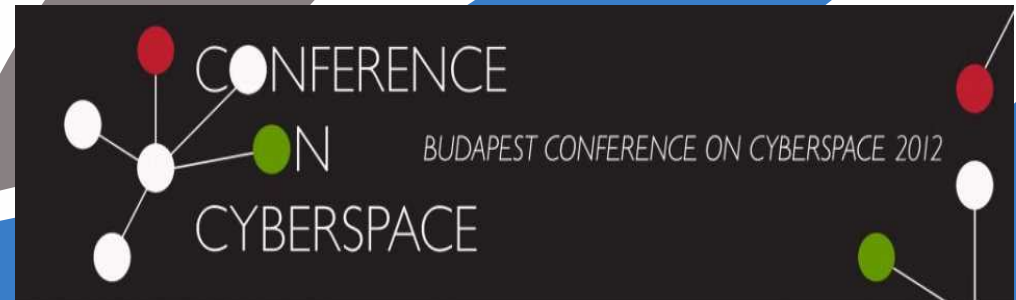
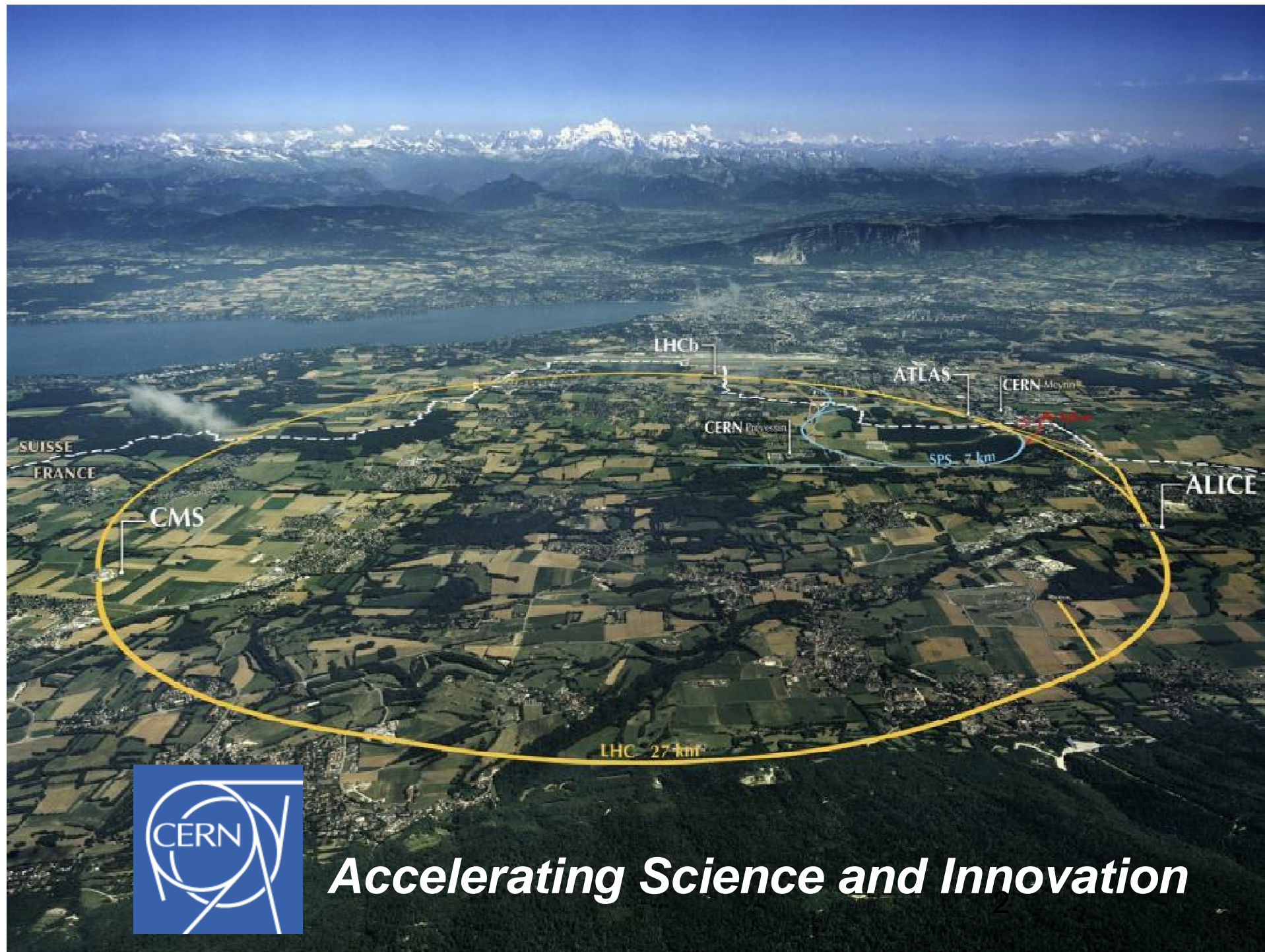




