NASA 2006 Group Achievement Honor Award Presented to GSFC's HECN Team

On June 21, 2006, on behalf of GSFC's High End Computer Network (HECN) Team, Pat Gary (606.1) accepted a NASA 2006 Honor Award – Group Achievement <http://nasapeople.nasa.gov/awards/documents/2006NASAPeopleAwards.pdf> at a NASA awards ceremony hosted at the Martin's Crosswinds, Greenbelt, MD; see Figure1.

Figure 1: Pat Gary (GSFC) flanked by GSFC Director Ed Weiler and HQ/SMD Deputy Associate Administrator Colleen Hartman.

The rest of the HECN Team honored by this award includes Bill Fink (606.1), Kevin Kranacs (585), Kevin Fisher (586), Mary Shugrue (BPX Technologies), Paul Lang (ADNET), Aruna Muppalla (ADNET), Jeff Martz (CSC), and Mike Stefanelli (CSC); see Figure 2.
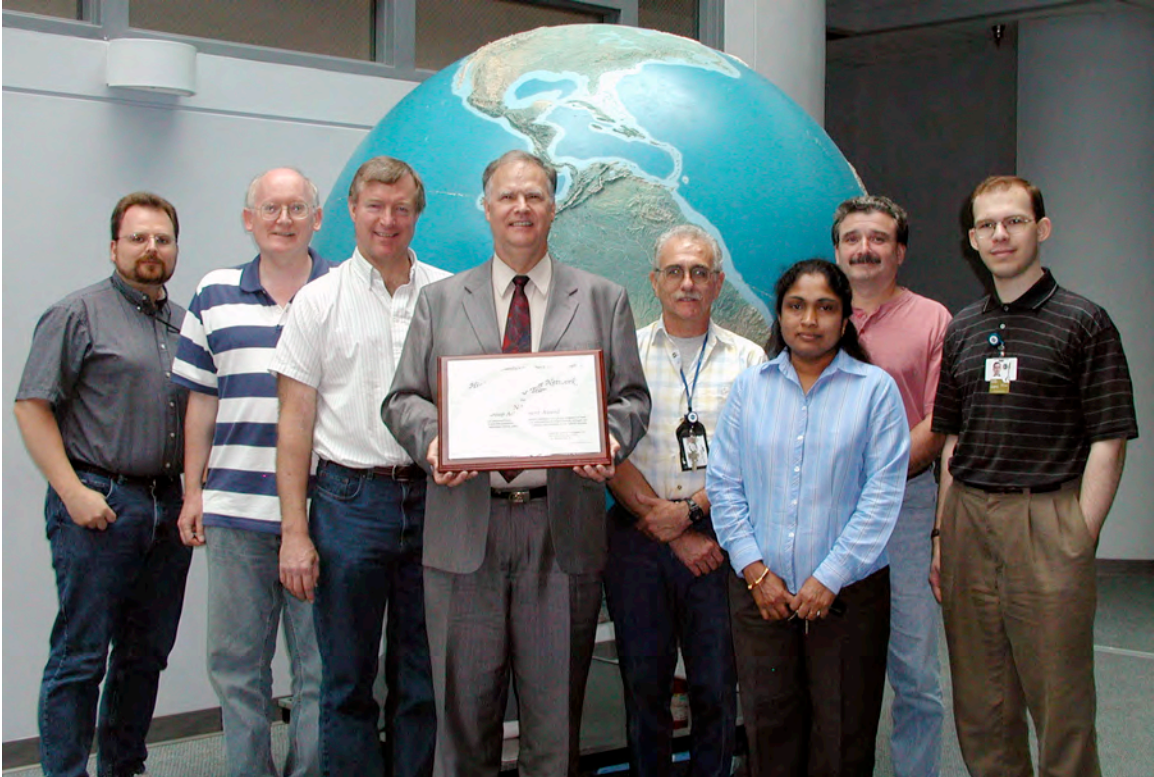
Figure 2: (from left) Kevin Kranacs, Bill Fink, Paul Lang, Pat Gary, Mike Stefanelli, Aruna Muppalla, Jeff Martz, Kevin Fisher (Mary Shugrue unavailable).

The HECN Team's NASA 2006 Group Achievement Honor Award cites:
In recognition of the outstanding teamwork and technical excellence exemplified by the HECN Team members in making the first coast-to-coast 10 Gigabit per second network over the National LambdaRail a reality.

NASA's Group Achievement Honor Awards are presented to "groups of Government employees or groups comprised of both Government employees and non-Government personnel for outstanding accomplishment through the coordination of many individual efforts which has contributed substantially to the NASA mission, with explicit consideration given to:

1. the quality of results and the level of impact on NASA programs or operations;
2. effective management of cost and schedule;
3. customer satisfaction;
4. team growth and capacity for future contribution; and
5. additional credit for development of innovative approaches, use of and contributions to lessons learned data banks, and/or success in responding to unforeseen crises."

The HECN Team's nomination, submitted by GSFC's Software Integration and Visualization Office Head Mike Seablom, cited:
The High End Computing Network (HECN) team at GSFC continued their exceptional technical and coordination excellence in contributing to the success

of the first coast-to-coast implementation of a 10 Gigabit per second (Gbps) network linking GSFC to University of California San Diego (UCSD) using OptIPuter technologies over the National LambdaRail (NLR). This achievement received wide press coverage in engineering circles as a significant move forward to 21st Century technology implementation. The HECN team worked tirelessly over weekends and long hours to ensure the connectivity and multitude of network devices were properly configured to enable this historic event's success. Their individual commitment was similarly reflected in their ability to work cohesively as a team with other organizations often jointly trouble shooting network issues regardless of ownership of the equipment. Their efforts spanned from identification, evaluation and selection of advanced uptime networking technology to enabling the wireless video conferencing capabilities necessary to achieve the visual demonstration across the United States. The HECN team successfully met the technical challenges involved with troubleshooting the convergence of many leading-edge, pre-commercial hardware/software components and individual systems into a seamless integration. They were faced with the daunting task of isolating, diagnosing and resolving problems perceived to be network related using 10-GigE connected workstations hosting the GSFC-developed software-based nuttcp network performance-measurement tool deployed at UCSD, StarLight/Chicago, McLean, and GSFC. They had to tune not only network hardware-based features but also end-user computer device drivers, TCP stacks, Linux operating system parameters, and user application software.

An August 8th 2005 demonstration *"..gave Goddard officials a glimpse of a future when a scientist at the research center will be able interactively to visualize large remote data sets generated either by satellites or supercomputers connected to the National Lambda Rail (NLR)." (*Calit2 news Release 8.12.05). During this demonstration, high resolution data from the Land Information System (LIS) were displayed on a hyperwall at GSFC using data residing on an OptIPuter cluster at UCSD. The three applications involved in the demonstration involved Earth Science research, where collaboration is made difficult because the data sets are so large (petabytes of data). This capability will greatly enhance the ability of scientists to fuse very large datasets currently stored at NASA's Distributed Active Archive Centers (DAACs) and Federation of Earth Sciences information partners. Scientists will be able to access these datasets bypassing the currently labor intensive efforts of subsetting the data for transmission purposes. *"It's one of those quantum leaps that come along only once in a very long while."* (Larry Smaar, Calit2 Director)

Clearly the contribution of the HECN team to the future of GSFC in the evolving world of gridded computing is a vital step to truly distributed processing and collaborative research. Their achievement is deserving of both great acknowledgement and deserved reward for their significant efforts to ensure the success in achieving such a monumental milestone!