

Call for White Papers on Mid-Scale Infrastructure Investments for Computing Research

The Computing Community Consortium (CCC) is seeking community input to better understand the potential needs and payoff for additional investments in mid-scale infrastructure for computing research.

The National Science Foundation spends significantly less on shared research infrastructure for computing research than it does for many other fields. By “shared research infrastructure” we mean experimental hardware and/or software and associated instrumentation that serves a significant portion of the research community (versus a small set of investigators). In other fields, such shared research infrastructure includes equipment such as telescopes, ocean observatories, supercomputers, and field stations.

We specifically are interested in “mid-scale” infrastructure investments, defined as investments of over \$4 million but under \$100 million. Infrastructure investments in the \$100,000 - \$4 million range are accommodated by NSF’s Major and Computing Research Instrumentation (MRI and CRI) programs. Infrastructure investments of \$100 million or more fall under NSF’s Major Research Equipment and Facilities Construction (MREFC) Program. GENI, PlanetLab, Orbit, FutureGrid, and Emulab are examples of mid-scale infrastructure investments with significant impacts on our field.

While it is possible that the current level of investment is appropriate and our field does not require additional investment in shared research infrastructure, it seems equally likely that we are under-investing and that there are some potential investments that would significantly enhance the research capabilities of our field. We would like to solicit your opinions and ideas, in the form of short white papers. What sort of investment in mid-scale infrastructure can you envision that would drive computing research forward? What research infrastructure do you think is most appropriate (and for which broad class of research questions) and why? To what extent can such infrastructure be shared (and at what level)? How should such infrastructure be administered? How would technical standards be developed by the community? Is federation of resources possible? How should the research community organize to utilize such infrastructure most effectively and to provide input on its operation and technical evolution? How do you see the infrastructure being funded? Will the infrastructure be used for relatively short-lived activities, long-term projects, or a mix? How can the design of the infrastructure enable effective transfer of research results to the broader community, including industry and students?

White papers should not exceed 10 pages in length (shorter is better!) and are due by April 15, 2013. Depending on the level of interest generated by this call for white papers, a follow-on workshop may be held at which papers may be presented. In either case, it is our intention to approach the NSF and other funding agencies with the results of this effort.

White papers (pdf) should be emailed to CCC’s Program Associate, Kenneth Hines: khines@cra.org

CCC Mid-Scale Infrastructure Steering Committee:

Steve Corbató (University of Utah)

Ed Lazowska (University of Washington)

Bruce Maggs (Duke University and Akamai Technologies)

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A note concerning the privacy of submissions

Your submissions will not be “public” – they will not be shared widely, published on the web, etc. However, we expect to discuss them with funding agency representatives and perhaps selected others. If you have comments that you would prefer not be attributed to you – for example, specific concerns that you would like to express regarding the administration of particular related programs – please put them in a separate file, on a page that carries your name and affiliation but is marked at the top “For the Steering Committee Only.” We will treat this material with discretion.