

## Broadband USA Applications Database

**Applicant Name:** Delaware Department of Technology and Information

**Project Title:** Delaware State University IT Modernization

**Project Type:** Public Computer Center

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### Executive Summary

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Delaware State University (DSU), in conjunction with the State of Delaware proposes networking infrastructure to provide students, faculty, and staff with a modern Internet Protocol (IP) network, enabling distance learning and facilitating innovation. The DSU IT Modernization project will provide the network infrastructure to support and enhance education, research, and research training at DSU and will provide significant improvements in campus life and added capability in the areas of user mobility and compliance for underserved areas of Delaware. The resulting system will accommodate over 4000 users, and is capable of servicing the needs for Delaware's citizen population of over 800,000.

This project expands public access to broadband service and enhances broadband capacity at DSU that permits the public enrolled with the University to use these computing centers. We consider the DSU IT Modernization project to be applicable in parts of all three BTOP categories. The State, as applicant, recommends the project to be filed within the Public Computing Center category as this appears to be the best fit to the category funding description.

The proposal is to build an intelligently managed converged IP network at DSU, a Historically Black University (HBCU). DSU possesses unique characteristics that fulfill a specific market niche, attracting students who otherwise would not consider other institutions of higher education. Today's educational institutions need to be positioned to provide the foundation to innovation, the key to economic recovery. This foundation comprises:

- Outreach to underserved student populations;
- Ability to reach potential students across all demographics;
- Technology-based tools to enhance learning as well as research and research training.

The project results are to provide added capability in the areas of network convergence, IP communications and network security for students, faculty, and staff, as the University strives to provide a campus of the future. The converged network will provide the foundational support for the integration of back-office applications and hardware such as enterprise resource planning (ERP), campus security, facilities-based systems, IP communications, iPortals, server virtualization, and storage area networks; as well as offering several benefits, including simplified administration, increased reliability, redundancy, 24 x 7 operation and new avenues to significantly reduce operational costs. Energy-efficient design, Green certified equipment and practices will be used in the network design and operations. The

equipment will also be used to consolidate and coordinate the various pockets of computing and networking infrastructure located in the University into a single unified wired and wireless converged IP network.

The University has a very dynamic research program involving faculty and students in several departments through individual faculty research grants, programs, and centers. There are several centers located in the University including the Centers for Research and Education in Optical Sciences and Applications and Hydrogen Storage as well as major research programs in biotechnology, agriculture, mathematics, physics, chemistry, computer and information sciences funded by several funding agencies including the National Science Foundation, the National Institutes of Health, U.S. Department of Education, U.S. Department of Agriculture, and the Department of Defense. Currently, DSU has partially deployed the DSU IT Modernization sub-project in the College of Mathematics, Natural Sciences and Technology (CMNST). The initial phases of the CMNST sub-project have demonstrated the deployment of a 10 Gbps converged IP network to enable various research activities in the CMNST. This is scheduled for completion in mid-2010.

The proposed network will give the University the capability to establish more meaningful research collaboration with colleagues at larger research institutions remotely, and facilitate access to geographically distributed computing resources, data repositories and digital libraries. It will enable high-quality computational research, video conferencing, distance learning, the ability to move large data sets and work remotely.

The proposed infrastructure will support education, research, research-training, and administrative activities at an HBCU where the vast majority of students are from underrepresented groups. It will contribute to the Nation's global competitiveness by providing modern networking and cyber infrastructure at an HBCU that will be utilized to educate and prepare underrepresented groups for the 21st century scientific, engineering, technical, and non-technical workforce. In addition, it would close the digital divide at this institution and provide networking infrastructure necessary to fulfill the University's educational and research mission into the 21st century.

Design, deployment, testing, management and administration of the IT Modernization network will be provided by Dr. Al-Sameen T. Khan, Mr. Saoud Khan and IT department personnel. Prof. Khan has considerable experience in the design, deployment and testing of computer networks and will be involved in these phases as well as the overall management of the project. Mr. Khan has extensive experience in network design, deployment, testing, management and administration of computer networks and he will be involved in all phases of the project. He has been with the university for the past nine years during which he and Prof. Khan have developed a highly robust and secure network in the Departments of Physics and Pre-Engineering and Computer and Information Sciences.

The overall cost of the project, including in-kind matching costs of project work completed, is

\$ 13,562,618.88