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ESnet Requirements Review Program

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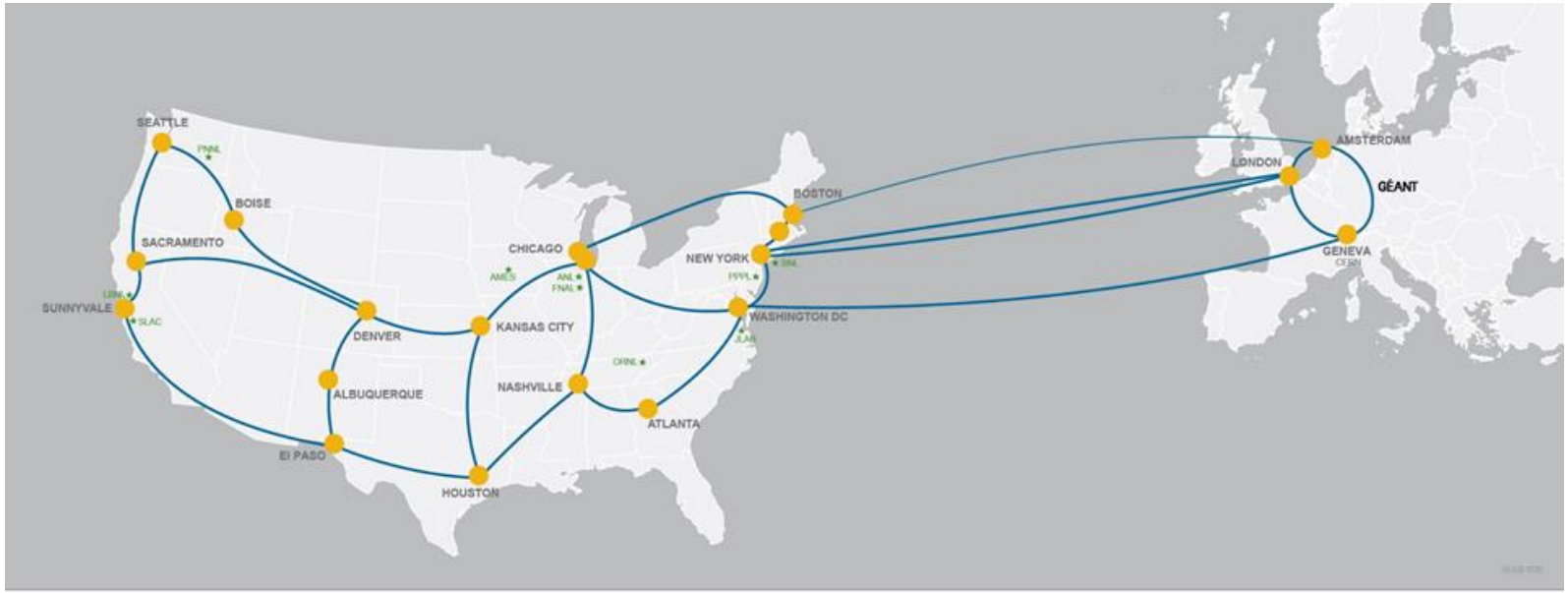
LHCONE virtual meeting

16 September 2020

ESnet is DOE's high performance network user facility



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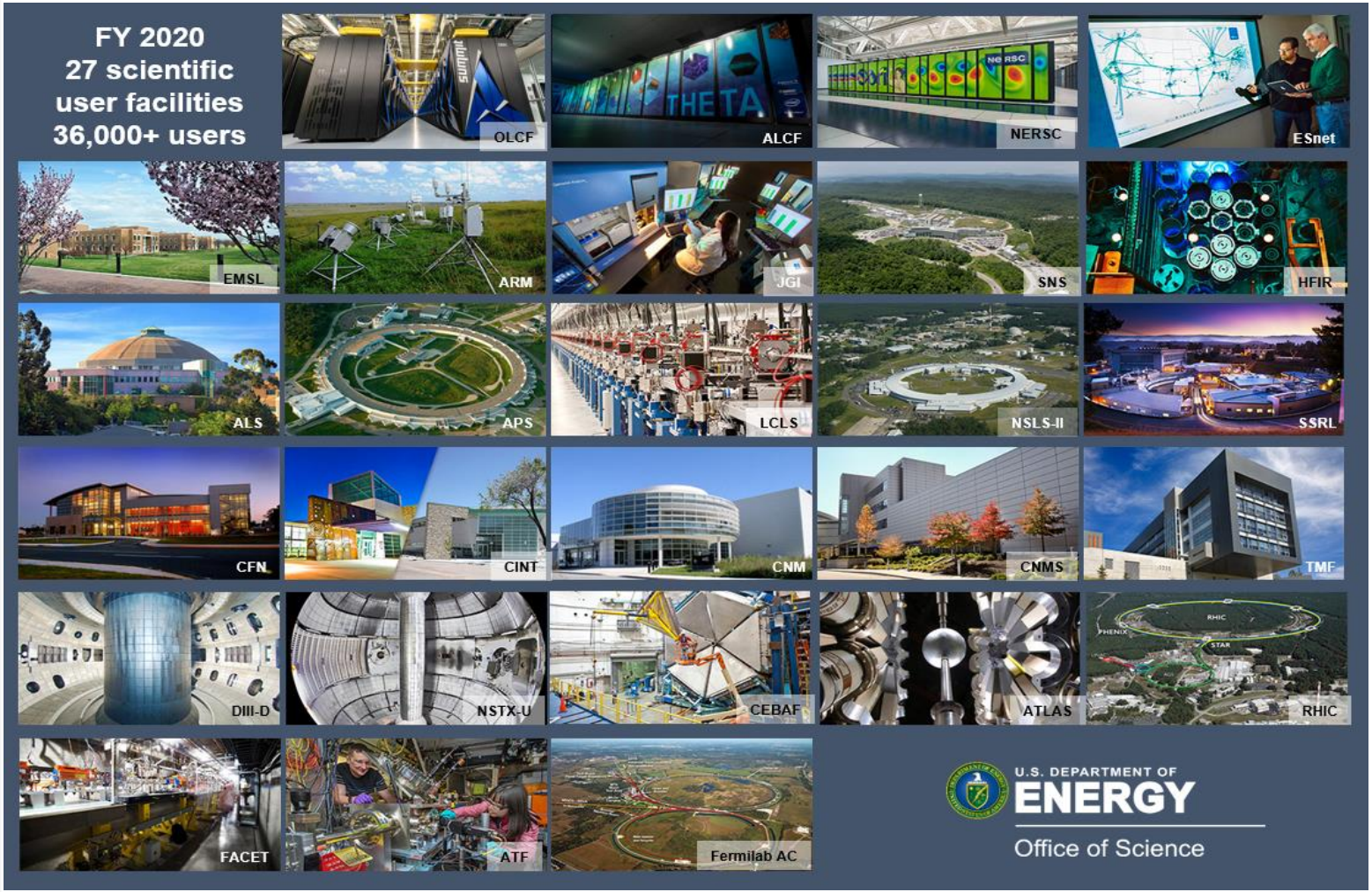
★ Department of Energy Office of Science National Labs

