Communiqués de presse

IBM développe avec DESY une architecture Big Data pour faire avancer la science

8,5 giga-octets de données produites par secondes pourront être partagées auprès de 2000 scientifiques

Paris - 25 août 2014: IBM annonce aujourd'hui sa collaboration avec Deutsches Elektronen-Synchrotron (DESY), leader national de la recherche en Allemagne, pour accélérer le traitement et le stockage de volumes massifs de données radiographiques. L'architecture planifiée Big Data & Analytics peut supporter plus de 8,5 giga-octets de données par seconde et ainsi aider les scientifiques à travers le monde à appréhender plus rapidement la structure atomique des nouveaux semiconducteurs, catalystes, cellules biologiques et d'autres échantillons.

L'accélérateur PETRA III de DESY, long de 1,7 mile, est un super-microscope qui porte les particules chargées d'électricité à une vitesse qui avoisine celle de la lumière –approximativement 186 000 miles par secondes- et les envoie à travers un slalom magnétique qui génère une radiation de rayon-x unique en son genre. Ce rayonnement synchrotron est utilisé par plus de 2000 scientifiques chaque année pour examiner avec une résolution atomique la structure interne de matériaux divers. Un des défis clés de ce processus est de traiter et de stocker des volumes très importants de données radiographiques.

DESY relève ce défi avec l'aide d'IBM Research et d'une technologie d'IBM Software Defined Storage appelée Elastic Storage qui peut facilement réduire la donnée pour gérer le volume massif généré chaque seconde par PETRA III. Elastic Storage fournit aux scientifiques un accès rapide à des volumes croissants de données de recherche en la mettant à disposition de ceux qui en ont besoin, et ce où qu'ils soient dans le monde. Cette architecture permettra à DESY de développer un écosystème ouvert pour la recherche et de permettre aux utilisateurs à travers le monde de bénéficier de solutions de Cloud Computing et d'Analysis-as-a-service.

DESY est un des plus grand centres d'accélérateurs de particules, membre de la Helmholtz Association. Il développe, conçoit et gère des accélérateurs de particules pour enquêter sur la structure de la matière. 3000 scientifiques provenant de plus de 40 pays travaillent chaque année à DESY, à Hambourg et à Zeuthen en Allemagne.

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DESY and IBM Develop Big Data Architecture for Science

IBM Software Defined Storage to Manage Data Growth from 5 Gigabytes of data per second to more than 20 Gigabytes of data per second

IBM (NYSE: IBM) today announced it is collaborating with Deutsches Elektronen-Synchrotron (DESY), a leading national research center in Germany, to speed up management and storage of massive volumes of x-ray data. The planned Big Data and Analytics architecture based on IBM software defined technology can handle more than 20 gigabyte per second of data at peak performance and help scientists worldwide gain faster insights into the atomic structure of novel semiconductors, catalysts, biological cells and other samples.

DESY's 1.7 mile-long PETRA III accelerator is a super microscope that speeds up electrically charged particles nearly to the speed of light – approximately 186,000 miles per second – and sends them through a tight magnetic slalom course to generate the most brilliant x-ray radiation of its kind. This synchrotron radiation is used by more than 2,000 scientists each year to examine the internal structure of a variety of materials with atomic resolution. A key challenge in this process is storing and handling huge volumes of X-ray data. .

"A typical detector generates a data stream of about 5 Gigabit per second, which is about the data volume of one complete CD-ROM per second," said Dr. Volker Gülzow, head of DESY IT. "And at PETRA III we do not have just one detector, but 14 beamlines equipped with many detectors, and they are currently being extended to 24. All this Big Data must be stored and handled reliably."

DESY is addressing this Big Data challenge with the help of IBM Research and IBM Software Defined Storage technology code name Elastic Storage that can scale easily to store and handle more than 20 Gigabyte of data flowing every second from PETRA III. Elastic Storage can provide scientists with high-speed access to increasing volumes of research data. This architecture will allow DESY to develop an open ecosystem for research and offer analysis-as-a-service and cloud solutions to its users worldwide.

"IBM's software defined storage technologies can provide DESY the scalability, speed and agility it requires to morph into a real-time analytics service provider." said Jamie Thomas, General Manager Storage and Software Defined Systems, IBM. "IBM can take the experience gained at DESY and transfer it to other fields of data intensive science such as astronomy, climate research and geophysics and design storage architectures for the analysis of data generated by distributed detectors and sensors."

The scalability of the system can support DESY and a number of international partners that are currently building the X-ray laser European XFEL, a research light source that will generate even more data. "We expect about 100 Petabyte per year from the European XFEL," said Dr. Gülzow. That is comparable to the yearly data volume produced at the world's largest particle accelerator, the Large Hadron Collider (LHC) at the research

center CERN in Geneva.

DESY is one of the world's leading accelerator centers and a member of the Helmholtz Association. It develops, builds and operates large particle accelerators used to investigate the structure of matter. DESY is housed in Hamburg and Zeuthen in Germany and is home to 3000 scientists from over 40 countries a year.

About Deutsches Elektronen-Synchrotron (DESY):

DESY is one of the world's leading accelerator centres. Researchers use the large-scale facilities at DESY to explore the microcosm in all its variety – from the interactions of tiny elementary particles and the behavior of new types of nanomaterials to biomolecular processes that are essential to life. The facilities generate the world's most intense X-ray light, accelerate particles to record energies and open completely new windows onto the universe. That makes DESY not only a magnet for more than 3000 guest researchers from over 40 countries every year. DESY cooperates with industry and business to promote new technologies that will benefit society and encourage innovations. This also benefits the metropolitan regions of the two DESY locations, Hamburg and Zeuthen near Berlin. http://www.desy.de/index_eng.html

More information about IBM Software Defined Storage is available at this link. Follow us on Twitter @ibmstorage

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