

NeIC Dellinger project: long-term cross-border resource sharing.

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The NeIC Dellinger project is investigating how a lightweight framework for sharing High Performance Computing (HPC) resources can be implemented between participating countries. These resources will be open to eligible researchers from the participating countries who wish to access resources in other participating countries. A feature of this resource sharing includes the case where the computing project is performed in an HPC centre outside the home country of the researcher.

National computing centres for academic research are generally funded by ministries responsible for scientific research and higher education –the same ministries that fund universities. The roles of computing centres and universities are distinct: Universities do scientific research and give education. Computing centres help them to reach their goals in these functions. Money allocated to computing centres should provide better, or at least, comparable results as the same amount allocated to universities. Resource exchange can advance scientific research and education in three ways.

First, it can open new research opportunities. Users may have certain technical requirements regarding CPU performance and efficiency, memory size and bus bandwidth, disk storage size and speed, as well as type and speed of interconnects. Other factors users may consider are the type and version of compilers, software and system administration support, and also social and political factors such as available certifications of the system, the source of the electricity and terms of services of a particular resource provider. Users may also prefer one system to another simply based on the perceived ease-of-use, level of user support and other intangibles or subjective measures of an attribute of a particular system. If one centre does not have certain hardware or software that a research group needs, they can ideally use suitable resources made available from other countries.

Secondly, resource exchange can balance temporary resource shortages, for example during computer procurements. In the time between when a cluster is decommissioned and the new cluster is available, it is good if the users do not need to wait for the newly commissioned system but instead can “borrow” resources from another provider. This long-term pool of shared resources can be used as temporary resources for users.

Thirdly, another sharing scenario to consider is when the HPC resources in one country are constantly “over-booked” and queuing times become unacceptably long for the users, while in some other countries there might be an excess of free resources.

This lightning talk will present the resource sharing models, the legal and policy issues. Also, the results of a first resource sharing pilot and a proposed second pilot, will be given.

Type of abstract

Lightning Talk

Summary

The NeIC Dellinger project aims to more effectively support researchers to access a range of computational resources within the region by improving resource utilization and user access to computational resources. The goal is to provide a long-term resource sharing model that follows national policies that uses a lightweight framework. The results of a first resource-sharing pilot and the proposal for a more advanced second pilot will be shown.

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