

# LQCD-ext III Project Report

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USQCD All-Hands Meeting  
Jefferson Lab (Virtual)  
May 1-2, 2020

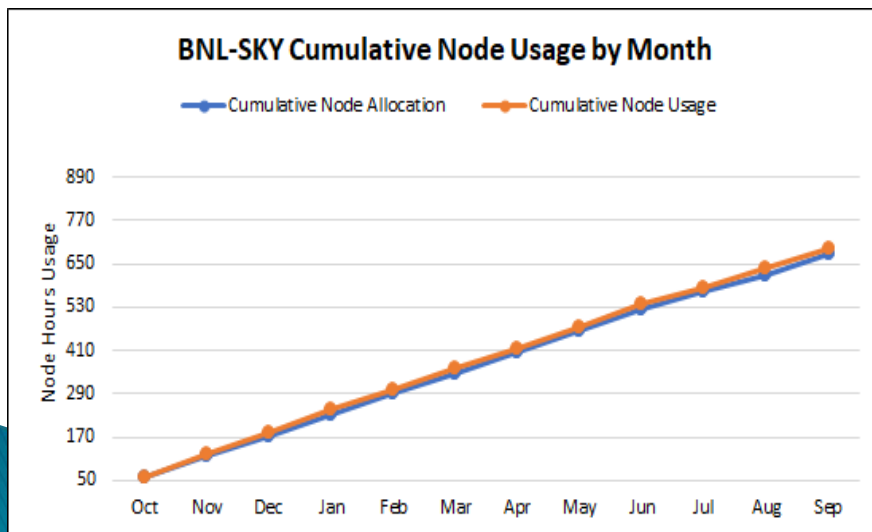
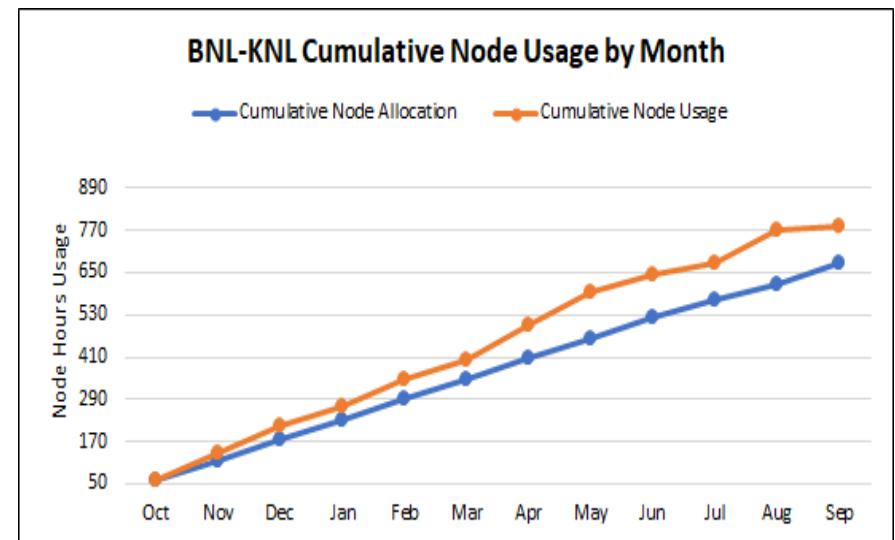
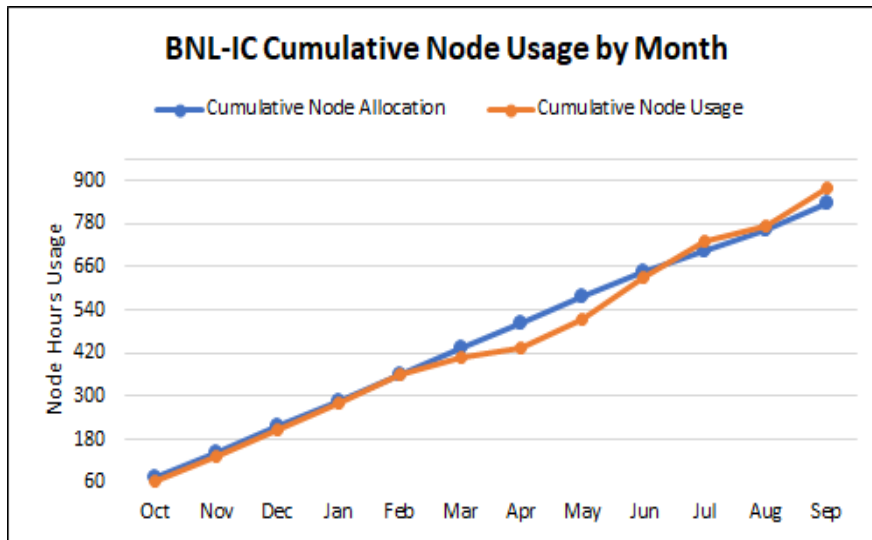
# Outline

