AVNET ®

BRINGING THE CLOUD TO CAMPUS:

Grants that Support High Performance
Computing and Big Data Projects

Community
Cloud

Hybrid
Cloud

Public
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Private
Cloud

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Background on Flexpod® Compute and Storage Technology

Institutions of Higher Education (IHEs) rely on computing and storage resources to achieve both their education and research objectives. The era when professors teach from overhead projectors and students take notes by hand has quickly faded into the electronic age. Lectures are now captured and made available in digital format and students take all their notes on personal computers. On the research side, the need for cross-institutional collaboration and the proliferation of scientific fields that rely on huge volumes of data has necessitated a shift to flexible, cloud-based compute and storage resources.

The FlexPod® platform, designed by NetApp and Cisco, provides a flexible, converged infrastructure solution that delivers pre-validated storage, networking, and server technologies. It is a solution that can help IHEs decrease their overall computing costs, increase efficiency and uptime, and reduce risk associated with deployment guesswork, all while maintaining flexibility in accommodating ongoing workload optimization.

Grant programs tend to be neutral when it comes to specific technologies, so in that respect any funding instrument that can support data center components has the potential to fund FlexPod®. For most grant programs, these data center solutions must be a component of an overarching project rather than a standalone initiative. In other words, the data center solutions can be funded as long as they are justified in the context of advancing the education or research priorities outlined by a particular grant funder. Given the dual focus of IHEs (education/research) and the nature of project-based grant funding, it is important to examine the application of FlexPod® and data center technologies to each mission separately.

Education & Workforce Development Applications

With growing enrollments, emphasis on retention, and reducing time to degree completion, increasingly higher education institutions and workforce training providers must find ways to educate and assist students in the most efficient way possible. From student affairs to academic affairs, staggering amounts of student information is collected - needing to be stored in a secure, yet accessible manner. For example, instructors could share course materials to better align content within prerequisite courses. Moreover, through video capture of previous lectures, courses can be taught and re-taught year after year while decreasing the necessary man-power. Through allowing students digital access to lecture material, faculty members now have the time available for other duties such as leading small discussion-based seminars, mentoring students, serving on campus committees, or conducting research. Alternatively, an academic advisor could call upon newly shared information to ensure student success and support; noticing the warning signs (a sudden slew of absences, receiving failing marks on several assignments across many classes, etc.) with ample time for intervention. Better yet, a university health professional - with appropriate access to his or her student's files from Residence Life and Student Conduct may be able to identify if that student poses a possible threat to him/herself or other individuals on Campus. In consideration of Workforce Development initiatives, much of the same is true. Whether on their own or through partnership with a Higher Education Institution or K-12 District, many Workforce Development Organizations are looking to increase access and more efficiently align course content so that participants can earn credentials to enter the workforce.

FlexPod® provides the converge infrastructure to make this and a number of other Higher Education and Workforce development initiatives possible. Cloud-based storage is the ideal place for retaining the plethora of information gathered by Higher Education institutions and Workforce Development Training providers all while maintaining an incredible level of security - controlling who, how, and from where information is accessed.

Academic Research

As science advances, the information generated by researchers increases exponentially. Considering the collaborative nature of most academic research, the need to store, secure, access, share and manipulate this data is a primary concern. The efficiency in which researchers can manage such data is directly correlated with the pace at which their scientific projects move forward and advance their particular field of interest. In other words, increasing efficiency allows projects to be completed on abbreviated timetables and more experiments to be run in a given time period. In some instances, researchers are still mailing removable media, containing vital information, to their collaborating colleagues. This type of scenario dramatically slows the pace at which such research can progress.

FlexPod® provides the converged infrastructure necessary to increase the efficiency of researchers. More than that, it is an ideal solution to achieve two other primary concerns of researchers: security and flexibility. Many researchers deal with sensitive information on human subjects, such as protected health information, which is bound by strict governmental regulations[1] from a security and privacy standpoint. While security is essential, collaboration requires flexibility in terms of the people, places, and institutions that need to access such data. FlexPod® provides a cloud-based solution that can achieve these objectives while also accommodating the fact that the data will continue to grow exponentially, requiring a compute and storage resource that can be scaled up indefinitely. In addition, the platform enables a cloud-based environment in which the stored information can be accessed securely across collaborators and the broader scientific community.

Orientation to Grants and Grantseeking

Funding Technology

We are now a society driven by the proliferation of the Internet and an insatiable appetite for instantaneous information, often expecting the analysis to already be completed, distilled and presented as the bottom line. It should surprise no one that institutions of higher education and research entities adopt this bottom line approach and typically express their needs in terms of the technology and products necessary to accomplish their organizational objectives.

Grants Fund Projects... Not Products

When it comes to grants, the industry mantra is that "grants fund projects... not products". Unfortunately, this approach does not always mesh nicely with the bottom line, real-world perspective. Grant programs are created with the intended purpose of solving some type of dilemma in new, unique and innovative ways. The simple acquisition of technology products in and of itself rarely accomplishes such hearty and far-reaching objectives. In the grants world, technology should be viewed as an enabler of projects. In that respect, technology can be supported by grants insofar as the products are key components of a broader project that advances the specific goals and objectives of the funding opportunity. Furthermore, in addition to equipment, a well-rounded project will typically include a budget for personnel, training activities, contract services and a variety of other elements necessary to carry out the initiative.

The key questions you must ask yourself are "Why do I need this particular product, or piece of technology?" and "How does the technology and overall project advance the education or research objectives of the grant program?"

Writing Technology into your Proposal

Understanding how technology can be leveraged in grant-friendly projects is only half the battle. While it may be true that technology is critical to the overall success of a particular project, that does not mean the technology should be placed front and center in the proposal. Too often, applicants focus on specific technologies and the product descriptions provided by the vendor. Most funders are more interested in a well-thought out vendor selection process that highlights the specific functionality of the required technology. Avoid the tendency to allow the technology to dominate the project narrative. Remember that the grantmaker is providing funding to address a particular problem. In order to be competitive, the project must be unique and innovative. The narrative should explain how the accompanying changes in workflow, process and overall approach of the project is innovative, not just the technology.

In Conclusion...

Although it may seem like two worlds colliding, the good news is that grants are indeed a great source of funding for technology. Doing so requires the formulation of a well-rounded project that provides a proper context for the enabling technology. Next time you are analyzing the viability of a particular grant program for your technology-enabled project, be sure to do so with these lessons in mind. Now you have the proper mindset... lets cover some basic concepts associated with grantseeking (Please see Appendix I for a glossary of common terms and phrases associated with grants).

Grant Sources

Grants typically come from one of three sources:

FEDERAL – approximately $400 billion each year is issued from one of the 26 Federal grantmaking agencies. These grants tend to be large (often $250,000 to $500,000 in size) and restricted to broad, national priorities;

STATE – funding amount varies by state and is issued from a state agency, either using funds derived from within the state or passing through funds received from elsewhere (most often a federal agency). These grants tend to be more accessible, smaller than federal grants, and more in line with state priorities; and

PRIVATE –foundations and corporations provide approximately $35 billion each year in funding, and they tend to be the most responsive to locally developed projects and local needs.

All three of these sources may figure in to an organization's funding strategy. A common approach is to fund the bulk of a project with federal and state funds, then apply to foundations to support the local elements that fall outside the parameters of the government funders, or to cover the required matching costs.

Grant Pathways

Local agencies may receive federal grant funds via a direct grant program or a pass-through grant process.

DIRECT – funds go directly from the federal funding agency to local recipients; or

PASS-THROUGH – funds go through the state, and possibly even a regional entity, before they are made available to the local entity. States may still have to apply for these funds and often keep a portion to cover administrative costs.

Each state will maintain its own re-granting process, timelines, and priorities.

It is important to understand the distinction between direct and pass-through grants since pass-through grants are controlled by the states and timing, application procedures and the priorities the grant will fund will vary on a state by state basis.

Grant Types

Grant funds can be disbursed from a grantor to a grantee using different methods:

FORMULA – funding allocations are based on a formula – such as population of need students (Title funding for IHEs), risk assessments (State Homeland Security Grants) or number of acute care hospital beds (Hospital Emergency Preparedness Grants). As long as an eligible applicant completes an application in the timeline and format required by the funder, they are virtually assured of receiving the money their formula has determined they're eligible for;

COMPETITIVE – applications are competitively scored based on a set of objective and/or subjective criteria, and the score the proposal receives factors into the award allocation; or

EARMARK – grant awards are decided at the legislative level during the budgeting process. Organizations must apply their local Congressman or State Representative to obtain these funds.

Each of these distinctions will have implications as the value of the program to the customer and the potential for raising new funding for the project.

In the instance of a Federal pass-through grant, once states have received the money from the grant they may pass it through via formula, competition or a combination thereof. The method states use to distribute their funding has significant implications for how organizations can maximize local funding opportunities.

Determining the desirability of a particular grant

Your customer may not have the resources or even the desire or need to write all the grants identified in the research stage. So, it may be necessary to qualify which grants to which they should apply for the project, and which they'll leave for another time or another project. The following criteria may be helpful in determining which grants to pursue:

TOTAL FUNDING AVAILABLE – gives you an idea how broad the program will be and how competitive;

APPLICATION BURDEN – some programs require 100 page narrative, while others may look for 10 or less;

MATCHING REQUIREMENTS – similarly, some programs require a dollar for dollar match, while others may require a 5% match or no cost sharing at all;

SCALE – you don't want to write 100 $5,000 requests to get your $500,000 project funded or lock yourself into a lot of extra activities that you didn't intend just to get what you needed;

COLLABORATION/PARTNERING REQUIREMENTS – forming partnerships beyond what you already have in place is a factor to consider;

LEAD TIME – more lead time generally equals more time to develop the project and articulate that in the grant application – six weeks is good, and three weeks is almost essential;

TRACK RECORD WITH THE FUNDER – generally more important for local funders than federal sources, but a consideration nonetheless.

