

DESKTOP ENGINEERING WITH IBM:

High Performance Cluster Computing Survey

An executive summary of the results of a survey conducted by *Desktop Engineering* to gauge its audience's familiarity with high performance cluster computing and its benefits.

*Sponsored by IBM
Platform Computing:*



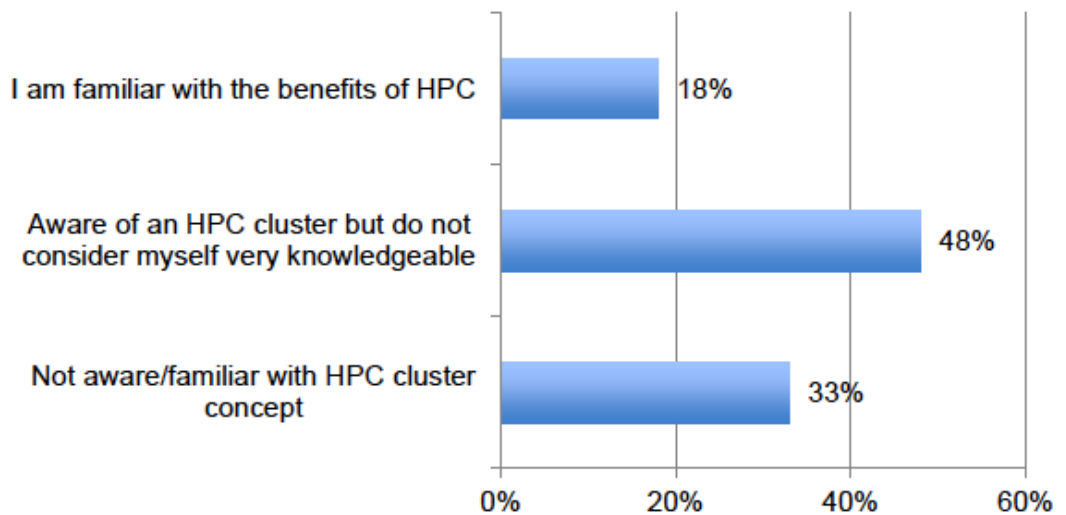
*Produced by the editors
of Desktop Engineering*



KEY RESULTS

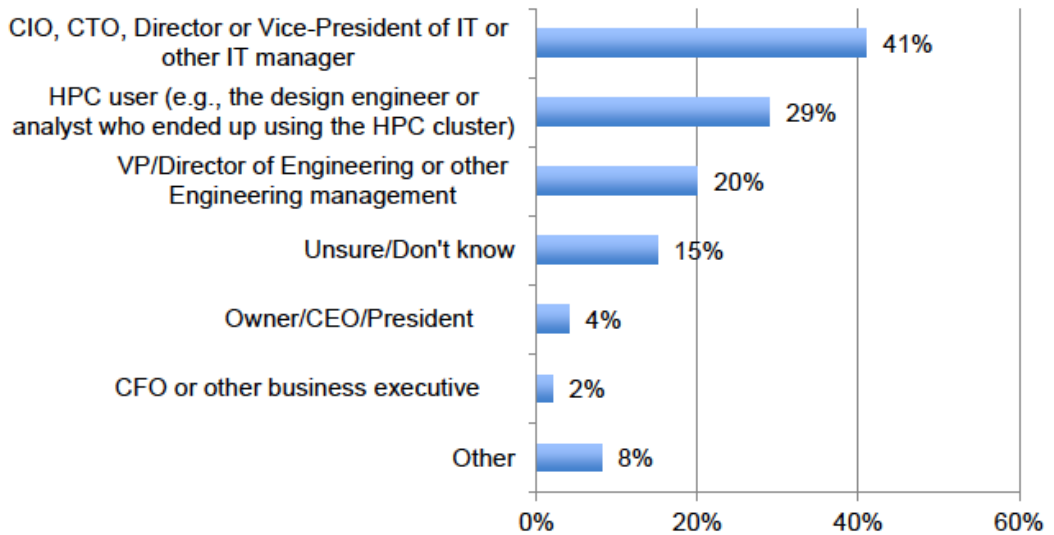
- Over half of the organizations (51%) taking part in this survey are running both computationally and data intensive jobs. Others are running just computationally intensive jobs (35%) or data intensive jobs (18%).
- Eighteen percent of respondents claim that they are familiar with the benefits of HPC. Another 48% are aware of HPC but not very knowledgeable.

