Free Software and HPC

Juan Antonio Añel Cabanelas

GNU España

aetherlux@es.gnu.org

EPhysLab, Universidade de Vigo - Ourense

j.anhel@uvigo.es

Should we worry about free software for HPC?
I'm pretty lost at this point with this question and trying to answer it in a satisfactory way. I want my supercomputer free.

- the code in science

Free Software is broadly used for HPC

- applications
- HPC infraestructure management
- Operative systems
- parallelization

Known problems

- performance
- complicated codes highly dependent on the compiler (flags, debugging,...)
- lost of performance between compilers
- differences in performance for different combinations of compilers, parallelism and hardware

The compiler by the vendor of the infraestructure,

- is the best one for each supercomputer?
- is the best one for any code/application?

So, which would be the most effective approach to the systems department to try to use only Free Software? That is, when you are submitting a proposal for a project.

HPC infraestructures are sold by performance, adaptability to solve certain kinds of problems (huge RAM or storage instead of speed) or now because they are "greener". Do you know about a HPC solution sold by a vendor and advertised as 100 % free or the best ratio between performance and freedom?

If you pay $12 \cdot 10^6$ euros for a HPC solution, do they care about the license of a compiler?... Yes? Why?

I watched a talk by a full professor of computer sciences where he said that the compilers from the major vendors and their OpenMP and MPI support are based on the free equivalents?

What happened to the license?

Does anybody know anything more about this?

- GPUs, NVIDIA, CUDA, OpenCL
- the new karma, port anything to graphic cards

Workshop on HPC and Free Software
Ourense, Spain, 5-7 October 2011

No, I have not make available a web page with the program (probably by the end of the next week)

- Day 1: Introduction, general concepts, gpu's
- Day 2: presentations by vendors: HP, SGI, IBM, Bull
- Day 3: applications (OpenFoam,...) and conclusions

THANK YOU GHM!