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Academia, Industry Collaborate on NSF Initiative

The Information and Telecommunication Technology Center (ITTC) at the University of Kansas will lead regional deployment of network infrastructure to support interdisciplinary research and development of future Internet architectures. Researchers at KU, in collaboration with Kansas State University, the University of Missouri – Kansas City and the University of Nebraska – Lincoln, are recipients of a three-year $462,000 award from the National Science Foundation (NSF). The Great Plains Environment for Network Innovation (GpENI) is part of the larger NSF GENI (Global Environment for Network Innovations) program.

“This is an important project that will enable new network research in the Great Plains Region and foster wider collaborations, leveraging investments in optical network infrastructure by the states of Kansas, Missouri, and Nebraska,” said James P.G. Sterbenz, lead principal investigator (PI) and associate professor of electrical engineering and computer science at the University of Kansas.

Greg Monaco, executive director of the Great Plains Network (GPN), a consortium of 23 universities in the Midwest, said the Great Plains Network is a proud partner in the cutting-edge, advanced cyber-infrastructure project. He sees the project as having significant impact at the local to international level in regard to science, engineering and the economy. Furthermore, GpENI infrastructure will be supported by the Kansas and Missouri Research and Education Networks (KanREN and MOREnet), with connectivity to the Internet2 research infrastructure.

“This is a great opportunity for Kansas State University and the state of Kansas,” said PI Caterina Scoglio and co-PI Don Gruenbacher, associate professors of computer and electrical engineering at KSU.

According to Byrav Ramamurthy, associate professor of computer science and engineering and PI at UNL, “the GpENI project leverages the high-speed fiber connectivity to Kansas City from Lincoln and offers UNL researchers access to a cutting-edge testbed for developing next-generation networking capabilities and applications.” Professor of Computer Science and Electrical Engineering and PI at UMKC Deep Medhi agrees, “It’s exciting to create such a testbed allowing networking researchers to try out new ideas”.

Industrial collaborators include Ciena, whose optical switching and transport platforms will interconnect the GpENI institutions, and Qwest whose fiber is part of the GpENI infrastructure. “When implemented, the GpENI infrastructure will be able to support provisioning of bandwidth slices with an advanced programmable architecture, a network foundation to serve as a proving
ground for advancement of the GENI objectives. Ciena is proud to be working with the GpENI initiative to advance collaborative network research,” said Jim Archuleta, Ciena’s co-PI for the program.

GpENI is one of only two regional networks funded through Spiral 1 of the NSF GENI program, which is a suite of experimental network research infrastructures that will support a wide range of network science and engineering experiments, including research on future Internet design. All infrastructures are envisioned to be shared among a large number of individual, simultaneous experiments with extensive instrumentation that makes it easy to collect, analyze and share real measurements. GENI prototyping will be conducted using a “spiral development” approach. Simultaneous development and trials enable rapid feedback to help guide evolving designs. Spiral 1 focuses on ways to discover, schedule and control resources for large-scale research experiments and to measure GENI capabilities. Successive spirals will refine and extend the GENI suite in response to the research community’s evolving interests in network science and engineering.

More information on GpENI is available from www.gpeni.net; more information on GENI is available from www.geni.net.

ITTC is a state-of-the-art KU research facility and Kansas Technology Enterprise Corporation Center of Excellence. The Center supports multidisciplinary research and development in information systems, networks, telecommunications, bioinformatics, and radar systems.