Proposal Tips

1. Learn as much as possible about each program to which you intend to apply.

2. Involve others in the project, but be judicious; have a purpose for their involvement.

3. Customize each proposal to the requirements of the funder.

4. Get reviewers' comments for non-winning proposals and use their feedback in future proposals.

5. Include only support letters that demonstrate a real commitment on the part of the sender.

6. Make grantseeking part of your organization's strategy; don't put all your eggs in one basket.

7. Be specific in your budget; most funders have generous allowances for budget length.

8. Don't include materials other than those specifically requested by the funder.

9. Have an outsider edit your proposal before you submit it.

10. Follow the funder's directions carefully when preparing the application.

Essential Components of a Winning Grant Proposal

Most funders require the following information in a grant proposal. They may ask for the information to be organized differently than is presented here, and it is always important to follow the funders' requirements. However, if the funder has not provided a specific format or if the customer is trying to document their project for future grantseeking, the following format provides a good structure for articulating the project.

NEED

- A description of the need/problem addressed by the project - Document any recent issues, events, threat assessments, or vulnerabilities that demonstrate a need for the project.

- An independent justification for addressing the need/problem - Add information here from local, regional, and statewide requirements.

- Other contextual drivers for implementing the project - Add here anything that is happening around the region that supports your desire to conduct your project at this time. Examples may include a county-wide

initiative, availability of additional purchasing power by joining with surrounding towns to make specific purchases etc.

APPROACH

- Concise description of the project - Add details here on the nature and scope of the project you'd like to undertake. Any details you have at this point will help explain your specific plans for the funding.

- Advantages over other alternative solutions - Discuss what other approaches you have considered locally and why you chose the solution you did.

OUTCOMES

- Narrative description of outcomes/benefits to be accrued as a result of implementing the project - relate the outcomes you expect to accrue as a result of the project to your initial discussion of needs, the more local the better.

- A chart further detailing expected outcomes, suggested indicators, targets, and timeframes - If you have specific (measurable) expectations, replace more general outcomes with specific measurements you will report to the funder at the end of the funding period.

ACTIVITIES

- Suggested activities for implementing and monitoring the adoption and results of the project. Based on your conversations with partners and vendors, and your product requirements and design documents, detail the steps you plan to follow to implement the project, including who will be responsible for what (by name or title).

FUTURE FUNDING/SUSTAINABILITY

- Suggestions for documenting ongoing funding potential for the project (often required by funders). Most Federal programs will not place a great deal of emphasis on this point, but state and local funders will want you to demonstrate your plan for ensuring the continued maintenance of the program. If you have specific plans to fund future rollout of additional modules, document the funders to which you intend to apply.

Grant Landscape and Funding Matrix

Education & Workforce Development Grant Landscape

While federal-pass-through-to-state funding for general higher education programs has been in a slow decline for the last decade or two, there has been a recent resurgence in grant funding for post-secondary programs; particularly around access and completion. This is, in large part, due to President Obama's 2020 goal: that by the year 2020, the United states will be the number one country in the world for having the highest percentage of its citizens with a 4-year degree (currently the US ranks 12th). This effort is not just concentrated on institutions of higher education though, and expands towards workforce development efforts too!

After the 2008 economic downturn, there was a surge in the availability of grant funding for workforce development efforts. With swaths of laid-off, displaced workers seeking training to work in new and high-demand fields, these grant monies were quickly put to use. Unfortunately, as the economy has begun its recovery these grant opportunities have started to become fewer in number and more specialized in focus. Take heart, however, for all that this really means is that of the remaining opportunities, grant funds are now focused on those fields and individuals who slipped through the cracks on the first go around.

Department of Education (DoEd)

As mentioned previously, the majority of federal grants from the Department of Education will be focused on increasing access, retention, and graduation rates for student populations traditionally underrepresented or under-served within post secondary education. This usually includes any efforts related to low-income students, students of color, students with disabilities, first generation college students, or other underrepresented populations such as women. The same is true to any STEM education, non-research-centered opportunity from the National Science Foundation (NSF). For the purposes of accessing these funds, cloud-based compute and storage resources will need to be justified in the context of enabling the college or university to better, and more efficiently serve these students.

Department of Labor (DOL)

As with education grants, labor funding for cloud-based compute and storage resources must be justified as 'a means to accomplishing programmatic ends', ends specifically related to better serving trainees. Emphasis is placed on programs that will help train and place individuals in career paths that have a high-demand for new employees. Of particular interest are training programs that focus on fields traditionally seen as blue-collar, but still require a higher degree/certificate of education (e.g. apprenticeships and technical positions). And, as with any opportunity from the Department of Labor, these grants will all emphasis a collaborative effort among several stakeholders: workforce development boards, local businesses, education institutions and training providers, etc.

Research Grant Landscape

When it comes to the federal government, research grants are one of the most robust and reliable funding streams across the board. In a divided political climate where compromise is difficult, government officials generally agree that investing in research is critically important. In terms of health sciences research, the National Institutes of Health (NIH) is the primary funding agency, with an annual budget of approximately $30 billion that is mostly

distributed through grants. Its counterpart, the National Science Foundation (NSF), distributes approximately $6 billion annually to investigators that are conducting fundamental research in non-medical fields of science and engineering. The Department of Defense (DoD) also supports research efforts that address the health and safety of troops as well as the advancement of science and technology for combat purposes. However, funding is typically limited to requests for proposals that have a narrow focus, and support compute and storage resources insofar as they advance a specific research project.

National Institutes of Health (NIH)

Most funding administered by the National Institutes of Health (NIH) is specific to a narrow set of research objectives. Any type of cloud-based compute and storage resources must be justified in the context of a singular research project. Fortunately, there are plenty of disciplines in the health science fields that rely on big data and higher performance computing, the primary justification for such technology. These scientific fields include, but are not limited to genomics, biomedicine, oncology and imaging research, as well as basic sciences such as biology and physics. While compute and storage resources are justified in the context of these projects, these funding opportunities do not support enterprise-wide compute and storage implementations.

There are a few opportunities issued by NIH, categorized as S10 programs, which focus primarily on infrastructure and scientific instrumentation. These instrumentation grants are meant to fund major equipment acquisition for groups of NIH-supported researchers. In other words, the NIH recognizes that there may be a need for special scientific instrumentation or equipment that cannot be justified in the context of a singular research project. Fortunately, an integrated compute and storage system is considered a single instrument for the purposes of these instrumentation grants.

National Science Foundation (NSF)

The National Science Foundation (NSF), similar to the DoD and NIH, also solicits applications for very specific research objectives, which require any technology to be justified in the context of the singular research project being proposed. These type of grants require a piecemeal approach to building compute and storage resources. In terms of NSF funding, the major fields of interest that typically rely on big data include the geosciences, mathematics, computer and information sciences, as well as biological and physical sciences. added a comma to make the list more clear.

However, unlike NIH and DoD, the NSF is interested in advancing the fields of high performance computing and big data research on their own merit. In other words, the NSF solicits research on big data in and of itself. While these opportunities still require project-based justification for technology acquisition, the inherent nature of this research typically allows for generous compute and storage resources.

Finally, the NSF distributes funding directly for research infrastructure. The Major Research Instrumentation Program (MRI) operates in similar fashion to the NIH's S10 funding streams, allowing for purchase of integrated compute and storage resources to support a group of investigators. The Experimental Program to Stimulate Competitive Research (EPSCoR) is available to IHEs in states that have historically low investments in research. These funds are very flexible and primarily aimed at supporting infrastructure investments in these under-funded jurisdictions. The NSF also maintains a Division of Advanced Cyberinfrastructure (ACI), through which IHEs can re-engineer their campus networks to increase speed and efficiency, including the acquisition of storage as part of a Science DMZ approach.

Grant Programs that Fund IHE-Based Cloud Projects

GRANT PROGRAM (EDUCATION)	ELIGIBLE ENTITIES	TOTAL FUNDING AVAILABLE	DEADLINE
First in the World Program (FITW) – Development Grants	Institutions of higher education and consortia of such institutions	$60,000,000	Deadline: 6/30/2015
Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP); Partnership Grants	Partnerships consisting of one or more local educational agencies (LEA) and one or more degree granting institutions of higher education (IHE)	$37,762,760	Anticipated Deadline: 7/7/2015
Advanced Technological Education (ATE)	Open	$60,000,000	Deadline: 10/8/2015
Louis Stokes Alliances for Minority Participation (LSAMP)	Universities and colleges	$20,000,000	Deadlines: 10/2/2015 and 10/16/2015
American Apprenticeship Initiative	Partnerships of private and public sector entities	$100,000,000	Anticipated Deadline: 4/30/2016
Minority Science and Engineering Improvement Program (MSEIP)	Institutions of higher education	$2,800,918	Anticipated Deadline: 6/1/2016
YouthBuild Grants	Public or private non-profit agencies or organizations	$73,000,000	Anticipated Deadline: 6/5/2016
Strengthening Institutions Program (SIP)	Institutions of higher education	$18,197,309	Anticipated Deadline: 6/8/2016
Disability Employment Initiative	Partnership of State Workforce Agency and Local Workforce Development Board	$15,000,000	Anticipated Deadline: 6/11/2016

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GRANT PROGRAM (RESEARCH)	ELIGIBLE ENTITIES	TOTAL FUNDING AVAILABLE	DEADLINE
Big Data Regional Innovation Hubs (BD Hubs): Accelerating the Big Data Innovation Ecosystem	Universities and Colleges; Non-academic organizations; and State and Local Governments	$4,000,000 to $5,000,000	Deadline: 6/24/2015
Software Infrastructure for Sustained Innovation - SSE & SSI	Universities and Colleges; and Non-profit, non-academic organizations	$15,000,000	Deadline: 6/26/2015
International Research Network Connections (IRNC)	Universities and Colleges; and Non-profit, non-academic organizations	$25,000,000	Anticipated Deadline: 7/7/2015
EPSCoR Research Infrastructure Improvement Program Track-1 (RII Track-1)	Jurisdictions that meet the EPSCoR eligibility criteria	$28,000,000	Deadline: 7/7/2015 and 8/4/2015
CISE Computing Research Infrastructure (CRI)	Universities and Colleges; and Non-profit, non-academic organizations	$18,000,000	Deadline: 10/27/2015
Defense University Research Instrumentation Program (DURIP)	Institutions of higher education with degree granting programs in science, math, or engineering		Anticipated Deadline: 11/17/2015
Major Research Instrumentation Program (MRI): Instrument Acquisition or Development	Institutions of higher education; Non-profit, non-degree-granting domestic U.S. organizations; Commercial U.S. organizations; and Legally, incorporated, nonprofit consortia	$75,000,000	Deadline: 1/13/2016
EPSCoR Research Infrastructure Improvement Program (RII): Track-2	31 jurisdictions including 28 states, the Commonwealth of Puerto Rico, the U. S. Virgin Islands, and Guam	$8,000,000	Anticipated Deadline: 2/20/2016
Campus Cyberinfrastructure – Data, Networking, and Innovation Program (CC*DNI)	Universities and Colleges; and Non-profit, non-academic organizations	$23,000,000 to $28,000,000	Anticipated Deadline: 3/24/2016
Experimental Program to Stimulate Competitive Research (EPSCoR)	28 states, the Commonwealth of Puerto Rico, the U. S. Virgin Islands, and Guam	$3,750,000	Anticipated Deadlines: 2/2/2016 and 4/3/2016
High Performance System Acquisition: Building a More Inclusive Computing Environment for Science and Engineering	U.S. institutions of higher education and Federally Funded Research and Development Centers	$30,000,000	Anticipated Deadline: Spring 2016

