National Radio Astronomy Observatory
Socorro, New Mexico

Sept. 25, 1985

To: VLBA Computer Coordination Group
From: Craig Walker
Subject: Review of 24 Sept. 1985 meeting.

Those present were: Cotton, Burns, Romney, Pearson, Ewing,
Bignell, Clark, Ekers, Walker, Farris, and Hunt. The entire meeting
was spent discussing databases.

There seemed to be general agreement that commercially available
database systems do not provide significant advantages over a home-brew
system for maintenance and display of monitor data. A hierarchical
system could be used to maintain the data but such a system would be
different from the relational system needed in the rest of the project
and, at least with the currently available systems, would not provide
the good graphics capability that was expected to be the major avantage
of going to a commercial system. A relational system is probably not
appropriate because of the large volume of data involved and the high
ratio insertions to retrievals that is expected. Therefore, one
conclusion of the meeting was that the Monitor and Control group should
develop it's own utilities for handling the monitor data and that the
control computer should be of an appropriate size to handle the task.
Clark can now proceed with the specification and procurement of that
computer.

There was also agreement that other aspects of the project need
something much like the commercial, relational database systems. Such
a system would be used to maintain scheduling information, pass
observing information such as observation history, calibration values,
system setup and status, tape numbers, and weather information (or at
least pointers to monitor data files; note that this may be a noticable
fraction of the monitor data) from the control system to the
correlator, keep track of spare parts, instrumentation tapes, computer
tapes, and many other miscellaneous tasks. The volume of information
involved is expected to be large enough to consume a significant
fraction of a minicomputer or dedicated database machine (eg. Britton-
Lee) and the tasks involved are critical to the operation of the array.

Ron Ekers was at the meeting specifically to point out that the
rest of the observatory, and the VLA in particular, has similar needs
and to encourage us to look for a system that would serve more than
just the VLBA. Burns offered to look at the needs of the rest of the
observatory. Burns, Ekers, and Romney will try to to generate a

recommendation for NRAO. Questions that should be answered include: How large a database system(s) is needed? Should NRAO standardize on one database system? How many copies of such a system are needed (should the VLBA system support other users)? Note that a decision on the VLBA system should be made within a few months (how long?) so that development of software that will use the system can be begun. If a recommendation on the needs of the observatory as a whole is not available on time, the VLBA will have to proceed on its own. If a single system is to support more than just the VLBA, presumably the cost would be shared between the VLBA and NRAO operations.

It was pointed out that a database system is not explicitly in the VLBA budget. We hope that the necessary funds can be found in the Monitor and Control and Correlator budgets. However, it probably should be made a line item. The cost could be anywhere from zero (public domain software running on an existing machine - probably nowhere near enough power or capability) to nearly $200k (full dedicated machine, be it a VAX or something like the Britton-Lee machine, and related software). It is likely that the cost (and needs) are in the upper half of this range.

Since the meeting, Cotton has expressed the concern that the database is crucial to the operations of the VLBA but might become bogged down by other observatory use. Just such a problem has occured with the VAX in Charlottesville. This concern must be kept in mind while the problem is under study and is a reason why some form of dedicated hardware is probably needed.