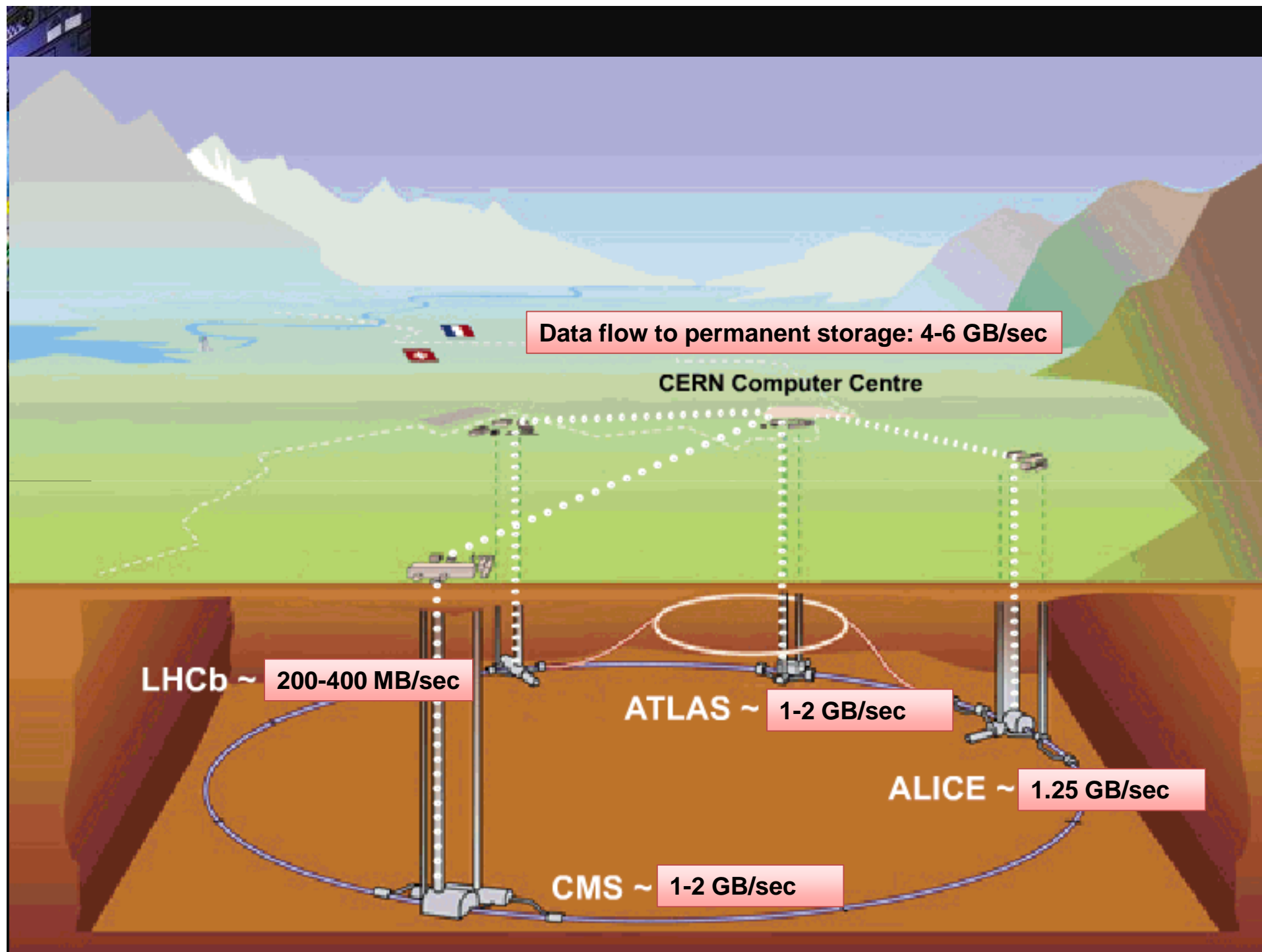
Advanced Cor

Bob Jones
Head of openlab
IT dept
CERN

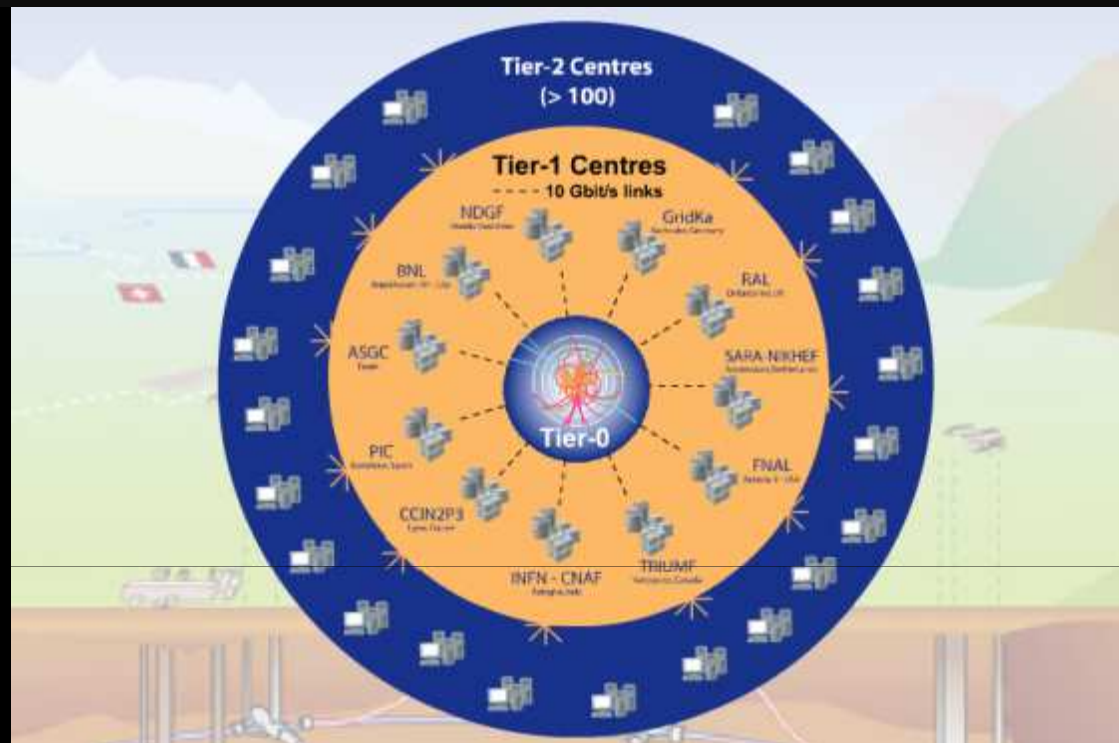




Accelerating Science and Innovation



WLCG – what and why?



Tier-0 (CERN):

- Data recording
- Initial data reconstruction
- Data distribution

Tier-1 (11 centres):

- Permanent storage
- Re-processing
- Analysis

Tier-2 (~130 centres):

- Simulation
- End-user analysis

Broader Impact of the LHC Computing Grid

- Click to edit the outline text format

- Second Outline

- Third Outline

- Fourth Outline

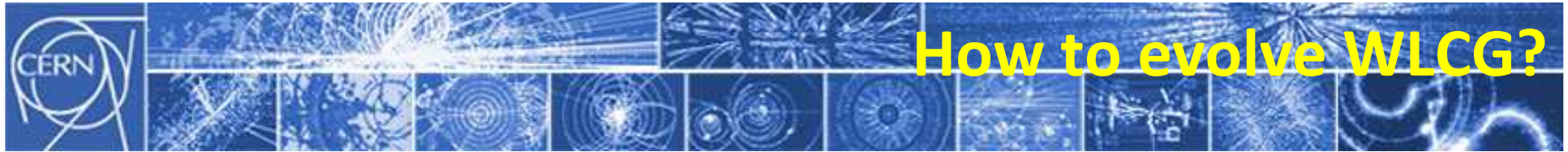
- Level

- Fifth

- Level

- Sixth

Archeology
Astronomy
Astrophysics
Civil Protection
Comp. Chemistry
Earth Sciences
Finance
Fusion
Geophysics
High Energy Physics
Life Sciences
Multimedia
Material Sciences



A distributed computing infrastructure to provide the production and analysis environments for the LHC experiments

- **Collaboration** - *The resources are distributed and provided “in-kind”*
- **Service** - *Managed and operated by a worldwide collaboration between the experiments and the participating computer centres*
- **Implementation** - *Today general grid technology with high-energy physics specific higher-level services*

Evolve the **Implementation** while preserving the **collaboration & service**



CERN openlab in a nutshell

- A science – industry partnership to drive R&D and innovation with over a decade of success
- Evaluate state-of-the-art technologies in a challenging environment and improve them
- Test in a research environment today what will be used in many business sectors tomorrow
- Train next generation of engineers/employees
- Disseminate results and outreach to new audiences <http://openlab.cern.ch>



PARTNERS




Contributor (2012)






A European Cloud Computing Partnership big science teams up with big business




Strategic Plan


- ▶ Establish multi-tenant, multi-provider cloud infrastructure
- ▶ Identify and adopt policies for trust, security and privacy
- ▶ Create governance structure
- ▶ Define funding schemes




To support the computing capacity needs for the ATLAS experiment



Setting up a new service to simplify analysis of large genomes, for a deeper insight into evolution and biodiversity



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



Email: contact@helix-nebula.eu Twitter: [HelixNebulaSC](https://twitter.com/HelixNebulaSC) Website: <http://www.helix-nebula.eu/>

Open to new members



Users

Service
Providers

Adopters

Interested
Parties

Become a new member



Over the next two years the Helix Nebula Consortium is expected to involve an increasing number of members.