GRANT PROGRAM (RESEARCH)	ELIGIBLE ENTITIES	TOTAL FUNDING AVAILABLE	DEADLINE
Critical Techniques and Technologies for Advancing Big Data Science & Engineering (BIGDATA)	Open	$26,500,000	Anticipated Deadline: 5/20/2016
High-End Instrumentation Grant Program (S10)	Institutions of Higher Education and Nonprofits other than Institutions of Higher Education.	$20,000,000	Anticipated Deadline: 5/29/2016
Shared Instrumentation Grant (SIG) Program (S10)	Institutions of Higher Education and Nonprofits other than Institutions of Higher Education.	$40,000,000	Anticipated Deadline: 5/29/2016
Early Stage Development of Technologies in Biomedical Computing, Informatics, and Big Data Science (R01)	Open	Not Specified	Deadline: 6/5/2016
Extended Development, Hardening and Dissemination of Technologies in Biomedical Computing, Informatics and Big Data Science (R01)	Open	Not Specified	Deadline: 6/5/2016
Research Project Grant (Parent R01)	Open	Not Specified	Deadline: 6/5/2016
Computational and Data-Enabled Science and Engineering	All capable entities	Not Specified	Deadline: Varies

Grant Program Summaries & Analysis

First in the World Program (FITW) - Development

AUTHORITY: U.S. Department of Education

SUMMARY: The FITW program is designed to support the development, replication, and dissemination of innovative solutions and evidence for what works in addressing persistent and widespread challenges in postsecondary education for students who are at risk for not persisting in and completing postsecondary programs, including, but not limited to, adult learners, working students, part-time students, students from low-income backgrounds, students of color, students with disabilities, and first-generation students. The focus of the FITW program is to build evidence for what works in postsecondary education by testing the effectiveness of these strategies in improving student persistence and completion outcomes.

This FY15 notice includes three absolute priorities and one competitive preference priority:

- Improving Teaching and Learning;
- Developing and Using Assessments of Learning;
- Facilitating Pathways to Credentialing and Transfer;
- (Competitive Priority) Implementing Low Cost-High Impact Strategies To Improve Student Outcomes

ELIGIBILITY: Institutions of higher education and consortia of such institutions are eligible to apply. Applicants are encouraged to partner with other public and private organizations and agencies. To be eligible for an award, an application for a FITW Development grant must be supported by a Strong Theory and include a logic model for the proposed project.

DEADLINE INFORMATION: Applications must be electronically submitted via Grants.gov by 4:30 PM Eastern Standard Time (EST) on June 30, 2015. Similar deadlines are anticipated annually.

FITW funds are focused on testing innovative practices within higher education. As such, compute and storage resources, such as those available through FlexPod, can be justified as a beneficial tool for FITW projects. Be it for assisting in data storage and analysis, or even sharing student information across institutions, Flexpod could provide the infrastructure necessary for such interactions.

AWARD INFORMATION: For FY15, approximately $60,000,000 is anticipated to be available in total funding, with up to $16,000,000 set aside for Minority-Serving Institutions (MSIs). At least $20,000,000 is expected to be allocated for Development grants. 6 to 8 grants are expected to be made. Awards will range between $1,000,000 and $3,000,000 and will last up to 48 months. Cost sharing/matching is not required.

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP): Partnership Grants

AUTHORITY: U.S. Department of Education, Office of Postsecondary Education

SUMMARY: The GEAR UP Program is a discretionary grant program that provides funding for academic and related support services to eligible low-income students, including students with disabilities, to help them obtain a secondary school diploma and to prepare for and succeed in postsecondary education. Services must include providing financial aid information, encouraging enrollment in challenging coursework in order to reduce the need for remediation at the postsecondary level, and implementing activities to improve the number of students who obtain a high school diploma and complete applications for and enroll in a program of postsecondary education. GEAR UP funds may also be used to provide a number of additional support services such as mentoring, tutoring, academic, and career counseling, and exposure to college campuses.

In FY14, this program had two competitive preference priorities and one invitational priority.

The competitive preference priorities were:
- Increasing Postsecondary Success
- Promise Zones

The invitational priority in FY14 was:
- Development of Non-Cognitive Skills

A major component of GEAR UP grants is the sharing of information across partnering K-12 school districts and higher education institutions. Given the sensitive nature of student records, Flexpod compute and storage resources provides a secure, yet accessible means for these parties to share records in order to more effectively accomplish project goals.

ELIGIBILITY: Partnerships consisting of (a) one or more local educational agencies (LEA), and (b) one or more degree granting institutions of higher education (IHE). Partnerships may also contain not less than two other community organizations or entities, such as businesses, professional organizations, State agencies, institutions or agencies sponsoring programs authorized under the Leveraging Educational Assistance Partnership (LEAP) Program authorized in part A, subpart 4, of title IV of the Higher Education Act of 1965, as amended (HEA) (20 U.S.C. 1070c et seq.), or other public or private agencies or organizations.

DEADLINE INFORMATION: The deadline to submit an application was July 7, 2014. A similar deadline is anticipated for FY15.

AWARD INFORMATION: For FY15, approximately $37,762,760 is anticipated to be available in total funding. 31 awards are expected to be made.

Advanced Technological Education (ATE)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The ATE program supports proposals in three major tracks:
1. *ATE Projects* - ATE Projects focus on one or a few of the following activities: (a) Program Development and Improvement; (b) Curriculum and Educational Materials Development; (c) Professional Development for Educators; (d) Leadership Capacity Building for Faculty; (e) Teacher Preparation; (f) Business and Entrepreneurial Skills Development for Students; (g) Small Grants for Institutions New to the ATE Program; (h) Conferences and Workshops; and, (i) ATE Coordination Networks.

2. *ATE Centers* - The ATE program supports three types of centers:

- National Centers - National Centers must have a major national impact and visibility in the technological fields they address catalyzing a broad national network of academic institutions and industry partners.

- Regional Centers - Regional centers focus on a particular field of technology and have a clear, measurable impact on the workforce and economy in a logically defined geographic region.

- Support Centers - A support center, within a technological area or combination of areas, constitutes a highly visible source of educational materials, ideas, and contacts, research and evaluation, and provides mentoring to increase leadership capacity on a national level.

3. Targeted Research in Technician Education - The goals of this track are: (a) to simulate and support research on technician education in established and emerging advanced technology fields in STEM, and (b) to build the partnership capacity between 2-year and 4-year institutions and universities to design and conduct research and development projects. Projects must clearly demonstrate partnerships between faculty at 2-yr and 4-yr colleges and universities, and the 2-yr faculty must have leadership roles on all projects.

ELIGIBILITY: Eligible applicants are Universities and Colleges, Non-profit, non-academic organizations, For-profit organizations, State and Local Governments, and Unaffiliated Individuals. All proposals are expected to include one or more two-year colleges in leadership roles.

DEADLINE INFORMATION: Full Proposals must be submitted by 5:00 PM local time of proposer on October 8, 2015.

AWARD INFORMATION: NSF anticipates that approximately $64,000,000 will be available for new and continuing awards in this program in FY15. The program expects to make 40-55 new awards per year. Award amounts vary by proposal. Cost sharing/matching is not required.

> Pending the priority being pursued, compute and storage technology could benefit ATE projects through a number of ways. Most beneficial though, would be the ability to securely store and retrieve any research findings related to technical education, or the actual curriculum content itself.

Louis Stokes Alliances for Minority Participation (LSAMP)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The LSAMP program assists universities and colleges in diversifying the STEM workforce through their efforts at significantly increasing the numbers of students successfully completing high quality degree programs in science, technology, engineering and mathematics (STEM) disciplines. Particular emphasis is placed on transforming STEM education through innovative recruitment and retention strategies and experiences in support of groups historically under-represented in STEM discipline: African-Americans, Alaskan Natives, American Indians, Hispanic Americans, Native Hawaiians, and Native Pacific Islanders. The knowledge generation portfolio of LSAMP supported activities contributes to the body of literature on successful practices in student recruitment, retention, persistence, and attainment of STEM undergraduate and graduate degrees, especially for the previously mentioned populations underrepresented in STEM disciplines.

The Louis Stokes Alliances for Minority Participation (LSAMP) program provides funding for:
- Alliances (New, Mid-Level, Senior-Level, B2B)
- Bridge to the Doctorate (BD) Activity
- Broadening Participation Research (BPR) in STEM Education

ELIGIBILITY: Proposals may only be submitted by Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members.

DEADLINE INFORMATION: Bridge to doctorate proposals are due 5:00 PM proposer's local time on October 2, 2015 and the first Friday in October, annually thereafter. Broadening Participation in STEM Education Research Proposals are due 5:00 PM proposer's local time on October 16, 2015 and the third Friday in October, annually thereafter. LSAMP Alliance Proposals (including Bridge to the Baccalaureate) are due 5:00 PM proposer's local time on October 16, 2015 and the third Friday in October, annually thereafter.

AWARD INFORMATION: Approximately $20,000,000 is anticipated to be available in total funding for FY15. Awards are expected to range between $50,000 and $5,000,000. Cost sharing/matching is not required.

The main goal of an LSAMP project is to increase the diversity of students obtaining degrees in STEM fields. FlexPod storage technology can be leveraged by post-secondary institutions in their efforts to recruit and retain such students. Further, it provides an excellent storage platform for tracking participant students' data, as applicants are required to track the experiences they provide to students traditionally underrepresented within STEM disciplines.

