

Helix Nebula Final Dissemination Report

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Abstract: The purpose of this document is to report on the outcomes and impact of the Helix Nebula Communication and Dissemination Strategy of the project.



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1	Overview.....	4
2	Engagement Plan: Reaching Helix Nebula's Stakeholders	5
2.1	Goals of the Engagement Plan	5
3	Outcomes and Impact.....	16
3.1	Helix Nebula hosted workshops & events.....	16
3.2	Helix Nebula participation in external events, workshops and meetings.....	16
3.3	Online Outreach (website & social networks)	17
3.4	Helix Nebula in the press	22
3.5	Helix Nebula targeted communications	25
3.6	Final Impact.....	26
4	Future action plan for the production platform.....	28
5	Annex 1: Summary of promotional material.....	29

1 Overview

'Helix Nebula – the science cloud', has been established to support the massive IT requirements of European scientists and create a cloud computing market for the public sector in Europe. Collaboration between big science and big business, Helix Nebula joins together the forces of leading IT providers and three of Europe's biggest research centers (namely, CERN, EMBL and ESA). The initiative strongly supports the Commission's Digital Agenda for Europe: It stresses a unified approach to data protection regulations and lightweight, efficient governance; it also has ambitions to support European economic development by making its services available to the wider community.

This document, the Helix Nebula Final Dissemination Report, reports the main results achieved in terms of Communication and Dissemination and the activities performed as originally defined in the Helix Nebula communication and dissemination strategy within the Work Package 2 work plan. The document focuses on how the objectives of the project and its societal and economic impact were fulfilled. It describes a series of objectives, which worked towards during the project lifetime, and shows how dissemination and communication activities contributed to achieving the overall project goals. To achieve these goals, Helix Nebula used a focused campaign aimed at communicating the relevant information to the appropriate communities. For example, high-level policy groups require recommendations that will lead to legislation, while end-user communities need to know the benefits of Helix Nebula for their research purposes. The resulting variety of Helix Nebula activities required careful planning, as well as dynamic tools, which will all be presented below.

This deliverable consolidates the results brought from the target groups of Helix Nebula outreach, the tools and methodology used to reach them, and the impact achieved through these efforts.

2 Engagement Plan: Reaching Helix Nebula's Stakeholders

This chapter provides an overview of the goals of the Helix Nebula Engagement Plan defined during the project, the Stakeholders identified and the actions that have been performed by Helix Nebula to achieve their engagement.

2.1 Goals of the Engagement Plan

The engagement process for Helix Nebula was coordinated by WP2 and was proactively and successfully implemented with the help of all the partners of the Helix Nebula consortium.

The main objectives of the plan as they were described in the Helix Nebula Engagement Plan Report are the following:

- Promote a series of user friendly services ready by early 2014 & deliver as a fact sheet
- Identify and prioritize potential users (Pilot list of users)
- Identify a set of actions to engage and educate potential users on the benefits of using HN Services rather than other existing cloud services

The plan was conceived to cover the period from September 2013 to May 2014 (8 months plan).

Actions

Stakeholders	Actions (according to the engagement Plan)	Actions Undertaken
EGI - InSPIRE	<ul style="list-style-type: none"> • Develop an agreed roadmap to achieve interoperability between the EGI Federated Cloud and the Helix Nebula suppliers. EGI Federated Cloud representatives and Helix Nebula suppliers will contribute to the implementation of the agreed recommendations in line with the available efforts. The final roadmap together with the implementation progress and the activities to be performed in future projects will be documented in the Helix Nebula D6.2. • Contribution to preparation of EGI.eu- Helix Nebula marketplace (HNX) MoU for the transition to service production phase. • Engagement of EGI.eu with one or more Helix Nebula research institutions to develop a plan to demonstrate interoperability between the EGI Federated Cloud and the Helix Nebula suppliers. This activity will include the run of one or more of the Helix Nebula flagship applications on the EGI Federated Cloud with the aim to also run a more advanced test within a hybrid scenario also integrating Helix Nebula's Blue Box operated by commercial cloud providers. In particular, the deployment of the CERN flagship application will focus on the hybrid model where new capabilities expected for the production phase of Helix Nebula will be tested. • Participation to the HN December 2013 supply-demand side meeting. • HN cloud services promotion at EGI events EGI 	<ul style="list-style-type: none"> • D6.2 is being completed and will be delivered on time with the interoperability roadmap documented • The HNX MoU was successfully completed and signed by EGI.eu • Testing is on-going with the goal of demonstrating working integration in 2014. • EGI.eu was represented at the HN Face-to-face users & suppliers meetings in December 2013 and March 2014. Dissemination material was distributed at EGI events; furthermore Carmela Asero served as liaison with the EC to ensure a presentation slot for Helix Nebula at the European Innovation Convention • The third interoperability workshop was successfully organized and run in Madrid (http://go.egi.eu/hnws3); an extra interoperability workshop is planned in May 2014 (http://go.egi.eu/hnws4) • EGI.eu supported the dissemination of interoperability actions through the interoperability workshops. EGI.eu hosted two interoperability workshops at the EGI events; an extra interoperability workshop was organised at the EGI Community Forum

	<p>Technical Forum, 2013 - ICT2013, November 2013, Vilnius, Lithuania at EGI Exhibition booth, EGI Community Forum 2014. EGI.eu will investigate opportunities for HN to participate to events addressing wider audience and policy makers (such as the 2nd European Innovation Convention organized by the European Commission DG RTD on 10-11 March 2013) or ad hoc public event to showcase HN progresses on its way to maturity/production phase.</p> <ul style="list-style-type: none"> • EGI.eu, in collaboration and with active participation of Helix Nebula partners, to organize Helix Nebula Interoperability workshops in co-location EGI Technical Forum on 16-21 September 2013 in Madrid, Spain, and EGI Community Forum on 19-23 May 2014 in Helsinki, Finland. • Enhancement of synergy and consistency in the communication actions between Helix Nebula and EGI-InSPIRE project concerning common activities in the area of cloud and interoperability. The goal is achieving higher effectiveness in dissemination actions towards respective communities and stakeholders and policy makers by keeping each other party informed on respective activities in areas with a potential for cooperation. For EGI, the EGI.eu Strategy and Policy Team (SPT) will coordinate the periodic review of the progress of the activities defined above. 	<p>in May 2014 (http://go.egi.eu/hnws4)</p> <ul style="list-style-type: none"> • The presentation of the hybrid cloud model will be reported to the policy makers on May 2014
EUDAT	<ul style="list-style-type: none"> • Closed F2F meeting at EUDAT second conference (Rome, 31 October 2013) to formally discuss EUDAT/HN collaboration. • ESA keynote speech at the public October 2013 conference to showcase HN results & services. 	<ul style="list-style-type: none"> • Face-to-face meeting between EUDAT and other stakeholders at CERN, 21 January 2014 • Meeting was organized by CERN on 21st of January to look for cooperation