The potential members are likely to be stemming from the categories below:



Users: An organisation that applies to become a user member should be a science or space organisation and commit to provide at least one flagship use case for cloud computing that can be verified and validated through a Proof of Concept with multiple service providers. Users will name a representative to participate in regular meetings of the Helix Nebula Users Board.



Service Providers: An organisation that applies to become a service provider member should commit to support a minimum set of cloud computing services and perform at least one Proof of Concept of a flagship use case with a user. Service Providers can apply to one or more of the following categories: Connectivity Provider, Infrastructure-as-a-Service Provider (IaaS) Platform-as-a-Service Provider (PaaS), Software-as-a-Service Provider (SaaS), Integrator, Consultant or Broker. Service Providers will name a representative to participate in regular meetings of the Helix Nebula Service Providers Board.



Adopters: An organisation may apply to become an adopter, if they initially do not want to be directly involved in the flagship use cases but wish to make use of the Helix Nebula's products and services on a pay-per-use basis and be able to provide feedback. Adopters may be invited to Boards (either Service Providers or Users) meetings for information purposes. Adopters will name a representative to be informed or invited by the Helix Nebula Consortium on a regular basis.



Interested Parties: An organisation may apply to become an Interested Party, if they initially do not want to be directly involved in the flagship use cases but wish to be kept informed of the work of or use information provided by the Consortium.

For all types of members a formal acceptance procedure will apply (specified hereafter), to be implemented by the Helix Nebula Management Team following the receipt of the membership request. **Membership application implies acceptance of the vision of Helix Nebula** as outlined in the strategic plan [Strategic Plan for a Scientific Cloud Computing infrastructure for Europe, CERN-OPEN-2011-036, August 2011](#), and **willingness to collaborate with the other partners** in order to achieve the vision. All decisions must be adopted by consensus of both the user organisations and service provider companies. In case of lack of consensus, decision will be taken by a qualified majority of all members of the two Boards, which must include the positive vote of the public user organisations.

All users and service providers applying to become a member of the Helix Nebula Consortium (except as an Interested Party) agree to sign a multi-lateral NDA prior to becoming an active member.

For more details and updates about how to join, write to us at contact@helix-nebula.eu

Become a new member

Contact us

Disclaimer

Privacy Policy

Cookie Disclosure

Site map

 Become a new member

Events

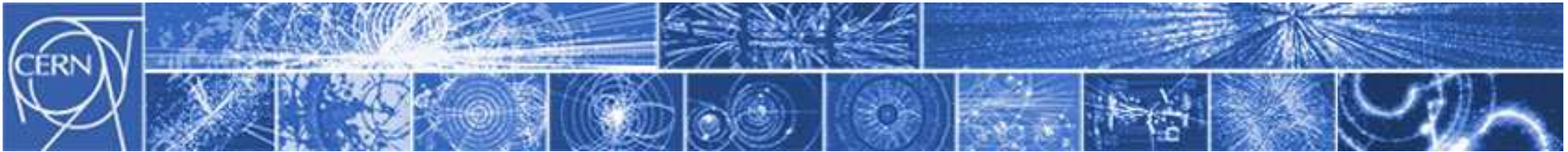


Helix Nebula @ DCI Workshop, 18 September 2012, Prague
Bob Jones (CERN) and Michael Symonds (Atos) will participate to the DCI Workshop "Distributed Computing Infrastructures for e-Science: Future Perspectives".

[More](#)

Participants





Looking to the future

- Massive adoption of virtualisation techniques by e-Science centres
 - To reduce operation costs & simplify deployment of applications using images
- Federated identity system
 - network of trust across public & private organisations
see paper <https://cdsweb.cern.ch/record/1442597>
- “Grid extensions” added to clouds (first private then public)
 - Federated identity system, support for virtual organisations, etc.
 - Use of commercial cloud services as extensions to in-house resources
- Blurring of the borders between elements of e-infrastructure (networking, grid & supercomputing)
 - Because the users & funding agencies demand it
- Emergence of a data e-infrastructure
 - Such systems are helping to create the Digital European research Area by ensuring secure access to and preservation of research data