



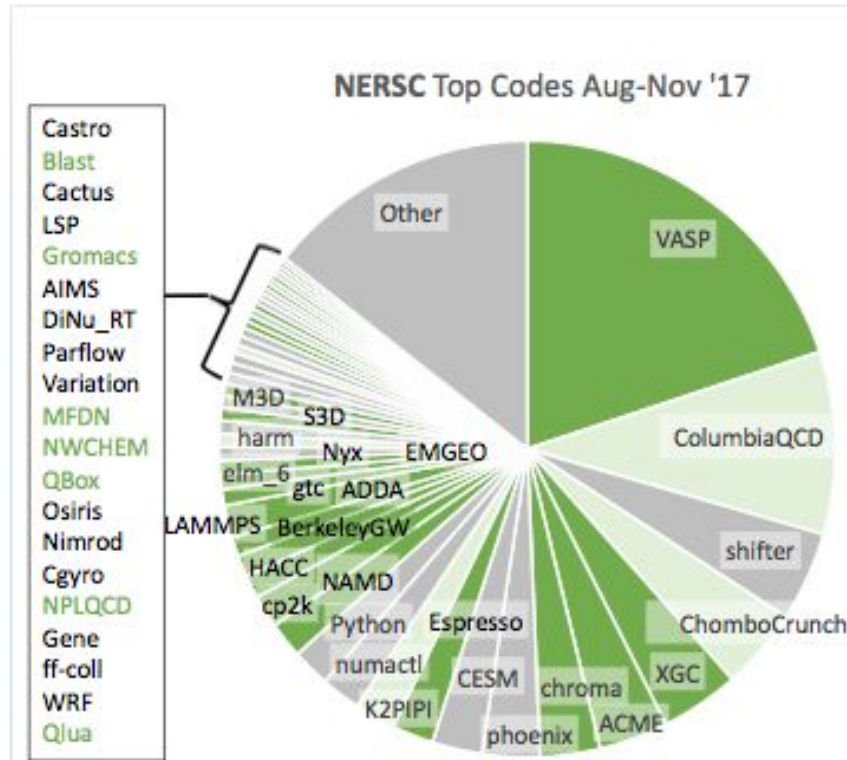
NERSC is the mission HPC facility

NERSC directly supports SC Mission

NERSC's HPC Systems 2017

NERSC-9 System 2019-2020

NERSC is assessing the GPU readiness of the workload



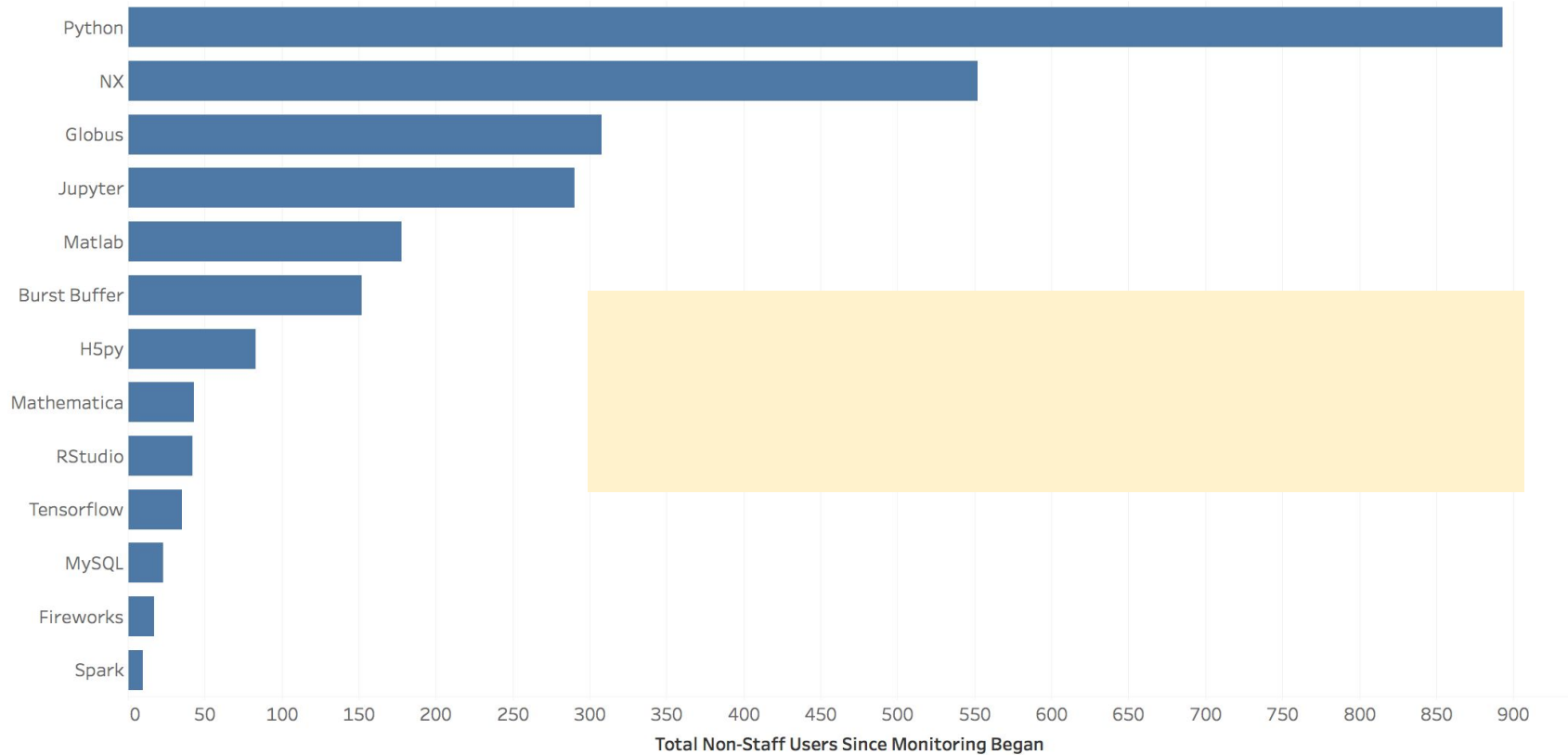
GPU Status	Description	Fraction
