Interoffice

National Radio Astronomy Observatory
Socorro, New Mexico

March 24, 2003

To: Peter Napier

From: Jon Romney

Subject: REVISED Cost Estimate for VLBA Integration in EVLA Phase 2 Proposal

Again at your request, I have revised my original cost estimate, dated 2003 March 11, to provide only a 1-Gbps recording and playback capability, instead of the 4-Gbps concept on which the original was based. This would make it possible to use the same 1-Gbps systems we hope will be in place at the Pie Town and (new) Los Alamos stations by 2009 – 10, and to transfer the 24 corresponding 1-Gbps playback systems from the VLBA correlator.

The revised cost estimated is presented in the attached Table 1. Only items [3], [4], and [5] are changed fundamentally, as detailed below. Item [7] is reduced by 10% of the reduction in these three.

3] Mark 5 recorders. The unit count is reduced from 10 to 8. The unit cost is also reduced. I have set the latter equal to the current cost of a commercial system.

4] Mark 5 disk modules. The module cost and capacity are unchanged, but the size of the required media pool is reduced by a factor of 4.

5] Mark 5 playbacks. The unit count is reduced drastically, from 26 to 2. The unit cost is also reduced, as for item [3].

As we have discussed, I will pursue a further revision by obtaining more realistic estimates for the unit cost in item [6].

Table 1.

EVLA Phase 2

Cost Estimate for VLBA Integration

#	Item	Units	Unit Cost k$	Total Cost k$	Fraction	Comments & explanations		
1]	Widar station boards for sub-banding	20	15.0	300	33%	20 = 2 per NMA station to support widely-separated sub-bands		
2]	Backplanes & VSI connectors	60	2.0	120	13%	60 = (40 in correlator) + (20 for NMA subbanding)		
3]	Mark 5 recorders for NMA stations	8	16.3	130	14%			
						/ Capacity: 8 X 2TB		16 TB
4]	Mark 5 disk modules	102	1.1	110	12%	< Module: Capacity X $0.06/GB + 12.5%		$1,080
						\ Pool: 10stn X 30days X 50% @ 1Gbps / Capacity		102 modules
5]	Mark 5 playbacks for correlator	2	16.3	33	4%	2 = (40-27)*2 - 24		
6]	Optical splitters & switches	276	0.5	138	15%	276 = 3 X [10 X 2 + 18 X (2+2)]		
7]	Spares			72	8%	10%, *excluding* disk modules		
	Total			903	100%			

03/3/23 -- jdr