FORTISSIMO

Press Information

Fortissimo: Cloud-based High Performance Modelling sets a new trend

Fortissimo Marketplace reveals new stories of supercomputing success with innovative small and medium sized enterprises

- *Successful start of Cloud-based HPC-platform Fortissimo Marketplace*
- *New Success Stories demonstrate potential of HPC-as-a-Service*
- *Forecast for 2017 shows strong demand for HPC-services*

Edinburgh, 16. November 2016 – Following its official launch on October 31 2016, Fortissimo Marketplace has garnered strong interest from manufacturing companies seeking to gain the benefits of supercomputing. Demonstrating this, Fortissimo has today revealed details of three customers who have benefitted from its services; Matrici, a manufacturer of complex automobile and aerospace industry components, specialist chimney manufacturer DINAK and Oxolutia, a manufacturer of superconducting cables.

Fortissimo's cloud-based platform simplifies access for small and medium sized enterprises (SME) to high performance computers. The Fortissimo approach of using Cloud-services cuts the cost and complexity of setting up High Performance Modelling and enables flexible, on-demand usage. On the 'flipside' of the marketplace, HPC service providers are benefitting from a well targeted sales channel where there is natural alignment with client requirements and fully integrated billing.

High Performance Computing systems (HPC) and the simulation and modelling software run on those systems are widely seen as an effective but very expensive design and development tool for manufacturers. However the initial cost for setup and operation can be quite high and intimidating to potential users, particularly SMEs. Fortissimo Marketplace offers a self-service approach to getting HPC simulations specified, set up and run, reducing costs significantly and permitting customers to choose the best combination of HPC providers, software manufacturers and technology experts.

Professor Mark Parsons, CEO of Fortissimo Marketplace, sees a lot of potential for the next year: "Throughout the Fortissimo project we've seen a significant increase in smaller businesses harnessing the availability of on demand low cost super computing power to model their business processes and products in ways that have previously only been

possible for large enterprises. The availability of on demand supercomputing is a transformative technology that can help SMEs compete on a level playing field with large enterprises. “

Cloud-migration shortens development cycles, optimises profit

Recently revealed Fortissimo success stories demonstrate the broad application of HPC-as-a-service. Spanish SME Matrici, a manufacturer of very complex stamped sheet metal parts for the automobile and aerospace industry, was able to reduce its costs by about 1.5 Million Euro annually after moving to a Cloud-based variant of the CAM-software Stampack from Quantech. Stampack simulates the metal stamping process, so that the construction and production process can be designed to run as smoothly as possible. However, the software requires a lot of processing power which a small SME like Matrici has no cost-effective way of providing. After Quantech had ported its software for use in a Cloud-based environment, Matrici was able to complete its design processes in half the time formerly needed, cutting development costs by half. HPC provider CESGA and Fraunhofer SCAI supported the migration of Stampack to become StamHPC, and expect business to grow as a result. They project that 300 SMEs will become StamHPC users within the next five years, generating a revenue of roughly 60 Million Euro.

HPC usage without the steep learning curve

Another success is specialist chimney manufacturer DINAK. This highly innovative business was looking for a way to virtualise cumbersome tests for optimising chimney construction. To date, DINAK was only able to complete optimization through intensive, iterative, experimental tests, repeatedly rebuilding elements of the product in the lab and measuring air flow, temperatures and isolation properties. Working via the Fortissimo market place HPC experts Aimen, in collaboration with HPC provider CESGA, were commissioned to develop a web-based tool, using the Open Source HPC software OpenFOAM. After the successful development project DINAK engineers were able to virtualise their optimisation process. Making the solution user-friendly was a key part of the project. This focus has ensured that even engineers with little or no experience of using Computational Fluid Dynamics (CFD) are able to use the software quickly and efficiently. Another boon was the provision of remote visualization which has eliminated the need for huge data files be downloaded, which would have required very high-bandwidth internet access.

New business model through cloud-based HPC application

Another interesting application is Oxolutia's Cloud-based simulation of high-temperature superconducting cables. This Spanish SME develops, among other materials, superconductors that exhibit their superconducting characteristics at temperatures greater than -196°C, well above absolute zero. Exploiting superconductivity enabled power transmission to be almost completely loss-free and extremely efficient. HPC applications are an indispensable tool for optimising development cycles of these products. In order to utilise Cloud-based HPC resources, a new application based on the well-known Fempar-software was developed. This application can simulate the magnetic, thermal and electrical parameters of superconductors, as a result reducing development costs of prototypes and decreasing overall costs dramatically. This approach means that for the first time, SMEs are able to take advantage of these sophisticated tools. The application is now offered as a pay-per-use-service, complete with the necessary expertise and support to onboard projects. Oxolutia estimates that during the next three years, the software will generate additional revenue in the excess of 500,000 Euros.

Fortissimo Marketplace generates opportunities for both manufacturers and HPC service providers

The goal of the Fortissimo Marketplace is to provide SMEs with cost-effective access to advanced simulation and modelling services on a pool of HPC resources, software applications, expertise and tools. Larger enterprises and academic institutions can of course benefit from these advanced simulation and modelling services as well. The Marketplace is open to any service provider and offers flexible terms for pricing, payment and service presentation. Clients can use these services immediately after registering on the platform, which is free of charge. All Fortissimo success stories are available by following this link: https://www.fortissimo-project.eu/success-stories.

Interview opportunities:

If you are interested in conducting an interview with a Fortissimo expert, please contact Allan Edwards or Marnie Spicer of Kaizo on:

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About Fortissimo

Fortissimo is a pair of projects funded by the European Commission. The aims of the projects are to strengthen the competitiveness of European businesses in the global marketplace. Therefore, Fortissimo provides companies with easy to use Cloud-based access to computationally intensive digital simulations. The possibilities resulting from this approach range from the more precise design of complex workpieces, through the acceleration of time-to-market, to more efficient use of materials. In the Fortissimo Marketplace, businesses find permanent and cost-effective access to expertise and technology on a pre-pay or pay-per-use basis. In addition, the Marketplace offers solution providers a platform to distribute their solutions.

For further information, please visit: http://www.fortissimo-project.eu/

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