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MANISH REMARKS
Good Afternoon

I am delighted to welcome you to this webinar.

As many of you know OAC seeks to foster the advanced cyberinfrastructure ecosystem that is critical to the advancement of all areas of science and engineering research and education. For over a decade, OAC's (and ACI and OCI before it) investments in cyberinfrastructure research and research cyberinfrastructure have consistently enabled new innovations and discoveries.

I do hope you find this webinar informative.

I will now turn it over to Robert Chadduck who is one of the cognizant program officers for the program.

BOB CHADDUCK REMARKS
Good afternoon. We are Edward Walker, Alejandro Suarez and Robert Chadduck in the Office of Advanced Cyberinfrastructure, the NSF Directorate for Computer & Information Science & Engineering, or CISE.
We are managing the **Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research** program NSF solicitation #19-534
In this webcast, we will provide a brief overview of this NSF program, and describe some of the most important things you need to know about submitting a proposal.

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This webinar in intended to orient the national research cyberinfrastructure community to the "Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research" competition, summarize the program and peer-review criteria, and answer questions. Our ultimate goal is to contribute to improvements in the quality of your proposals.

Here is an outline of today's presentation. We'll start with a description of the program followed by an overview of the NSF 19-534 solicitation.
We will then take questions from you, the audience.
This document will be available on the program website.

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Next we talk about the **Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research** program, its priorities and goals and how we implement it.

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"Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research" program NSF 19-534 seeks proposals from organizations willing to serve as service providers (SPs) within the NSF Innovative High-Performance Computing (HPC) program to provide advanced cyberinfrastructure (CI) capabilities and/or services in production operations to support the full range of computational- and data-intensive research across all of science and engineering (S&E).

The current solicitation is intended to complement previous NSF investments in advanced computational infrastructure by provisioning systems and/or services, in two categories: Category I, Capacity Systems: production computational resources maximizing the capacity provided to support the broad range of computation and data analytics needs in S&E research; and Category II, Innovative Prototypes/Testbeds: innovative forward-looking capabilities deploying novel technologies, architectures, usage modes, etc., and exploring new target applications, methods, and paradigms for S&E discoveries
Resources supported through awards from this solicitation will be incorporated into and allocated as part of NSF's Innovative HPC program.
This program complements investments in leadership-class computing and funds a federation of nationally-available HPC resources that are technically diverse and intended to enable discoveries at a computational scale beyond the research of individual or regional academic institutions.

NSF anticipates that at least 90% of the provisioned system or services will be available to the S&E community through an open peer-reviewed national allocation process and be supported by community and other support services [such as those currently supported through eXtreme Science and Engineering Discovery Environment (XSEDE) 2.0 project-managed allocations recommended by the XSEDE Resource Allocation Committee (XRAC), and other activities intended to foster efficient coordination across resources], or an NSF-approved alternative that may emerge.

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The program guiding principles are outlined by these five items, namely,
NSF is interested to increase the Nation's capacity for transformative S&E discoveries, including in continuing to diversify and evolve its portfolio to take advantage of new technologies and services that include capabilities addressing emerging computational- and data-intensive S&E research topics, workflows, and communities, while expanding opportunities for participation by a broader range of potential SPs.

This competition emphasizes the provisioning of an ecosystem of advanced computational resources and services that is responsive to the dramatic increase in the number and nature of applications using NSF-funded resources. Proposals are requested for advanced CI that will

deploy capabilities and services, including composable services, to address the increase in demand for computation and data analytics resources in the S&E research community, as well as explore novel paradigms for enabling transformative S&E discoveries
This solicitation explicitly focuses on the growing scale and diversity of the S&E community, the changing nature of S&E research requirements, as well as the rapidly evolving CI landscape, with the overarching goal of supporting transformational S&E discoveries

An important aspect of the current solicitation is that funded projects must provide CI capabilities and/or services that demonstrate high degrees of stability and usability during the period of production operations available to the S&E community.
NSF strongly urges the community to consider expanding the range of possibilities in enabling S&E communities to leverage the power of computation for transformative research, and to think broadly about the nature and composition of the CI ecosystem. Such consideration may include, but is not limited to, ease of access to proposed systems/services by new S&E communities; new capabilities that will open up new methods and paradigms for S&E discoveries; federated approaches with opportunities for leveraging the increasing availability and capabilities at the network edge (including campuses); and composable services provisioning virtualized on-premise computing infrastructure and commercial cloud services.
These guiding principles inform the solicitation specific review criteria that we will discuss soon.

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Next we talk about this specific solicitation opportunity (NSF 19-534), including budgets, eligibility information, proposal details, and review criteria.

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The anticipated funding amount is $5,000,000 to $10,000,000 per award.
A total of $30,000,000 is available for this solicitation, subject to the availability of funds. It is anticipated that 1-2 awards will be made in Category I at up to $10,000,000 per award for up to five years and up to 1-2 awards in Category II at up to $5,000,000 per award for up to five years.
User support and operating costs are expected to be up to 20% of the acquisition cost per year for each deployed Category I or Category II system/service for up to five years. Should the proposed system/service require additional user and operating funds, an additional 5% may be requested along with very strong justification for the request.