- ▶ Highlights over the past 12 months
- ▶ LQCD–ext II summary
- ▶ LQCD–ext III overview
- ▶ Organizational updates
- ▶ Performance metric change

# Highlights since the 2019 All Hands Meeting

- ▶ Successful DOE Science Review (July 2019)
  - Purpose: review the proposal to continue the computing program for another five (5) years
  - One comment warranting a response, and eight recommendations
  - Review report:  
[https://www.usqcd.org/reviews/May2020Review/Old%20Review%20Docs/LQCD-ext%20III\\_Science\\_Review\\_Report.v2.jdh.7-24-19.pdf](https://www.usqcd.org/reviews/May2020Review/Old%20Review%20Docs/LQCD-ext%20III_Science_Review_Report.v2.jdh.7-24-19.pdf)
  - Outcome: authorization to begin LQCD-ext III on Oct 1, 2019
- ▶ Wrapped up LQCD-ext II (*Sep 30, 2019*)
- ▶ Transitioned to LQCD-ext III (*Oct 1, 2019*)
- ▶ Personnel changes
  - Chip Watson retired
  - Bob Mawhinney accepted new responsibilities at Columbia
  - Peter Boyle, Costin Caramarcu, and Chulwoo Jung agreed to take over Bob's project responsibilities
  - David Richards succeeded Aida El-Khadra as SPC Chair
  - Tanmoy Bhattacharya replaced Aida El-Khadra on the SPC