Enabled	At least some kernels GPU accelerated.	46%
Proxy	Port of algorithmically similar code exists.	19%
Unlikely	Code is not amenable to GPU acceleration.	25%
Unknown	Readiness cannot be assessed at this time.	11%



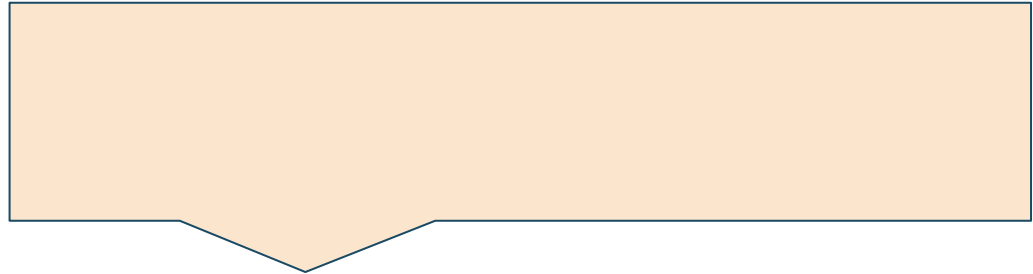
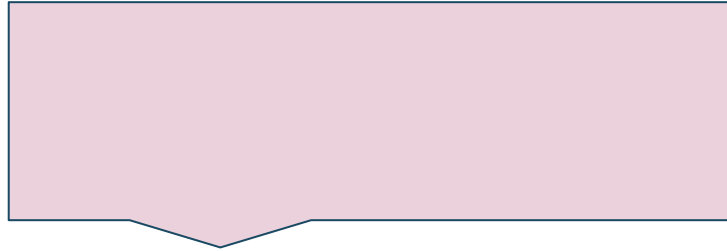
Question on 2017 Call for Proposals

