

# National Strategic Computing Reserve (NSCR): Background and Vision



**Manish Parashar**

Office of Advanced Cyberinfrastructure (OAC)

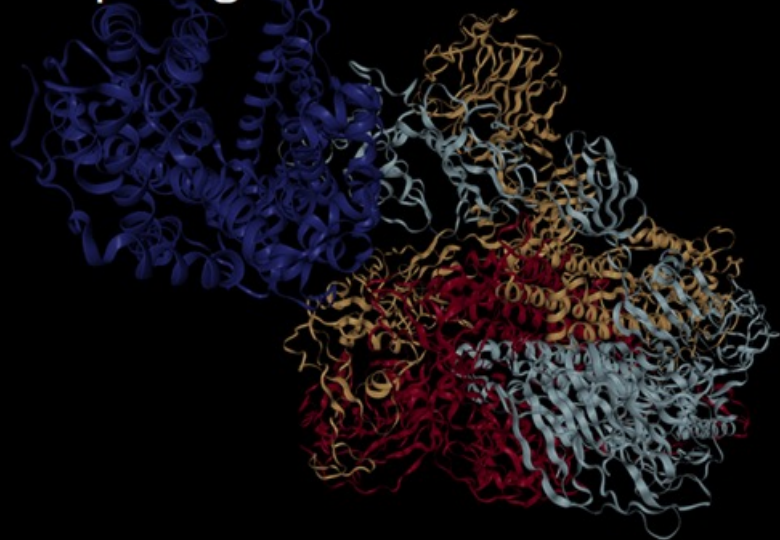
Computing and Information Science and Engineering (CISE)

NITRD/MAGIC Meeting

July 06, 2022



# The COVID-19 High Performance Computing Consortium



Bringing together the Federal government, industry, and academic leaders to provide access to the world's most powerful high-performance computing resources in support of COVID-19 research.

[Apply](#)

43 600 100

Consortium  
members

Petaflops

Active projects

6.8m 165k

CPU cores

Nodes

<https://covid19-hpc-consortium.org/>

# COVID-19 High Performance Computing Consortium: What worked



- Collaboration across institutional and organizational boundaries
  - Government, industry, and academia
- Nimble created and is operating a common portal
  - Meeting urgent computational resource requirements not easily met through other means
  - Developed and refined review, matching and onboarding processes for accessing resources
  - Set up a communications and user engagement framework for a worldwide community
- ***Accelerated explorations in basic understanding of the SARS-CoV2 virus, its host interactions, strategies to mitigate its spread, and early-stage drug development.***

Great success! How to systematize and move beyond ad hoc approaches?

# NSCR Request for Information (RFI) ([link](#))



Open *Request for Information* to help inform potential attributes and design of a NSCR (closed on 01/16/2021)

1. ***Deployment Scenarios:*** envisioned scenarios; design of triggers for activating and deactivating; testing readiness; barriers to activating.
2. ***Computational Resources:*** recruited, vetted, and sustained; incentives and mechanisms for compensation; assessing the suitability of resources; types of research supported.
3. ***NSCR Providers:*** resource providers' contributions; approaches for resource selection and allocation; resource providers opt in or opt out.
4. ***NSCR Users:*** principles for allocations of computational resources; eligibility restrictions/selection criteria for users and use cases.
5. ***Community Formation:*** community outreach and communications needed; organizations and services that NSCR should coordinate with.
6. ***Partnership Agreements:*** What are key aspects of partnership agreements (e.g., access to results, intellectual property rights) that can help sustain the NSCR over time?
7. ***Relationship to Other Strategic Reserves:*** other relevant strategic reserves and how to connect or interface with those reserves; lessons from other strategic reserves to inform NSCR.

# National Strategic Computing Reserve Blueprint Report



## NATIONAL STRATEGIC COMPUTING RESERVE: A BLUEPRINT

*A report by the*  
SUBCOMMITTEE ON NETWORKING AND INFORMATION  
TECHNOLOGY RESEARCH AND DEVELOPMENT  
COMMITTEE ON SCIENCE AND TECHNOLOGY ENTERPRISE  
*and the*  
SUBCOMMITTEE ON FUTURE ADVANCED COMPUTING ECOSYSTEM  
COMMITTEE ON TECHNOLOGY  
*of the*  
NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

October 2021

# Beyond the COVID-19 HPC Consortium: A NSCR Vision



- Advanced computing cyberinfrastructure can be a strategic National asset in emergency response, if mobilized quickly.
- Goals for an NSCR:
  - Ensure availability of a ready “reserve” of resources (computing, data, software, services) and expertise that can be leveraged nimbly in times of urgent need.
  - Establish policies, processes, and agreements to enable agile, effective, and impactful resource mobilization.
  - Build on continued longer-term strategic investments in resources (computing, data, software, services), expertise.
  - Coordinate across agencies, stakeholder communities, and other national reserves.

# Blueprint: Key Elements of NSCR



- Resources
  - Computational and data resources
  - Systems expertise
- Program office
  - Policies governing triggering and ramp down
  - Coordination mechanisms
  - Readiness testing
  - Systems and subject-matter expertise
  - Governance structures
  - Training and outreach
- Cyberinfrastructure/Software framework
  - Cross agency, on-demand, federation, allocations, provisioning, operations; cloud integration



# NSCR Next Steps



- Scenario-driven tabletop exercises
- Community workshops (in coordination with other reserves/responders) to explore responses and role of NSCR in specific national emergencies (wildfires, hurricanes, floods, nuclear disasters, etc.).
- Deep dives into key aspects of the NSCR, e.g., governance, incentives, triggering, sharing data, technical infrastructure (e.g., single sign-on) etc.



Q&A



*"Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Networking and Information Technology Research and Development Program."*

The Networking and Information Technology Research and Development  
(NITRD) Program

**Mailing Address:** NCO/NITRD, 2415 Eisenhower Avenue, Alexandria, VA 22314

**Physical Address:** 490 L'Enfant Plaza SW, Suite 8001, Washington, DC 20024, USA Tel: 202-459-9674,  
Fax: 202-459-9673, Email: [nco@nitrd.gov](mailto:nco@nitrd.gov), Website: <https://www.nitrd.gov>