American Apprenticeship Initiative

AUTHORITY: U.S. Department of Labor (DOL), Employment and Training Administration (ETA)

SUMMARY: The American Apprenticeship Initiative is intended to provide a catalyst in supporting a uniquely American Apprenticeship system that meets our country's particular economic, industry and workforce needs. American Apprenticeships (also referred to as Registered Apprenticeships) are innovative work-based learning and post-secondary earn-and- learn models that meet national standards for registration with the U.S. Department of Labor (or federally recognized State Apprenticeship Agencies).

Grants funded by this initiative will support dynamic and sustainable public-private partnerships that:

- Support the expansion of quality and innovative American Apprenticeship programs into high-growth occupation(s) and industry(s), particularly those for which employers are using H-1B visas to hire foreign workers, and the related activities necessary to support such programs;
- Create career pathways that encompass American Apprenticeship and align with other post-secondary educational offerings;
- Use strategies to significantly increase apprenticeship opportunities for job seekers and workers (particularly for women and other underrepresented populations in apprenticeship, including young men and women of color, people with disabilities; low-skilled populations; and veterans, including transitioning service members); and
- Leverage and develop public policies that increase demand for American Apprenticeship and support sustainability.

ELIGIBILITY: Partnerships of private and public sector entities are eligible to apply.

DEADLINE INFORMATION: The deadline to submit applications was April 30, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $100,000,000 is available in total funding for FY15. 25 awards are expected to be made. Individual awards range between $2,500,000 and $5,000,000. Projects last up to 60 months. Cost sharing/matching is not required.

American Apprenticeship grants involve the efforts of several entities all aimed at training and placing individuals in apprenticeship career s. As such, a secure yet accessible platform in which these parties can share information (not just on students, but also training content) is paramount and requires a secure but accessible storage platform.

Minority Science and Engineering Improvement Program (MSEIP)

AUTHORITY: U.S. Department of Education, Office of Postsecondary Education (OPE)

SUMMARY: The Minority Science and Engineering Improvement Program (MSEIP) is designed to effect long-range improvement in science and engineering education at predominantly minority institutions and to increase the flow of underrepresented ethnic minorities, particularly minority women, into scientific and technological careers.

- The Competitive Preference Priority - *Promoting Science, Technology, Engineering, and Mathematics (STEM) Education*
- The Invitational Priority - *Improving STEM Education in the First Two Years of College*

There are three types of MSEIP grants available for FY15: Institutional project, special project, cooperative project, and design project.

1. Institutional project grants are grants that support the implementation of a comprehensive science improvement plan, which may include any combination of activities for improving the preparation of minority students for careers in science.
2. There are two types of special project grants. First, there are special project grants for which only minority institutions are eligible. These special project grants support activities that: improve quality training in science and engineering at minority institutions; or enhance the minority institutions' general scientific research capabilities.
3. Cooperative project grants assist groups of nonprofit accredited colleges and universities to work together to conduct a science improvement program.

ELIGIBILITY: Eligible applicants are institutions of higher education.

DEADLINE INFORMATION: The deadline to submit applications was June 1, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $2,800,918 is available in total funding for FY15. 10 Institutional Project Grants are expected to be made and will range between $150,000 and $250,000. 1 Special Project Grant is expected to be made and will range between $100,000 and $250,000. 1 Cooperative Project Grant is expected to be made and will range between $250,000 and $300,000. Awards will last up to 36 months. Cost sharing/matching is not required.

MSEIP grants aim to increase minority participation within STEM fields by building institutional capacity to serve these students. Flexpod could be used for any number of activities that fall within the bounds of a MSEIP grant project, be it enhancing student access to data sets for research, or by moving curriculum content to the cloud.

YouthBuild Grants

AUTHORITY: U.S. Department of Labor (DOL), Employment and Training Administration (ETA)

SUMMARY: YouthBuild is a community-based alternative education program for youth between the ages of 16 and 24 who are high school dropouts, adjudicated youth, youth aging out of foster care, youth with disabilities, homeless youth, and other disadvantaged youth populations. The YouthBuild program simultaneously addresses several core issues important to low-income communities: affordable housing, education, employment, leadership development and energy efficiency. The YouthBuild model balances project-based learning and occupational skills training to prepare disadvantaged youth for career placement. The academic component assists youth who are often significantly behind in basic skill development to obtain a high school diploma or state high school equivalency credential. The occupational skills training component prepares at-risk youth to gain placement into career pathways and/or further education or training, and also supports the goal of increasing affordable housing within communities by teaching youth construction skills learned by building or significantly renovating homes for sale or rent to low-income families or transitional housing for homeless families or individuals. Additionally, grantees that have been previously funded by the Department may include occupational skills training in other in-demand industries in addition to construction skills training. This expansion into additional in-demand industries is the "Construction Plus" component.

ELIGIBILITY: Eligible applicants for these grants are public or private non-profit agencies or organizations including rural, urban or Native American agencies that have previously served disadvantaged youth in a YouthBuild or other similar program.

DEADLINE INFORMATION: The deadline to submit applications was June 5, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $73,000,000 is available in total funding for FY15. 76 awards are expected to be made. Awards range between $700,000 and $1,1000,000. Cost sharing/matching of 25% is required. Awards will last for 40 months, including a 4 month planning period.

A comprehensive approach towards combating the issues that plague low-income communities (i.e. housing, education, workforce development) is the foundation of all YouthBuild projects. To that end, these projects often assume an "it takes a village approach" and involve a plethora of partnering organizations. As with other opportunities, Flexpod offers a secure, yet accessible platform for project partners to share information and content among the multitude of stakeholders.

Strengthening Institutions Program (SIP)

AUTHORITY: U.S. Department of Education, Office of Postsecondary Education (OPE)

SUMMARY: The Strengthening Institutions Program (SIP) provides grants to eligible institutions of higher education (IHEs) to help them become self-sufficient and expand their capacity to serve low-income students by providing funds to improve and strengthen the institution's academic quality, institutional management, and fiscal stability.

The Competitive Preference Priority for this program is "Supporting Strategies for which there is Moderate Evidence of Effectiveness" -- Projects that propose a process, product, strategy, or practice supported by moderate evidence of effectiveness. To qualify as moderate evidence of effectiveness, among other things, a study's evaluation design must meet What Works Clearinghouse (WWC) Evidence Standards. Applicants seeking to address this competitive preference priority should identify a minimum of one up to a maximum of two studies that support their proposed project and meet the definition of "moderate evidence of effectiveness.'

Funds may be used for planning, faculty development, and establishing endowment funds. Administrative management, and the development and improvement of academic programs also are supported. Other projects include joint use of instructional facilities, construction and maintenance, and student service programs designed to improve academic success, including innovative, customized, instruction courses designed to help retain students and move the students rapidly into core courses and through program completion, which may include remedial education and English language instruction.

ELIGIBILITY: Eligible applicants are Institutions of Higher Education (IHEs).

DEADLINE INFORMATION: The deadline to submit applications was June 8, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $18,197,309 is anticipated to be available in total funding for a total of 39 awards in FY15.

Title III funding from the Higher Education Act, also known as SIP, is fairly wide-open in terms of allowable technology expenses. The key to funding storage and compute resources through this grant is emphasizing how the technology will enhance the institution's project aims - be it efficient institutional management, strengthening academic success, or incorporating innovative techniques into instructional practices. Since effective institutional management is a specified goal of the program, enterprise-wide solutions may be supported in the appropriate context.

Disability Employment Initiative

AUTHORITY: U.S. Department of Labor (DOL), Employment and Training Administration (ETA)

SUMMARY: The purpose of Round VI of the Disability Employment Initiative is to expand the capacity of American Job Centers (AJCs) to improve employment outcomes of individuals with disabilities (including those with significant disabilities) by increasing their participation in existing career pathways systems and programs that are already being successfully implemented in the public workforce system in partnership with community colleges and other education partners, human services, businesses, and other partners, and capitalizing on the flexibility that the career pathways model provides to use innovative service delivery strategies.

The U.S. Department of Labor (DOL) plans to support existing career pathways systems and programs that will help develop job-driven innovative, integrated, flexible and universally-designed service delivery strategies that effectively increase the participation of individuals with disabilities.

ELIGIBILITY: The lead applicant must be the state workforce agency (SWA) that is eligible for funding under Title I of WIOA or for funding under the W-P Act. The SWA and its Local Workforce Development Board(s) (LWDB), identified as a required partner for this grant, must be involved in existing career pathways systems, programs, and partnerships.

DEADLINE INFORMATION: The deadline to submit applications was June 11, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $15,000,000 is available in FY15 to fund eight (8) grants, ranging from $1,500,000 to $2,500,000 each. The project period for this program is 42 months. Cost sharing/matching is not required. However, it is strongly encouraged.

The Disability Employment Initiative is fairly similar to other labor grants in that it too requires the efforts of several community agencies to ensure the training and placement of individuals with disabilities. FlexPod provides a secure, yet accessible platform for various stakeholders to share information and content throughout the partnership.

Big Data Regional Innovation Hubs (BD Hubs): Accelerating the Big Data Innovation Ecosystem

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The BD Hubs are meant to stimulate regional and grassroots partnerships focused on Big Data, such as the partnerships launched at the Data to Knowledge to Action event referenced above, and give rise to a national Big Data innovation ecosystem. Proposals submitted in response to this BD Hubs program should be from organizations that are currently engaged in Big Data innovation activities. These organizations should have a history of leading or fostering collaborations among multiple Big Data stakeholders and must be ready to build further partnerships. This program will support the formation and coordination of a BD Hubs National Network and is not meant to be a primary source of funding for new research.

NSF seeks to fund BD Hubs in four defined geographic regions, namely the Northeast, Midwest, South, and West, of the United States.

Each BD Hub should focus on key challenges and opportunities in its region of service. Opportunities could include facilitating partnerships on overarching themes (e.g., privacy, data sharing, data stewardship, etc.), providing shared resources to the community (e.g., tools, infrastructure, testbeds, etc.) and/or coalescing around key topical themes (e.g., energy, transportation, healthcare).

ELIGIBILITY: Eligible applicants are universities and colleges; Non-profit, non-academic organizations; and State and Local governments.

DEADLINE INFORMATION: Applications must be submitted by 5:00 PM local time of proposer on June 24, 2015.

AWARD INFORMATION: Approximately $4,000,000 to $5,000,000 is anticipated to be available. 4 awards are expected to be made. Awards will be up to $1,250,000 for up to 3 years. Cost sharing/ matching is not required.

