



## CERN openlab boosts the performance of LHC computing

Geneva, 6 October 2008

The LHC Grid Fest, held last Friday at CERN in Geneva, Switzerland, and at several sites around the world, commemorated the readiness of the Worldwide LHC Computing Grid (WLCG). At full capacity, the Large Hadron Collider (LHC), the world's largest particle accelerator, is expected to produce more than 15 million Gigabytes of data each year. Hundreds of millions of subatomic particles will collide each second, presenting a massive data challenge. The mission of the WLCG is to build and maintain the data storage and analysis infrastructure for this immense flow of data, thus helping physicists open new frontiers in our understanding of the Universe. This ambitious project connects and combines the IT power of more than 140 computer centres in 33 countries\*.

New and advanced systems were needed to rise to this unprecedented computing challenge. This required the joint forces of science and industry to expand technological boundaries. CERN openlab provides a unique framework for this collaboration, enabling partnership with Hewlett-Packard, Oracle and Intel, and EDS as a contributor.

"HP overall has a strong, long-standing association with CERN, based on invention, innovation projects, and R&D, and we were delighted when we extended that partnership last year to include the ProCurve networking business in openlab projects," said Bill Johnson, head of R&D at HP ProCurve Networking. "HP anticipates ongoing collaboration with CERN, and we look forward to participating in, and seeing the results from the IT infrastructure that supports the LHC project." On 6 October 2007 ALICE, one the four LHC experiments at CERN, presented its Industrial Award to HP for their instrumental role in enabling ALICE physicists to collect and process experimental data on the Grid.

Today, as part of the morning ceremony, Intel and Oracle received the prestigious LHC Computing Award in recognition of their outstanding contribution to LHC computing. CERN Director General, Robert Aymar presented the awards to Stephen Pawlowski, Intel's Senior Fellow, and to Stéphane Rousset, Senior Vice President EMEA at Oracle.

*"The recently commissioned Large Hadron Collider at CERN ushers in an incredibly exciting time in the world in the search to deepen the understanding of fundamental laws of nature. The massive amount of data generated from the LHC experiments requires state of the art compute power to perform the complex analysis and to deliver meaningful results. This must be balanced with the need to provide computing solutions that operate with optimal energy efficient performance",* said Stephen Pawlowski, Intel Senior Fellow. *"Intel is proud to be a technology provider to CERN, delivering x86 based Xeon® microprocessors with the leading Performance-per-watt in the industry."*

*"Oracle is proud to have contributed to the deployment of CERN's Worldwide LHC Computing Grid,"* said Monica Marinucci, Director of the EMEA Oracle in Research and Development Programme. *"The project has been an innovative challenge and a rewarding journey that allowed us to integrate CERN's unique requirements into Oracle technology and actively support the adoption of the Oracle Grid in the business world. Mutual openness and trust and the drive to succeed were major ingredients of our successful partnership with CERN, which started 26 years ago. We look forward to continuing to support the operations of the LHC in realising their objectives."*

EDS developed the highly successful GridMap tool to monitor Grid infrastructures and Rolf Kubli, EDS Fellow, is convinced that Grids will be of growing importance – for business, too. *"I am proud EDS and CERN are jointly working on solutions that will be sought by large corporations in the near future."*

Robert Aymar, CERN Director General, stated that *"the CERN openlab partnership continues to have a direct and positive impact on the development of the Grid and computing services that underlie the LHC. The synergy that CERN openlab creates with leading IT companies is vital and I therefore thank all CERN openlab partners and contributors for their continued support of our joint effort and anticipate many future shared benefits of this unique collaboration."*

*“CERN openlab has established itself as a reference thanks to the excellent relationship and on-going commitment of all partners and contributors during the past six years. The combined knowledge and dedication of the engineers from CERN and the companies have produced remarkable results”, said Wolfgang von Rüden, Head of CERN openlab and Head of CERN’s IT department. “I am confident that we will be equally successful in the future, and with an additional partner, Siemens, we are continuing in the right direction.”*

### **About the Large Hadron Collider**

The LHC, located at CERN\*\* near Geneva, Switzerland, is the world’s largest particle accelerator, a machine designed to provide clues as to the ultimate nature of matter and the origins of our Universe. For thousands of physicists, analysing LHC data using the LHC Computing Grid will be like sifting for digital gold. Their search is predicted to unearth evidence of new fundamental particles that will provide clues to the ultimate nature of matter and the origins of our Universe.

### **About grid computing**

Grid computing connects computers distributed over a wide geographic area. Just as the World Wide Web enables access to information, computing grids enable access to computing resources. These resources include data storage capacity, processing power, sensors, visualisation tools and more. Grids can combine the resources of thousands of different computers to create a massively powerful computing resource, accessible from the comfort of a personal computer and useful for multiple applications, in science, business and beyond.

### **About CERN openlab**

CERN openlab is a framework to test and validate cutting-edge information technologies and services in partnership with industry. CERN openlab focuses on testing novel IT solutions in particular those applicable to the Worldwide LHC Computing Grid (WLCG) and the Enabling Grids for E-science (EGEE) projects. Four major initiatives are addressed in the second three-year phase of CERN openlab (2006-08): Platform Competence Centre, Grid Interoperability Centre, Relational Databases, Networking and Security Activities. Current partners are: Hewlett-Packard, Intel, Oracle and Siemens, who joined this summer. EDS is a contributor.

### **Upcoming events marking LHC start-up**

**21 October:** CERN will host the Official Inauguration of the LHC with representatives from the CERN Member and Observer States.

### **For more information**

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\*Signatories to the LHC Computing Grid are: Australia, Austria, Belgium, Canada, China, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, India, Israel, Japan, Republic of Korea, the Netherlands, Norway, Pakistan, Poland, Portugal, Romania, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Taipei, Turkey, the United Kingdom, Ukraine, and the United States of America.

\*\*CERN, the European Organization for Nuclear Research, is the world’s leading laboratory for particle physics. It has its headquarters in Geneva. At present, its Member States are Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom. India, Israel, Japan, the Russian Federation, the United States of America, Turkey, the European Commission and UNESCO have Observer status.