	<ul style="list-style-type: none"> • Participation to the EUDAT User Forum 2014, http://eudat.eu/user-forum 	within HN and beyond. It was decided that we would work on a common strategy to be proposed by the summer 2014 to all partners including EC.
GÉANT	<ul style="list-style-type: none"> • Dante and several NRENs (e.g. Switch) are members of the HN initiative. • Pilot phase: GÉANT will continue to provide connectivity services for the pilot phase. • For the post-pilot phase it is necessary to revise the agreement between Helix Nebula and GÉANT. 	<ul style="list-style-type: none"> • For the post pilot or production phase, GEANT has agreed to support helix Nebula for an initial period of 6 months during which GEANT will evaluate the business model and understand better what role GEANT should in respect of a long term HN production service.
PRACE	<ul style="list-style-type: none"> • Establish contacts • Showcase of HN results & offering at PRACE events - PRACE Industrial Seminar 2014 - Towards a globally competitive HPC eco-system in Europe, 22-23 May 2014 Barcelona, Spain, http://www.prace-ri.eu/PRACE-Industrial-Seminar-2014 	<ul style="list-style-type: none"> • Contact established at ICT 2013 where HN & PRACE presented as part of the HPC session • Face-to-face meeting between HN and PRACE at PRACE HQ in Brussels, 20 March 2014 • Agreement to offer PRACE HPC training to HNX users. Possible collaboration on the e-Infrastructure marketplace
CloudWatch	<ul style="list-style-type: none"> • Participation at CloudWatch events 	<ul style="list-style-type: none"> • Dissemination of Helix Nebula event: From Cloud active to cloud productive
FI WARE (http://www.fi-ware.eu)	<ul style="list-style-type: none"> • FI-WARE is building on top of OpenStack to arrange uniform cloud services by defining a standard API to which all applications should adhere. 	<ul style="list-style-type: none"> • HN TechArch has been discussing finding/ developing a standard north-bound API for the HN services and will further consider the adoption of the FI-WARE standard definition for that API.
ECMWF (European Centre for Medium-Range Weather Forecasts)	Start the ERA Data Storage flagship deployment, December 2013; Creation of the ECMWF HN success story to be published on the website and promoted through media channels May 2014	<ul style="list-style-type: none"> • ECMWF is still interested to move to the Cloud and in particular to HN but have not yet solved the problem of funding beyond the GEOWOW FP7 project. This should be addressed within the next

		proposal to be submitted in September in the frame of H2020
ESFRI Projects	<ul style="list-style-type: none"> • HN services promotion - DARIAH & CLARIN are two ESFRI projects aimed at building integrated and interoperable research infrastructures and supporting research user communities from the humanities and linguistics: EGI has two federated cloud use cases from these communities: linguistics and musicology. Interaction at events and meetings. • Annual CLARIN meeting 21-22 October 2013 Prague, Czech Republic http://www.clarin.eu/node/3621 • Promotion of HN services to LIFEWATCH community (including related BioVel and ENVRI projects) building on recent deployment of BioVel openModeller web service on EGI's Federated Cloud and to EUROBIOIMAGING users (including N4U project). • Presentation of HN at the 41st Workshop of the International School of Geophysics on "A Roadmap for Earth Science in Europe: The next generation of Geophysical Research Infrastructures" 	<ul style="list-style-type: none"> • Most ESFRI are still in conception or preparatory phase so there are no immediate actions toward them as they are not in production stage. • Specific steps have been made instead, with ENVRI cluster project for environmental ESFRI. • Interest of collaboration has been confirmed and Wolfgang Lengert (ESA) was invited by EPOS to present HN at EGU (27 April - 2 May) as the overarching infrastructure supporting cross-domain research. • Bob Jones (CERN) presented HN and Wolfgang Lengert presented SSEP at the 41st Workshop of the International School of Geophysics on "A Roadmap for Earth Science in Europe: The next generation of Geophysical Research Infrastructures". Both have very well been received by the audience and W. Lengert took action to start federation of individual EPOS partners, starting with Iceland, who also got rewarded of an EC action to create a Supersite (big data system with space & terrestrial data => building a community) • Wolfgang Lengert (ESA) has been invited as a speaker to present "Helix Nebula as a cloud service provider" at workshop on "Sustainability of Environmental Research

		<p>Infrastructures (ENVRI)" at EGI Community Forum 2014 on 19/05/2014.</p> <ul style="list-style-type: none"> • At EGU, end of April, a meeting was supposed to take place during which EPOS would sign the NDA and become a formal partner but at the moment is in the process of transition from Preparatory Phase to the Construction & Operations Phase. EPOS is preparing a legal body called EPOS-ERIC and it has been agreed to proceed with a meeting in 2014.
<p>GEOWOW (GEOSS interoperability for Weather, Ocean and Water) OCIS: Ocean and Coastal Information Supersites WDIS: Weather Data and Information Supersites</p>	<ul style="list-style-type: none"> • MoU with GEOWOW FP7 initiative describing agreement to: <ul style="list-style-type: none"> ○ Start the OCIS flagship deployment (date to be TBD - F2Fmeeting in October 2013); Creation of the GEOWOW OCIS/ HN success story to be published on the website and promoted through media channels May 2013 ○ Start the WDIS flagship deployment date to be TBD - F2Fmeeting in October 2013); Creation of the GEOWOW WDIS/ HN success story to be published on the website and promoted through media channels May 2013) • Disseminate the HN success story to understand if the Earth science community can benefit from HN cloud services; Organise specific F2F meeting to discuss potential collaboration through Terradue (HN supplier & GEOWOW partner) 	<ul style="list-style-type: none"> • Terradue is currently validating the parallelization of the processing chain for the UNESCO / OCIS use case, and is planning for the testing of the Cloud deployment (leveraging the OCCI API, possibly on EGI). • Regarding WDIS Terradue is progressing with ECMWF on the processing for the WDIS use case, but the current objective is to have it entirely running on our private Cloud infrastructure. • Terradue finalized the implementation of a processing chain with our project partner UNESCO. This processing chain is managed on the Terradue Cloud Infrastructure / Broker, which is leveraging APIs for the Cluster deployment of a Hadoop processing Application.

		<ul style="list-style-type: none"> • Regarding GEOWOW, two approaches were considered but it has not been followed up.
iMarine - data e-infrastructure initiative for fisheries management and the conservation of marine living resources	<ul style="list-style-type: none"> • MoU with iMarine FP7 project; • Participation to the final iMarine event 	<ul style="list-style-type: none"> • Terradue is now working on new activity under the iMarine project extension (Feb'14-Aug '14), "iMarine sustainability and Business Model " focusing on the Business Model definition part. In this work the HN project is considered in particular through the EGI federation (that iMarine is already working with)
LAMPRE (LAndslide Modeling & tools for vulnerability assessment Preparedness & REcovery mgmt.) & DORIS	<ul style="list-style-type: none"> • Disseminate the HN success story to understand if the LAMPRE community can benefit from HN cloud services • Starting with a telco and probably a F2F meeting involving also the EC DORIS PM Stefano Fontana. He is also in charge of MyOcean2, which is a big Copernicus downstream service. Expected outcome of the telco should be a sound understanding of the market potential and identification of missing pieces (e.g. how is money paid for services and how do contributors of the value adding chain get their shares (money). 	<ul style="list-style-type: none"> • It was agreed with the HN suppliers regarding actions on how to create a fully working InfoaaS (the HN business model outlined by SAP). The meeting was very successful and it seems that 3 projects are likely to be funded. Contractual steps expected to start mid of April. • Thanks to GEANT, we are able to connect national research infrastructures or research labs to HN/SSEP. The first one being fully integrated including seamless data access will be Iceland. Effort is being made in order to have a good demo for the next HN GA at least with Iceland, but also with other European institutional research facilities, an NSF funded facility, and probably also in Japan, Australian and South Africa. It is however, a big step from getting the agreement from the managers up to the

		final working system.
CIRCE http://www.circe-space.eu	<ul style="list-style-type: none"> • Attended "Second CIRCE Workshop: ISS data preservation" • 26-27 November 2013 • Royal Observatory of Belgium, Brussels • Contacts established with coordinator of CIRCE 	<ul style="list-style-type: none"> • Informal talks on CIRCE potential need for ISS data exploitation were held with EGI.eu and T-Systems at Copernicus workshop in March 2014.
National funding agencies (project members)	<ul style="list-style-type: none"> • EuroRisNet+ project as a way of establishing a link with national contacts. Development of a strategy is required. • Participation to eChallenges 2013 09 - 11 October 2013 Dublin, Ireland http://www.echallenges.org/e2013/ 	<ul style="list-style-type: none"> • A meeting with CNR took place on the 16 of January to discuss possible collaboration within Helix Nebula. CNR would be interested to use HN in the framework of Smart Cities but this would require a strong involvement of Italian industry in the HN consortium (in particular Telecom Italia). They would also be interested in collaborating in the future EC calls to create synergy across the effort and resources needed.
Cloudscape-VI - 24-25 February 2014 Brussels Belgium	<ul style="list-style-type: none"> • "Cloud for a smart economy & smart society", looking at best practices that can be more widely replicated across the public and private sectors with practical, hands-on tutorials to convey benefits and how to get started. Located during the same week as Cloud Expo, 26-27 Feb in London, enabling participants to attend both events. • HN will be part of the plenary session of the event and a designated user will present a use case and a member of HNX will demonstrate the production platform. 	<ul style="list-style-type: none"> • Presentations on both the supply side and user side perspectives of Helix Nebula • Helix Nebula the Supply-side perspective - Steven James, CGI: Lightning talk & participation to roundtable discussion during "Me and my Cloud" session on how to sustain digital research tools; provide private & public clouds for research, sustain services; create business models; establish agreements with cloud providers. • CERN ATLAS and CMS experiments - Helix Nebula user perspective - Bob Jones, CERN openLab: Prime