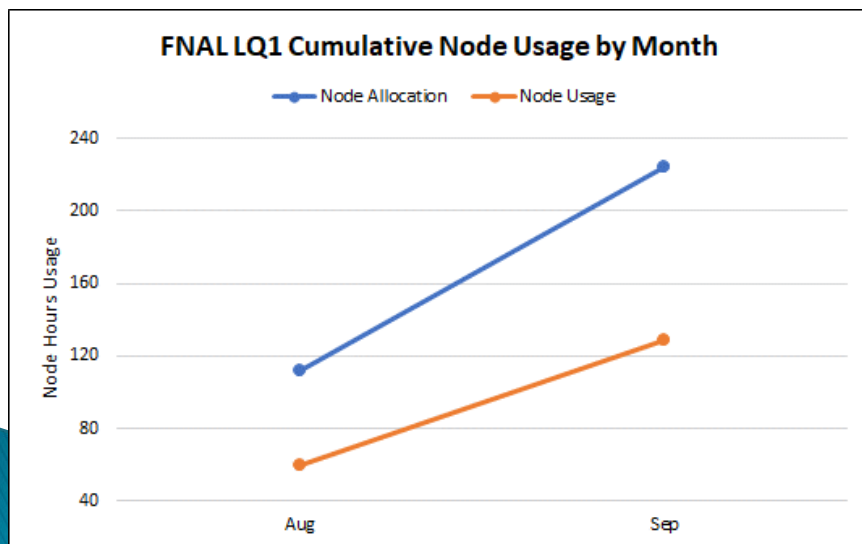
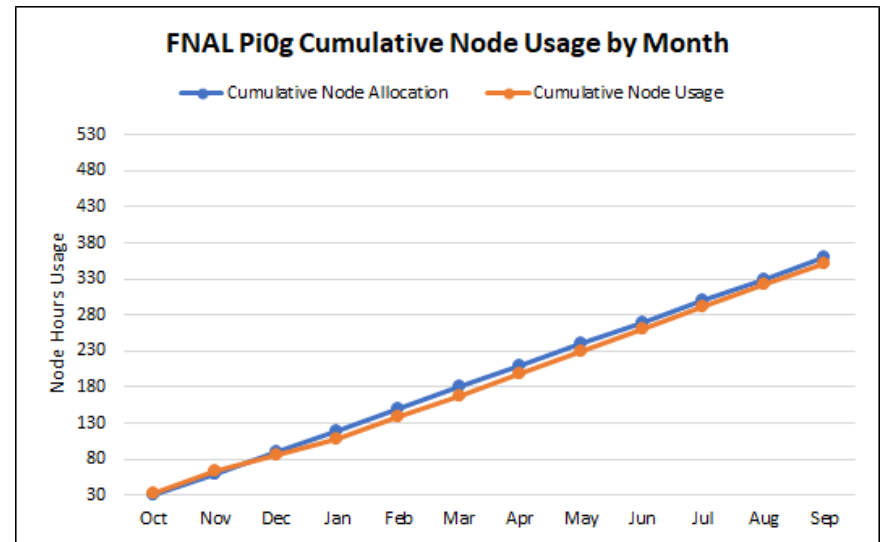
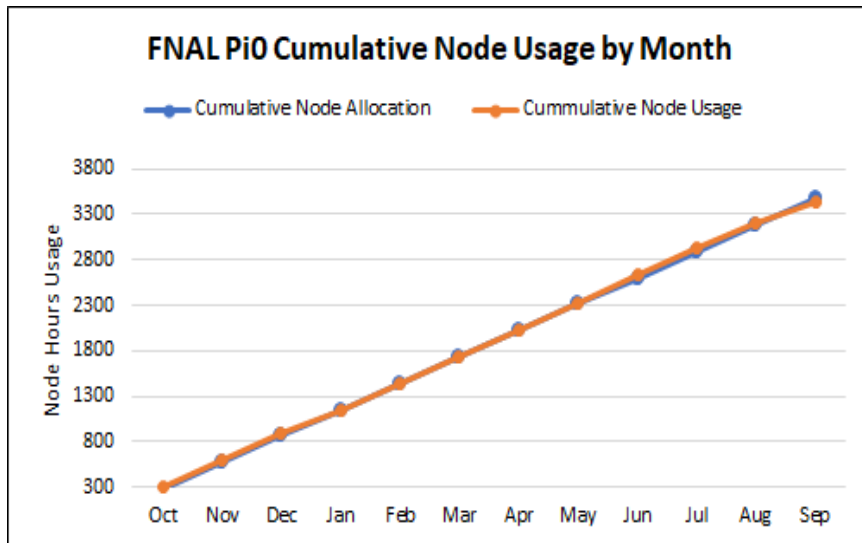
# Utilization of our FY19 Allocations – BNL



## FY19: Oct 2018 thru Sep 2019

System	Node Allocation	% of Cumulative Allocation Used
BNL-IC	72	105%
BNL-KNL	58	116%
BNL-SKY	58	103%

# Utilization of our FY19 Allocations – FNAL



## FY19: Oct 2018 thru Sep 2019

System	Node Allocation	% of Cumulative Allocation Used
FNAL-Pi0	289	99%
FNAL-Pi0g	30	98%
FNAL - LQ1	112	58%

# LQCD-ext II 5-Year Summary

- ▶ Delivered 927 TF-yrs of computing against revised\* goal of 882 TF-yrs.
- ▶ Exceeded our performance goal (105% of target)
- ▶ Completed five (5) successful DOE Progress Reviews
- ▶ Navigated the FY2018 budget uncertainty
- ▶ Transitioned from dedicated hardware to Institutional Cluster model
- ▶ JLab operations moved under a separate initiative funded by the Office of Nuclear Physics
- ▶ Provided computing support for Japanese researchers during 2011 tsunami recovery
- ▶ Numerous personnel changes
  - Paul Mackenzie → Andreas Kronfeld (EC Chair)
  - Anna Hasenfratz → Aida El-Khadra (SPC Chair)
  - Rob Kennedy → Jo Fazio (Assoc. Project Manager)
  - Sandy Philpott → Bryan Hess (JLab Site Manager)
  - Tony Wong → Zhihua Dong (BNL Site Manager)
  - Ken Schumacher (FNAL Co-Site Manager)

