Working towards a European open science cloud

Last week, CERN hosted an event to discuss ongoing efforts to develop a 'European open science cloud'. The aim of this work is to bring public research organizations and e-infrastructures together with commercial cloud-computing suppliers to build a common platform offering a range of services to Europe's research communities.

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Image courtesy Sara Garavelli, Trust-IT Services.

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efforts to develop a 'European open science cloud'. The aim of this work is to bring public research organizations and e-infrastructures together with commercial cloud-computing suppliers to build a common platform offering a range of services to Europe's research communities.

The event was run jointly by the Helix Nebula Initiative and the PICSE (Procurement Innovation for Cloud Services in Europe) project, which is working to develop a procurement model that could enable research centers to collectively acquire cloud-computing services to support their research.

The Helix Nebula Initiative has conducted pioneering work to establish the foundations of such a hybrid cloud model and seeks to promote the exploitation of results generated through publicly funded research by many market sectors.

'IT as a service' and open science

Earlier this year, CERN's Bob Jones authored a paper proposing the establishment of such a European open science cloud. This, he says, will enable digital science by introducing 'IT as a service' to the public research sector in Europe.

Jones, who spoke during the opening session of last week's event, says: “Open science is enabling more and more people to access the data produced through publicly funded research, but they don't necessarily have access to the e-infrastructures used to analyze the data and make sense out of it. By making it possible to use commercial cloud-

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computing services to analyze data, we're making research more open than ever." Jones continues: "Of course, this work isn't about research organizations replacing in-house e-infrastructures; it's about providing the ability to supplement them with commercial cloud services in situations where this would be beneficial."

JRC PICSE procurement public-private partnership Research service

Getting the procurement right

Sara Garavelli of Trust-IT Services spoke at the event about the progress made by the PICSE project since its launch last October. Based on a community survey and a range of in-depth case studies, the project team has found that the procurement policies of many public research organizations do not currently foresee provisioning of cloud-computing services on demand, and sometimes these organizations lack the fundamental skills to run cloud procurements.

To improve this situation, the web-based 'PICSE Wizard' tool will be launched next month. The tool will support IT managers and procurement officers at public research organizations in procuring cloud services through public tenders. Garavelli highlights the importance of building standard procurement procedures that are well suited to addressing the specific challenges of cloud computing: "The PICSE Wizard will help procurers to overcome several of the challenges highlighted at the recent EU28 Cloud Security Conference in Riga, Latvia."

"There is a need for clear procurement guidelines built on cooperation between the public and private sectors," explains Garavelli. "This is what PICSE is working to achieve with the support of the Helix Nebula Initiative."

Big and open data

CERN director general Rolf Heuer, who opened last week's event, says: "Here at CERN we expect a tremendous amount of data to be generated during run two of the Large Hadron Collider. We need ever more IT capacity to handle this data, and need to do this with the same budget, which means we need improved efficiency." Heuer also emphasized the importance of being able to critically digest the ever-increasing amounts of data produced in the big data era. He says: "This growing IT need is not unique to CERN or even high-energy physics, but is affecting all fields of scientific research."

Carlos Morais Pires speaking at last week's event.

These comments were echoed by Frédéric Hemmer, the head of CERN's IT Department. "The use of IT in the research sector is at a turning point. Driven by the unprecedented needs of their scientific instruments and programs, research communities

are looking for ways to increase the efficiency of their existing installations and to rapidly add new capacity and functionality," says Hemmer. "Cloud technology exists, and is rapidly maturing. This is an important opportunity for the private and public sectors to work together to multiply the impact of their efforts, thus helping to generate prosperity through innovative products, jobs for our people, and a better, cleaner environment for our citizens."

Other high-profile speakers at last week's event included Carlos Morais Pires, scientific officer at the European Commission Directorate General for Communications Networks, Content, and Technology (DG CONNECT), and Pierre Soille of the European Commission's Joint Research Centre (JRC). "E-infrastructures are essential to the Digital Single Market strategic vision," says Pires, who also discussed the importance of a European open science cloud in the context of the European Commission's drive to help make science increasingly open. Soille spoke at length about the JRC's big data pilot projects focusing on Earth observation and social sensing. He also highlighted a 'Big Data from Space' event that is scheduled to take place in Santa Cruz de Tenerife, Spain, in March next year.

Blue sky thinking for clouds

Tony Singleton, director of the UK's G-Cloud, gave a presentation about establishing and running a national IT services market for the public sector, and Linda Strick of the Fraunhofer Institute for

Open Communication Systems gave an overview of the EC-funded Cloud for Europe project.

The European Space Agency's Wolfgang Lengert also spoke at the event about the 'ESA Information-as-a-Service Stimulus Project', which is seeking to "build a value chain from science to business." In addition, Sergio Andreozzi, strategy and policy manager at EGI, gave a presentation highlighting potential synergies between the Big Data Value Association and the Helix Nebula Initiative. Read more from Andreozzi in his recent *iSGTW* article 'A new approach to sharing the scientific resources that enable 21st century research'.

Digital skills for a digital economy

One of the final talks at last week's event was given by Alberto Di Meglio, who is head of CERN openlab — a public-private collaboration that works to accelerate the development of ICT technologies that drive scientific research. Di Meglio spoke about the core skills necessary to enable people to participate in the emerging 'digital economy'.

He explains that CERN openlab — working in conjunction with other large research institutions — has recently gone through a process of identifying the emerging ICT challenges that research laboratories face. "As new challenges arise, new skills become necessary," says Di Meglio.

"Education is one of the main pillars of our work at CERN openlab; we're now working with universities and ICT companies to develop new

courses and curricula." He continues: "As well as teaching technical skills, these courses should focus on business-related skills, such as how to procure ICT services. Today, this is new territory for many businesses, but such skills are becoming ever more important in our growing digital economy."

Hemmer also strongly emphasized the importance of training and skills in his closing remarks at last week's event. "People are the most important factor in these changes; we need cloud-savvy enthusiastic young people to turn these opportunities into reality," he says."CERN openlab shows how young scientists and engineers can be trained in an environment that serves both research and the IT industry."

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