Unique users of data analysis software

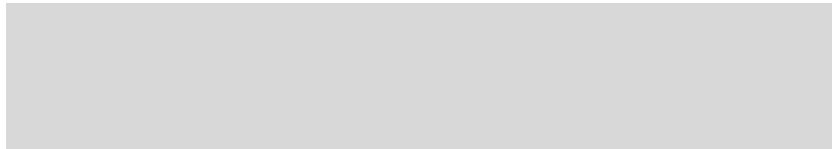
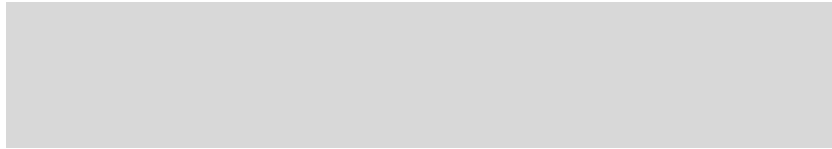
Total Non-Staff Users



Annual user surveys highlighted challenges for large scale data analysis use cases



NERSC has begun to address these issues





We convened an Data Advisory Committee on Oct. 4th to provide feedback on our directions

We asked the committee to review our strategy

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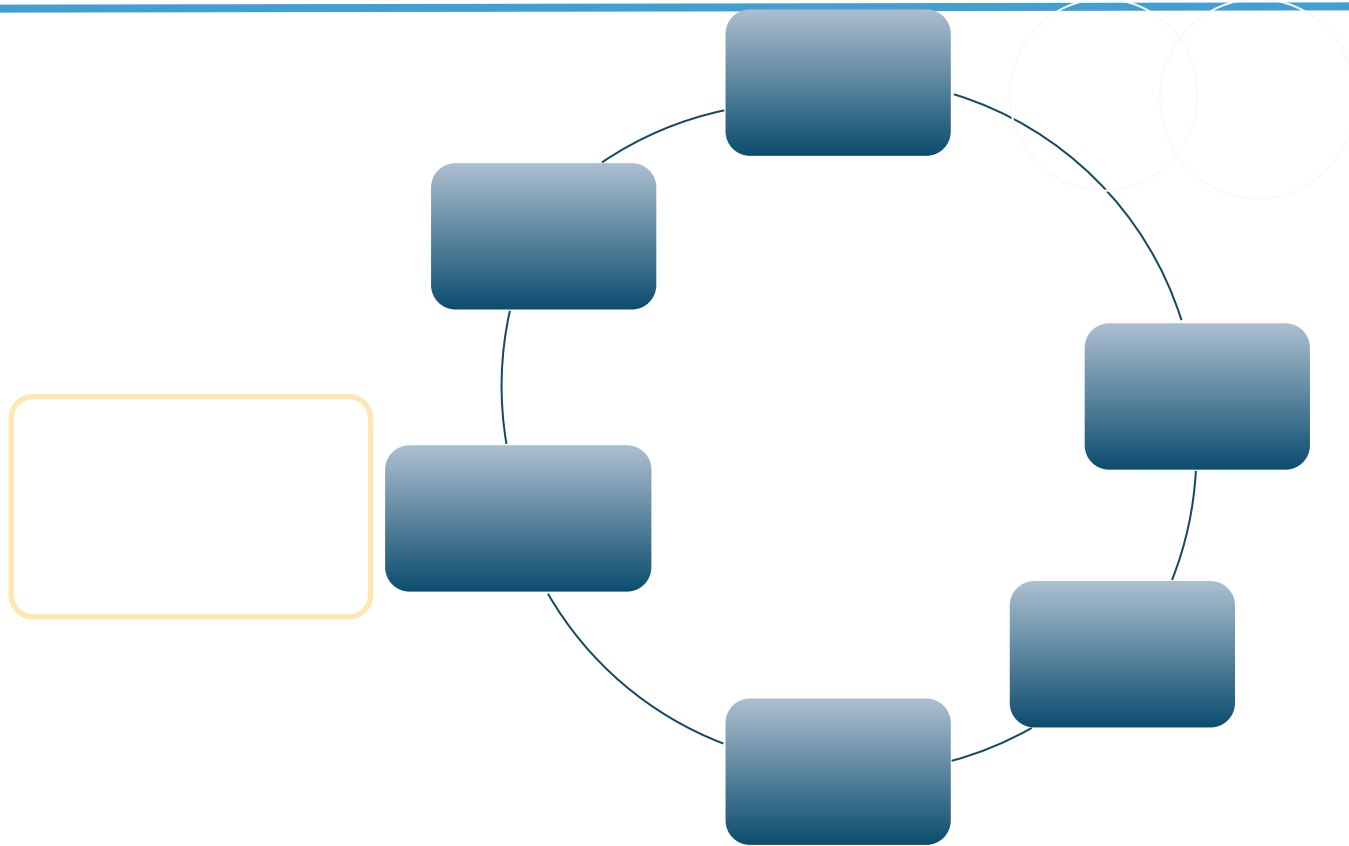
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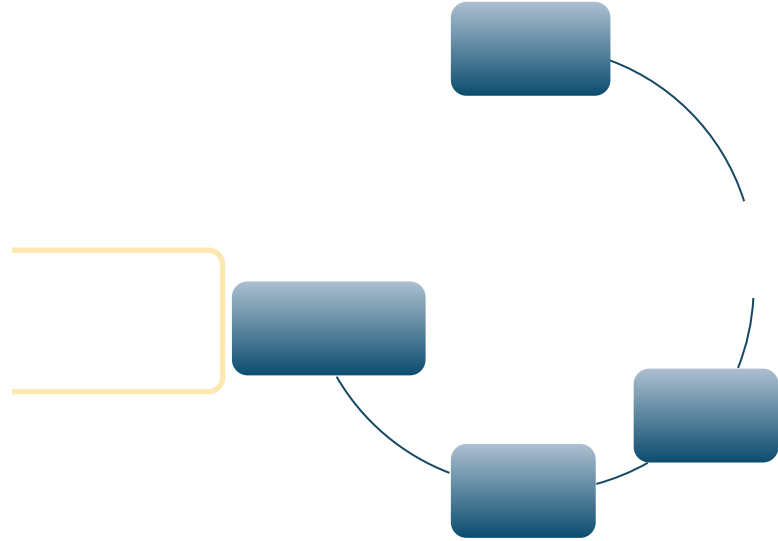
Requirements Reviews highlighted common data related themes across facilities and domains