\*Revised goal reflects withdrawal of JLab contributions due to NP separation

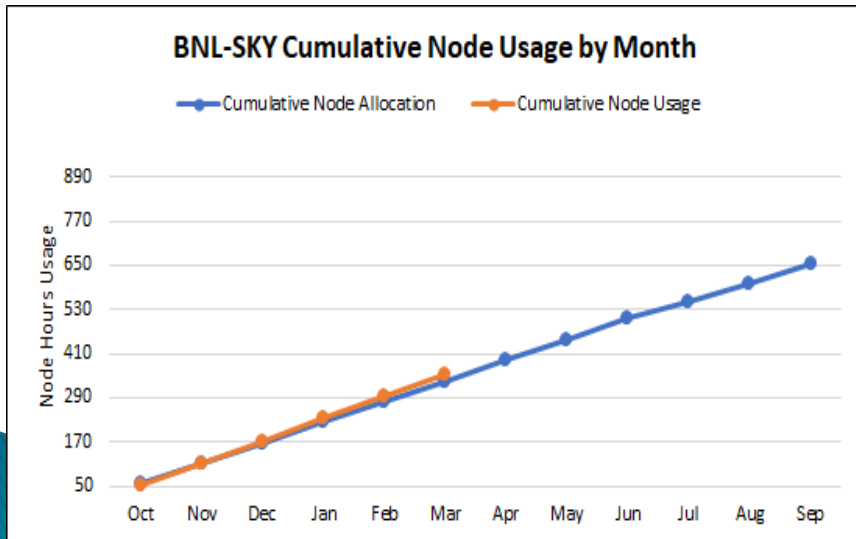
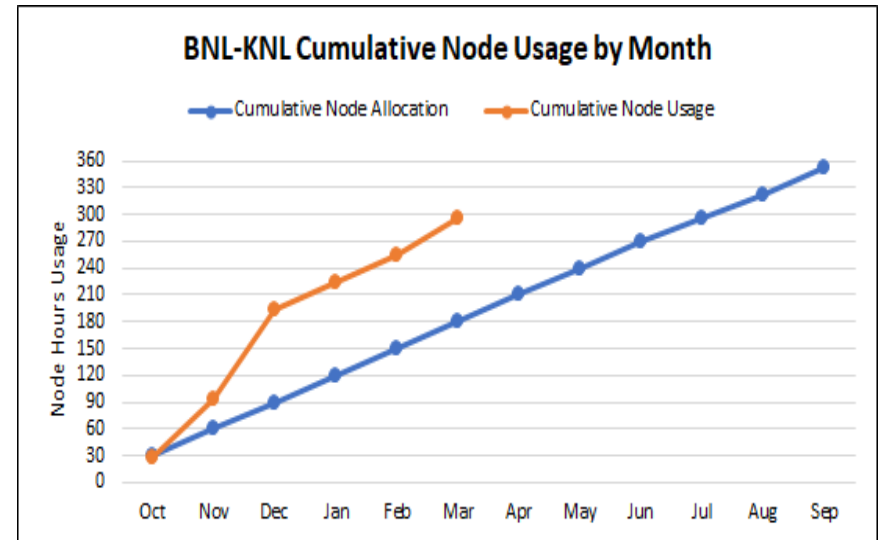
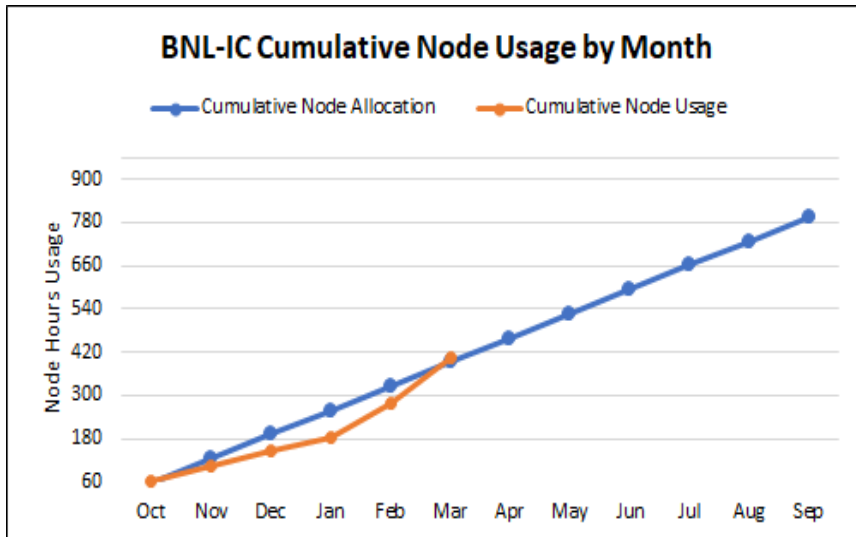
# LQCD-ext III Overview

- ▶ Period of Performance: FY20–24 (*Oct 2019 -> Sep 2023*)
- ▶ Procure midscale computing and data storage resources from institutional clusters at BNL and FNAL for use by USQCD community
- ▶ Provide ~10 PB of data storage for commonly used and shared data (e.g., propagators) currently stored in disparate locations
- ▶ Modest salary support for program and site management, and minimal travel
- ▶ Performance monitored through DOE monthly progress reports and annual reviews.

