

>From ronb@syd.dms.csiro.au Fri Apr 12 20:01:26 1991
Received: from dmssyd.syd.dms.CSIRO.AU by jatz.aarnet.edu.au with SMTP id AA01014 (5.65+/IDA-1. for gih900); Fri, 12 Apr 91 19:59:16 +1000
Received: from pride.syd.dms.CSIRO.AU by dmssyd.syd.dms.CSIRO.AU (4.1/5.17) id AA26367; Fri, 12 91 18:03:00 EST (from ronb@syd.dms.csiro.au (Ron Baxter))
To: G.Huston@aarnet.edu.au
Cc: djh@munnari.oz.au, marka@statsci.com, rons@syd.dms.csiro.au, collins@natmlab.dap.csiro.au, Kam.Tam@syd.dms.csiro.au
Subject: AARNet project proposal
Date: Fri, 12 Apr 91 18:02:59 +1000
Message-Id: <15640.671443379@pride.syd.dms.CSIRO.AU>
From: Ron Baxter <ronb@syd.dms.csiro.au>
Status: OR

AARNET PROJECT SUBMISSION
7

Geoff,

Here is the project proposal I alluded to. Being AARNet, I am assuming that this email copy is all you will need. If you would like to have a signed paper copy as well, please let me know and I will send one (but it would arrive after the 15th).

Cheers,

Ron B

Memo to: Geoff Huston
From: Ron Baxter, Program Manager, CSIRO DMS
Date: April 12, 1991

PROJECT PROPOSAL: A Time Reference for AARNet

Objective
=====

To use the accurate time standards maintained at the CSIRO National Measurement Laboratory (NML) to provide a time reference for AARNet.

Benefit
=====

Co-operating computers on a network need to be synchronized to a standard time to avoid the possibility of incorrect decisions when comparing time-stamped objects. Since AARNet, and the entire Internet, is so large, it is vital for all parts of the network to synchronize with UTC. The accuracy required depends on the speed of messages between systems, and for AARNet at present, millisecond accuracy would seem to suffice.

The provision of an accurate time reference service on AARNet will enable members of the network to readily synchronize their systems.

Technical Details
=====

The Division of Applied Physics of CSIRO maintains an accurate time source that has 3 caesium standards and 2 hydrogen masers. This provides an accuracy of +/- 200 nanoseconds, and this is referenced to US Naval Observatory, to BIPM in France, and UTC Australia. It is proposed to use this resource to provide a reference time to AARNet.

A unit such as the Leitch CSD-5300 Master Clock System Driver would be used to provide the service. It accepts an external input from an accurate standard, and provided various outputs including a coded time signal via a 300 baud RS-232 link. This would be used to set the time for the ntpd software on a Sun, and will provide an accuracy of better than 1 millisecond.

In the future it may be possible to use one of its other outputs (e.g. a 1 MHz signal) to obtain greater accuracy.

The clock standards at NML are in a laboratory that is 200 metres from the computer room. The Leitch CSD 5300 would be located in this Time & Frequency Laboratory as there are several advantages. The initial setting of the time in the Leitch would be simpler, the laboratory has a 24 volt battery supply that can ensure that the Leitch continues through power outages, and they can connect the Leitch to their time logging facilities so that any problem with it would be detected quickly. The connection from there to the computer room would be by dedicated serial line with short-haul modems.

In the computer room (Room D399) we would connect it to an appropriate system. At present we would use a Sun SPARCserver (dmssyd.syd.dms.csiro.au) that performs network tasks, has no user load, and is generally not too heavily loaded. The NML site at Lindfield is being connected to the CSIRO CISCO at North Ryde (nsw.gw.csiro.au) by 10 Mbit microwave link, and that CISCO is connected to the Sydney AARNet hub by a 48K Telecom line. This means that the time reference will be accurate anywhere on the AARNet backbone (using the ntp software).

Costs.

=====

Only the equipment cost is being requested, and it is understood that the AVCC would own the equipment, but that it would be located in the Time and Frequency Laboratory at NML (Room B361).

Members of the CSIRO Division of Applied Physics would assist in the initial set-up and monitoring, and members of the Division of Mathematics and Statistics would assist by making the time reference available on AARNet. We are doing this without charge on the assumption that it won't take much time to set up, and once it is operational it will require almost no supervision. We will review the situation from time to time.

Leitch CSD 5300 \$6,200 (1)
200 metre RS232 line and
short-haul modems \$1,200 (2)

=====
Total requested \$7,400
=====

(1) this is a list-price, maybe the AVCC would get a discount

(2) approximate estimate, precise quotes would be obtained if the project proceeds

Acknowledgements

=====

I have received helpful advice from

David Hornsby, University of Melbourne
Mark Andrews, CSIRO DMS (but currently in the US)
Ian Harvey }
John Thorne } CSIRO Division of Applied Physics
Colin Coles }

--

| } / \ | \ | | }
| - < { } | \ \ | | - <
| \ \ \ / | \ | | _ | _ }

Ron Baxter, CSIRO Div Maths & Stats,
PO Box 218, Lindfield, NSW, Australia 2070.
Phone: +61 2 413 7059 Fax: +61 2 416 9317
Email: ronb@syd.dms.csiro.au

