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**Press Release**

# Tracking Down the Big Bang: CERN and Oracle Extend Research and Development Partnership

## CERN uses Oracle cloud technologies to support its research infrastructure, used to investigate the fundamental structure of our universe and phenomena such as dark matter and dark energy

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The European Organization for Nuclear Research (CERN) is extending its partnership with Oracle for another three years. This partnership is through a research-and-development program set up by the laboratory, called CERN openlab; it provides a unique research framework in which scientists and leading IT companies can work together. One of the aims of the partnership with Oracle is to develop a high-performance cloud infrastructure capable of storing and analyzing vast quantities of controls data, such as that generated by the gigantic research infrastructures used at the laboratory to probe the origin of the universe. Oracle can also make use of insights gained from the program to provide its customers with extremely powerful and future-proof cloud technologies.

CERN openlab has provided a unique setting for cooperation between science and industry since 2001. In this program, CERN cooperates with leading IT companies on the joint development of high-performance technologies for

Oracle has been a partner in the program since 2003 and started another three-year project cycle in 2018. As one of the largest members, the cloud provider is involved in four current CERN openlab projects. In addition, every year 40 students from all over the world get an opportunity to work on current projects during a nine-week summer school program.

"CERN openlab is a win-win project for everyone involved," said Eric Grancher, Leader of CERN's Database Services Group. "It gives our collaborators a way to get valuable feedback by testing their solutions in one of the most complex and demanding technology environments. And we at CERN can assess the potential that new technologies have for future applications during the early phases of their development. In addition, CERN openlab provides a neutral scientific environment where businesses can engage in dialogue."

"We are pleased to extend our partnership with Oracle for another three years," said Eva Dafonte Perez, Deputy Leader of CERN's Database Services Group. "In addition to our 15-year partnership through CERN openlab, we have been working with Oracle since 1982. We will continue to need high-performance and, above all, quickly scalable solutions in the future in order to store and analyze the growing amount of data recorded by our instrumentation. Oracle offers flexibility because its solutions are available both on-premises and in the cloud."

Based in Geneva, Switzerland, CERN is dedicated to basic research in physics. CERN uses its Large Hadron Collider (LHC), the world's largest particle accelerator, to investigate fundamental structure of the universe. In the LHC, subatomic particles are accelerated and caused to collide, simulating the conditions just a fraction of a second after the Big Bang. The LHC experiments currently produce approximately 50 petabytes of data annually, a volume corresponding to roughly 2,000 years of HD video content.

However, our current understanding of physics only explains the visible matter that makes up about 5% of the Universe's total energy. The LHC is therefore to be made even more powerful, generating even more particle collisions and boosting efforts to investigate phenomena such as dark matter and dark energy. CERN also needs to have correspondingly powerful IT infrastructure in place; the laboratory's cooperation with Oracle plays a key role in ensuring this.

"CERN's research goals are extremely exciting, with technologies developed at the laboratory having had significant impact on our every-day lives. For example, technologies developed at CERN have already helped improve the treatment of certain types of cancer. So we are very pleased to renew our partnership in CERN openlab and hope to work together to develop even more powerful tech

both science and industry," said David Ebert, Director-Government, Education, Healthcare Industry Solutions EMEA, Oracle.

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