Cloud computing: facilitating cutting edge collaborative research

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Cloud computing - where storage facilities are provided on demand over the internet from shared data centres - enables effective research collaboration to blossom. Rather than having to purchase a cluster of computers or struggle to find space at the lab, researchers can outsource their computing storage needs to remote facilities in the cloud and make this data accessible to colleagues.

In order to facilitate closer research collaboration, an EU project entitled HELIX NEBULA (HNX) has created an online platform where customers can choose between various cloud service suppliers. The ultimate objective of the project, which was completed in May 2014, is to enable researchers and scientists to buy, use and manage cloud

services as seamlessly as possible.

The team behind the project believes that cloud-based services could become a billion-euro business in the near future, helping researchers make savings of up to 40 % in infrastructure costs. Indeed, the project, which began in June 2012 with EUR 1.8 million in EU funding, anticipated that data capture, processing, and storage - crucial to scientific endeavour - were being overtaken by the demand for greater efficiency, speedier results and the increasing need for greater international collaboration.

Cloud-based services were identified as a viable solution, as they offer greater efficiency and agility in delivering services through economies of scale. A key advantage of cloud computing is its elasticity; storage space for example can be scaled up quickly depending on a research team's needs.

One example of how cloud computing can benefit collaborative research projects is the work currently being carried out at the Large Hadron Collider at CERN in Geneva. Detectors there are searching for new discoveries in the collisions of protons of extraordinarily high energy, which could tell us more about how our universe was created and shaped. These experiments are currently running a large scale distributed computing system to process the massive amounts of data collected.

'CERN's computing capacity needs to keep up with the enormous amount of data coming from the Large Hadron Collider and we see Helix Nebula as a great way of working with industry to meet this challenge,' said Frédéric Hemmer, head of CERN's IT department.

HNX is now open to cloud providers capable of participating competitively in line with European regulations and with a suitable quality of service. Commercial cloud providers from a number of EU

Member States have already joined the Helix Nebula initiative, and declared their interest in offering services via HNX. Cloud services will be offered to the global research community, for both publicly-funded and commercial organisations across a diverse range of sectors including healthcare, oil and gas, high-tech and manufacturing.

The HELIX NEBULA project is seen as a preliminary step towards establishing a pan-European cloud-based scientific e-infrastructure. Indeed, the project consortium now intends to build on the successful development of this platform to provide users with easy access to a wide range of services, including digital infrastructure, tools, information and applications.

In effect, the HNX is set to become a digital hub for researchers and scientists across Europe and beyond, encouraging the sharing of knowledge and the establishment of new virtual partnerships.

More information: hnx.helix-nebula.eu/

Provided by CORDIS

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