Familiarity with High Performance Clusters



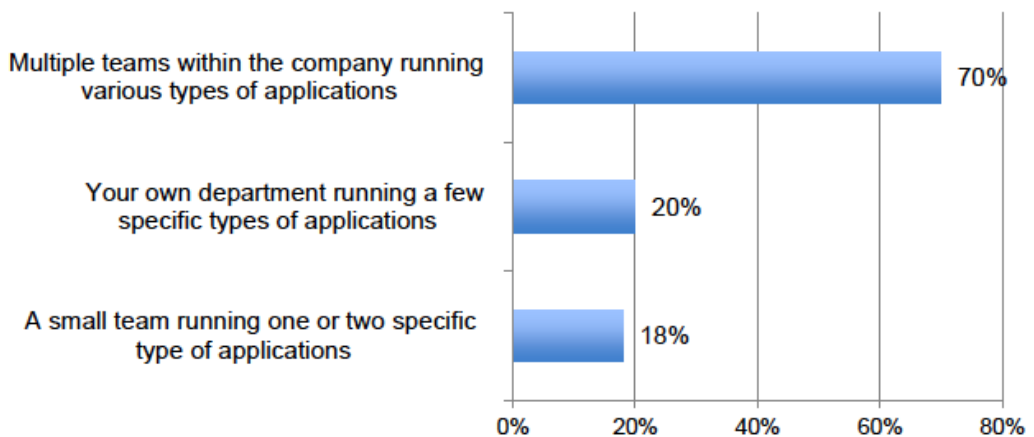
- Approximately one-third (31%) of the companies participating in this survey have one or more clusters or in the process of evaluating the technology.
- Looking specifically at companies that are running data intensive jobs (18% of respondents) we see that 77% do not currently have an HPC cluster. This represents an enormous potential given that it is precisely these organizations that would benefit by using this technology.
- In terms of HPC acquisition, it is most often the case that the HPC user (the design engineer or analyst who uses the HPC cluster) who initiates/determines the need and helps find the solution.
- Approximately two-thirds (62%) of respondents are running their applications on both workstations and clusters. Thirty-nine percent are exclusively using a workstation or PC's. Eleven percent are running applications exclusively on clusters.
- In the majority of cases, managing the technology falls within the domain of senior IT management (CIO, CTO, Director or Vice-President of IT or other IT manager).

Who is Primarily Responsible for Cluster Management



- Approximately one-half (51%) have a cluster between 2 and 36 nodes. In terms of larger clusters, 19% have a cluster with 257 nodes or greater.
- The three dominant hardware vendors being used by are organizations taking part in this survey are: Dell (51%), HP (41%) and IBM (21%).
- Participating organizations report running a variety of simulations including: simulations of complete systems (60%), large assemblies and models (58%), and parts and small assemblies (52%).
- The cluster (or largest cluster) is most often (70% of the time) being used by multiple teams within the company running various types of applications.

Who Is Using the Cluster



- The dominant software applications being used are Mathworks (MatLab - 44% + Simulink - 17%) and in-house analysis software (43%). Second tier mentions include: Nastran (30%), Visualization software (28%), Abaqus/Simulia (27%) and ANSYS (25%).
- Sixty-one percent of respondents report not using a job scheduler or workload manager. Windows Server 2008 (Microsoft) is the dominant Job Scheduler being used by those who do use this application. A further 41% would use Windows Server 2008 (Microsoft) if they were to use a Job Scheduler.
- The key benefits of using HPC technology relate primarily to productivity gains e.g. “can perform more simulations early in the design process” and can “complete more design iterations during the production process.”
- The three dominant IT challenges being faced today are: application software is too expensive, tight IT budgets and a lack of skilled staff in house to manage the IT environment.
- The key barriers to adopting HPC technology relate to budget constraints and a lack of skilled IT personnel to both manage the cluster and to migrate the application from desktop to cluster environment. Overcoming these obstacles will include educating the potential HPC user while at the same time clearly articulating the productivity gains that this technology enables.

The Barriers to Cluster Adoption