The BD Hubs serve serves as a technical assistance center for a defined region. In that role, they are responsible for organizing large big data projects, convening relevant stakeholders in the process. In order to serve in such a capacity, these BD Hubs must be appropriately outfitted with compute and storage resources that can be accessed by the research community it serves. In addition, the BD Hub is responsible for training efforts around big data, which may require storage resources.

Software Infrastructure for Sustained Innovation - SSE & SSI

AUTHORITY: National Science Foundation (NSF)

SUMMARY: NSF has established the Software Infrastructure for Sustained Innovation (SI2) program, with the overarching goal of transforming innovations in research and education into sustained software resources that are an integral part of the cyberinfrastructure.

The SI^2 program includes three classes of awards:

1. *Scientific Software Elements (SSE)* - SSE awards target small groups that will create and deploy robust software elements for which there is a demonstrated need that will advance one or more significant areas of science and engineering.

2. *Scientific Software Integration (SSI)* - SSI awards target larger, interdisciplinary teams organized around the development and application of common software infrastructure aimed at solving common research problems faced by NSF researchers in one or more areas of science and engineering. SSI awards will result in a sustainable community software framework serving a diverse community or communities.

3. *Scientific Software Innovation Institutes (S2I2)* - S2I2 awards will focus on the establishment of long-term hubs of excellence in software infrastructure and technologies, which will serve a research community of substantial size and disciplinary breadth.

ELIGIBILITY: Eligible applicants are universities and colleges and non-profit, non-academic organizations.

DEADLINE INFORMATION: The deadline to submit SSE Proposals was February 2, 2015. SSI Proposals must be submitted by 5:00 PM local time of proposer on June 26, 2015. Similar deadlines are anticipated annually.

AWARD INFORMATION: In FY 2015, up to $15,000,000 is expected to be available for awards to SSI proposals that were submitted in FY 2014, subject to availability of funds. Cost sharing/matching is not required.

The intent of this program is to foster a pervasive cyberinfrastructure to help researchers address problems of scale, complexity, resolution, and accuracy by integrating computation, data, networking, observations and experiments in novel ways. These software development projects typically require integrated compute and storage functions to be considered innovative.

International Research Network Connections (IRNC)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The United States research and education community communicates, cooperates, and collaborates with colleagues in the global community. Members of this community access remote instruments, data, and computational resources located throughout the world, often as part of international collaborations. To support such activities, NSF solicits proposals for International Research Network Connections (IRNC). NSF expects to make a set of awards to:

- Link U.S. research networks with peer networks in other parts of the world and leverage existing international network connectivity;
- Support U.S. infrastructure and innovation of open network exchange points;
- Drive innovation and state-of-the-art capabilities for R&E Network Operation Centers (NOC);
- Stimulate the development, application and use of advanced network measurement capabilities and services across international network paths; and
- Support community engagement and coordination in advanced network engineering.

The program is divided into five distinct but related areas:

- IRNC:Backbone: Production network connections and services;
- IRNC:RXP: Infrastructure and Innovation of U.S. R&E Open Exchange Points;
- IRNC:NOC - Centralized facility for NOC operations and innovation;
- IRNC: AMI - Advanced Network Measurement Infrastructure; and,
- IRNC: ENgage - Global R&E network engineering community engagement and coordination.

> The goal of this program is to support high performance network connectivity between U.S. and international research communities. In addition to improving speed of data transfers between research collaboratives, compute and storage resources can be funded as long as they are part of a Science DMZ approach. In other words, data center equipment is allowable as long as it is part of a separate, distinct and dedicated sub- network that is used exclusively for scientific purposes.

Each proposal should clearly identify and justify the single focus area to which it is being submitted.

ELIGIBILITY: Eligible applicants are universities and colleges and non-profit, non-academic organizations.

DEADLINE INFORMATION: The deadline to submit an application was July 7, 2014. A similar deadline is anticipated annually.

AWARD INFORMATION: The anticipated funding amount is $25,000,000. The estimated number of awards is 8-11. Backbone awards will be for a maximum of five years. All other awards will be of three to five-year duration. Cost sharing/matching is not required.

EPSCoR Research Infrastructure Improvement Program Track-1 (RII Track-1)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The mission of EPSCoR is to advance excellence in science and engineering research and education in order to achieve sustainable increases in research, education, and training capacity and competitiveness that will enable EPSCoR jurisdictions to have increased engagement in areas supported by NSF.

EPSCoR goals are to:

- Catalyze the development of research capabilities and the creation of new knowledge that expands jurisdictions' contributions to scientific discovery, innovation, learning, and knowledge-based prosperity;
- Establish sustainable Science, Technology, Engineering, and Mathematics (STEM) education, training, and professional
- Development pathways that advance jurisdiction-identified research areas and workforce development;
- Broaden direct participation of diverse individuals, institutions, and organizations in the project's science and engineering research and education initiatives;
- Effect sustainable engagement of project participants and partners, the jurisdiction, the national research community, and the general public through data-sharing, communication, outreach, and dissemination; and
- Impact research, education, and economic development beyond the project at academic, government, and private sector levels.

ELIGIBILITY: Eligible applicants are only jurisdictions that meet the EPSCoR eligibility criteria.

The goal of EPSCoR is to increase research infrastructure in states and territories that have historically received low levels of NSF funding. Research institutions in these states must work through their EPSCoR jurisdictional committee to pursue these funding opportunities. By definition, these grants aim to support infrastructure, including compute and storage rsources, as long as it fits within the overall long-term research plan developed by the jurisdictional committee.

DEADLINE INFORMATION: Letters of Intent are required and must be electronically submitted via FastLane by 5:00 PM local time of proposer on July 7, 2015. Full Proposals must be electronically submitted via FastLane or Grants.gov by 5:00 PM local time of proposer on August 4, 2015.

AWARD INFORMATION: Approximately $28,000,000 is anticipated to be available in total funding for FY16. 7 awards are expected to be made. Awards may not exceed $4,000,000 per year. Awards can last up to 5 years. Eligible jurisdictions with active awards will be allowed to have a maximum overlap period of six months for two active RII Track-1 awards. In cases where no-cost extensions are employed, the maximum overlap for two awards still cannot exceed six months. Cost sharing/matching of 20% is required.

CISE Computing Research Infrastructure (CRI)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The CISE Research Infrastructure (CRI) program drives discovery and learning in the core CISE disciplines of the three participating CISE divisions by supporting the creation and enhancement of world-class computing research infrastructure. This infrastructure will enable CISE researchers to advance the frontiers of CISE research. Further, through the CRI program CISE seeks to ensure that individuals from a diverse range of academic institutions, including minority-serving and predominately undergraduate institutions, have access to such infrastructure.

The CRI program supports two classes of awards:

- Institutional Infrastructure (II) awards support the creation of new (II-New) CISE research infrastructure or the enhancement (II-EN) of existing CISE research infrastructure to enable world-class CISE research opportunities at the awardee and collaborating institutions.

- Community Infrastructure (CI) awards support the planning (CI-P) for new CISE community research infrastructure, the creation of new (CI-New) CISE research infrastructure or the enhancement (CI-EN) of existing CISE infrastructure to enable world-class CISE research opportunities for broad-based communities of CISE researchers that extend well beyond the awardee institutions.

This program funds research infrastructure that is relevant to the objectives of the NSF's Directorate for Computer & Information Science & Engineering (CISE). Most research in computer and information sciences require the storage and manipulation of significant data. Thus, data center compute and storage resources can be justified in the context of CISE-relevant research projects.

ELIGIBILITY: Eligible applicants are universities and colleges and non-profit, non-academic organizations.

DEADLINE INFORMATION: The deadline for applications is October 27, 2015, by 5:00 p.m. proposer's local time. Annually thereafter, the deadline will be the first Tuesday in October.

AWARD INFORMATION: The estimated funding available for FY15 is $18,000,000. 25-30 awards are anticipated, with up to 20 Institutional Infrastructure (II) awards and 10 Community Infrastructure (CI) awards in each competition. The majority of the Institutional Infrastructure (II) awards will be made in the $200,000 - $750,000 range. The majority of the Community Infrastructure (CI) awards will be made in the $500,000 - $1,000,000 range. The majority of the Community Infrastructure Planning (CI-P) awards will be made in the $50,000 - $100,000 range. Cost sharing/matching is not required.

Defense University Research Instrumentation Program (DURIP)

AUTHORITY: U.S. Department of Defense (DOD), Air Force Office of Scientific Research (AFOSR)

SUMMARY: This program is designed to improve the capabilities of U.S. institutions of higher education (hereafter referred to as "universities") to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment. This program seeks proposals to purchase instrumentation in support of research in areas of interest to the DoD, including areas of research supported by the Army Research Office (ARO), the Office of Naval Research (ONR), and the Air Force Office of Scientific Research (AFOSR), hereafter referred to collectively as "the administering agencies." The research areas of interest to the administering agencies are available for reference on-line at the following addresses:

- Army Research Office: http://www.aro.army.mil/ (select "Business" and then "Broad Agency Announcements") See the most recent ARO Core Broad Agency Announcement for Basic and Applied Scientific Research.

- Office of Naval Research: http://www.onr.navy.mil/ (select "Contracts and Grants" and then "Broad Agency Announcements") See Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA ONRBAA14-001. After 30 Sep 2014, please use the FY15 Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology, BAA ONRBAA15-001.

The main purpose of DoD's instrumentation program is to fund expensive scientific instruments and resources that cannot be justified in the context of a singular research project. Computer clusters as well as integrated compute and storage resources that function as a system are considered an instrument for the purposes of this grant program. Applicants must explain how the compute and storage resources will be utilized by a large community of principal investigators that are conducting research of interest to the DoD.

- Air Force Office of Scientific Research: See BAAAFOSR-2014-0001 Research Interests of the Air Force Office of Scientific Research available at http://www.grants.gov/web/grants/searchgrants.html?keywords=BAA-AFOSR-2014-0001.

ELIGIBILITY: Eligible applicants are institutions of higher education with degree granting programs in science, math, or engineering.

DEADLINE INFORMATION: The deadline to submit applications was November 17, 2014. A similar deadline is anticipated annually.

AWARD INFORMATION: The estimated funding available for FY15 is $46,000,000. Awards can be used for the purchase of research equipment costing between $50,000 and $1,500,000. Cost sharing/matching is not required.