## DOE Office of High Energy Physics (HEP) Planned Funding Profile

Activity	FY20	FY21	FY22	FY23	FY24	Total
Computing & Storage Services	\$2.3M	\$2.3M	\$2.3M	\$2.3M	\$2.3M	\$11.5M
Archive Data Storage	\$0.2M	\$0.2M	\$0.2M	\$0.2M	\$0.2M	\$1.0M
Total	\$2.5M	\$2.5M	\$2.5M	\$2.5M	\$2.5M	\$12.5M

# Utilization of our FY20 Allocations – BNL

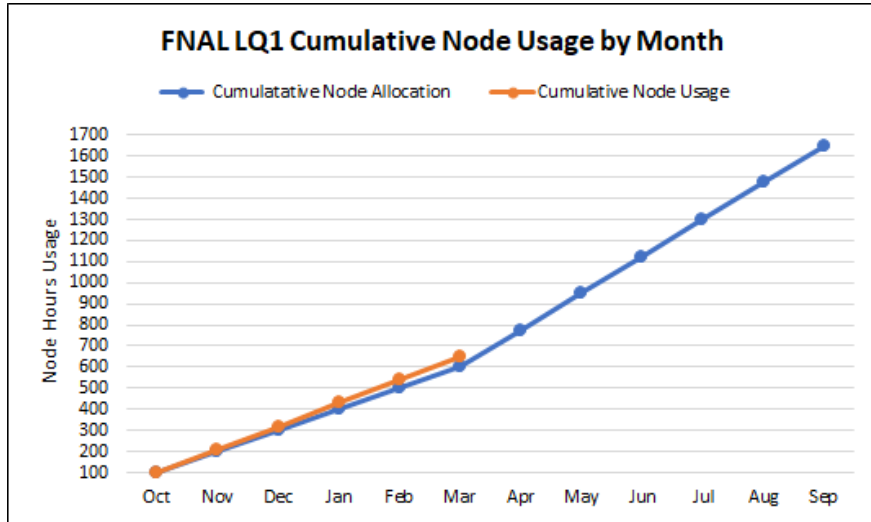


## FY20: Oct 2019 thru Mar 2020

System	Node Allocation	% of Cumulative Allocation Used
BNL-IC	72	103%
BNL-KNL	58	164%
BNL-SKY	58	106%



