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## HPC in a HEP lab: lessons learned from setting up cost-effective HPC clusters

In this paper we present our findings gathered during the evaluation and testing of Windows Server High Performance Computing (Windows HPC) in view of potentially using it as a production HPC system for engineering applications. The Windows HPC package, an extension of Microsoft's Windows Server product, provides all essential interfaces, utilities and management functionality for creating, operating and monitoring a Windows based HPC cluster infrastructure. The evaluation and test phase was focused on verifying the functionalities of Windows HPC, its performance, support of commercial tools and the integration with the users' work environment.

We will describe constraints imposed by the way the CERN Computer Centre is operated, licensing for engineering tools and scalability and behaviour of the HPC Engineering applications used at CERN. We will present an initial set of requirements, which were created based on above constraints and requests from the CERN engineering user community.

We will explain how we have configured Windows HPC clusters to provide job scheduling functionalities required to support the CERN engineering user community, quality of service, user and project based priorities, and fair access to limited resources. Finally, we will present several performance tests we carried out to verify Windows HPC performance and scalability.

**Author:** HUSEJKO, Michal (CERN)

**Co-authors:** Dr MEINHARD, Helge (CERN); AGTZIDIS, Ioannis (Aristotle Univ. of Thessaloniki (GR)); EVANS, John (CERN); HOIMYR, Nils (CERN); BAEHLER, Pierre (CERN); DUL, Tadeusz Jakub (University of Wroclaw (PL))

**Presenter:** HUSEJKO, Michal (CERN)

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