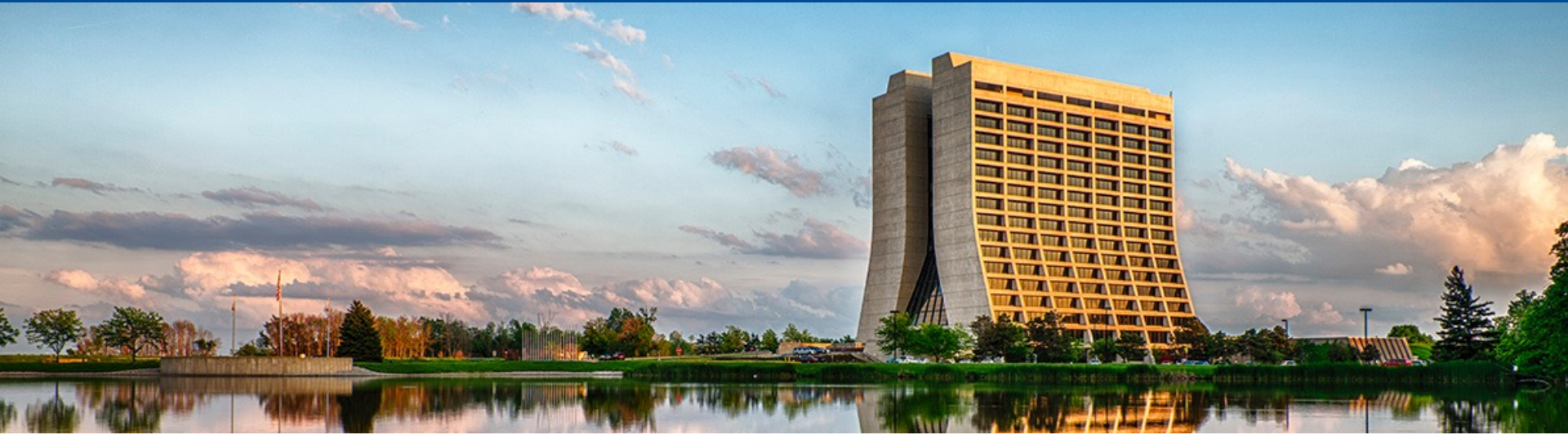


Welcome and Charge

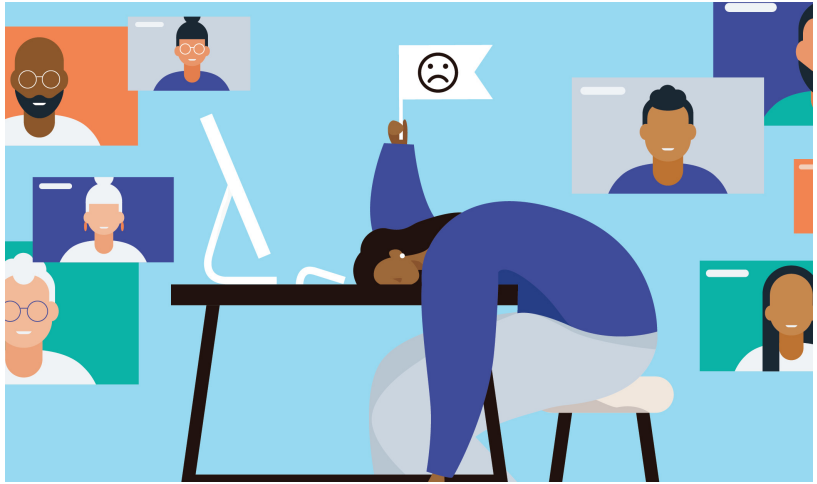
James Amundson

2022 Fermilab Computing Scrutiny Group

June 1, 2022

Welcome to the 2022 FCRSG!

- Last year
  - *It is our hope that the next FCRSG will be the first not to be constrained by COVID 19!*
- Purely virtual this year
  - Partially due to late date and travel constraints
  - Partially due to the Fermilab area once again reaching High COVID Transmission™
  - Partially due to desire to create a level playing field for the experiments
    - We are still learning to do hybrid well



It is our hope that the next FCRSG will be the first not to be constrained by COVID 19!

Changes to the 2022 FCRSG

- Kept basic structure from last year
- Only asked for updates to computing models
- Asked experiments for information on past and future data challenges
- Committee meeting with division to happen at a later date
  - Mostly due to scheduling
  - Also viewing as an experiment

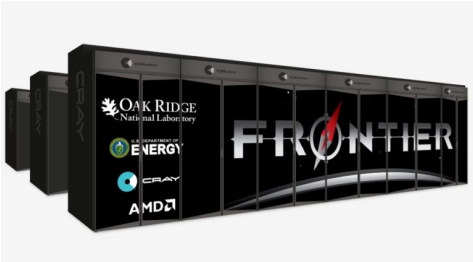
Looking Forward to the 2023 FCRSG

- Save the date!
  - February 15 and 16, 2023
- Experiments will be asked to present estimated requests for up to five years
  - It is understood that the quality of predictions falls off rapidly with distance in time

Fermilab Computing Strategy

Detailed View

- Compute
  - Work towards getting a substantial fraction of US HEP computing from the Exascale/HPC machines
  - High-throughput computing at Fermilab will remain important
  - Utilize cloud resources when cost effective
    - Increase peak capacity
    - Access to non-standard hardware
- Storage
  - Mass storage will remain the foundation of Fermilab's computing capability
    - Tape libraries
    - Disk systems
    - Full-stack storage software
      - Including support for data lifetime management
- Analysis
  - Build an elastic analysis facility taking advantage of industry tools and Fermilab storage
- AI/ML
  - Provide GPU resources
  - Develop AI-enhanced operations
- Software
  - Pursue community-wide solutions
  - Engage ASCR partners
  - Collaborate with CERN
  - Leverage industry-standard tools where available



Progress in the Last Year

- Storage research and development
  - CTA (CERN Tape Archive) selected as the replacement for Enstore
    - Detailed transition plan in progress
  - New storage R&D staff hired
  - Started to deprecate existing NAS System
    - Working on Ceph-based replacement
- Analysis Facility
  - Elastic Analysis Facility now available for beta testing
- Hardware
  - New “Public” tape library
  - Substantial disk purchases
  - 12 A100 GPUs

More detailed presentation of computing strategy at this year’s PAC meeting

Fermilab

Funding Outlook

- Operations funding has remained mostly flat
  - Research has faired less well
- Just received financial plan for FY22 (!)
  - Slightly better than fully flat
- Recent push for enhanced operations funding from Office of Science
  - Starting in FY24
  - Billed as new normal
  - Requested DUNE analysis and operations support
  - Requested hardware and personnel for facility modernization
  - Roughly $4M (20%) additional funds requested
  - *Not yet demonstrated to be real*

Charge for this Review

- Goal: evaluate usage requests, plan for future of computing at Fermilab
  - Not limited to M&S – SWF is the largest portion of our budget
  - Not limited to Computing and Detector Operations
    - Note, however, that CMS computing is separately reviewed
  - Not including Scientific Software development
- Time frame: next year + experiment-specific horizon
- Scrutiny should focus on incremental costs (SWF + M&S)
  - Including custom solutions in software, etc.

Finally

- Thank you for your help
  - These reviews are very valuable to the division!

- Questions?