Motivating Use Cases and Challenges

Superfacility: A network of connected facilities, software and expertise to enable new modes of discovery



What's the role of NERSC in a superfacility?

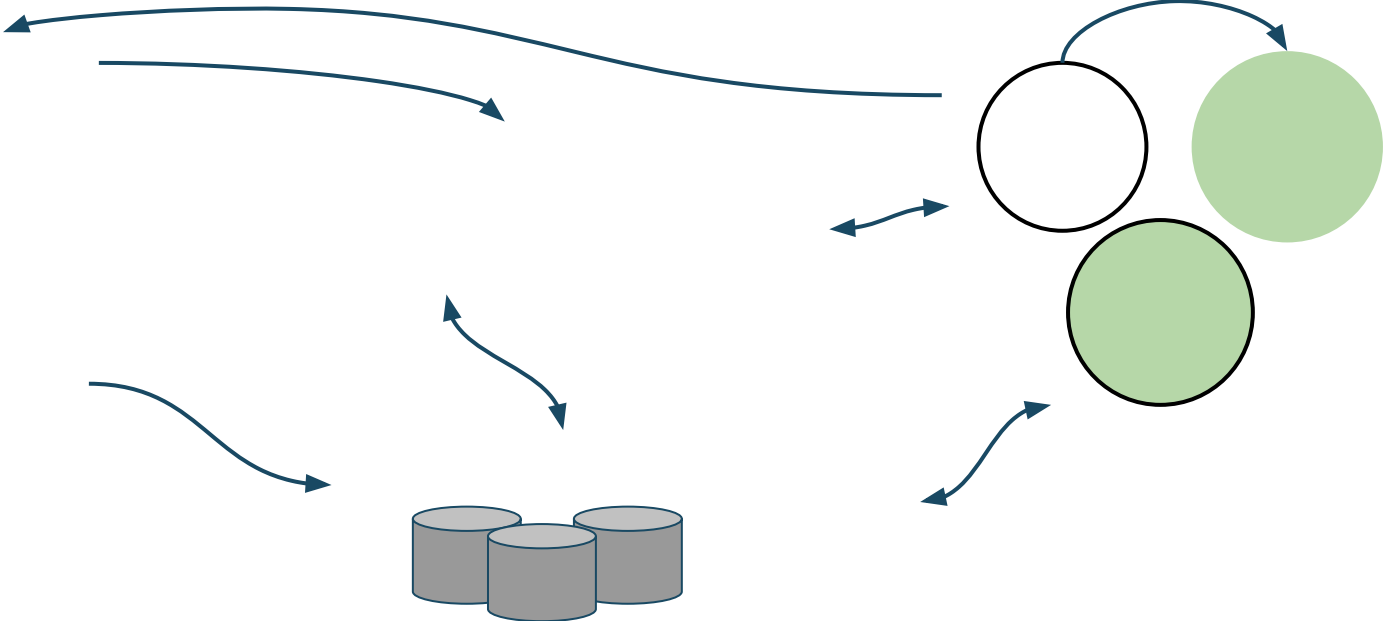


Initial Superfacility Partnerships



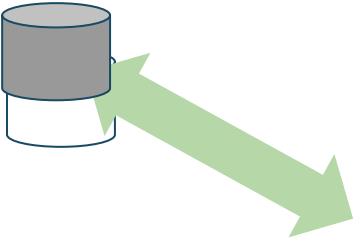
Why these three partnerships to start?

Superfacility Common Elements



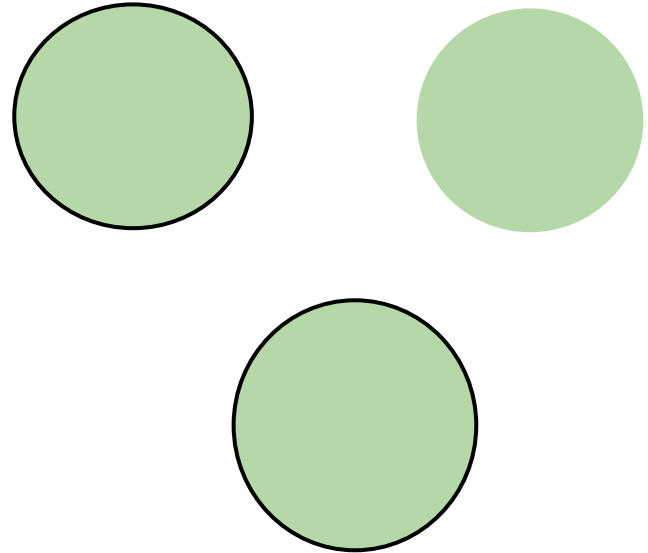
Our Vision For The NERSC Storage Hierarchy

Data Movement Strategy



Evolve general purpose I/O libraries to support experimental facility communities

