

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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24 June 2005

TO: Distribution
FROM: Alan Whitney
SUBJECT: 6 June 2005 e-VLBI telecon summary

Attendees:

Bill Fink, Lee Foster, Pat Gary, Kevin Kranacs – GSFC

Russ Hobby, Internet2

Tom Lehman – ISI-E

Jerry Sobieski, Chris Tracy – MAX

Kevin Dudevoir, Hans Hinteregger, Chet, Ruszczuk, Jason SooHoo, Mike Titus, Alan Whitney – Haystack Observatory

This telecon is one of an ongoing series of telecons to prepare for 10 gigabit/sec e-VLBI demonstrations between NASA GSFC and MIT Haystack Observatory using a combination of network facilities including all or part of Gownet, Bossnet, ISI-E, SuperNet, Max and GSFC/HECN.

ACTION ITEMS ARE HIGHLIGHTED IN RED.

GSFC configuration

Pat sent some diagrams of the GSFC network to Alan this morning.

DRAGON update

Tom reported that a filter needs to be installed at Eckington to re-enable the Bossnet connection; should be back in operation later in week. Tom will send update configuration diagrams. After Bossnet is back up, still need to do some configuration of Layer 2 paths, including at GSFC.

Haystack upgrade to 10Gbps

Have just received additional information on details of Gownet showing length and type of fibers; total length is ~135km. Hans reported that, in band from 1530-1565nm, LEAF dispersion goes from 2-6 psec/nm-km, while TrueWave goes from 2.5-4.8 psec/nm-km. Preliminary conclusion is that dispersion is ~33psec worst-case, which is 1/3 of bit cell at 10Gbps, so dispersion is not negligible and dispersion compensation is likely to be needed.

LL has made loss measurements on Gownet which show ~0.4 db/km, which is considerably worse than for the fiber itself, which is ~0.25 db/km. Measurements imply 38db loss from Haystack to Boston and 17db loss from Boston to LL. Gain of amplifier at Congress St (Boston) is unknown. No

dispersion compensation is believed to be installed in the fiber.

Bob Yates visited Haystack to discuss various possible scenarios to upgrade to 10Gbps, but these discussions may be a bit premature until the dispersion and loss issues on Glownet are addressed.

A team, including people from Haystack, LL, MAX/ISI-E, and Raptor need to get together to hammer out possible engineering solution. Alan will make query to LL regarding this.

GSFC

Nothing new regarding e-VLBI. 1Gig connection to McLean has been made, connecting into NLR.

iGRID plans

Haystack is organizing e-VLBI demonstration for iGRID as part of the HOPI/DRAGON booth and have a commitment for participation from Japan. Europe and Australia have been queried. It doesn't appear that Australia will be ready, and Europe's plans seem uncertain. UK is looking at alternative protocols, but situation with e-VLBI is not clear.

First step is getting links lined up, targeting 512 Mbps, which need to be set up well in advance of the iGRID show in order to have sufficient testing time.

Would like to implement VSI-E using rtp, but may not be time; otherwise, have to do on-the-fly data-format translation from K5 to Mark 5A. If VSI-E can't be ready for iGRID, we will target SC05.

Raptor switch problems

Haystack is having trouble with Raptor switches coming back up properly after a power failure; the master/slave relationship does not get properly restored. Kevin is working Bob Yates and some of the Raptor application engineers to try to resolve the problem.

Chris reported they have also been experimenting with Raptor boxes. He has observed the Raptor serial port has sometimes become totally unresponsive; fixed by reboot; Kevin reported he has observed the same behaviour.

Tsukuba data transfers

Jason reported that Haystack is doing weekly non-real-time transfers of e-VLBI data from Tsukuba; each transfer is ~1.2TB. Because Bossnet has been down, the transfers are being done on the Haystack 100Mbps commodity network.

EGAE update

Chet reported he is developing a GUI interface for EGAE. Is also looking at how EGAE should interface with end points. Chet is planning to visit MAX/ISI-E for two days next week to firm up EGAE interfaces to DRAGON.

Dual-bonded GigE experiments

Pat asked about Mark 5A with multiple GigE cards. Kevin reported that he has done some investigation and experiment with this, using dual-GigE motherboards or multi-port GigE NICs. Back-to-back iperf/nuttcp memory-to-memory tests can reach close to 1900Mbps, but PCI congestion is problem with practical Mark 5A operating modes. Also, operating bonded-dual-GigE connectons through switches seems to be a problem; they seem to force the conversation to a single port and

restrict the data flow. Needs more investigation.

Next telecon

Next telecon is scheduled for Monday, 27 June 2005 at 2pm EST.

cc: Steve Bernstein, LL
Jim Calvin, LL
Rick Larkin, LL
Lorraine Prior, LL
Peter Schulz, LL
Leslie Weiner, LL
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