Quantifying Impact

Challenge

System administrators at the Idaho National Laboratory wanted to document the impact of adopting Open OnDemand on HPC usage.

Approach

The team studied the time between account setup and job submission, as well as system power usage.

Solution

By implementing Open OnDemand, the lab allowed researchers to more quickly and easily use HPC resources, the study found.

Any Device, Anywhere

"This paper shows that by implementing a science gateway, you will save time in the end. It justifies the initial investment."

— *Matthew Sgambati, Idaho National Laboratory*

Idaho National Laboratory demonstrates the impact of using Open OnDemand

The Ohio Supercomputer Center (OSC) developed the Open OnDemand platform to make high performance computing (HPC) easier for anyone to do data-intensive work. After adopting the platform on their systems, IT staff at the Idaho National Laboratory (INL) published a research paper that confirmed Open OnDemand's significant positive impact on HPC usage in their organization.

Led by INL's HPC System Administrators Bradlee Rothwell, Matthew Sgambati and Brandon Biggs, the team published their findings in a research paper titled "Quantifying the Impact of Advanced Web Platforms on High Performance Computing Usage."

As a science gateway option, Open OnDemand

stood out to Sgambati and Biggs because it simplified and unified access to HPC while remaining flexible enough to fit their institution's needs. Operating on an open-source, community-driven model, Open OnDemand evolves through the feedback and contributions of its users. The INL team has become active within the community and has found a wealth of support from fellow users and OSC.

Having experienced initial resistance from their own community, Sgambati and Biggs wanted to help others trying to justify shifting to a science gateway for HPC.

In their research, the team focused on the metric of average number of days between when an account was set up and the first job submission, which they referred to as "job submission friction." The research, conducted between March 2020 and September 2021, showed that Open OnDemand reduced job submission friction by a factor of 19, allowing domain experts to devote less of their time understanding HPC and more time using the resources.

The team also measured the INL data center's total power usage before and after Open OnDemand was temporarily removed from operation on short notice for maintenance to gauge the software's adoption. Users clearly relied on Open OnDemand to access HPC resources, with a total power decrease of roughly 3.7% upon its removal. Those users chose to wait for Open OnDemand to be available again, despite having access to the previous methods.

"This paper shows that by implementing a science gateway, you will save time in the end," Sgambati said. "It justifies the initial investment."

openondemand.org/inl

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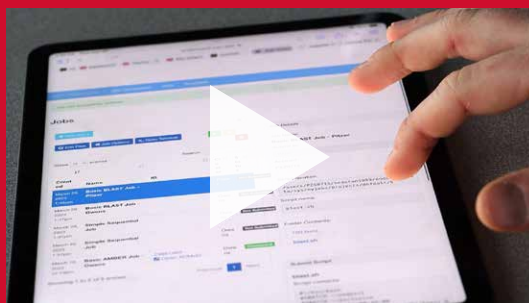
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