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FOR IMMEDIATE RELEASE

University of Maryland Awarded $915,900 by NSF to Integrate High-Performance Cyberinfrastructure that Facilitates Scientific Research with Science Applications

COLLEGE PARK, MD (October 1, 2012) – The University of Maryland was awarded a $915,900 grant by the National Science Foundation. The goal of this effort is to make existing, advanced network functions an integral component of science application workflows in the *end-to-end* sense to facilitate big data flows. The University of Maryland is partnering with The George Washington University, and the award is effective October 1, 2012.

Currently, the advanced network functions are implemented in the core and wide area networks to provide support for high-performance, optimized data transport. This effort will extend these existing functions throughout the campus network over a Software Defined Networking (SDN) solution and fully integrate them with science applications – de facto creating a dynamic Science DMZ driven entirely by science application workflows.

The Multi-Service Exchange (MSX) platform will be developed to support the project's goals and will be deployed on campus network demarcation points. The MSX architecture will help to dynamically decouple the campus network operational mission from science data flows. It will do so as a function of application algorithms by making the protocols and interfaces of the wide-area networks – such as Internet2's ION, DYNES, perfSONAR, and others – interoperable with the campus SDN solutions such as OpenFlow. The MSX will also provide an on-demand, virtualized platform for existing big data transport solutions.

By concentrating predominantly on particular science applications, the MSX software development team will help domain scientists extricate themselves from the need to maintain either a deep network-related knowledge or specialized staff. The integration of the selected science applications with advanced network technologies will allow treatment of any network function as an on-demand resource.

"Maryland and GW are ideally suited to this project because of our affiliation with MAX, allowing the project's new paradigm to benefit universities as well as research and government organizations throughout the mid-Atlantic region," said Brian D. Voss, Maryland's Vice President of Information Technology and Chief Information Officer. Voss continued: "IT resource abundance is an important strategic asset to the university, and this project will provide an innovative new resource that could change the way research computing works on campus and beyond."

"Essentially, it is analogous to building on and off ramps for scientific research data, so they may more easily access existing advanced network superhighways," said Tripti Sinha, Maryland's Deputy Chief Information Officer of Networks and Communication Technologies. Sinha added: "These access ramps enable highly-specialized research traffic to be isolated from the campus production network in order to protect it from the effects of unrestricted big data flows."

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Dr. Jaroslav Flidr, Director of Services for MAX, said: “Once completed, this project will create a new foundation for how networks and their associated functions should be presented to and integrated with science applications. The result will be a platform which could be deployed on university campuses or at similar organizations – providing a point where new data transport oriented services can be developed and implemented.”

The project, “SDNX – Enabling End-to-End Dynamic Science DMZ,” is funded by NSF award number 1246386. The Principal Investigator is Brian Voss, with Tripti Sinha and Jaroslav Flidr as co-PIs also from the University of Maryland. The University of Maryland is partnering with The George Washington University.

About the University of Maryland

The University of Maryland is the state’s flagship university and one of the nation's preeminent public research universities. A global leader in research, entrepreneurship, and innovation, Maryland is ranked No. 19 among public universities by U.S. News & World Report, has 25 academic programs in the U.S News Top 10 and 72 in the Top 25. The Institute of Higher Education (Jiao Tong University, Shanghai), which ranks the world’s top universities based on research, puts Maryland at No. 38 in the world and No. 13 among U.S. public universities. The university has produced six Nobel laureates, six Pulitzer Prize winners, more than 49 members of the national academies, and scores of Fulbright scholars. The university is recognized for its diversity, with underrepresented students comprising one-third of the student population. For more information about the University of Maryland, visit www.umd.edu.

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