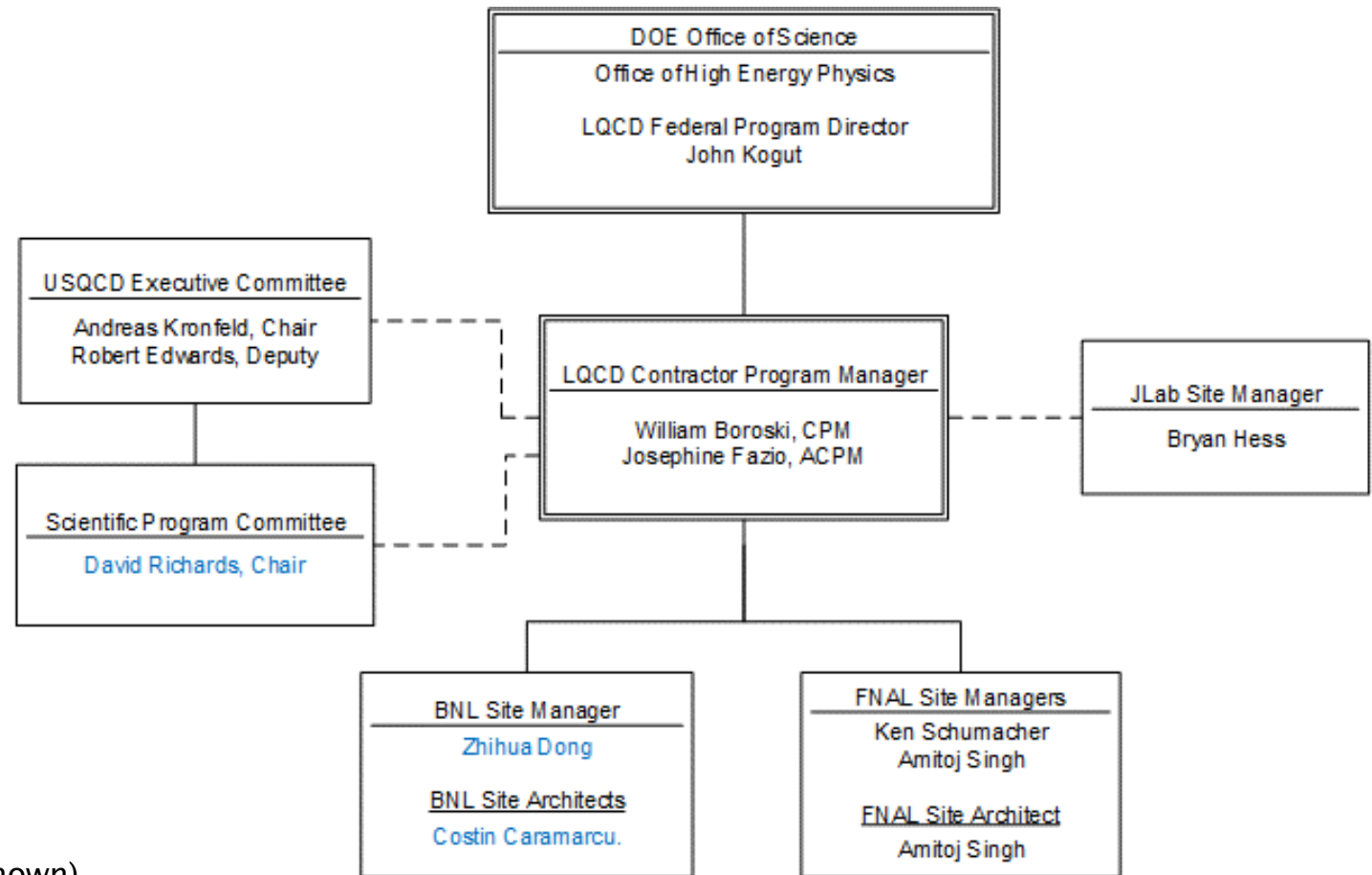
# Utilization of our FY20 Allocations – FNAL



FY20: Oct 2019 thru Mar 2020

System	Node Allocation	% of Cumulative Allocation Used
FNAL-LQ1	100	108%

# LQCD-ext II Integrated Project Team (IPT)



Organizational changes since last year:

- SPC leadership
- Zhihua Dong
- Costin Caramarcu
- Chulwoo Jung (not shown)
- Peter Boyle (not shown)

# Transition of BNL Responsibilities

- Chulwoo Jung, Costin Caramarcu, and Peter Boyle have taken over Bob Mawhinney's project responsibilities.
  - Costin & Chulwoo are participating in our biweekly site manager meetings, along with Zhihua, and Tony when necessary
  - Costin's responsibilities:
    - Assigning and managing usage quotas for computing and storage resources among the different projects
    - Assisting Zhihua with monthly usage reporting of SDCC resources to LQCD project management, and ultimately DOE
  - Chulwoo's responsibilities:
    - Maintaining physics software documentation on the SDCC website. This includes benchmarking software, physics code, libraries, etc.
    - Helping to clarify and focus requests that will improve the delivery of services to the user community
  - Peter's responsibility:
    - Receiving/approving requests for Type C allocations.

# Change in “Response Time” Metric

## Previous metric:

% of tickets resolved within two (2) business days

Goal:  $\geq 95\%$

## New metric:

% of tickets responded to within three (3) business days.

Goal:  $\geq 95\%$

## ▶ Drivers

- Revise our goals to align with standard Service Level Agreements (SLAs) provided by the departments at BNL and FNAL that support the institutional clusters.
  - Difficult to guarantee that tickets can be resolved in two business days.
- ▶ In practice, BNL and FNAL both have a history of responding to and resolving tickets promptly.

**Together, we had a very good year!**