		<p>presentation during “Before Signing off” session and audience Q&A</p> <ul style="list-style-type: none"> • Position paper • e-Infrastructure commons marketplace - Maryline Lengert - ESA, Bob Jones - CERN, David Foster - CERN, Steven Newhouse - EMBL-EBI: The position paper focused on the benefits of the e-Infrastructure commons marketplace, funding sustainability and business opportunities and the vision for the future and expected impact. • Demo - The Helix Nebula Cloud Marketplace • A full demo a live demonstration of the Helix Nebula Market Place (HNX) was recorded and prepared for Cloudscape VI and was available as an HD video, SD video, PDF, and PowerPoint file
eIRG & ESFRI - e-Infrastructure policy groups	<ul style="list-style-type: none"> • Influence through the White papers. HN presented to influence member states and the EC through national representatives A first contact already established - HN presentation at the -IRG workshop 2012 in Copenhagen • Participation at e-IRG meetings and workshops (i.e. e-IRG Workshop & Meeting, 4-5 November 2013, Vilnius, Lithuania, http://www.e-irg.eu/e-irg-events/workshop-4-5-nov-2013.html) • Contribution to e-IRG white papers as editors as well as by providing input though the calls for public comment 	<ul style="list-style-type: none"> • HN presented at the eIRG workshop in May 2013 and mentioned in the eIRG reports.
European Cloud Partnership & Cloud for	<ul style="list-style-type: none"> • Launch Conference for CloudforEurope - November 14 and 15 in Berlin. An opportunity to 	<ul style="list-style-type: none"> • Contributed to documentation of possible pilot projects, including HN.

Europe initiative	<p>see how industry can get involved (tendering process) and for HN to be recognized as a flagship and to contribute to the work packages.</p>	<ul style="list-style-type: none"> • HN has also been presented at the launch event of ECP "Cloud for Europe" (14-15 Nov 2013). After the event a "Berlin Cloud Whitepaper" was issued as a starting point for cloud adoption in the public sector. Six points have been highlighted: Transparency, Strong European Economy, Data Security, Access to knowledge about cloud technology, Efficiency and Interoperability. The updated strategy of HN should address these points.
EIROforum - the forum of the European Research Organisations	<ul style="list-style-type: none"> • As Member organisations of EIROforum CERN, EMBL and ESA can provide visibility through the forum channels • Report on HN status to EIROforum IT working group. 	<ul style="list-style-type: none"> • HN presented at the EIROforum (TWG) meeting in 2013. HN taken as a key element in the EIROforum e-infrastructure publications. More EIROforum labs intend to sign the NDA in 2014.
RDA - Research Data Alliance	<ul style="list-style-type: none"> • Numerous working groups have been created for a bottom-up and interdisciplinary approach - HN can join these WGs to gather insights and provide input. This could be timely considering that the data challenges in each of the use cases are relevant to the various RDA working groups • Participation and interaction at the Plenary events: 3rd Plenary, scheduled for 26-28 March 2014 Dublin, Ireland https://rd-alliance.org/rda-third-plenary-meeting.html 	<ul style="list-style-type: none"> • Participation and interaction at the Plenary events: 3rd Plenary, scheduled for 26-28 March 2014 Dublin, Ireland https://rd-alliance.org/rda-third-plenary-meeting.html • Bob Jones (CERN) represented Helix-Nebula at the RDA 3rd Plenary. He is chair of the Federated Identity Management Group an international cross-domain interest group to work on all issues related to the use FIM for the implementation of AAI (Authentication and Authorization Infrastructures) in

		research infrastructures.
EuroCloud - independent non-profit organization where every European country can apply to participate in as long as they respect the EuroCloud Statutes.	<ul style="list-style-type: none"> • Avenues of potential collaboration will be explored in January • Establish contacts 	<ul style="list-style-type: none"> • Nothing done so far, waiting for HNX to be up and running to use the EuroCloud network for promotion.
FitSM	<ul style="list-style-type: none"> • The FitSM structure for service management could be useful to deploy the FitSM standard, which was developed under an EC FP7 project, originally for the FedSM project. FedSM address service, as opposed to infrastructure, management; • It is planned to hold two full days of training and workshop, spread over the three days of 13-15 January 2014: The first sessions (two half-days) will be a training on FitSM, to ensure as a level-set that a common understanding and vocabulary; the second set of sessions (also two half-days) will be a workshop to agree on how the framework will be implemented within HNX (the Helix Nebula Marketplace) 	<ul style="list-style-type: none"> • Two full days of training and workshop were held, spread over the three days of 13-15 January 2014: The first sessions (two half-days) were a training on FitSM, to ensure as a level-set a common understanding and vocabulary; the second set of sessions (also two half-days) were a workshop to agree on how the framework would be implemented within HNX (the Helix Nebula Marketplace). • The proposed Open Source ESB may or may not include sufficient tooling for at least HN immediate FIM needs;

Table 1: Actions - Impact of actions

3 Outcomes and Impact

This section describes the main results achieved through the actions taken for the engagement plan. As can be seen from the table above, the impact of the actions taken by HN's consortium members has been wide.

The most achieved result and one of the main goals of the engagement plan, has been the raised awareness of HN and the cloud services provided for eScience. This has brought the promotion of HN cloud services to a bigger ICT audience and many proposals for the hybrid public-commercial cloud model.

The high profile use cases of Helix Nebula have engaged a larger pool of new users and new potential communities, which influence the direction of future eScience research. This could be considered as Helix Nebula's most important achievement.

3.1 Helix Nebula hosted workshops & events

Events that were organized by the Helix Nebula initiative:

- 3rd Helix Nebula Workshop - Interoperability among e-Infrastructures and Commercial Clouds, held in September 2013 in Madrid, Spain in conjunction with the EGI Technical Forum 2013.
- Third Helix Nebula General Assembly in Heidelberg, Germany on 23-25 September 2013.
- A first demand-side / HNX face-to-face meeting in Brussels on 04 December 2013.
- A second demand-side / HNX face-to-face meeting in Brussels on 18 March 2014.
- The Helix Nebula-The Science Cloud public event "from cloud-active to cloud-productive", 14 May 2014 at the Globe for Science and Innovation at CERN.
- Fourth Helix Nebula General Assembly in Geneva, Switzerland on 15-16 May 2014.
- 4th Helix Nebula Workshop - Interoperability among e-Infrastructures and Commercial Clouds, held in May 2014 in Helsinki, Finland, in conjunction with the EGI Technical Forum 2014.

3.2 Helix Nebula participation in external events, workshops and meetings

The Helix Nebula initiative has participated and has been presented to 92 events, from the moment it started in June 2012 to date.

