would allow us to understand the context of what could easily change from the initial allocation and what would be difficult. Peter suggests a tree-like structure of allocation, so that error budget trades could be contained within sub-branches. Rich pointed out the proposal had this, as well.

**Action: Dekany will propose a specific flow-down methodology from the error budget into the FRD initial drafts – due 5/30/07**

Rich wondered specifically about OHANA support in the SRD. He pointed out it is not mentioned in the ScRD. Peter responded that the interferometry community was not represented in the science team drafting the ScRD. We agreed that future versions of the SRD and ScRD should relate the motivation for OHANA support, along with all the other requirements.

We discussed assignments for next week.

Rich wondered about having additional secretarial support for taking of meeting minutes, given the function of documenting our deliberations. Peter thought it had to be one of the team, having AO experience, to provide the appropriate distillation of issues. We agreed that minute keeping responsibility would rotate among all six of us on a per-meeting basis [Ed: I recommend alphabetical order starting with Dekany, Gavel, Neyman, Velur, Wizinowich, Bauman and so on.]

Rich described that to begin the architecture selection process, an initial list of functions was needed. Peter suggested the product breakdown structure used for the proposal was a good start, but Rich cautioned that it may be too Indian Wells Point Design specific. Rich specifically mentioned interferometer chopping as an example of something that may have slipped through the cracks on his first list. More eyes to review are needed.

**Action: Neyman will review Dekany's initial function breakdown in the WSPS, with assistance from Velur and Gavel. – [DONE], with Velur and Gavel comments by Noon HST on 5/29/07**

**Action: Gavel will update Max on kickoff meeting progress – due 5/30/07**

**Action: Gavel will update Bauman on kickoff meeting progress – due 5/30/07**

**Action: Peter will inform the NGAO Team of our progress and the changes to Team Meeting #7 [DONE]**

**Next WBS 3.1.3 Team Meeting Wednesday, May 30, 2007 from 3-5pm PDT. Caltech to initiate videocon assuming CfAO conf room and Hualailai conf room.**

Posted by: R. Dekany 5/25/07