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HPC platform efficiency and challenges for a system builder

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With all the advances in massively parallel and multi-core computing with CPUs and accelerators, it is often overlooked whether the computational work is being done in an efficient manner. This efficiency is largely being determined at the application level and therefore puts the responsibility of sustaining a certain performance trajectory into the hands of the user. It is observed that the adoption rate of new hardware capabilities is decreasing and lead to a feeling of diminishing returns. At the same time, the well-known laws of parallel performance are limiting the perspective of a system builder. The presentation tries gives an overview of these challenges and what can be done to overcome them. The overview will be amended by a few case studies and optimization strategies on real applications.

Presenter Biography

Martin Hilgeman (1973, Woerden, The Netherlands) has a Master's Degree in Physical and Organic Chemistry obtained at the VU University of Amsterdam. He has worked at SGI and IBM for 14 years as a consultant, architect and as a member of the technical staff in the SGI applications engineering group, where his main involvement was in porting, optimization and parallelization of HPC applications.
Martin joined Dell EMC in 2011, where he is acting as a Technical Director for HPC in Europe, Middle East and Africa. His main interests are into application optimization, modernization of parallel workloads and platform efficiency. Lately, Martin has also accepted the responsibility for leading the Artificial Intelligence strategy for Dell EMC EMEA

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