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BROADENING THE REACH THROUGH CAMPUS CYBERINFRASTRUCTURE

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Session Abstract

The Broadening the Reach program is an NSF-funded and Internet2 led effort to assist primarily smaller universities and colleges that have research and research training programs to develop campus cyberinfrastructure needed to effectively support scholars and researchers in national and global contexts. This is an open meeting to discuss the aims of the program, what has been accomplished, and how to get involved.



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What is the “Broadening the Reach” project?

- Funded as an NSF ACI “special project” starting in Fall of 2013, PI: Stephen Wolff, co-PI: Wendy Huntoon
- Support from the NSF through grant ACI-1342995 is gratefully acknowledged
- Aim is:



“...to support the enhancement of campus network infrastructure and external connectivity of colleges and universities, including but not limited to those in EPSCoR states, having notable research projects, even though the institution may not be primarily research-focused.

- Through two primary approaches:
 - “...workshops focused on campus infrastructures and external connectivity to support research and teaching.”
 - Campus visits to assist with implementation of infrastructure, development of competitive proposals, building mindshare in CI topics



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Organizational structures and processes

- Steering committee – 12 members from universities and regional R&E networks
 - Selection criteria for site visits
 - Order of visits
 - Participation in site visits and workshops
- Weekly initially, then monthly steering committee calls
- Internal project team
- Mailing lists for steering committee and project team



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General methodology, workshops

- Three (+one) “direct contact” workshops where IT and research support staff as well as researchers are invited to discuss a number of cyberinfrastructure-related topics, technical and “administrative”
- One “train the trainer” workshop aimed at building capacity for sustaining the awareness and training activity
- Community involvement and co-sponsorship in direct contact workshops
 - The Great Plains Network (Kansas City, MO, February 2014)
 - The University of Utah (Salt Lake City, UT, May 2014)
 - MCNC (Raleigh, NC, September 2014)
 - Oklahoma Supercomputer Center for Education and Research (February 2015)

General methodology, site visits

- Broad solicitation of interest in the community (Spring 2014)
- Responses collected and organized according to a few criteria:
 - Within the target population of non-R1/R2 and institutions of higher education in EPSCoR jurisdictions
 - Interested in submitting a proposal to the 2014 (and 2015) CISE/ACI Campus Cyberinfrastructure RFP, or an MRI proposal, or a CRI proposal, etc.
 - Prior award from CC* programs for which implementation support is desirable
- Selection of schools for site visits and implementation (2014-2015)
- Plan visits with site research community and IT contacts, and regional network organization
- While on-site, identify next steps in engagement
- Follow up with survey to assess relevance and impact
- Continue engagement to complete next steps.....



Response to site visit call for participation

- 68 requests for site visits from one letter of invitation (funded for 30 visits)
- 4 unsolicited requests for site visits
- 17 requests from CC*IIE and CC*NIE awardees
- 38 in EPSCoR jurisdictions
- 20 site visits



Artifacts used to construct site visits

- Site visit call for participation and invitation letter
- NSF funding database
- Regional networks' connector information (how does the responding institution connect to the world?)

- Pre-visit survey – challenges and interests
- Post-visit survey – usefulness and impact, interest in follow-up activities
- Site information sheet – points of contact, logistics, topics and agenda
- Topic/interest area list – possible topics from which to form an agenda; extended when new topics are requested or needed
- Site visit agenda template – filled out collaboratively with site contacts

Broadening the Reach interest areas

Proposal preparation

Writing a Cyberinfrastructure plan
Feedback on an existing Cyberinfrastructure plan
Proposal development issues related to the
CC* program, MRIs and EPSCoR projects
CI engineer job description, funding model and strategy
Ideas, methodologies, techniques to get administration
behind CI planning process
Collecting and understanding application requirements

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Community and participation

Overview of Internet2
Overview of regional R&E network
Identity management, TIER
Eduroam overview

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Technical, networking

Small campus network design
science DMZ concept and data transfer node design/use
perfSONAR, set up, use and building a mesh
End-to-end performance tuning
SDN real implementation in a university campus environment

SDN Overview
SDN hands-on lab

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Identity Management

Eduroam implementation and use
Federated Identity Management implementation and use

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Technical, other CI and research computing

Management and storage of research data
Storage strategies that bridge enterprise and research/
scholarly activities and STEM education needs
Consolidation and efficient use of resources for HPC, and
research computing in general
External HPC and HTC resources that you can use
National research computing support organizations (XSEDE
Campus Champions, ACI-REFs)

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Research community engagement

Researcher roundtable and discussion of research activities
Funding strategies for research IT infrastructure
Funding strategies for research computing support
Role of the Cyberinfrastructure Engineer in an overall
support strategy

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Lessons learned (so far, after 20 site visits and 5 workshops)

- Workshops and on-site visits are both impactful and are complementary
 - Broad audience with set agenda vs. smaller groups and more time to discuss and socialize ideas across faculty, IT staff and administrators
- **Regional network organizations are great partners in this activity!**
- Smaller colleges and universities have interests and CI needs that are distinctly different to research intensive universities
- BUT they have pressing needs for cyberinfrastructure that are sometimes as difficult for them to meet as in the “R1s”
- Site visits are a great time to begin or reinforce connections between IT and faculty; preparing a CC* proposal often starts new, important relationships across a campus



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More lessons

- Open dialog that includes IT, faculty and regional network representatives brokered by outsiders (the BTR site visit team) is generally welcomed and sometimes tactically useful
- Overall, interest in topics covers the list, but the mix of interests differs from one institution to the next; we are constantly adding new topics and supporting materials
- An EPSCoR jurisdiction's goals and S&T plan can drive diverse cyberinfrastructure needs across multiple campuses
 - Broader intra- and inter-campus coordination of research/education/grad training IT plans with state EPSCoR office's plans
 - Coordination between NSF campus cyberinfrastructure programs, MRI, and CRI programs with EPSCoR office?



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The “Broadening the Reach” concept is catching on

- CC*IIE Region: Southern Partnership in Advanced Networking (SPAN)
 - Award Number: 1440659; Principal Investigator: James von Oehsen; Co-Principal Investigator: Ronald Hutchins, Guy Cormier, William Gruszka, Anthony Caldwell, Gregori Faroux; Organization: Clemson University
- CC*IIE Region: Accelerating the Adoption of Campus Cyberinfrastructure Technologies in Pennsylvania
 - Award Number:1440699; Principal Investigator: Gwendolyn Huntoon; Co-Principal Investigator:Patricia Campbell, Michael Carey; Organization: Keystone Initiative for Network Based Education and Research
- CC*IIE Region: Transforming a Regional Network and the Regional Community to Serve Diverse and Emerging Research Needs
 - Award Number:1440450; Principal Investigator: Paul Schopis; Co-Principal Investigator: Pankaj Shah; Organization: Ohio State University



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How to get involved

- As a campus working on CI plans
- As an organization that wants to collaborate on campus visits and workshops
- As an individual who wants to contribute expertise
- Other ways?
- Email rs@internet2.edu

Thanks for your attention!

Questions, feedback, ideas, offers of partnership,
etc.?

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