Major Research Instrumentation Program (MRI): Instrument Acquisition or Development

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The Major Research Instrumentation Program (MRI) serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education, and not-for-profit museums, science centers and scientific/engineering research organizations. This program especially seeks to improve the quality and expand the scope of research and research training in science and engineering, by supporting proposals for shared instrumentation that fosters the integration of research and education in research-intensive learning environments. Each MRI proposal may request support for the acquisition (Track 1) or development (Track 2) of a single research instrument for shared inter- and/or intra-organizational use; development efforts that leverage the strengths of private sector partners to build instrument development capacity at MRI submission-eligible organizations are encouraged. To accomplish the program's goals, the MRI program assists with the acquisition or development of a shared research instrument that is, in general, too costly and/or not appropriate for support through other NSF programs. The instrument is expected to be operational for regular research use by the end of the award period.

ELIGIBILITY: Eligible applicants are: Institutions of higher education (Ph.D.-granting and non-Ph.D.-granting); Not-for-profit, non-degree-granting domestic U.S. organizations; Commercial U.S. organizations; and Legally incorporated, not-for-profit consortia.

DEADLINE INFORMATION: Full proposals must be submitted by January 13, 2016, by 5:00 PM local time of proposer.

The main purpose of NSF's instrumentation program is to fund expensive scientific instruments and resources that cannot be justified in the context of a singular research project. Computer clusters as well as integrated compute and storage resources that function as a system are considered an instrument for the purposes of this grant program. Applicants must explain how the compute and storage resources will be utilized by a large community of principal investigators that are conducting research of interest to the NSF.

AWARD INFORMATION: $75,000,000 is anticipated to be funded for this program. Up to $30,000,000 of these funds will be available to support proposals requesting $1,000,000 to $4,000,000 from NSF, depending on overall proposal pressure and quality. 160 awards are expected. Proposers may request an award period up to three years for acquisition proposals and up to five years for development proposals. Cost sharing of precisely 30% of the total project cost is required for Ph.D. granting institutions of higher education and for non-degree granting organizations. Cost sharing/matching is not required from non-Ph.D.-granting institutions of higher education.

EPSCoR Research Infrastructure Improvement Program (RII): Track-2

AUTHORITY: National Science Foundation (NSF)

SUMMARY: EPSCoR goals are to:

1. Provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity and competitiveness, and

2. Advance science and engineering capabilities in EPSCoR jurisdictions for discovery, innovation, and overall knowledge-based prosperity.

The consortium-based science and engineering research and a diverse workforce development that are sustained beyond the project period are the primary drivers for RII Track-2 investments. The project description must include a strong rationale for the establishment of the consortium and place the chosen project in a regional, national, or thematic context. The project should be of sufficient scope to demonstrate that the combined resources of the consortium are required to facilitate discovery and innovation, and enable the development of a broadly inclusive science and engineering workforce with appropriate knowledge and skills to tackle scientific challenges and find solutions of benefit to society. Over the long term, RII Track-2 investments are expected to result in lasting improvements to the jurisdictions' abilities to more successfully pursue significant jurisdictional, inter-jurisdictional, and regional opportunities of national and international importance in science and engineering research and education. Non-EPSCoR and international collaborations may be included but no EPSCoR funds should be directed to these institutions.

ELIGIBILITY: Thirty-one jurisdictions including twenty-eight states, the Commonwealth of Puerto Rico, the U. S. Virgin Islands, and Guam currently are eligible to participate.

DEADLINE INFORMATION: The deadline to submit applications was February 20, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: The estimated total funding available is $8 million. Four awards are anticipated. RII Track-2 award amount may range from $1.5 to 2 million per year per consortium. Cost sharing is not required.

The goal of EPSCoR is to increase research infrastructure in states and territories that have historically received low levels of NSF funding. Research institutions in these states must work through their EPSCoR jurisdictional committee to pursue these funding opportunities. By definition, these grants aim to support infrastructure, including compute and storage rsources, as long as it fits within the overall long-term research plan developed by the jurisdictional committee.

Campus Cyberinfrastructure - Data, Networking, and Innovation Program (CC*DNI)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The Campus Cyberinfrastructure - Data, Networking, and Innovation (CC*DNI) program invests in campus-level data and networking infrastructure and integration activities tied to achieving higher levels of performance, reliability and predictability for science applications and distributed research projects. Science-driven requirements are the primary motivation for any proposed activity. CC*DNI awards will be made in seven areas:

1. Data Infrastructure Building Blocks (DIBBs) - Multi-Campus/Multi-Institution Model Implementations

2. Data Driven Networking Infrastructure for the Campus and Researcher

3. Network Design and Implementation for Small Institutions

4. Network Integration and Applied Innovation

5. Campus CI Engineer

6. Regional Coordination and Partnership in Advanced Networking

7. Instrument Networking

ELIGIBILITY: Eligible applicants are universities and colleges and non-profit, non-academic organizations.

DEADLINE INFORMATION: The deadline to submit applications was March 24, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $23,000,000 to $28,000,000 is expected to be available in total funding. 25 to 47 awards are expected to be made. Cost sharing/matching is not required.

The goal of this program is to support high performance network connectivity for research purposes by redesigning campus networks to support high performance computing and big data. In addition to improving speed of data transfers between research collaborators, compute and storage resources can be funded as long as they are part of a Science DMZ approach. In other words, data center equipment is allowable as long as it is part of a separate, distinct and dedicated sub- network that is used exclusively for scientific purposes.

Experimental Program to Stimulate Competitive Research (EPSCoR) - NASA

AUTHORITY: National Aeronautics and Space Administration (NASA)

SUMMARY: EPSCoR goals are to:

- Provide strategic programs and opportunities for EPSCoR participants that stimulate sustainable improvements in their R&D capacity and competitiveness; and
- Advance science and engineering capabilities in EPSCoR jurisdictions for discovery, innovation and overall knowledge-based prosperity

The objectives of EPSCoR are to:

- Catalyze key research themes and related activities within and among EPSCoR jurisdictions that empower knowledge generation, dissemination and application;
- Activate effective jurisdictional and regional collaborations among academic, government and private sector stakeholders that advance scientific research, promote innovation and provide multiple societal benefits;
- Broaden participation in science and engineering by institutions, organizations and people within and among EPSCoR jurisdictions;
- Use EPSCoR for development, implementation and evaluation of future programmatic experiments that motivate positive change and progression.

ELIGIBILITY: Twenty-eight states, the Commonwealth of Puerto Rico, Guam, and the U.S. Virgin Islands are currently eligible to compete in various NSF EPSCoR program opportunities.

The states are: Alabama, Alaska, Arkansas, Delaware, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, West Virginia, and Wyoming.

DEADLINE INFORMATION: The deadline to submit required Letters of Intent was February 2, 2015. The deadline to submit applications was April 3, 2015. Similar deadlines are anticipated annually.

AWARD INFORMATION: Three to five awards are expected to be made. Up to $750,000 may be requested per proposal. Projects may last up to three years. Cost sharing/matching of at least 50% is required in non-federal funds.

The goal of EPSCoR is to increase research infrastructure in states and territories that have historically received low levels of research funding. Research institutions in these states must work through their EPSCoR jurisdictional committee to pursue these funding opportunities. By definition, these grants aim to support infrastructure, including compute and storage resources, as long as it fits within the overall long-term research plan developed by the jurisdictional committee.

High Performance System Acquisition: Building a More Inclusive Computing Environment for Science and Engineering

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The NSF is interested in receiving innovative proposals for production XD computational and data resources capable of complementing recent NSF HPC investments. The objective is to continue to diversify the NSF portfolio to include capabilities suitable for addressing emerging computationally intense scientific and engineering research topics, workflows and communities that are not optimally served by current XD or Blue Waters resources.

Submissions must introduce one or more major new capabilities, such as:

- A novel data-intensive, high-performance computing capability suitable for new science and engineering communities as well as existing applications.
- An innovative, power efficient, highly usable, high-performance computing capability with sustained, high throughput performance for a broader range of science and engineering applications and application frameworks.
- An innovative high performance computing capability that expands the boundaries of the current XD research community, for example, by the introduction of domain specific capabilities, high throughput capabilities, time-sharing, efficient use of virtualization and/or clouds
- An innovative high performance computational and/or data resource supporting dynamic interactive research workflows across XD resources or between other cyberinfrastructure resources (e.g. telescopes, sequencers) and XD resources.

ELIGIBILITY: Eligible applicants are U.S. institutions of higher education and Federally Funded Research and Development Centers.

DEADLINE INFORMATION: A deadline is anticipated for spring 2016.

AWARD INFORMATION: A total of up to $30,000,000, subject to availability of funds, is available to fund up to three awards. The computational resource awards will be capped at $12,000,000 each and the data resource award at $6,000,000.

This program is intended to fund projects that improve the capabilities of high performance computing in the context of scientific research. Compute and storage resources are essential components to any novel approach to high performance computing that will be funded through this program. Any proposed solutions must be able to interface with the XD and Blue Water research communities currently sponsored by the NSF.

Critical Techniques and Technologies for Advancing Big Data Science & Engineering (BIGDATA)

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The BIGDATA program seeks novel approaches in computer science, statistics, computational science, and mathematics, along with innovative applications in domain science, including social and behavioral sciences, geosciences, education, biology, the physical sciences, and engineering that lead towards the further development of the interdisciplinary field of data science.

The solicitation invites two types of proposals:

"Foundations" (F): those developing or studying fundamental theories, techniques, methodologies, technologies of broad applicability to Big Data problems; and "Innovative Applications" (IA): those developing techniques, methodologies and technologies of key importance to a Big Data problem directly impacting at least one specific application. Therefore, projects in this category must be collaborative, involving researchers from domain disciplines and one or more methodological disciplines, e.g., computer science, statistics, mathematics, simulation and modeling, etc. While Innovative Applications (IA) proposals may address critical big data challenges within a specific domain, a high level of innovation is expected in all proposals and proposals should, in general, strive to provide solutions with potential for a broader impact on data science and its applications. IA proposals may focus on novel theoretical analysis and/or on experimental evaluation of techniques and methodologies within a specific domain.

ELIGIBILITY: Eligible applicants are Universities and Colleges; Non-profit, non-academic organizations; For-profit organizations; State and Local Governments; and Unaffiliated individuals.

DEADLINE INFORMATION: The deadline to submit applications was May 20, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $26,500,000 is anticipated to be available in total funding for FY15. 27 to 25 awards are expected to be made. Awards will range between $200,000 and $500,000 per year. Awards will last for 3 or 4 years. Cost sharing/matching is not required.