Ames	Ames Laboratory (Ames, IA)
ANL	Argonne National Laboratory (Argonne, IL)
BNL	Brookhaven National Laboratory (Upton, NY)
FNAL	Fermi National Accelerator Laboratory (Batavia, IL)
JLAB	Thomas Jefferson National Accelerator Facility (Newport News, VA)
LBNL	Lawrence Berkeley National Laboratory (Berkeley, CA)
ORNL	Oak Ridge National Laboratory (Oak Ridge, TN)
PNNL	Pacific Northwest National Laboratory (Richland, WA)
PPPL	Princeton Plasma Physics Laboratory (Princeton, NJ)
SLAC	SLAC National Accelerator Laboratory (Menlo Park, CA)


FY 2020
27 scientific
user facilities
36,000+ users
OLCF
ALCF
NERSC
ESnet
EMSL
ARM
JGI
SNS
HFIR
ALS
APS
LCLS
NSLS-II
SSRL
CFN
CINT
CNM
CNMS
TMF
DIII-D
NSTX-U
CEBAF
ATLAS
RHIC
FACET
ATF
Fermilab AC
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ESnet Mission

- ESnet's core mission is to serve the DOE/SC science programs.
  - Large-scale data movement
  - Network services to enable science
- To accomplish this, ESnet and ASCR (ESnet's funder) must understand the needs of the science communities ESnet serves.
- Network implications arise from the conduct of science
  - Science instruments and facilities
  - Process of science
  - How will these change over time?
- ESnet, ASCR, and the other science programs must have a common strategic vision of the network needs of the science.

Requirements Review Overview

- Strategy: Two reviews per year, one review per program office every 3 years.
  - Regular check in points beyond the 3-year interval of review
- Formal mechanism via a written case study and in-person discussion, to determine shared understanding of networking needs. Reviews brings together:
  - Network Users
  - Administrators
  - Technology Providers
- Case studies and discussion identifies current & anticipated networking implications of:
  - **Collaborators** - the partnerships involved
  - **Instruments and Facilities** – the "hardware" of science
  - **Process of Science** – the way in which the Instruments and Facilities are used in the conduct of the science
- Formal analysis report to be used in future solicitations and strategic plans

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COVID-19 changed 2020

We planned to do the High Energy Physics program (which contains the DOE funding for ATLAS and CMS) requirements review in 2020.

COVID-19 changed our planning process. Instead of being able to fully execute this event as an–person review, we took a hybrid approach:

- Virtual Components
  - Asynchronous
    - ***mid June through late July 2020***: Case study preparation by author teams
    - ***early August through September 2020***: ESnet & DOE Review of case studies and production of summaries
  - Synchronous
    - ***mid August 2020***: 1:1 meetings
    - ***Late August & September 2020***: "Focus Groups" to discuss case study findings
- Physical Components
  - ***2021***: Case Study Presentations and Review

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LHC experiments at ESnet/HEP requirements review

- Several case studies from LHC experiments at the HEP review
  - ATLAS, CMS, combined operations, HL-LHC
  - Excellent information and interaction
- Multiple engagement points going forward
  - Continued participation in LHCONE (obviously)
  - Technical collaboration areas
    - Some exist now, e.g. network technical working group, SENSE
    - Some may be added or evolve
- Working to understand all the material in the context

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Moving forward

- Thank you to everyone who provided case study material and participated in discussions
  - Again, very high quality and very productive for ESnet
- Focus groups next week
- More to come as we understand and synthesize all the material
- Looking forward to continuing our work together, both in the near term and moving towards HL-LHC era

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Thanks!

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