

# Workshop - Research and Education Community Investment in National-footprint Network Services: 2018-2023

## Call for Papers

### Introduction

The year 2018 marks the 20th anniversary of the establishment of the Internet2 Network. The network has been refreshed several times during that period, and the service portfolio has evolved considerably, but many of the initial assumptions and design points are still in place. During that time, the community has grown and changed radically, as has the technology landscape.

As we prepare for the next capital refresh that will occur between 2018 and 2023, Internet2 seeks a community conversation about what investments we should be making in national-footprint network services that will carry us through to 2030. Given the magnitude of the changes we've seen, it seems prudent to step back and ask some fundamental questions, and challenge some of those initial assumptions.

The aim of this workshop is to provide an opportunity for the community, represented by those submitting a white paper, to weigh in on these issues by describing their projected needs, share thoughts about what they would like to see Internet2 do differently (or continue to do), or even just postulate what the Research & Education landscape will look like during the near-term future.

The post-workshop deliverable will be a draft plan by the Internet2 staff that incorporates the input provided, to be discussed and revised as needed at the Global Summit in the spring of 2017.

### Who should submit a white paper?

We seek to cast a wide net. Any member of the community who may have a stake in the Internet2 Network is encouraged to respond to the Call for White Papers.

### Issues to be addressed

We are encouraging broad participation, so we are open to considering a wide variety of input. One possible approach to writing a response might be to focus on what's important to your

specific goals and ambitions: what kinds of services from a national-footprint infrastructure would support your efforts?

On the other hand, sometimes it's more informative to see a strawman, and comment on ways in which you would change the model. One such strawman follows:

A national-footprint R&E network could be built to support:

1. The academic enterprise
  - a. A clean-pipe (DDoS mitigation) service with direct access to commodity peering and commercial cloud services
    - i. Focus on production, enterprise services tailored for the R&E community
    - ii. Direct Layer 1 backhaul to connectors from peering points
    - iii. Intuitive portal for service provisioning
    - iv. Managed with a commercial headroom policy
2. Data-intensive collaborative research
  - a. High-performance next-gen Software Defined Infrastructure
    - i. Focus on data movement for all academic disciplines, target advanced users of "programmability" aspect
    - ii. Programmable compute/storage/network at the edge
    - iii. Feature-rich, robust APIs
    - iv. Fully instrumented for telemetry, with privacy and security protection, to target applied research in cybersecurity and other areas
    - v. Global reach of services, in collaboration with other leading NRENs
    - vi. Managed with a R&E headroom policy
3. Exploration of the next Internet
  - a. Persistent and evolving national cyberinfrastructure testbed
    - i. Focus on supporting the network and distributed systems research community
    - ii. Sliceable, breakable, deeply programmable
    - iii. Bare-metal access to compute/storage/network
    - iv. Some use cases may be bandwidth-intensive, others not

Lastly, one might approach this by looking at some key cross-cutting ideas and questions as an aid to formulating a response, as in the examples following:

1. How should Internet2 work with regional networks to provide more efficient and advanced services in a coordinated way?
2. How can Internet2, in conjunction with the regional networks, provide better access to global resources in support of critical collaborations worldwide?
3. How should Internet2 address opportunities to participate in well-supported open source projects that use commodity hardware and are exploring novel routing and switching paradigms?

## Process

Submit your 1-3 page white paper by November 8, 2016 to [2018-network-cfp@internet2.edu](mailto:2018-network-cfp@internet2.edu). Your paper will be reviewed by a group from the community and 20 participants will be chosen for the workshop. If your paper has been selected, you will be informed by November 18, 2016.

## Dates to Remember

Paper deadline: November 8, 2016

Acceptance Notice: November 18, 2016

Workshop Dates: January 5, 2017, noon to January 6, 2017 noon

## Workshop Venue

The workshop will take place on January 5-6, 2017 at the Mission Palms Hotel in Tempe, AZ. We will gather at noon for lunch on Thursday, January 5th and finish by noon on Friday, January 6th.