> The primary purpose of this program is to develop or study techniques, methodologies and technologies or specific applications of the aforementioned tools as it relates to issues impacting Big Data. These projects are typically based in computational science and as a result involve significant compute and storage resources.

High-End Instrumentation Grant Program (S10)

AUTHORITY: U.S. Department of Health and Human Services (HHS), National Institutes of Health (NIH)

SUMMARY: The purpose of the High-End Instrumentation (HEI) Grant Program is to continue the High End Shared Instrumentation Grant (HEI) Program administered by the Office of Research Infrastructure Programs (ORIP). The objective of the program is to make available to institutions expensive research instruments that can only be justified on a shared-use basis and that are needed for NIH-supported projects in basic, translational or clinical areas of biomedical/behavioral research. The HEI program provides funds to purchase or upgrade a single item of expensive, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component could provide. The components must be dedicated to the system and not used independently.

Types of supported instruments include, but are not limited to: x-ray diffractometers, nuclear magnetic resonance (NMR) and mass spectrometers, electron and confocal microscopes, protein and DNA sequencers, biosensors, cell sorters, and biomedical imagers, supercomputers and computer clusters.

ELIGIBILITY: Eligible applicants are Institutions of Higher Education and Nonprofits other than Institutions of Higher Education.

DEADLINE INFORMATION: The deadline to submit applications was May 29, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $20,000,000 is anticipated to be available in total funding for FY16. 10 to 15 awards are expected to be made. Awards will range between $600,000 and $2,000,000 and will last for 1 year. Cost sharing/matching is not required.

The main purpose of NIH's instrumentation programs are to fund expensive scientific instruments and resources that cannot be justified in the context of a singular research project. Computer clusters as well as integrated compute and storage resources that function as a system are considered an instrument for the purposes of this grant program. Applicants must explain how the compute and storage resources will be utilized by a large community of principal investigators currently being supported by the NIH.

Shared Instrumentation Grant (SIG) Program (S10)

AUTHORITY: U.S. Department of Health and Human Services (HHS), National Institutes of Health (NIH)

SUMMARY: The purpose of this program is to continue the Shared Instrumentation Grant (SIG) Program administered by ORIP. The objective of the Program is to make available to institutions expensive research instruments that can only be justified on a shared-use basis and that are needed for NIH-supported projects in basic, translational or clinical areas of biomedical/behavioral research. The SIG Program provides funds to purchase or upgrade a single item of expensive, specialized, commercially available instrument or an integrated instrumentation system. An integrated instrumentation system is one in which the components, when used in conjunction with one another, perform a function that no single component could provide. The components must be dedicated to the system and not used independently.

Types of supported instruments include, but are not limited to: x-ray diffractometers, electron and confocal microscopes, mass and nuclear magnetic resonance (NMR) spectrometers, protein and DNA sequencers, biosensors, cell sorters, and biomedical imagers. Applications for "stand alone" computer systems (supercomputers, computer clusters and storage systems) will be considered if the instrument is solely dedicated to the research needs of a broad community of NIH-supported investigators.

ELIGIBILITY: Eligible applicants are Institutions of Higher Education and Nonprofits other than Institutions of Higher Education.

DEADLINE INFORMATION: The deadline to submit applications was May 29, 2015. A similar deadline is anticipated annually.

AWARD INFORMATION: Approximately $40,000,000 is anticipated to be available in total funding for FY16. 80 awards are expected to be made. The maximum award is $600,000. Awards will last for one year. Cost sharing/matching is not required.

The main purpose of NIH's instrumentation programs are to fund expensive scientific instruments and resources that cannot be justified in the context of a singular research project. Computer clusters as well as integrated compute and storage resources that function as a system are considered an instrument for the purposes of this grant program. Applicants must explain how the compute and storage resources will be utilized by a large community of principal investigators currently being supported by the NIH.

Early Stage Development of Technologies in Biomedical Computing, Informatics, and Big Data Science (R01)

AUTHORITY: U.S. Department of Health and Human Services (HHS), National Institutes of Health (NIH)

SUMMARY: The NIH is interested in promoting a broad base of research and development of technologies in biomedical computing, informatics, and Big Data Science that will support rapid progress in areas of scientific opportunity in biomedical research. It is expected that this research and development is conducted in the context of important biomedical and behavioral research problems. As such, applications are intended to develop enabling technologies that could apply to the interests of most NIH Institutes and Centers and range from basic biomedicine and including research to all relevant organ systems and diseases. Major themes of research include collaborative environments; data integration; analysis and modeling methodologies; and novel computer science and statistical approaches. New opportunities are also emerging as large and complex data sets are becoming increasingly available to the research community. This initiative aims to address biomedical research areas in biomedical computing, informatics, and Big Data science through the early stage development of new software, tools and related resources, as well as the fundamental research (e.g., methodologies and approaches) leading up to that development.

ELIGIBILITY: All types of domestic organizations that have the capacity to complete research projects may apply, including, institutions of higher education, state, local and tribal governments, as well as other types of not-for-profit and for-profit entities.

DEADLINE INFORMATION: All types of non-AIDS applications must be electronically submitted via Grants.gov by 5:00 PM local time of proposer on February 5, June 5, and October 5, annually.

All types of AIDS and AIDS-related applications must be electronically submitted via Grants.gov by 5:00 PM local time of proposer on May 7, September 7, and January 7, annually.

AWARD INFORMATION: The number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications. Acceptable budgets are not to exceed $300k direct costs per year. The project period is limited to three years. Cost sharing/matching is not required.

The primary intent of this program is to fund the research and development of technologies in biomedical computing, informatics and big data science. Significant integrated compute and storage resources are typically associated with the development of new software and applications of computational technologies to a particular domain area in biomedical research.

Extended Development, Hardening and Dissemination of Technologies in Biomedical Computing, Informatics and Big Data Science (R01)

AUTHORITY: U.S. Department of Health and Human Services (HHS), National Institutes of Health (NIH)

SUMMARY: The goal of this program announcement is to support the extended development, maintenance, testing, evaluation, hardening and dissemination of existing biomedical software. The NIH is interested in promoting a broad base of research and development of technologies in biomedical computing, informatics, and Big Data Science that will support rapid progress in areas of scientific opportunity in biomedical research. It is expected that this research and development is conducted in the context of important biomedical and behavioral research problems and that domain researchers are consulted to make sure that the software is relevant to users. As such, applications are intended to develop enabling technologies that could apply to the interests of most NIH Institutes and Centers and range from basic biomedicine and including research to all relevant organ systems and diseases. Major themes of research include collaborative environments; data integration; analysis and modeling methodologies; and novel computer science and statistical approaches. New opportunities are also emerging as large and complex data sets are becoming increasingly available to the research community. The proposed work should apply best practices and proven methods for software design, construction, and implementation to extend the applicability of existing technologies in biomedical computing, informatics and big data science to a broader biomedical research community.

The primary intent of this program is to fund the research and development of technologies in biomedical computing, informatics and big data science. Significant integrated compute and storage resources are typically associated with the extended development of software and novel applications of computational technologies to a particular domain area in biomedical research.

ELIGIBILITY: All types of domestic organizations that have the capacity to complete research projects may apply, including, institutions of higher education, state, local and tribal governments, as well as other types of not-for-profit and for-profit entities.

DEADLINE INFORMATION: All types of non-AIDS applications must be electronically submitted via Grants.gov by 5:00 PM local time of proposer on February 5, June 5, and October 5, annually.

All types of AIDS and AIDS-related applications must be electronically submitted via Grants.gov by 5:00 PM local time of proposer on May 7, September 7, and January 7, annually.

AWARD INFORMATION: The number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications. Acceptable budgets are not to exceed $300k direct costs per year. The project period is limited to three years. Cost sharing/matching is not required.

Research Project Grant (Parent R01)

AUTHORITY: U.S. Department of Health and Human Services (HHS), National Institutes of Health (NIH)

SUMMARY: The Research Project Grant (R01) is an award to support a discrete, specified, circumscribed project to be performed by named Project Directors/Principal Investigators (PDs/PIs) in areas representing the investigators' specific interests and competencies, based on the mission of the NIH. The R01 is the original and historically the oldest grant mechanism used by the NIH to support health-related research and development. The NIH awards R01 grants to institutions/organizations of all types. This mechanism allows the PDs/PIs to define the scientific focus or objective of the research based on particular areas of interest and competence. Although the PDs/PIs write the grant application and are responsible for conducting and supervising the research, the actual applicant is the research institution/ organization. Research grant applications are assigned to an NIH Institute or Center based on receipt and referral guidelines and many applications are assigned to multiple Institutes or Centers with related research interests.

ELIGIBILITY: Eligible applicants include: Higher Education Institutions; Nonprofits other than institutions of higher education; For-profit organizations; Small businesses; For-profit organizations other than small businesses; Governments; Independent school districts; Public Housing Authorities/Indian Housing Authorities; Native American Tribal Organizations other than Federally recognized tribal governments; Faith-based or Community-based Organizations; and Regional Organizations.

DEADLINE INFORMATION: All types of non-AIDS applications must be electronically submitted via Grants.gov by 5:00 PM local time of proposer on March 5, July 5, and November 5, annually.

All types of AIDS and AIDS-related applications must be electronically submitted via Grants.gov by 5:00 PM local time of proposer on May 7, September 7, and January 7, annually.

The Research Project Grant (Parent R01) serves as the NIH's mechanism to solicit large research projects that may not fit into an open request for proposal that typically are very narrowly defined. As such, any technology, including data center compute and storage resources, are allowable insofar as they can be justified in the context of the singular research project being proposed. For example, if a researcher is proposing a protein modeling project, storage and compute resources would be limited to what is necessary for the data generated by the aforementioned research project.

AWARD INFORMATION: The number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications. Application budgets are not limited but need to reflect the actual needs of the proposed project. The scope of the proposed project should determine the project period. The maximum project period is 5 years.

Computational and Data-Enabled Science and Engineering

AUTHORITY: National Science Foundation (NSF)

SUMMARY: The goal of the CDS&E program is to identify and capitalize on opportunities for major scientific and engineering breakthroughs through new computational and data analysis approaches. The intellectual drivers may be in an individual discipline or they may cut across more than one discipline in various Directorates. The key identifying factor is that the outcome relies on the development, adaptation, and utilization of one or more of the capabilities offered by advancement of both research and infrastructure in computation and data, either through cross-cutting or disciplinary programs.