SPIN: Edge Services for Complex Workflows

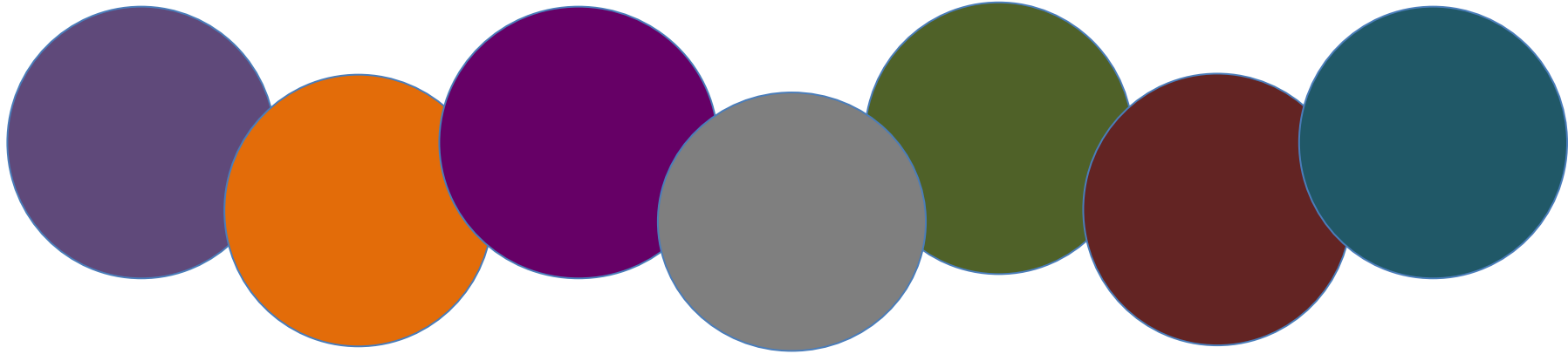


Scale Machine Learning and Analytics Software for HPC Systems



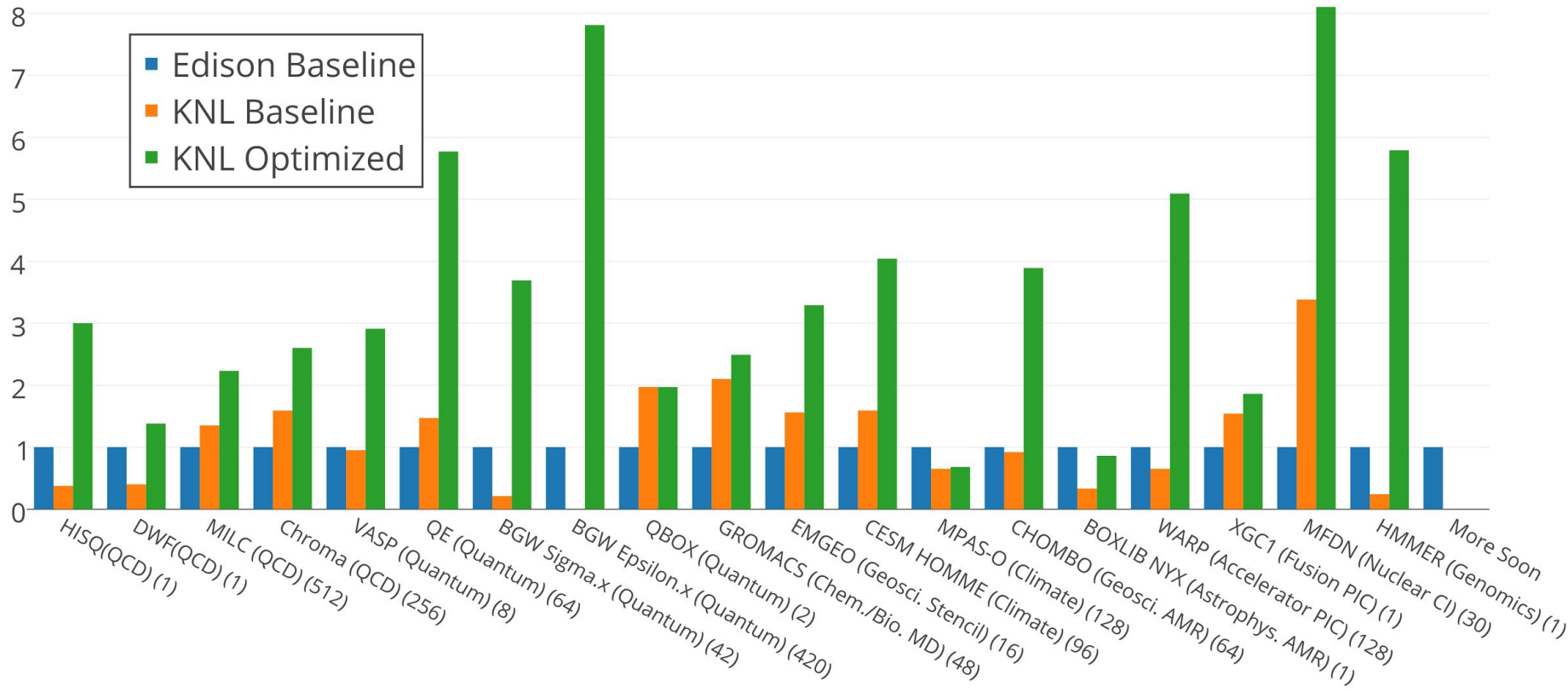
Our User Engagement Strategy

NERSC Exascale Scientific Application Program (NESAP)



