Information Technology Infrastructure Committee (ITIC)

Status report to the NASA Advisory Council

April 24, 2013

Charles Holmes
Vice-Chair ITIC
ITIC Committee Members

Membership

- Dr. Larry Smarr (Chair), Director- California Institute of Telecommunications and Information Technology, UC San Diego
- Dr. Charles Holmes (Vice-Chair), Retired- NASA HQ Heliophysics Program
- Mr. Alan Paller, Research Director- SANS Institute
- Dr. Robert Grossman, Professor- University of Chicago
- Dr. Alexander Szalay, Professor- Johns Hopkins University

New Members

- Dr. Mark Boster; President-ImpaQ Solutions, LLC
- Hon. Mark Forman, former associate director of IT and e-government, OMB
- Mr. Joel Mambretti, Director, Intl. Center for Advanced Internet Research, NW Univ.
- Dr. Ed Lazowska, Gates Professor & Chair, Dept of Computer Science, UWash
- Dr. Pete Beckman, Dir., Exascale Technology and Computing Institute, Argonne NL
- Mr. John Muratore, former NASA engineer & Program Manager, now with Space X

- Mr. Jason Gillis (Exec Sec), Special Assist. to CIO, NASA
2013 Committee Meeting Schedule

March 2013 - Cancelled

July 29 & 30 - at HQ –
- Meet the new CIO
- NAC All-hands
- Space Communications Topics
- HEO Space Life & Physical Sciences Opportunities

Dec 9 & 10  - at KSC –
- SLS Launch Segment
Recommendation: NASA should formally review the existing national data cyberinfrastructure supporting access to data repositories for NASA SMD missions. A comparison with best-of-breed practices within NASA and at other Federal agencies should be made.

We request a briefing on this review to a joint meeting of the NAC IT Infrastructure, Science, and Education committees within one year of this recommendation. The briefing should contain recommendations for a NASA data-intensive cyberinfrastructure to support science discovery by both mission teams, remote researchers, and for education and public outreach appropriate to the growth driven by current and future SMD missions.

* To be completed after a joint meeting of ITIC, Science, and Education Committees in July 2012 and the final recommendation submitted to July 2012 NAC meeting
ITIC Finding

♦ SMD Data Resides in a Highly Distributed Servers
  • Many Data Storage and Analysis Sites Are Outside NASA Centers
  • Access to Entire Research Community Essential
    – Over Half Science Publications are From Using Data Archives
    – Secondary Storage Needed in Cloud with High Bandwidth and User Portal
  • Education and Public Outreach of Data Rapidly Expanding
    – Images/Videos for Public Relations
    – Apps for Smart Phones
    – Crowd Sourcing
Partnering Opportunities with DOE: ARRA Stimulus Investment for DOE ESnet

National-Scale 100Gbps Network Backbone

Source: Presentation to ESnet Policy Board
SMD is a Growing NASA HPC User Community

All Missions HEC Capacity Shares in SBUs

March 2011

- NCCS-SMD: 131.1M
- NAS-SMD: 631.8M
- NAS-other MDs: 510.1M

Source: Tsengdar Lee, Mike Little, NASA
ITIC Chairman briefed the Science Subcommittees and received detailed feedback

- Heliophysics – October 11, 2012
- Astrophysics – November 6, 2012
- Planetary Science – April 4, 2013
- Earth Science – April 11, 2013

Next Step: Schedule meeting between:

- Associate Administrator of SMD and Heads of
- ITIC Committee,
- Science Committee
- Education and Public Outreach Committee

to consolidate notes from four briefings and decide on next steps
Major Points of Agreement Between ITIC and Science Subcommittees:

Science-Driven IT and Networking Infrastructure Improvements:

- Higher throughput end-to-end networking
- Federation across mission datasets
- Avoid centralization of mission IT support
Discussion