Below is a table with some of the most representative of them:

Name of the event	Category	Date	Place
3rd Annual European Cloud Computing Conference	Event	9 April 2014	Brussels
Workshop on Big Data and Extreme-scale Computing (BDEC)	Workshop	26-28 February 2014	Fukuoka, Japan
ICT2013 – Create, Connect, Grow	Event	6-8 November 2013	Vilnius, Lithuania
CSA CEE Summit	Event	23-25 October 2013	Ljubljana, Slovenia
Working meeting for the Vision and Architecture for the GEOSS Information System	Meeting	20 September 2013	Frascati, Italy
41st Workshop of the International School of Geophysics	Workshop	28 August 2013	Sicily, Italy
IFIP/IEEE International Symposium on Integrated Network management	Event	27-31 May 2013	Ghent, Belgium
CSA Summit in the RSA conference	Event	8 October 2012	London, UK
e-IRG workshop	Workshop	11-12 June 2012	Copenhagen, Denmark

Table 2: HN events participation

3.3 Online Outreach (website & social networks)

The project website (www.helix-nebula.eu) was developed as a Knowledge Management Channel with a branded graphics and enhanced multimodal content management system. The website content has been updated periodically and the structure and the graphics design have been revamped according to the project developments.



Figure 1: Helix-Nebula Home Page

In April 2014, in conjunction with the launch of the HNX platform, a major re-styling of the website was made (See figure below).

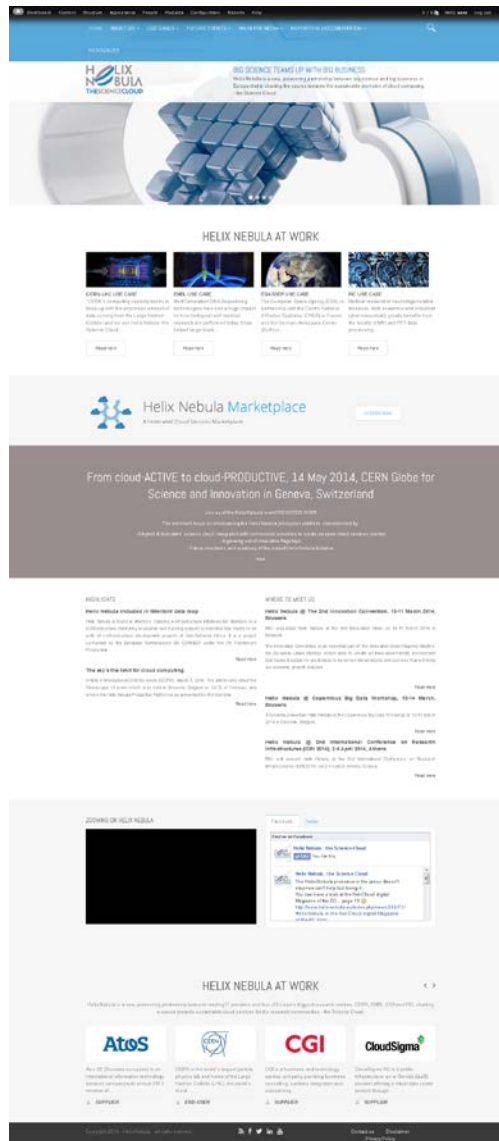


Figure 2: Helix Nebula new Home Page – April 2014

The new website has been conceived to focus on the services of HN and to move from a project-oriented approach to a more commercial and service-oriented one, so reflecting the progress made by the initiative.

- An attractive slider has been put on the top, recalling the main concepts of the HN vision.
- Immediately below, the "service-oriented approach" of the new platform emerges: a direct link to the use cases and a link to the HNX marketplace are prominent as a promotional aim.
- The mid part of the page is dedicated to a focus topic: for the months of April and May it has been dedicated to the promotion of the HN Public Event on 14 May.
- The news and the future events are presented in a simple and clear way immediately thereafter.
- The bottom part is dedicated to the video and the social networks, so that visitors can benefit from the HN latest updates in different formats.

- The very bottom part is dedicated to the partnership, a fundamental aspect of the project and will give high visibility to the partners (the bar scrolls).

The new website has been developed using Drupal, an open source cms, and it is also responsive to allow the easy consultation of the content also on mobile devices and tablet.

The figure below shows the number of users that have visited the Helix Nebula website since its launch. The average of visitors per month is 705, a good number if compared with the number of visitors of other 2-year European Projects. The peak in the number of visitors was recorded in May 2014, 1254 visitors.

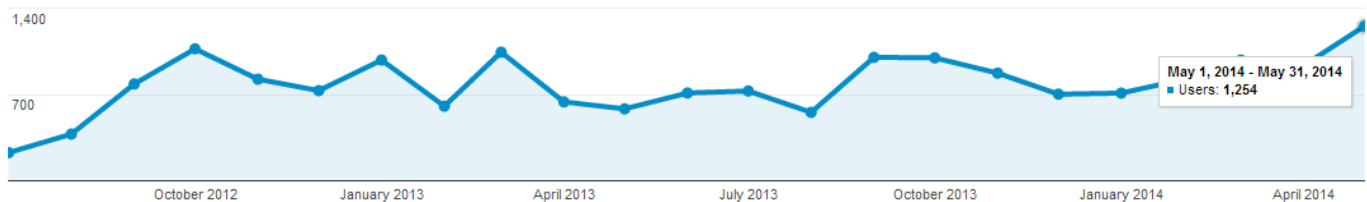


Figure 3: Number of visitors (July 2012 – May 2014)

The figure below shows the number of page views in the same period. The average number is around 3,630 page views per month, reflecting the high level of usage of the website. A peak was again recorded in May 2014 with a total number of 5763 page views. This peak is due to the holding of public event on 14 May 2014¹.

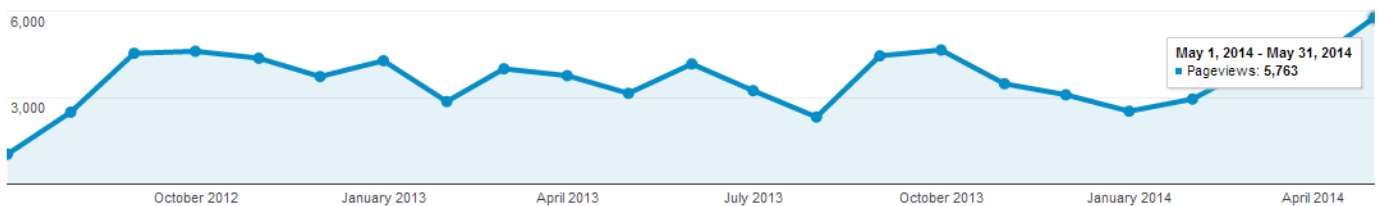


Figure 4: Number of page views (July 2012 – May 2014)

The Figure below shows the visitors' geographical breakdown. The three top countries are the United States, Italy and the United Kingdom. It's interesting to note the high percentage of visitors from the United States.

¹ http://indico.cern.ch/e/Helix_Nebula_Cloud_Productive

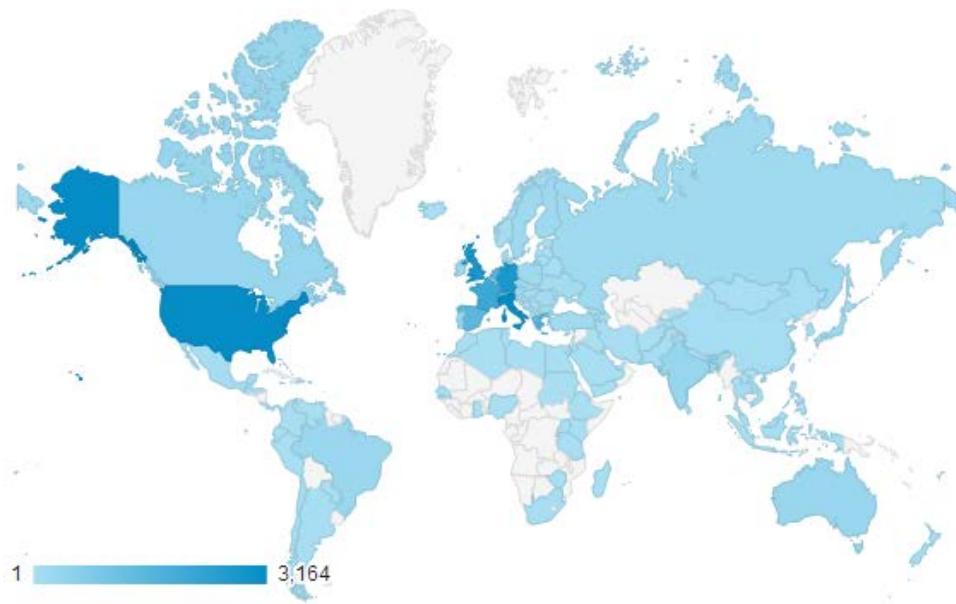


Figure 5: Visitors geographical breakdown (July 2012 – April 2014)

The most viewed pages are the ones related to the use cases, confirming that “telling the story” of successful experience is a good way of communicating results and progress.