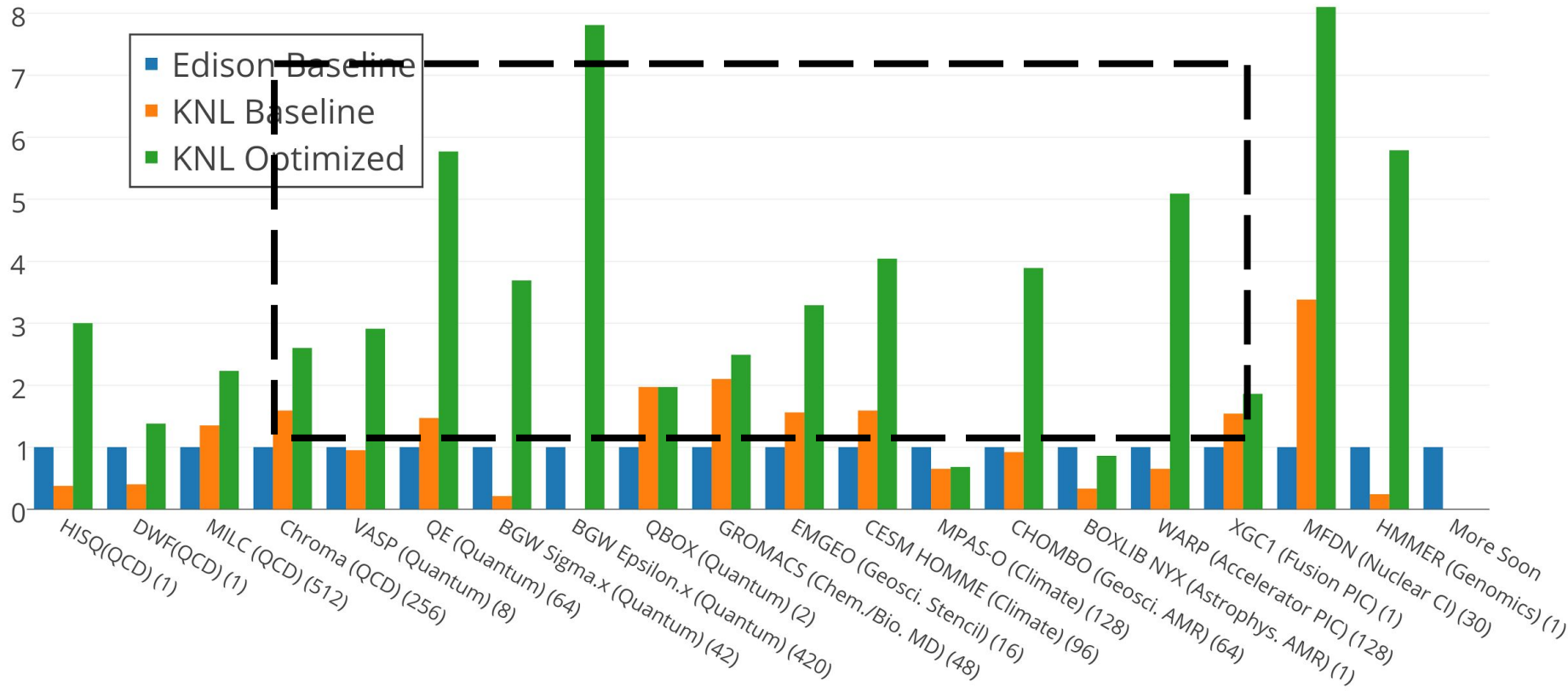
Preliminary NESAP Code Performance on KNL

Performance Relative to Edison Baseline



Preliminary NESAP Code Performance on KNL

Performance Relative to Edison Baseline



NESAP Staff at NERSC

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[Redacted]

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Graduated PostDocs Benefit HPC Community

NESAP for Data Apps

NESAP Data Apps

Improving Python Performance for Data Apps



Deep engagements enable large scale data analytics

Data Training Strategy

NERSC as a Documentation Hub

Some Highlights of Committee Report

