

Current News

CeBIT: HPI Presents Performance Comparison of Fastest Databases

CeBIT 2015

Potsdam/Hanover. Hasso Plattner Institute (HPI) has developed a simulation software that compares the different strategies for managing data in main memory and which can be used to determine the most efficient IT system for a company. The Potsdam computer scientist researchers are presenting the "Load Simulator" at CeBIT in the Research and Innovation area (Hall 9, Booth D44).

"Our research into more efficient systems for corporate analysis and simulation benefit from a new high performance computer with 240 processing cores and a capacity of 12 terabytes of system memory," said Dr. Matthias Uflacker, department representative at the chair of Prof. Hasso Plattner. Thus it's possible to test the performance of the system even for the highest requirements.

"With the Load Simulator software we have created an interactive tool to compare the key characteristics of different database configurations," Uflacker added. This solution realistically simulates how thousands of users simultaneously enter and analyze data. At the same time this workload is being executed on selected machine configurations. Several performance indicators can be tracked on display instruments, such as size, throughput, and processing time of data, as well as overall utilization of central processing units.

On one hand, the HPI "Load Simulator" compares the capability of a single high-performance computer, where all data reside in the fast memory, with a network of multiple smaller servers. Here current and historic data are distributed along with data copies stored exclusively for read access.

The structure of the new HPI high-performance computer facilitates the research work of the Potsdam scientists in the area of so-called NUMA architecture (Non-Uniform Memory Access). Its special feature is that every processor has directly assigned memory, with other processors also given indirect access to it. This eliminates the bottleneck of centralized storage management in multi-core computers. Attention is also paid to the differences in the speed of the connection depending on the memory areas of the system.

At the state-of-the-art research lab in their institute, HPI scientists also have access to hardware and software technology, which is in part still not available on the market or in a university setting, due to cost factors. This technology includes, for example, servers with up to 64 cores and 2 TBs of main memory, a computer cluster with 1,000 cores and HANA, the in-memory solution of SAP AG. The infrastructure (<http://hpi.de/forschung/future-soc-lab/ausstattung.html>) is also available free of charge to interested scientists from around the world for research purposes.

Hasso Plattner Institute (HPI) is among the largest CeBIT exhibitors in the subject area of "Research and Innovation" at this year's fair. The HPI computer scientists are presenting the results of their latest research and development in the world of "Big Data" for the "d!conomy" – the word coined for the "digital economy," which describes the transformation leading to a fully networked economy. At its booth area, encompassing more than 380 square meters, HPI shows, for example, how corporate decision-makers can draw on innovative data support during their meetings. HPI demonstrates the innovative possibilities for Big Data analysis not only in soccer but also in disease containment on a global scale. Some other topics that will be presented are new solutions on how to increase IT security and free online courses on information technology topics, which are open to everyone.

Note to the editors:

You can find detailed material (texts, photos, videos) at our CeBIT website: www.hpi.de/cebit.

For the duration of the fair you can also find interviews with prominent CeBIT guest on the topic of German as an IT location at www.it-gipfelblog.de.

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