

**\*\*Call for Participation\*\***

Software Defined Infrastructure / Software Defined Exchange Workshop

Organized by the NSF “Looking Beyond the Internet” Planning Group

Workshop chairs: Rob Ricci, University of Utah

& Nick Feamster, Princeton, University

[ricci@cs.utah.edu](mailto:ricci@cs.utah.edu); [feamster@cs.princeton.edu](mailto:feamster@cs.princeton.edu)

Abstract

The NSF “Looking Beyond the Internet” planning group led by Chip Elliott, Dave Farber and Larry Landweber is conducting a series of workshops intended to discuss new research opportunities in the broad areas of future wireless, networks and clouds. The goal is to engage the research community to identify potentially transformative network architectures, enabling technologies and applications in three broad categories: software-defined infrastructure, community-scale wireless networks and future applications and services.

The purpose of this workshop is to recommend a 5-year agenda for research programs in new technology paradigms that will radically transform the Internet, and to identify the needs for infrastructure to support that research.

We are now at the dawn of Software Defined Infrastructure, in which systems that used to be implemented by rigid control systems or in hardware are now increasingly programmable and virtualizable: the result is that the systems become much more open to transformative research with implications for revolutionary new applications and services. Today’s early examples include multi-tenant clouds, software defined networking, network functions virtualization, and software defined radios. Individually, these systems present large research challenges, and these problems are compounded when they are interconnected into end-to-end, Internet-scale systems.

Looking forward, the emerging concept of software-defined exchanges will enable large-scale interconnection of Software Defined infrastructures, owned and operated by many different organizations, to provide logically isolated “on demand” global scale infrastructure on an end-to-end basis, with enhanced flexibility and security for new applications.

This workshop will identify research problems that must be solved before this vision can be realized. Concrete recommendations will be made for associated research and infrastructure support programs. Participants will be active researchers and infrastructure developers.

Areas of interest for this workshop include, but are not limited to:

- Software-defined infrastructure and software defined exchanges, broadly defined
- Prototypes of software defined exchanges

- Interoperability issues for software defined exchanges
- Applications and services enabled by software defined infrastructure and exchanges in a multi-domain environment
- Federation of multi-domain software defined infrastructure
- Resource slicing in multi-domain software defined infrastructure
- Operating systems for software designed infrastructure
- Security issues for software defined infrastructure and exchanges
- Interconnection of software-defined networks and NFV with other types of resources
- Inter-cloud and other interconnections that cross domains

As a pre-requisite for workshop attendance, contributions are solicited from prospective participants in the form of one-page white papers identifying new research directions and related testbed infrastructure requirements. The whitepaper should also briefly describe your background in this area. The white paper should be submitted at [sdi-workshop.flux.utah.edu](mailto:sdi-workshop.flux.utah.edu) by Nov 20, 2015. Those accepted for the Workshop will be notified by Dec. 1, 2015

#### VENUE / DATE

Washington DC, Date: Feb.4-5, 2016

#### FUNDING

Limited funds are available for travel and local expenses of attendees. Guidelines will be sent prior to the Workshop. Please indicate in your submitted white paper if you wish to be reimbursed.