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The anticipated funding amount includes the possibility of renewal awards
In either Category I or Category II, there is a possibility of a renewal award contingent upon availability of funds and the successful evaluation of the service provider's performance as well as NSF merit review of the renewal proposal. During annual reviews, the Category I or Category II service provider's achievements and future plans will be comprehensively evaluated according to the criteria defined in the initial award, associated metrics, and other relevant

criteria. Contingent on a successful third-year review, Category I or Category II service provider may be invited by NSF to submit a renewal proposal in the same Category as the original award, for up to five years commencing at the beginning of the fifth year of the original award.

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The estimated number of awards is 2-4
The length of the award may vary depending on the type of resource funded. However, in most cases, it is expected to be up to 5 years. The details are described in the section entitled Program Requirements and should be carefully considered.

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Full Proposals are required to be submitted (due by 5 p.m. submitters local time) March 4, 2019 and then March 4, 2020 (subject to the availability of funds)

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Who May Submit Proposals:
Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Other Federal Agencies and Federally Funded Research and Development Centers (FFRDCs): Contact the appropriate program before preparing a proposal for submission.

Who May Serve as PI:

- No specific eligibility description
- An individual may be the PI or co-PI on no more than one proposal that responds to this solicitation. There is no limit on the number of proposals with which an individual may be associated in other capacities, such as senior personnel.

Limit on Number of Proposals per Organization: 1

- An organization may submit only one proposal but may be a sub-awardee on other proposals responding to this solicitation. The restriction to no more than one submitted proposal as lead institution is to help ensure that there is appropriate institutional commitment necessary for responsible oversight, by the potential awardee institution, of a national resource.
- Collaborative projects may only be submitted as a single proposal in which a single award is being requested (NSF Proposal & Awards Policies and Procedures Guide -

PAPPG Chapter II.D.3.a). The involvement of partner organizations should be supported through subawards administered by the submitting organization.

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For the cover sheet, proposal titles must begin with “Category I” or “Category II”, depending on the type of resource/services proposed

Only personnel directly connected to the project should be listed as collaborators.

Collaborative efforts may only be submitted as a single proposal (See PAPPG Chapter II.D.3.a), in which a single award is being requested. The involvement of partner organizations should be supported through subawards administered by the proposing Service Provider organization.

The page limit for the Project Description section of the proposal is 30 pages.

The page limit for the Budget Justification for the lead institution and each potential sub-awardee institution is 5 pages

In addition to the instructions described in the PAPPG or the NSF Grants.gov Application Guide, the Project Description must include the following sections:

- Intellectual Merit: Resource Specification; S&E Application Performance; Resource Reliability and Usability; Project Management and Risk Mitigation; Data Infrastructure; Security; Operations Plan; and
- Broader Impacts.

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Additional supplementary documents include:

A data management plan and post-doctoral researcher mentoring plan (if applicable) . These are standard NSF requirements.

Actual or estimated performance benchmark results as described in Section V.A. Proposal Preparation Instructions, Science & Engineering Application Performance. This section should not be used to continue discussion or analysis of the merits of the Service Provider, vendor or vendors, or system.

Detailed Projected Operating Costs as described in Section V.A. Proposal Preparation Instructions, Operations Plan. This should not exceed 5 pages.

A list of all institutions and companies involved in the project, together with their roles within the project and the levels of funding.

A plan for user support that includes a description of the anticipated requirements of the S&E research community, a description of how resources will be allocated, and any other operational details likely to have an impact on user access or usage of the proposed system (see Operations Plan above).

Letters of collaboration from individuals who are described in the Project Description as involved in the project in a senior capacity but who are not members of the lead proposing organization, or from representatives of institutions or organizations collaborating with the lead institution, are allowable, as described in the PAPPG Chapter II.C.2.d(iv). Note that letters of endorsement should not be included in proposals.

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Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Post-doctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria Reviewers will be asked to assess the adequacy of the descriptions provided in the required sections of the Project Description (these are described in Section V.A. Proposal Preparation Instructions above):

Intellectual Merit:

- Resource Specification;
- Science & Engineering Application Performance;
- Resource Reliability and Usability;
- Project Management and Risk Mitigation;
- Data Infrastructure;
- Security;
- Operations Plan; and

Broader Impacts

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When evaluating NSF proposals, reviewers are asked to consider:

- what the proposers want to do?
- why they want to do it?
- how they plan to do it?
- how they will know if they succeed?
- what benefits would accrue if the project is successful?

These issues apply both to the technical aspects of the proposal (the intellectual merits) and the way in which the project may make broader contributions (the broader impacts).

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So, in summary,

- "Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research" program seeks proposals from organizations willing to serve as service providers (SPs) within the NSF Innovative High-Performance Computing (HPC) program to provide advanced CI capabilities and/or services in production operations to support the full range of computational- and data-intensive research across all of science and engineering.
- This competition emphasizes the provisioning of an ecosystem of advanced computational resources and services that is responsive to the dramatic increase in the number and nature of applications using NSF-funded resources
- The program is envisioned to accept proposals in 2019 and 2020 (subject to availability of funds)

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On behalf of the National Science Foundation including the Office of Advanced Cyberinfrastructure thank you for your interest in this Program and for participating in this webinar.

The slides and the script for this webcast, as well as an audio recording, will be available at http://go.usa.gov/xP6vx and the program webpage. On that page, you'll need to look for this webcast among the list of events. I invite your questions now, via email or via telephone to Robert Chadduck, Edward Walker, or Alejandro Suarez