Regarding social networking, the Helix Nebula consortium has been very active in posting updates on the main social networks selected by the project (Twitter, LinkedIn, Facebook), building a consistent and relevant community. The Table below shows the number of Followers/Connections/Likes on the correspondent social network, highlighting the massive impact that Helix Nebula had on the community. The viral effect of the social network has been key to increase the Helix Nebula visibility. People from different communities have been engaged through the different social networks.

Social Network	Impact on the community
Twitter	401 Followers
Facebook	378 Like
LinkedIn ²	335 Connections

Table 3: HN Social Networks in numbers

On top of these social networks, also the YouTube channel has been exploited to maximize the visibility of Helix Nebula, publishing 57 interviews and presentations. Overall 3,810 views have been scored.

² Please note that the LinkedIn account has been created only at a later stage in the project, in September 2013 (In 8 months 335 connections have been established).

3.4 Helix Nebula in the press

A series of press releases and reports have been produced to give visibility to the activities performed in the Helix Nebula initiative and promoted through relevant media channels. All the material produced generated a lot of press clippings on the main sector web magazines and on the partners' dissemination channels.

Press Releases & Reports	Date	Impact
Strategic Plan for a Scientific Cloud Computing infrastructure for Europe	2011	http://cds.cern.ch/record/1374172/files/CERN-OPEN-2011-036.pdf https://tnc2012.terena.org/core/presentation/13 http://www.uni-regensburg.de/veranstaltungen/dfn2012/medien/vortraege/01_helixnebula.pdf http://www.cro-ngi.hr/fileadmin/cro-ngi/cro-ngi-dan-2011/CRO-NGI-Dan-2011-12-14-03-Jones.pdf

Press Releases & Reports	Date	Impact
Big science teams up with big business	1 March 2012	http://press.web.cern.ch/press-releases/2012/03/big-science-teams-big-business-kick-start-european-cloud-computing http://www.esa.int/About_Us/Law_and_Regulation/ESA/Big_science_teams_up_with_big_business_to_kick_start_European_cloud_computing http://phys.org/news/2012-03-big-science-teams-business-kick-start.html http://www.interoute.it/big-science-teams-big-business-kick%E2%80%90start-european-cloud-computing http://www.copernicus-masters.com/index.php?anzeige=nl62013.html http://braembl.org.au/content/flying-high-europe-big-science-teams-big-business-kick%E2%80%90start-european-cloud-computing http://article.wn.com/view/2012/03/02/Big_science_teams_up_with_big_business_to_kickstart_European/?utm_medium=twitter&utm_source=twitterfeed

Press Releases & Reports	Date	Impact
European science champions score an early goal for cloud computing	9 July 2012	http://press.web.cern.ch/press-releases/2012/07/european-science-champions-score-early-goal-cloud-computing http://www.fiercecio.com/press-releases/european-science-champions-score-early-goal-cloud-computing http://www.highbeam.com/doc/1G1-295744647.html http://www.scoop.it/t/surfing-the-broadband-bit-stream http://daa.ec.europa.eu/content/hpc-cloud-european-science-champions-score-early-goal-cloud-computing http://trendssoul.blogspot.it/2012/07/european-science-champions-score-early.html http://icloud.pe/blog/european-science-champions-score-an-early-goal-for-cloud-computing/ http://www.scitechreport.com/cluster7863900/ http://www.eiroforum.org/media/press_releases/archive/201207_july/index.html
Helix Nebula – A European High Flyer in the 2013 Global Cloud Space	April 2013	http://www.isgtw.org/announcement/helix-nebula-%E2%80%93-european-high-flyer-2013-global-cloud-space http://primeurmagazine.com/content/weekly20130415.html http://primeurmagazine.com/content/weekly20130415.html

Press Releases & Reports	Date	Impact
Position paper: e-Infrastructure commons marketplace - Maryline Lengert - ESA, Bob Jones - CERN, David Foster - CERN, Steven Newhouse - EMBL-EBI	February 2014	cloudscapeseries.eu The position paper focused on the benefits of the e-Infrastructure commons marketplace, funding sustainability and business opportunities and the vision for the future and expected impact.
Master Thesis: Exploring Value Co-creation in Cloud-Computing Platform Ecosystem: A Revelatory Case Study - Michael Blaschke	February 2014	M.Sc. Computer and Information Science, University of Augsburg The case of Helix Nebula – The Science Cloud appeared to be suited to Michael Blaschke study's objective in that the ecosystem (and cloud adoption), utilizes two business models that entail co-creation of value.
The Helix Nebula Market Place kick-off press release	May 2014	http://www.helix-nebula.eu/media/press-releases/european-providers-support-new-cloud-computing-marketplace-science-building-the.html

Table 4: HN Press Releases and Reports

3.5 Helix Nebula targeted communications

Helix Nebula produced several materials in different formats in order to reach different stakeholder groups:

- 26 video interviews have been recorded to offer to the big public the HN partners' perspective on the initiative and its results. On top of these, other interviews have been performed by the Helix Nebula representatives for important media channels such as GIGAOM, iSGTW, etc. to address specific target audience.
- 2 videos on the overall initiatives have been produced, to give in three minutes the vision, the objectives and the results of the HN initiative.

- 18 presentations have been produced, to present the HN initiative to different events and different target groups.
- 3 newsletters have been circulated to the HN database and to the partner networks. The main goal was to inform them about the progresses made by the project.

Relevant promotional material has also been created to give visibility to Helix Nebula at external events: pop up banners, posters and fliers have been created and continuously updated for the full duration of the project.

All the above-mentioned material supported the Helix Nebula communication towards target stakeholders.

3.6 Final Impact

The purpose of this section is to compare the planned actions from the engagement plan with the actions undertaken by the Helix Nebula consortium members.

As shown in Table 1: Actions – Impact of actions, most of the intended actions from the engagement plan have been covered and extended by additional ones.

To mention a few representative examples:

- **Cloudscape-VI**, rather than two actions, a total of seven were undertaken, with a result of a winning “Best Position paper” at the event. Apart from the presentation on HN and the demonstration of the HNX platform, a full demo was also presented, as well as a double presentation on HN’s user and supplier perspectives.
- Another example is **LAMPRE**, where rather than the two declared actions, three took place leading to contractual steps.
- **EGI – InSPIRE**, instead of 7 planned steps, 8 were reported.

The table below shows an analytic comparison of the committed and the undertaken actions.

