



Helix Nebula – A European High Flyer in the 2013 Global Cloud Space

<http://www.helix-nebula.eu/>

In December of 2011, three of Europe's most prominent research centres, CERN, the European Space Agency (ESA) and the European Molecular Biology Laboratory (EMBL), started mapping their requirements for cloud providers and integrators.

Fast-forward to April 2013 and *Helix Nebula – The Science Cloud* features among the top ten major cloud themes and stories to have shaped the cloud space in 2012, which tackles significant challenges in multi-vendor, multi-cloud interoperability¹ (HPC magazine). Charting new territory in cloud federation is another challenge that Helix Nebula has undertaken thanks to its partners' expertise in the field.

Helix Nebula's achievements to this day include:

- First demonstrations of federated multi-vendor, multi-cloud service delivery showcased at the second Helix Nebula General Assembly in Frascati (Italy) in January 2013, confirmed that workloads from CERN, EMBL and ESA can be successfully deployed in cloud environments.
- "The Blue Box approach" – a public document, capturing the Helix Nebula Supply-side approach to federated cloud².
- A first release of the Helix Nebula Service Architecture – a public document describing the Helix Nebula approach to efficient and accountable cloud service management³.
- Collaboration agreements with public infrastructures, EGI and GEANT.
- Successful initial proof of concept deployments for all three flagships (CERN, EMBL, ESA) with three suppliers (Atos, CloudSigma, T-Systems) in the spring and summer 2012.
- A successful negotiation and kick-off of the first EC project supporting the Helix Nebula initiative at CERN in July 2012. The 63 participants agreed on next steps to prepare a true federated cloud, based on the initial proof of concept deployments.
- The re-deployment of the flagships for a Europe-wide federated cloud service, making use of the "Blue Box" implementations has started.
- A high level of visibility at trade, academic and EC events across Europe throughout the past year as well as continuous coverage in the media.
- The consortium grew from 20 to 34, adding key new members such as CNRS, IFREMER, Emergence Tech Ltd, ECMWF.

Other recent developments include:

¹ HPC in the Cloud, *Top Ten Cloud Stories of 2012*, 11 December 2012

http://www.hpcinthecloud.com/hpcccloud/2012-12-11/top_10_cloud_stories_of_2012.html?page=4

² <http://cds.cern.ch/record/1523702>

³ <https://cds.cern.ch/record/1525897?ln=en>



1. The Tech Arch group issued the Helix Nebula framework architecture report⁴: an approach to discovery, access, usage and management of a federated cloud system.
2. Publication of the “Consolidated User and Service Requirements”⁵: best practices and lessons learned from the three Proof of Concept deployments.
3. Publication of “Requirements Definition Template”⁶, a template for potential new demand side partners to express their requirements– covering areas such as resource requirements, provisioning, interoperability and security.
4. Publication of “Helix Nebula – The Science Cloud: A catalyst for change in Europe”⁷, a document which examines the requirements for building a flourishing, open, cloud services market in Europe, and proposes a set of concrete actions towards that goal.

New Partners

Participation in Helix Nebula is an important strategic step for **GÉANT** (through DANTE), a pan-European network which interconnects over 40 million users across Europe working in synergy with European National Research and Education Networks (NRENs). “We are delighted that GÉANT has joined the Helix Nebula partnership, in order to take an active role in the development of what we consider the natural solution for cloud computing in Europe. We see GÉANT as a key element of this solution, and Helix Nebula as a way to continue our leadership in enabling researchers worldwide to collaborate”, said Matthew Scott and Niels Hersoug, Joint General Managers of DANTE.

The European Centre for Medium-Range Weather Forecasts (ECMWF) joined the Helix Nebula initiative in December 2012. The intergovernmental organisation supported by 34 States provides operational medium- and extended-range forecasts and a state-of-the-art super-computing facility for scientific research. It pursues scientific and technical collaboration with satellite agencies and with the European Commission. Baudouin Raoult, Head of the Meteorological Data Section at ECMWF underlined the scope of the Helix Nebula initiative: "The Helix Nebula Science Cloud will allow researchers in Europe and beyond to make an efficient use of ECMWF's multi-petabyte archive of forecast and climate data."

SWITCH

Switch is a non-profit organization, which works on further developing Internet technology, facilitating the exchange of knowledge for Swiss universities and increasing the security of the Internet in Switzerland.

⁴ <http://cds.cern.ch/record/1478364>

⁵ <http://cds.cern.ch/record/1501967>

⁶ <http://cdsweb.cern.ch/record/1484437>

⁷ <http://cds.cern.ch/record/1537032>



"We want to help ensure that the Swiss scientific community can make good use of emerging cloud services. This includes technical requirements such as efficient transfer of large data sets between campus and cloud, but also business- and trust-related considerations. Helix Nebula will try to address these issues, and we are enthusiastic both to help advance this initiative and to learn from it, for the benefit of our academic customers" states SWITCH.

New adopters who support the Helix Nebula initiative: AW Software Technologies GmbH, Emergence Tech Ltd, IFREMER, Trinity College Dublin and CNRS.

Helix Nebula – The Science Cloud Event

Helix Nebula has been presented at a large number of conferences, including:

- The annual conference on information management, ICT Media, 12 March 2013 in Groenekan, Netherlands
- The 2013 European Cloud Computing Conference following the release of the European Cloud Computing Strategy, 7 March 2013 in Brussels
- The users: CERN, EMBL, ESA and the supply-side working group presented Helix Nebula at the European Commission Directorate General - CONNECT, Excellence in Science, 08 March 2013 in Brussels
- The European Space Policy Conference 29-30 January 2013 in Brussels.

Other major events are still to take place.