The primary purpose of CDS&E is to promote breakthrough approaches in computational science and data analysis. The relevance of compute and storage resources is inherent to the advancement of research in these areas.

The CDS&E program welcomes proposals in any area of research supported through the participating divisions that:

1. Promote the creation, development, and application of the next generation of mathematical, computational and statistical theories and tools that are essential for addressing the challenges presented to the scientific and engineering communities by the ever-expanding role of computational modeling and simulation and the explosion and production of digital experimental and observational data.

2. Promote and encourage integrated research projects that create, develop and apply novel computational, mathematical and statistical methods, algorithms, software, data curation, analysis, visualization and mining tools to address major, heretofore intractable questions in core science and engineering disciplines, including large-scale simulations and analysis of large and heterogeneous collections of data.

3. Encourage adventurous ideas that generate new paradigms and that create and apply novel techniques, generating and utilizing digital data in innovative ways to complement or dramatically enhance traditional computational, experimental, observational, and theoretical tools for scientific discovery and application.

4. Encourage ideas at the interface between scientific frameworks, computing capability, measurements and physical systems that enable advances well beyond the expected natural progression of individual activities, including development of science-driven algorithms to address pivotal problems in science and engineering and efficient methods to access, mine, and utilize large data sets.

ELIGIBILITY: All capable entities are eligible to apply.

DEADLINE INFORMATION: Deadlines vary by program area. Applications must be electronically submitted online via Grants.gov or NSF Fastlane.

AWARD INFORMATION: Award amounts vary by program area. Cost sharing/matching is not required.

Report Summary & Next Steps

Institutions of Higher Education (IHEs) can benefit greatly from the acquisition of FlexPod® compute and storage resources. Furthermore, the technology can easily be justified in the context of large projects that aim to achieve objectives in education, workforce development, or research domains. Projects in the arenas of education and workforce development typically involve digital curriculums and tools that require data center resources in order to be stored and shared across multiple constituencies, and include state and local workforce investment boards, educators, employers and trade groups. In terms of research, compute and storage resources are viewed as critical components of most projects, since there will always be the need to securely store, share and access data across collaborators and the larger research community. With the exception of Title III funding and research instrumentation grants, the bulk of funding is project-based and necessitates a piecemeal approach in order to bring the cloud to campus.

Next Steps

10. Implement project

9. Win grant award

8. Pursue other options while awaiting a decision

7. Submit application ahead of deadline

6. Find collaborators, but make sure everyone involved has a role.

5. Learn as much as possible about the programs for which you are applying

4. Develop proposals for grants that make sense for your project

3. Develop a grant seeking plan

2. Research funding opportunities (take advantage of free funding research and consultation provided by Avnet - see below)

1. Develop a well-rounded project that can be funded through grants

Avnet Grants Intelligence Resource Center (GIRC)

The Avnet Grants Intelligence Resource Center, sponsored by NetApp, provides enterprise-wide grants support to participating Avnet resellers and their customers. These customers include municipalities, K-12 schools, institutions of higher education, healthcare providers and other types of non-profit and public organizations. Customers of participating Avnet resellers are able to get unlimited research and consultation from experts than can help them align their projects to appropriate grant funding opportunities.

Customers can access free grant support services via the Avnet GIRC through the following participating technology companies:

Adcap Network Services, Inc.

Custom Storage (cStor)

Global Technology Resources, Inc (GTRI)

Nexus

NFF, Inc.

SLAIT Consulting

World Wide Technology (WWT)

If you are unable to access the program through the aforementioned resellers, or have any general questions about the Avnet Grants Intelligence Resource Center, feel free to contact:

Holly Urquhart
Sr. Public Sector Marketing Manager
Avnet Government Solutions
Holly.Urquhart@AVNET.COM
Office Phone: 303.545.1225
Website: www.avnetgrants.com

End Notes

1   On the federal level, the main piece of regulatory guidance is the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Many states have additional regulations in regard to securing protected health information.

Appendix I: Grants Glossary

APPLICANT is the entity requesting a grant.

APPLICATION CONTROL CENTER is the agency or division officially authorized to receive applications for discretionary grants.

APPLICATION FOR FEDERAL EDUCATION ASSISTANCE (also known as Form 424) is the grant application form, sometimes referred to as the application "cover page," used by the Department of Education.

APPLICATION NOTICE is published in the Federal Register and invites applications for one or more discretionary grant competitions. It provides basic program and fiscal information on each competition, informs potential applicants when and where they can obtain applications, and cites the deadline date for a particular competition.

APPLICATION PACKAGE contains the application notice for one or more programs, and all the information and forms needed to apply for a discretionary grant.

APPROPRIATIONS LEGISLATION is a law passed by Congress to provide a certain level of funding for a grant program in a given year.

ASSURANCES are a variety of requirements, found in different Federal laws, regulations, and executive orders, which applicants agree in writing to observe as a condition of receiving federal assistance.

AUTHORIZING LEGISLATION is a law passed by Congress that establishes or continues a grant program.

AUTHORIZED REPRESENTATIVE is the official within an applicant organization with the legal authority to give assurances, make commitments, enter into contracts, and execute such documents on behalf of the applicant as may be required by a grant maker. The signature of the Authorized Representative certifies that commitments made on grant proposals will be honored and ensures that the applicant agrees to conform to the grant maker's regulations, guidelines, and policies. Note that the Authorized Representative is not necessarily the Project Director.

BUDGET PERIOD is an interval of time into which a project period is divided for budgetary purposes, usually 12 months.

BUDGET NARRATIVE explains the budget. Explanations can include the derivation of amounts (for example, a $1,250 budget item derives from 100 people at five meetings each using a $2.50 expendable item), the itemization of totals, the purpose of purchased supplies and services, and the justification of the size of salaries, fringe benefits, and indirect costs.

CATALOG OF FEDERAL DOMESTIC ASSISTANCE (CFDA) is a publication and database produced by the General Services Administration that lists the domestic assistance programs of all Federal agencies. It gives information about a program's authorization, fiscal details, accomplishments, regulations, guidelines, eligibility requirements, information contacts, and application and award process.

CERTIFICATION is a statement, signed by an applicant or grantee as a prerequisite for receiving Federal funds, that it meets or will adhere to certain conditions and/or will undertake or not undertake certain actions.

CFDA NUMBER is an identifying number for a Federal assistance program, composed of a unique two-digit prefix to identify the Federal agency (e.g., 84 for the Department of Education), followed by a period and a unique three-digit code for each authorized program.

COMBINED APPLICATION NOTICE is a notice published by a Federal Department in the Federal Register that identifies programs and competitions under which the Department has invited, or plans to invite, applications for new awards for a particular Fiscal Year. The notice provides the actual or estimated information on the date the competition will be announced in the Federal Register; the date application packages will be available; the application deadline date; the deadline for Intergovernmental Review; the range of awards; the average size of awards; and the number of awards. The Combined Application Notice also provides a contact name and phone number to get further information.

COMPETITIVE REVIEW PROCESS is used by the funder to select discretionary grant applications for funding, in which applications are scored by subject-area experts and the most highly scored applications are considered for funding.

DEADLINE DATE is the date by which an applicant must mail or electronically file a discretionary grant application for it to be considered for funding by the funding department or organization. Under some competitions, the funder requires that the application be received by the deadline date.

DISCRETIONARY GRANT is an award of financial assistance in the form of money by the Federal government to an eligible grantee, usually made on the basis of a competitive review process.

D-U-N-S NUMBER is a nine-digit number assigned to an organization by Dun & Bradstreet. The number does not convey any information about the recipient. A built-in check digit helps assure the accuracy of the D-U-N-S Number. The ninth digit of each number is the check digit, which is mathematically related to the other digits.

FEDERAL REGISTER is a daily compilation of Federal regulations and other Federal agency documents of public interest, which is prepared by the National Archives and Records Administration for public distribution by the Government Printing Office.

FUNDING PRIORITIES are a means of focusing a grant competition on the areas in which the Secretary is particularly interested in receiving applications. Priorities can be absolute, which the applicant must address in order to be considered for funding; competitive, which the applicant has the option of choosing whether or not to address and for which they may receive additional points, or invitational, which the applicant is encouraged but not required to address.

GRANT APPLICATION REVIEWER is an individual who serves the Department by reviewing new discretionary grant applications; also referred to as "field reader" or "peer reviewer."

GRANTEE is an individual or organization that has been awarded financial assistance under one of the Department's discretionary grant programs.

GRANT AWARD NOTIFICATION is an official document signed by the authorized official stating the amount and the terms and conditions of an award for a discretionary grant.

HUMAN SUBJECT is defined as "a living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention or interaction with the individual or obtains identifiable private information."

INDIRECT COSTS are costs an organization incurs for common or joint objectives that cannot be readily and specifically identified with a particular grant project or other institutional activity.

INDIRECT COST RATE is a percentage established by a Federal department or agency for a grantee organization, which the grantee uses in computing the dollar amount it charges to the grant to reimburse itself for indirect costs incurred in doing the work of the grant project.

INSTITUTIONAL REVIEW BOARDS are authorized to approve, request modification in, or disapprove research activities and to conduct continuing reviews of the research activities at intervals appropriate to the degree of risk, but not less than once a year.

PROGRAM REGULATIONS implement legislation passed by Congress to authorize a specific grant program, and include applicant eligibility criteria, nature of activities funded, selection criteria under which applications will be selected for funding, and other relevant information.

PROJECT PERIOD is the total amount of time during which the Department authorizes a grantee to complete the approved work of the project described in the application. Project periods of more than one year are divided into budget periods.

PR/AWARD NUMBER is the identifying number for a discretionary grant application (e.g., S184H001203), which is issued when the application is received by the Department's Application Control Center.

REQUEST FOR PROPOSALS (RFP) is a general term for a funding solicitation that includes elements of the Application Notice and Application Package.

RESEARCH is defined as "a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge." It includes activities that meet this definition, whether or not conducted under a program considered "research" for other purposes. For example, if an activity follows a deliberate plan whose purpose is to develop or contribute to generalizable knowledge, such as an exploratory study or the collection of data to test a hypothesis, it is research.

STATE ADMINISTRATIVE AGENCY is an agency identified by each state's governor as the party that is responsible for receiving and administering funding within the state for a particular priority area or purpose.