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Digital manufacturing-From design to the internet of things

In recent years, new and revolutionary trends in digital manufacturing are overwhelming our community. Design, simulation, and prototyping are moving to the cloud, and new areas like big data, predictive analytics, and the Internet of Things are coming up the horizon, accompanied by great promise for increased product quality, reduced product failures, and better predictability for market acceptance and customer use. This talk will touch on all these new trends, and illustrate with one example in more detail the benefits of these new paradigms: Computer Aided Engineering Simulations in the Cloud. Although today still the majority, especially of small and medium manufacturers, don't perform computer simulations at all or just on their local workstations, there is now a strong trend toward adding more powerful hardware and software to their daily tools. All of a sudden, today, engineers can access the whole spectrum of computing, from their workstations to servers to clouds, integrated with feature rich application simulation software for e.g. fluid dynamics, material analysis, multi-physics, and more. In our talk, we will analyse the roadblocks and benefits of these powerful tools and demonstrate how they are currently overcome by new technologies such as application software containers running seamlessly on any computing resource on demand. We will close our talk with several digital manufacturing case studies demonstrating this progress.

Biography

Wolfgang Gentzsch is the President and Co-founder of the UberCloud Community and Marketplace for engineers and scientists to discover, try, and buy computing on demand, in the cloud. From 2010 to 2015, he was the co-chairman of the International ISC Cloud & Big Data Conference series. Previously, he was Advisor to the EU projects EUDAT and DEISA, directed the 150 Million Euro German D-Grid Initiative, and was a member of the Board of Directors of the Open Grid Forum and of the US President's Council of Advisors for Science and Technology, PCAST. Previously, he was a Professor of Computer Science and Mathematics at several universities in the US and Germany, and held leading positions at the North Carolina Grid and Data Center in Durham, Sun Microsystems in California, the DLR German Aerospace Center in Gottingen, and the Max-Planck-Institute for Plasma physics in Munich. In the 90s, he founded HPC software companies Genias and Gridware. The latter, which has been acquired by Sun Microsystems in 2000, developed the well-known distributed cluster workload and management system Grid Engine.

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