Stakeholders	Actions in the Engagement Plan	Reported actions
EGI - InSPIRE	7 actions	8 actions
EUDAT	1 action	1 action
GÉANT	2 actions	2 actions
PRACE	2 actions	3 actions
CloudWatch	1 action	1 action
FI WARE (http://www.fi-ware.eu)	1 action	1 action

Stakeholders	Actions in the Engagement Plan	Reported actions
ECMWF (European Centre for Medium-Range Weather Forecasts)	1 action	1 action
ESFRI Projects	4 actions	6 actions
GEOOWOW	2 actions	3 actions
iMarine	2 actions	2 actions
LAMPRE	2 actions	2 actions
CIRCE (http://www.circe-space.eu)	1 action From the actions mentioned in Engagement Plan, only one had to do with future engagement and it was achieved.	1 action
National funding agencies	1 action From the actions mentioned in Engagement Plan, only one had to do with future engagement and it was achieved as it is reported in the 'Undertaken Actions'	1 action
Cloudscape-VI	2 actions	7 actions
eIRG & ESFRI - e-Infrastructure policy groups	1 action From the actions mentioned in Engagement Plan, only one had to do with future engagement and it was achieved as it is reported in the 'Undertaken Actions'	1 action
European Cloud Partnership & Cloud for Europe initiative	2 actions	2 actions
EIROforum	2 actions	2 actions
RDA - Research Data Alliance	2 actions	2 actions
EuroCloud	2 actions	Waiting for HNX to be up and running
FitSM	2 actions	2 actions

Table 5: Actions compared

4 Future action plan for the production platform

The official launch of the Helix Nebula Marketplace (HNX) in May 2014 represents a major milestone both for Helix Nebula in particular and for European cloud in general. Following a protracted period of testing and piloting, the cloud providers were confident that they had a service offering which would prove useful and attractive to the demand side. It was given a further impetus over the summer of 2013, when the PRISM revelations by Edward Snowden revived interest in European alternatives to the American cloud providers. However, there followed a hiatus, where it was not clear whether either the will or the necessary procurement structures were in place for the services to be purchased. The decision was therefore taken, and announced at the HN General Assembly in Heidelberg in September 2013, to launch such a marketplace.

The Marketplace as initially launched is supported by eight providers, and consists of a central broker, running the so-called Blue Box, and four Infrastructure as a Service (IaaS) providers behind it. It is accessed using a portal, API or the provided EC2 Bridge. The EGI Federated Cloud environment is being integrated into this structure, and GEANT is used as the access network. A full support structure, across all the involved suppliers, has been built into the service. Contracting is currently arranged in two ways: with the broker for the central service, and bilaterally with each cloud provider for use of their IaaS platform, for which a Master Services Agreement is in preparation.

Discussions have taken place with the current demand side as to whether simple, cloud-suitable procurement structures could be put in place, to allow the services to be delivered flexibly and quickly, without elaborate procurement obstacles to overcome. The suppliers will also be monitoring the emergence of Pre-Commercial Procurement initiatives from the Cloud for Europe project, as presaging possible longer-term solutions to such issues.

Applications have been made to the EC for further funding to set up a procurement network of public research organisations under the project name PICSE.

A number of developments are in hand regarding this HNX platform. Firstly, enhancements to the platform itself and how it is delivered as a service: e.g. a unified contracting and billing structure, and improved EGI and GEANT integration. The enhancements will be rolled out as part of a structured release plan over the coming months and years. Application has been made to the EC for further funding to develop the required facilities further, under the project name XZELCloud, focusing on real-world use cases, such as Open City services.


In addition, development is taking place towards providing Information as a Service in this environment. A number of pilot projects have been proposed to ESA, making use of their Earth Observation data. Beyond that, it is intended to create an environment where not only those projects can be accommodated, but which would also provide an ideal vehicle for further dissemination of the data from the newly-launched Sentinel satellites.

Regarding the dissemination of the project now that the work package comes to an end, it will not be disrupted and Trust-It, the company subcontracted by CSA and the one that revamped the HN website, volunteered to continue to offer gratis its services on the dissemination of the project and its future actions.

5 Annex 1: Summary of promotional material

This section reports samples of the promotional material generated by the project:

5 Fliers



Big science teams up with big business

Helix Nebula – the Science Cloud is addressing the technical, legal, and procedural issues to build a federated commercial cloud service


About Helix Nebula

Helix Nebula is a new, pioneering partnership between big science and big business in Europe that is charting a course towards the sustainable provision of cloud computing - the Science Cloud. This game-changing strategy will boost scientific innovation and bring new discoveries through novel services and products. Procurement processes and governance issues for a framework of a public/private partnership will be appraised over a 2-year period, helping to define the next steps of the Science Cloud Strategic Plan.

The Partnership

The scale and complexity of the Helix platform is far beyond what can be provided by any single company. The Helix Nebula public/private partnership brings together supporters as communities of interest. Partners and supporters boast a rich diversity of experience and skills to drive the Helix Nebula vision: Atos, CERN, CloudSigma, CNR-IREA, Cloud Security Alliance, DLR, EGI.eu, EMBL, ESA, Interoute, Logica, OpenNebula.org, SAP, SixSq, T-Systems, Terradue srl and The Server Labs.

Helix Nebula Participants

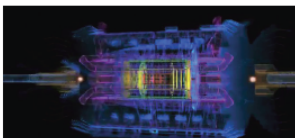


Helix Nebula Use Cases

Helix Nebula will deploy and test three flagship projects proposed by CERN, EMBL and ESA.

Atlas High Energy Physics

ATLAS is a particle physics experiment at the Large Hadron Collider at CERN, Geneva. The ATLAS detector is searching for new discoveries in the collisions of protons of extraordinarily high energy. ATLAS will learn about the basic forces that have shaped our Universe since the beginning of time and that will determine its fate. This flagship use case is focused on evaluating the use of cloud technologies for ATLAS data processing; the transparent integration of cloud resources with software and services implementing the ATLAS cloud model.

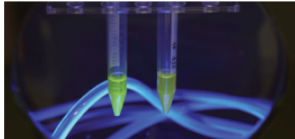


"CERN's computing capacity needs to keep up with the enormous amount of data coming from the Large Hadron Collider and we see Helix Nebula- the Science Cloud as a great way of working with industry to meet this challenge"

Frédéric Hemmer, head of CERN's IT department

Genomic Assembly in the Cloud

Next Generation DNA Sequencing technologies have had a huge impact on how biological and medical research is performed today. The European Molecular Biology Laboratory (EMBL) is leading a flagship use aimed at facilitating genomic assembly and annotation and enabling deeper insights into evolution and biodiversity across a range of organisms. A leading bioinformatics pipeline will be developed to perform fast and on-demand genomic data analysis, making de novo assembly and genome annotation affordable to many more laboratories. This cloud-based approach will lay the foundations for future extension of genomic research using cloud computing infrastructures.

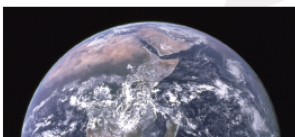


"The quantities of genomic sequence data are vast and the need for high performance computing infrastructures and bioinformatics expertise to analyse these data poses a challenge for many laboratories. Our flagship will allow scientists at EMBL and around the world to overcome this challenge by providing the right infrastructure on demand"

Rupert Lueck, head of IT services at EMBL

SuperSites Exploitation Platform

Geohazard Supersites is an international partnership of projects, organisations and scientists, involved in monitoring the dynamic and complex solid-earth system and the assessment of geohazards. This flagship use case is centered on an open-source, unified e-infrastructure for solid earth data with enhanced data products for monitoring and secure data sharing, enabling international cooperation and adoption by a larger user base than is possible today.



"Helix Nebula - the Science Cloud is a partnership with the potential to support the utmost exploitation of ESA satellite data, as well as to bring other communities on board to better understand the geophysical phenomena of our planet"

Volker Liebig, ESA Director for Earth Observation Programmes

The European Commission participates to the funding of this initiative with a two-year support action project (ID: 312305) under the Capacities Programme within FP7. This project funds the framework for the initiative and the dissemination activities while the development of the cloud services and the cost of their usage is borne by the companies and public organisations involved.

Figure 6: Helix Nebula Flier – October 2012



Summary:

Data capture, processing, analysis and archiving is central to scientific endeavour, challenging the sustainability of an approach to ICT deployment that has predominated for 25 years but is rapidly being overtaken by events. Cloud-based services offer greater efficiency, agility and innovation in delivery of services through economies of scale, multiple tenancy of irregularly-used resources and more sophisticated approaches to resource management.

