Proposal Writing I

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Overview

- Summary of the Campus Cyberberinfrastructure Solicitation Awards
- General Techniques for Responding to Solicitation
- Responding to Scientific Impact in an Infrastructure Proposal
Funding Opportunities

• General NSF funding opportunities
  – See http://www.nsf.gov/funding/
  – Ability to search for funding in the specific programs areas you are interested in.

• Other Agencies
    • Office of Science probably most applicable
      – Funding Opportunity Announcements - http://science.energy.gov/grants/foas/

Broadening the Reach Workshop, Raleigh, NC 09/04/14 – 09/05/14
Example Infrastructure Solicitation

• NSF Campus Cyberinfrastructure - Infrastructure, Innovation and Engineering Program (CC*IIE)
  – From CISE (Directorate for Computer & Information Science & Engineering)
    • ACI (Division of Advanced Cyberinfrastructure) and CNS (Division of Computer and Network Systems)
  – Previous solicitation was named CC*NIE
Example Infrastructure Solicitation: CC*IIE

• Solicitation aimed at
  – Investing in improvements and re-engineering at the campus level to support a range of data transfers supporting computational science and computer networks and systems research.
  – Supporting network integration activities tied to achieving higher levels of network performance, reliability and predictability for science applications and distributed research projects.
CC*NIE and CC*IIE Program Areas

• Area 1: Data Driven Networking Infrastructure for the Campus and Researcher
• Area 2: Network Integration and Applied Innovation
• Area 3: Network Design and Implementation for Small Institutions
• Area 4: Identity and Access Management Integration
• Area 5: Campus CI Engineer
• Area 6: Regional Coordination and Partnership in Advanced Networking
Stats from 2012 CC*NIE Solicitation

- 89 proposals received ($52M+ requested)
- 39 awards made (34 projects total)
  - 34 different institutions in 23 states
- Total funding:
  - $21.6M (that includes $3M in co-funding from CISE/CNS)
  - Area#1: $9.7M, 21 awards
  - Area#2: $11.9M, 18 awards
Stats from 2013 CC*NIE Solicitation

- 87 proposals received ($47M requested)
- 45 awards made (42 projects total)
  - 45 different institutions
  - 27 different states
- Total funding: $22.4M (that includes $3M in co-funding from CISE/CNS)
  - Area#1: $15M, 34 awards
  - Area#2: $7.4M, 11 awards
Preliminary Stats from 2014 CC*IIE

- Taken from the NSF Awards web site
  - Not official numbers; more awards expected to be announced
  - 40 Awards totaling $15.3M

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Awards</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Infrastructure</td>
<td>18</td>
<td>$8.8M</td>
</tr>
<tr>
<td>Network Integration</td>
<td>2</td>
<td>~$600K</td>
</tr>
<tr>
<td>Campus Design</td>
<td>6</td>
<td>$2.4M</td>
</tr>
<tr>
<td>Identity and Access Management</td>
<td>3</td>
<td>~$900K</td>
</tr>
<tr>
<td>Campus Engineer</td>
<td>5</td>
<td>~$2.0M</td>
</tr>
<tr>
<td>Regional Coordination</td>
<td>5</td>
<td>$578K</td>
</tr>
</tbody>
</table>
General Techniques for Addressing Merit Review Criteria

• Specifically mention the review criteria
  – Make sure you address all the merit review criteria directly and specifically
    • Including the solicitation specific review criteria

• Include sections in the proposal that highlight your responses to the review criteria
  – Should be consistent with the rest of the proposal text

- Helps to draw attention to the review criteria
General Techniques for Addressing Merit Review Criteria

• Use sentences that directly tie elements of your proposal to the specific review criteria
  • The intellectual merit of the project is ...
  • The broader impact of the project is..

• Refer to the merit criteria appropriately throughout the text of the proposal
Techniques for Addressing Merit Criteria

• Read through the previous award abstracts
  – Provides insight into what got funded
    • Thus what the reviewers were looking for

• Use an unbiased editor towards the end of the writing process
  – Ask to review for merit criteria as well as over all content
Addressing Scientific Impact

• Before you write the proposal
  – Identify projects and researchers that are already have projects that use infrastructure – network, storage, computation
  – Low Hanging Fruit
    • XSEDE use and allocations ([www.xsede.org](http://www.xsede.org))
      – Campus Champions Program
    • Participants in national or international collaborations
      – LHC, iPLANT, NEON, Galaxy, LSST, etc
    • Internet2 services and resources
      – InCommon
Addressing Scientific Impact

• Before you write the proposal (con’t)
  – Regional collaborations or collaborators
    • In-state, across state borders
    • Organizations to partner with to augment your project
      – Other educational entities for broader impact
  – Science Gateway Users
  – Regional Network
    • Often provides a one-stop shopping for other collaborators, information on network use, etc.
Addressing Scientific Impact

• When writing the proposal
  – Use the projects you have identified as examples
  – Identify current restrictions to research based on existing infrastructure limitations
  – Tie how the proposed infrastructure would benefit the specific examples as well as other similar types of research
  – Get letters of support from the researchers associated with the research projects you have mentioned.
EXAMPLES:
From actual proposals
Example: Intellectual Merit

The intellectual merit associated with the project is to advance the basic understanding of campus cyberinfrastructure technologies, including network performance, at a broad range of institutions, paving the way for supporting and expanding cyberinfrastructure based research and science in the region.
Example: Campus Design Award

From: Award Abstract # 1440704
CC*IIE Campus Design: Building a Next-Generation Research Network for Vassar College

This project provides a Science Research Network utilizing next-generation technologies to dramatically reduce and remove barriers to the free flow of scientific research data at Vassar College. The enhanced network better supports the transfer of large data sets with dramatically increased network capacity and reduced latency, positioning science researchers to utilize distributed data collection, remote sensor networks and pursue other network-enhanced research.
Example: Campus Design Award (Con’t)

From: Award Abstract # 1440704

This project upgrades the current network core to a fully meshed 10Gbps backbone to facilitate high-capacity science research data transmission across the Vassar network. A dedicated science research network, a Science DMZ, is designed and implemented to enable the unfettered flow of science data across and between researchers, data collection, analysis and storage resources. Researchers are provided direct access from the Science DMZ to Research and Education (R&E) Networks including the New York State Education & Research Network and Internet2, with access to distributed computing resources including the New York State High Performance Computing Consortium (HPC2), as well as the commodity Internet in support of scientific research. Additionally fiber connections to the local Point of Presence (POP) are reconfigured to enable dramatically greater network throughput.
Example: Broader Impact

From Award Abstract #1341005
Collaborative Research: CC-NIE Integration: Developing Applications with Networking Capabilities via End-to-End SDN (DANCES) (Kathy Benninger, Joseph Lappa, Gwendolyn L Huntoon; Carnegie Mellon University)

Knowledge gained through DANCES is being disseminated through educational programs offered by the participating institutions and at existing community workshops, meetings, and conferences. The insights and experience obtained through DANCES will promote a better understanding of the technical requirements for supporting end-to-end SDN across wide area and campus cyberinfrastructure. The resulting SDN-enabled applications will make the request and configuration of high bandwidth connections easily accessible to end users and improve network performance and predictability for supporting a wide range of applications.
Additional Resources: CC*IIE

• NSF Webinar

• Presentation at The Quilt meeting

• Award abstracts available on fastlane.nsf.gov
  – Try searching on the term “IIE” or “NIE”
  – Indicates what was funded in previous rounds
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