

# University of Washington

## CC-NIE Network Infrastructure: Enhancements to Support Data-Driven Discovery at the University of Washington

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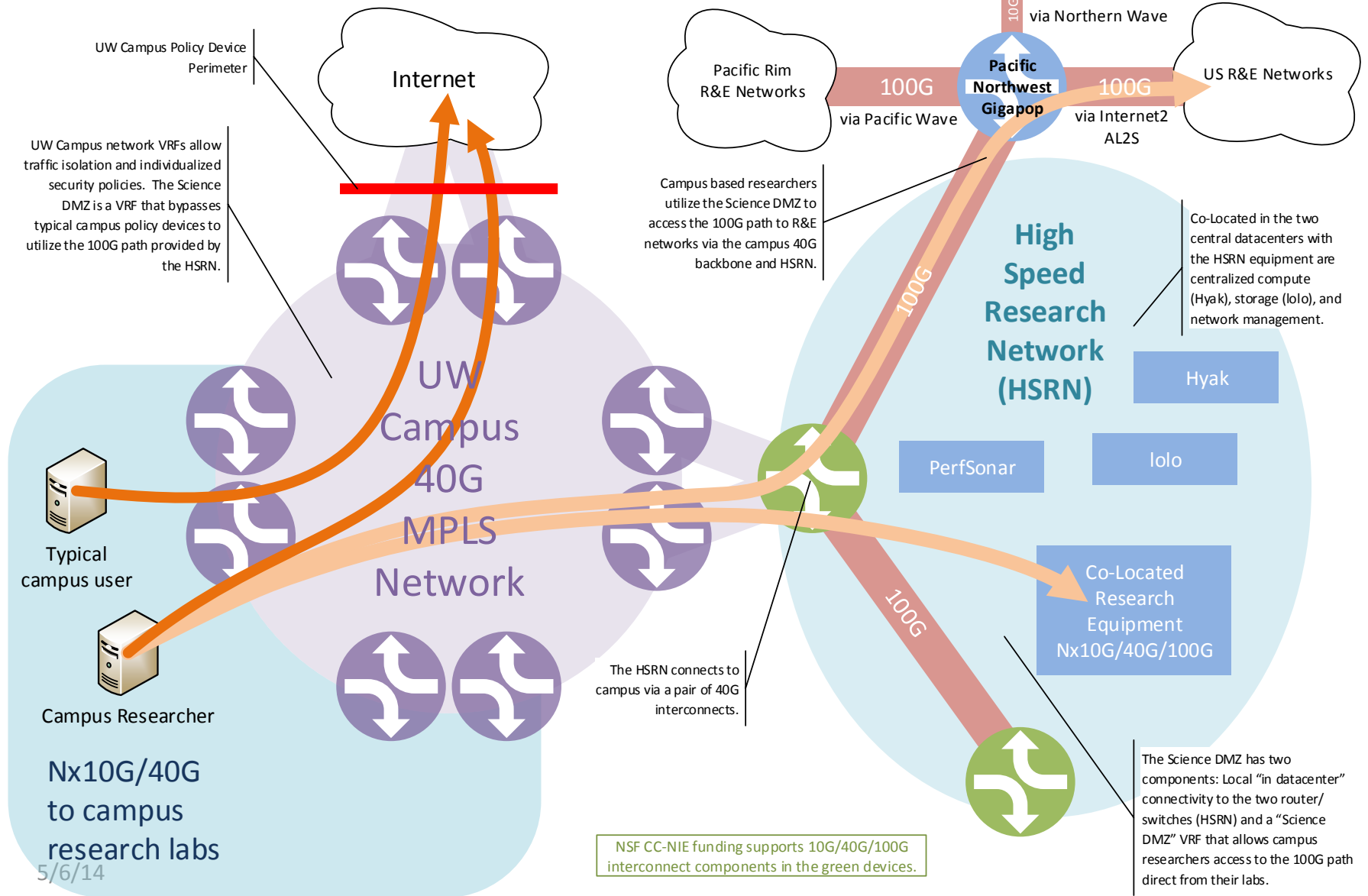
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# University of Washington Campus CyberInfrastructure Plan

Projected Completion Sep 2014



# Progress – On-Target Completion Sept. 2014

- CC-NIE capital funds (~\$485K) have been spent; equipment rec'd and installed
- Full HSRN construct is in place
- Three of four campus backbone routing centers upgraded from 10G to 40G
- Research Network under construction:
  - Virtual research network overlay
  - Operational support processes

# Evolution of UW's CC-NIE Grant

From grant submission in May 2012 to March of 2013, important opportunities for UW's research network unfolded.

A four stage series of events resulted in the proposal described today.

# Opportunity One

## May 2012

- Grant submitted
  - upgrade campus backbone from 10G to 20G
  - create dedicated 10G path from UW to Pacific Northwest Gigapop (PNWGP)

## September 2012

- NSF grant awarded

# Opportunity Two

## Fall 2012

- PNWGP deploys a 100G connection from its node on the UW campus back to primary PoP in Seattle and
- Offers access at PNWGP campus node for UW researchers.
- PNWGP PoP already has 100G access to Pacific Wave and Internet2

# Opportunity Three

## January 2013

Broad high-level UW support for meeting Big Data needs of researchers; UW supports several targeted programs including...

- Campus technology stakeholders commit \$1.2M to upgrade campus backbone from 10G to 40G

# Opportunity Four

## March 2013

With same NSF funding level, UW now has opportunity to expand original research network intra-campus capacity from 20G to 40G and the inter-campus design for research network capacity from 10G to 100G

- Submitted design and budget revisions to NSF and revision approvals granted; budget slightly less.



# Science DMZ: not just for researchers!

Constructing a Science DMZ as part of the research network is necessary to support the researchers as well as the non-research users and resources.

Here's a recent UW story...

# Science DMZ: not just for researchers!

Earlier this month UW research activity included a project utilizing Internet scans:

- The scans generated new sessions at a rate of up to ~500K/s
- UW Intrusion Prevention System (IPS) perimeter device can handle ~250K/s

The daytime scans toppled the UW IPS device and significantly impaired network use across campus for several hours.

# Science DMZ: not just for researchers!

In the near term, the researchers have graciously agreed to coordinate with UW-IT on the timing of the scans and to scale back the rate at which the new sessions are opened thereby extending the duration of the scan from a couple of hours to a day.

In the future, such research scans will seamlessly take place at full speed on the research network.

# Research Network: Sept. 2014

Many thanks to NSF, the UW administration, and PNWGP for their support in the development of UW's research network.

# Thank You

