

Third Frontier Network Propels Genome Research Through Virtual Medical Collaborations

*Cincinnati, OH—April 26, 2004—*The Third Frontier Network (TFN) will make Ohio a world leader in using technologically advanced networking to improve health care research and education, as demonstrated today at the University of Cincinnati (UC) Genome Research Institute (GRI). TFN will support medical research collaborators as they identify and treat diseases.

TFN-connected Ohio hospitals and medical research labs will be able to share medical images and collaborate on research, education, and service programs.

“By linking colleges, universities, research labs, and hospitals, the Third Frontier Network will improve health care and remote medical consultation,” said Rod Chu, Ohio Board of Regents Chancellor. “Critical scientific and industrial research facilitated over the network will generate important new economic opportunity and high-paying jobs for Ohioans.”

GRI will be linked with other Ohio researchers via TFN to share expensive instruments and educational resources for disease analysis and treatment. For example, the network will allow researchers at one university to view the output of a scientific instrument at a research lab 100 miles away, reducing the time and costs currently incurred in research and development.

Medicine requires graphically rich images for patient care, medical education, and research. These vary from photographic images of skin conditions to MRI (Magnetic Resonance Imaging) scans. Images showing medical conditions in great detail require significant bandwidth when sent across a network. In the past, collaboration with remote medical staff has been limited by the difficulty of fully sharing medical images over computer networks.

“The Third Frontier Network will infuse the state’s medical research with greater collaborative opportunities,” said Stan Ahalt, Ohio Supercomputer Center (OSC) Executive Director. “Significantly improving the climate for medical breakthroughs with this type of technological synergy will advance Ohio’s reputation in high-tech research and development.”

GRI practices a multi-layered approach to gene and protein databases to understand, treat, and prevent diseases such as cancer, diabetes, osteoporosis and heart disease. With partners such as Procter & Gamble Pharmaceuticals, Wright State University, Case Western Reserve University, and UC Children’s Hospital, GRI has a number of on-site resources that can be shared by other state medical facilities.

David Millhorn, GRI Director, states that TFN will allow the Institute to collaborate more effectively with other universities, government and industry partners. Sharing computational and technology resources will be key to understanding diseases and

developing drug treatments, saving time and money.

"With the Third Frontier network, we can make the entire state a virtual laboratory," said Millhorn. "As we continue to enhance the research infrastructure here, many of the technologies we will offer investigators may not reside at GRI - they may reside in Cleveland, Columbus, some other Ohio site, or maybe even in California."

A crucial element in TFN's southwest region implementation has been its relationship with the Cincinnati Education Research Fiber Loop (CERF), a consortium of Cincinnati State Technical and Community College, UC, OARnet, and other southern Ohio schools. OARnet will connect CERF to TFN this summer. The CERF project began in 2003 with a donation from Procter & Gamble to create a dedicated set of fiber-optic cables to be used by colleges and universities, hospitals, K-12 schools, and research labs in the Cincinnati and southern Ohio region.

Cincinnati State's main and Evendale campuses as well as UC's main campus and GRI are online with CERF, routing all data traffic over the 60-mile pair of single mode fiber configured in a ring fiber. Future participants include Xavier University, Hamilton County and Cincinnati Public Schools SchoolNet sites.

OARnet, OSC's networking division, is currently installing and testing optical fiber switches and equipment at the Cincinnati area Point of Presence (POP). Completion is expected by summer 2004. The statewide TFN backbone is scheduled to be operational by autumn 2004, with colleges and universities connected by September.

"The 1,600-mile backbone will provide a massive increase in capacity for medical research centers to conduct research on cancer treatment, bioinformatics, genomic mapping, and a host of other applications," said Al Stutz, OARnet Director. "TFN will allow researchers throughout Ohio to share resources to accelerate advanced networking technology use, strengthening Ohio's attractiveness and global competitiveness."

TFN initiatives that received fiscal year 2004 Consolidated Appropriations Act funds from the Ohio Board of Regents and OSC include a medical collaboration, shared instrumentation, and a science education network. Medical centers can also benefit from OSC's data mining resources used for the National Cancer Institute pediatric cancer project. Medical diagnosis and treatment over the network will provide the equivalent of a virtual pediatric department and increase hospitals' ability to work with their colleagues at medical schools and labs.

TFN, a technology initiative of the Ohio Board of Regents, is built and administered by OARnet with the collaboration of education and industry partners such as Ohio SchoolNet. TFN is the nation's most extensive high-speed, fiber-optic network dedicated to higher education and research.

More information on TFN is available at www.tfn.oar.net.

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