Computer Networking BTR Bullets for July 2004 through August 2004

o Bill Fink, Jeff Martz (CSC), Mike Stefanelli (CSC), and Paul Lang (ADNET) of the High End Computer Network (HECN) Team assisted the NSF-funded Dynamic Resource Allocation via GMPLS Optical Networks (DRAGON) Project in setting up its first inter-campus dense wave division multiplexing (DWDM) links between GSFC, University of Maryland College Park, and University of Southern California's Information Systems Institute in Arlington, VA. Three 2.4 gigabit per second (Gbps) DWDM channels were set up end-to-end. These links and their Movaz-based DWDM optical switch and optical add/drop multiplexer (OADM) infrastructure are particularly significant as the foundations which GSFC's IRAD-funded Lambda Network (L-Net) Project will upgrade to multiple 10-Gbps and extend to McLean, VA for inter-connection via the National LambdaRail (NLR) with several other research sites.

o In cooperation with George Uhl (SWALES) of the EOSDIS Network Prototyping Lab (ENPL), the HECN Team set up GSFC's first inter-building 10 Gigabit Ethernet (GE) link between Force10 E300 10-GE switches in their respective labs - HECN in building 28 and ENPL in building 32. Testing will next turn to multiple GE memory-to-memory data transfers between computer clusters in those buildings.

o The HECN Team also assisted Uhl, Steve Booth (SWALES), and GSFC's Ben Kobler (586)-led Storage Area Network (SAN) Pilot Team in using Marconi OADM's to enable an inter-building interconnection of two 2-Gbps Fiber Channel switches across a 2.4 Gbps DWDM channel while another DWDM channel carried IP-based data traffic.

o Visiting Student Enrichment Program student Andrea MacLeod (TA&M-Corpus Christi), mentored by Pat Gary and Aruna Muppalla (ADNET), assisted in tests led by MIT/Haystack's David Lapsley to evaluate memory-to-memory throughput performance improvements gained when substituting Transport Control Protocol (TCP) transport layer software with alternates such as the FAST TCP protocol developed by Caltech and the User Data Transport protocol developed by University of Illinois Chicago. While many alternates remain to be more thoroughly tested, MacLeod's test plans and the initial results she collected between GSFC and Tokyo have significant longer term use.http://vsep.gsfc.nasa.gov/2004/2004MacLeod.html

o Pat Gary attended the by-invitation-only Optical Network

Testbed Workshop held 9-11Aug04 at ARC, and further coordinated plans for linking GSFC's L-Net with other optical networks. Presentations from the Workshop are now available at http://duster.nren.nasa.gov/workshop7/agenda.html.

o In cooperation with NCCS and GSFC SAN pilot system architects, the HECN Team has proposed that a SAN-over-IP inter-connection over the L-Net and NLR between NCCS and Project Columbia be investigated as a high throughput performance option for enabling remote CXFS file accesses and exchanges between the respective SGI clusters at ARC and GSFC.