HELI NEBULA - The Science Cloud - is a new, pioneering partnership between big science and big business in Europe charting the course towards the sustainable provision of cloud computing. Helix Nebula aims at supporting the IT requirements of European scientists through a compelling set of flagship use cases provided by the European Space Agency, CERN and the European Molecular Biology Laboratory to test and deploy cloud services.

Objectives:

The HELIX NEBULA Project will lead and co-ordinate these communities of interest through a two year pilot-phase during which procurement processes and governance issues for a framework of public/private partnership will be appraised. Three flagship use cases from high energy physics, molecular biology and earth-observation will be used to enable a cost-benefit analysis to be undertaken and the next stage of the Science Cloud Strategic Plan developed and approved.

Action Plan:

The support action will provide a framework for the Helix Nebula initiative to develop seven key elements of its strategy at a pan European level:

- A platform capable of public-private development into a scalable European Science Cloud;
- A flexible governance structure capable of growing alongside the infrastructure itself;
- An agreed approach to specification of functional and non-functional requirements including policies for trust, security and privacy;
- Agreements regarding inter-operability with other existing e-infrastructures;
- High-profile flagship deployments on cloud-based e-infrastructures: ATLAS high-energy physics experiment at CERN, novel de novo genomic assembly techniques at EMBL and integrated access to data held in existing Earth Observation "Super Sites" at ESA.
- Sustainable business models adhering to and supporting European-level policies;
- A roadmap and development plan for addressing issues on the road to 2020.

Beneficiaries



Contract no:
INFRA-2012-3.3 /
312301

Project Type:
Collaborative Project
and Coordination
and Support Actions

Start Date:
2012/06/01

Duration:
24 months

Total Budget:
2,908,691

Funded from the EC:
1,800,000

Total funded effort in
person months: 202

Website: www.helix-nebula.eu

Contact Person:
Bob Jones
Robert.Jones@cern.ch
Tel: +41227671482
Fax: +41227672350

Beneficiaries:
Atos, CERN,
CloudSigma, CNR-
IREA, CSA, EGI, EMBL, Logica, SAP,
T-Systems

Key words: science
cloud, cloud
computing,
e-infrastructures,
public/private
partnership, HEP,
genomics, earth
observation

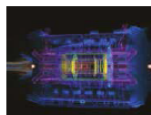
Figure 7: Helix Nebula EC project Flier – January 2013



Big science teams up
with big business

Supporting the **massive IT requirements** of scientists and **creating a secure cloud market place** for Science in **Europe**

ATLAS High Energy
Physics Cloud Use



To support the computing
capacity needs for the
ATLAS experiment

Genomic Assembly
in the Cloud



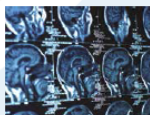
A new service to
simplify large-scale
genome analysis:
a deeper insight into
evolution and biodiversity

SuperSites
Exploitation Platform



To create an Earth
Observation platform,
focusing on earthquake
and volcano research

PIC Neuroimaging
Centre on Cloud



To improve the speed and
quality of research for
finding surrogate
biomarkers based on brain
images

About Helix Nebula

Data capture, processing, analysis and archiving are central to Helix Nebula's scientific endeavour, challenging the sustainability of an approach to ICT deployment that has predominated for 25 years but is rapidly being overtaken by events. Cloud-based services offer greater efficiency, agility and innovation in delivery of services through economies of scale, multiple tenancies of irregularly-used resources and more sophisticated approaches to resource management.

HELIX NEBULA - The Science Cloud - is a pioneering partnership between big science and big business in Europe charting the course towards the sustainable provision of cloud computing. Helix Nebula aims at supporting the IT requirements of European scientists through a compelling set of flagship use cases provided by the European Space Agency, CERN, the European Molecular Biology Laboratory and PIC Port d'Informació Científica to test and deploy cloud services.

www.helix-nebula.eu



HNX - The Helix Nebula Production Platform

In March 2014 the new HNX cloud marketplace, building on the Helix Nebula Initiative, will be launched:

- » A hybrid & federated cloud service, through collaboration between commercial providers and public e-Infrastructures to create an open cloud services market
- » A growing set of innovative flagships and large-scale applications
- » Future directions and roadmap of the overall Helix Nebula Initiative

Find out more by joining us at the

From cloud-ACTIVE to cloud-PRODUCTIVE event

14 May 2014, CERN Globe for Science and Innovation in Geneva, Switzerland

Attendance is free of charge. Register now

http://indico.cern.ch/e/Helix_Nebula_Cloud_Productive



The Helix Nebula Initiative

Users



Suppliers



Adopters




This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 312301



www.helix-nebula.eu

Figure 9: Helix Nebula Flier- February 2014

4 posters



HELIX NEBULA

THE SCIENCE CLOUD






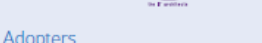
Helix Nebula - The Science Cloud, Results & Engagement, 16 January 2013, ESRI, Frascati, Italy (14:00 - 20:00 CET)
A unique opportunity to interact with cloud computing experts, SMEs, representatives of the European Commission and leading research centres.

Stay connected #HNCLOUD2013



Presentations

Opening speech by ESA Director of Human Resources, Facility Management and Informatics, Hans Georg Mockel
Keynote Speech by Thierry Van der Pyl, Director DG CONNECT/C, "Excellence in Science", European Commission
Presentation of the Helix Nebula Initiative, Maryline Lengert, ESA
Presentation of CERN's Flagship, Ramon Mediano Llanas, CERN
Presentation of EMBL's Flagship, Rupert Lueck, EMBL
Presentation of ESA's Flagship, Sveinung Loeckken, ESA
Results of the Proof of Concept Phase, Mick Symonds, Atos
Presentation of the Blue Box Concept, Marc-Élie Beglin, SixSq
The New Flagship Use Cases: Introduction, Robert Jenkins, CloudSigma
PIC Neuroimaging Center on Cloud: Port d'Informació Científica, Prof. Manuel Delgado-Rasnick
Ocean and Coastal Information SuperSite, Sarah Grimes & Dr Bruno Combal, UNESCO
Weather Data Information SuperSite, Baudouin Roulet, ECMWF
Networking Cocktail

The Partnership

Adopters

Big SCIENCE teams up with big BUSINESS

Supporting the massive IT requirements of scientists and creating an open market place for Science in Europe.

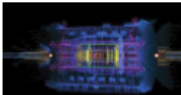
About Helix Nebula

Initially based on the needs of European IT-intense scientific research organisations, Helix Nebula aims to pave the way for the development and exploitation of a Cloud Computing Infrastructure. Ultimately, Helix Nebula will enable the inclusion of other stakeholder needs (governments, businesses and citizens).

Strategic goals

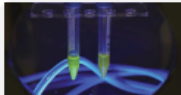
- Set up a cloud computing infrastructure for the European Research Area
- Identify and adopt policies for trust, security and privacy at the European-level
- Create a light-weight governance structure involving all stakeholders
- Define a short and medium term funding scheme

ATLAS High Energy Physics Cloud Use



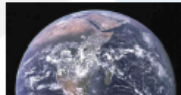
To support the computing capacity needs for the ATLAS experiment

Genomic Assembly in the Cloud



A new service to simplify large scale genome analysis; for a deeper insight into evolution and biodiversity

SuperSites Exploitation Platform




To create an Earth Observation platform, focusing on earthquake and volcano research


CERN, EMBL and ESA succeeded in deploying scientific applications each involving tens of thousands of jobs running at data centres operated by the Helix Nebula Service Providers

The New Flagship Use Cases

Helix Nebula is seeking wider participation. Find out how to become a member
www.helix-nebula.eu/index.php/home/become-a-new-member



The Blue Box



The Blue Box is the core of Helix Nebula. It is a Service Enabling Framework, a complex component providing API services and Web Portal that will enable users to interact in a central and transparent manner with all the Cloud Providers. Find out more here www.helix-nebula.eu/index.php/uploads/file/81/33/HelixNebulaArchitecture.pdf.html

