

## 70c – Data-intensive Computing

### Action Item Template Response

#### General Action Item Information

Lead Division/Office: Pervasive Technology Institute

Action Item Number: 70c

Action Item Short Name: Data-intensive Computing

Dependencies with other EP Action Items: 3, 4

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#### I. DESCRIBE YOUR PLANS FOR IMPLEMENTING THIS ACTION.

IU has bootstrapped itself into a position of significant national leadership in several areas of research and implementation in data-intensive computing. We now face the challenge of solidifying our leadership and moving forward. Particular areas of strength and focus in which IU should continue its focus, and in some cases expand focus, include the following:

- **Multicore computing.** IU should strengthen its research program in multicore computing, centered on activities in the areas of data-intensive applications of multicore computing.
- **Grid and cloud computing.** OVPIT should strengthen its commitment to research in data-intensive grid computing by providing more assurance of funding to key researchers (in exchange for ICR going to central OVPIT budget).
- **Scale-free computing.** OVPIT should partner with the School of Informatics and Computing (SOIC) to establish a 4th Center within PTI, on scale-free computing (also referred to as large-scale computing). This was once a key strength of IU; IU's depth in faculty expertise in this area has slipped relative to key peers and competitors. OVPIT should partner with SOIC on a major recruitment of a senior expert.
- **Analysis and presentation.** We propose the creation of a new Quantitative Research Support Group, to include the current leadership and staff of the Center for Statistical and Mathematical/GIS Computing of the Research Technologies Division, and take on a more comprehensive scope in addressing analysis and presentation, as well as validation and maintenance needs in data-intensive computing.
- **Availability of research data.** Given Indiana University's rich networking environment and support of innovative, collaborative learning tools like Oncourse CL, a program should be developed as a distinct collaboration between Research and Learning Technologies that would allow for the rich datasets generated and stored through RT to be made accessible through Oncourse CL/other web-based delivery mechanism.
- **Traditional CI-enabled research.** IU should strengthen and renew its strong support for its

traditional data-intensive users of high performance computing resources, most specifically astronomy and physics.

The GlobalNOC at Indiana University has built valuable and strong relationships with the advanced research and education networking community, which underlies all of IU's most significant IT-enabled research and scholarship. We should leverage the stature of the GlobalNOC and its relationships to build a program to further advance network research and the fields of scholarship that depend heavily on high-speed networking.

Given these relationships and prominence, we have an opportunity to exponentially grow our role in network research and support if we focus resources on this pursuit. This can be accomplished by expanding the international research networking role of the GlobalNOC with a new Network Research Development Manager position. This position would be responsible for pursuing the resources available to fund efforts to push network research and network infrastructure projects. Funding sources could include federal agencies such as Departments of State, Commerce, and Homeland Security, as well as USAID, National Institutes of Health, and the National Science Foundation. These sources represent a significant and broad opportunity for funding, and show promise for developing advanced networking-related research and scholarship. The GlobalNOC has well-established relationships with many of these organizations. With a dedicated and experienced Network Research Development Manager, we would be able to build on these relationships and make significant gains in network research and support.

## **II. WHAT ARE THE POLICY AND PRACTICE IMPLICATIONS OF YOUR PLANS?**

None.

## **III. IDENTIFY STAKEHOLDERS.**

- Faculty and other researchers at Indiana University campuses
- RT/PTI
- IU students