The Timeline

Endorse the common strategy. Agree on the Partnership. Select flagships use cases. Define governance model

Pilot Phase. Deploy flagships. Analysis of functionality, performance & financial model

Towards an open market place for Science

2011

2012-2013

2014

Helix Nebula is seeking wider participation. Find out how to become a member www.helix-nebula.eu

Figure 10: Helix Nebula Poster- January 2013

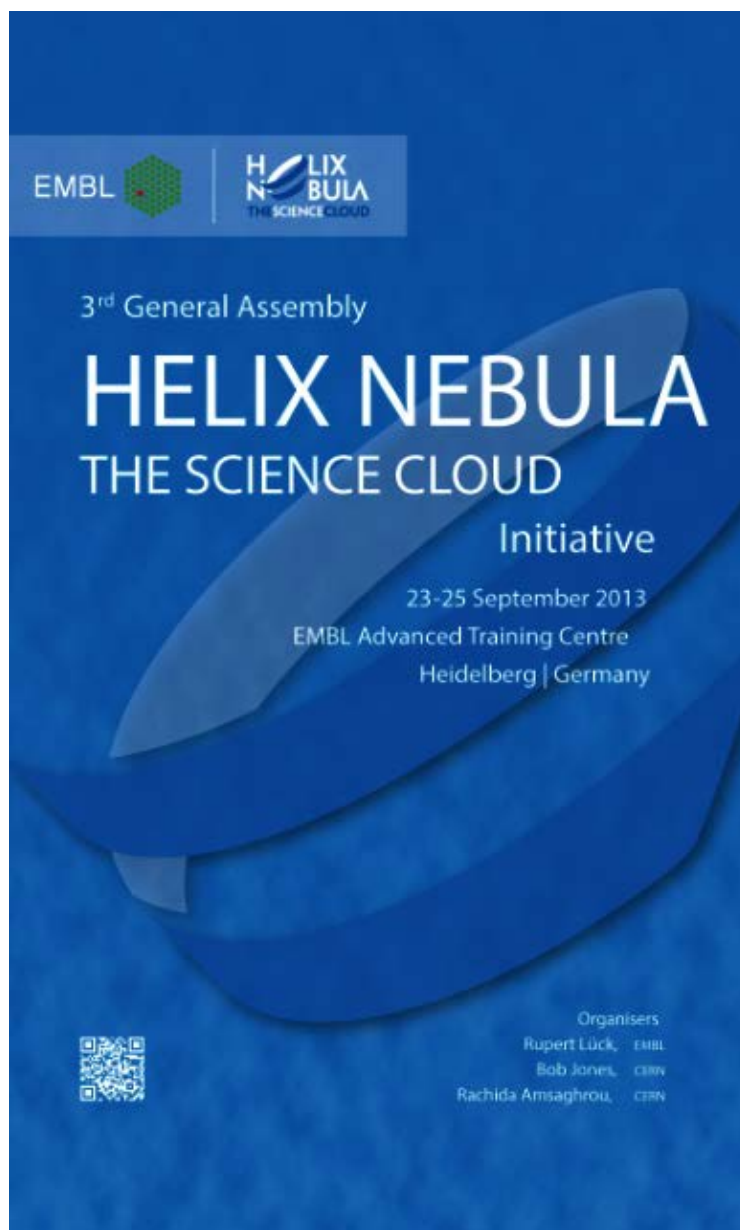


Figure 11: Helix Nebula Poster - September 2013



Figure 12: Helix Nebula Poster – April 2014

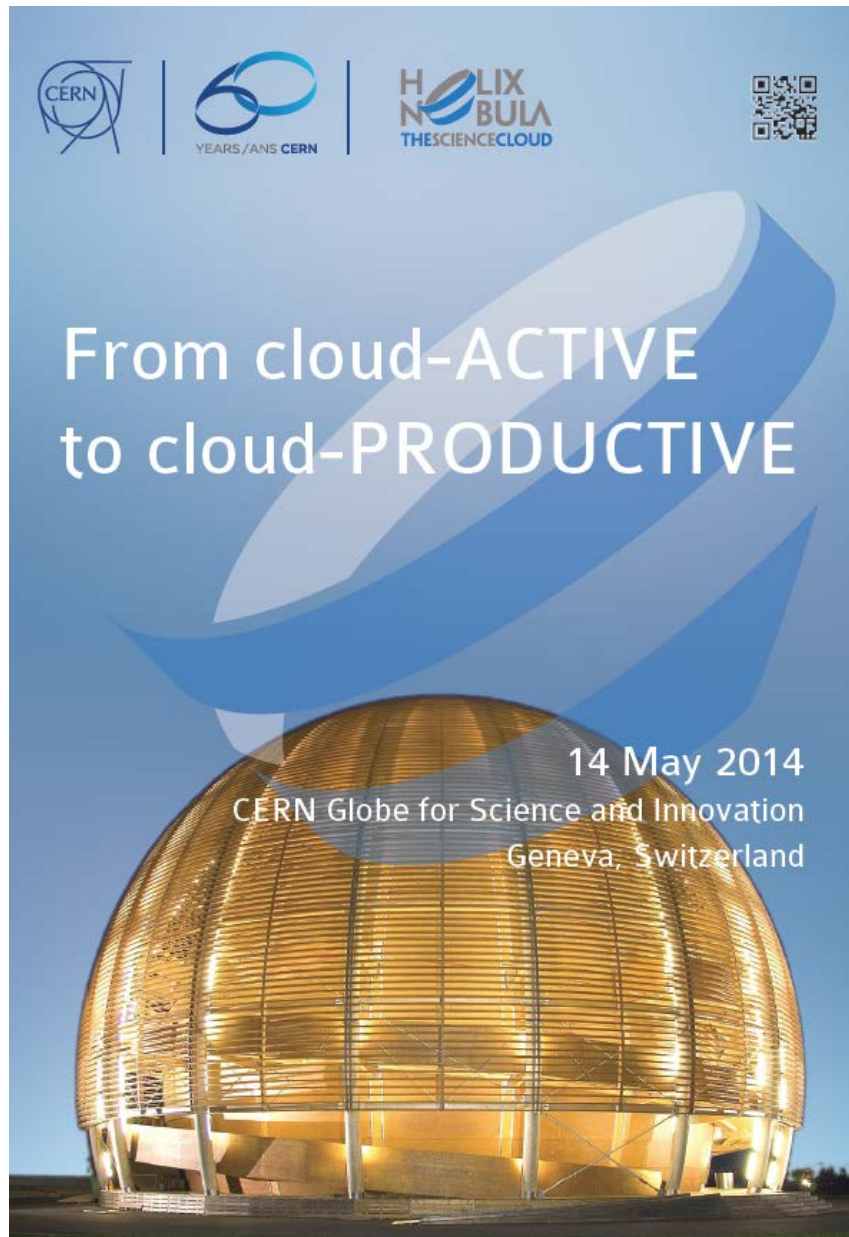


Figure 13: Helix Nebula Poster – April 2014

1 pop up updated on request



Big science teams up
with big business

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ATLAS High Energy
Physics Cloud Use



To support the
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A new service to
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Exploitation Platform



To create an Earth
Observation
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focusing on
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PIC Neuroimaging
Centre on Cloud



To improve the
speed and quality
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on brain images

The scale and depth of the Helix Nebula platform reach far beyond what can be provided by any single company. The Helix Nebula public/private partnership brings together partners and supporters to build a hybrid cloud, and boast a rich diversity of experience and skills to drive the Helix Nebula vision.

Helix Nebula is seeking wider participation.
Find out how to become a member of the initiative:
www.helix-nebula.eu/index.php/home/become-a-new-member.html

The Partnership

Users



Suppliers



Adopters



www.helix-nebula.eu

Figure 14: Helix Nebula Pop up banner – April 2014