



# WP6 – Inter-operability with e-infrastructures

Sergio Andreozzi

Strategy and Policy Manager, EGI.eu



# WP Objectives

Identifying the **interoperation** and **integration issues** between **commercial cloud infrastructures** and **publicly owned pan-European e-infrastructures** for technology and policy issues in order to define a roadmap for their integration with commercial cloud computing resources

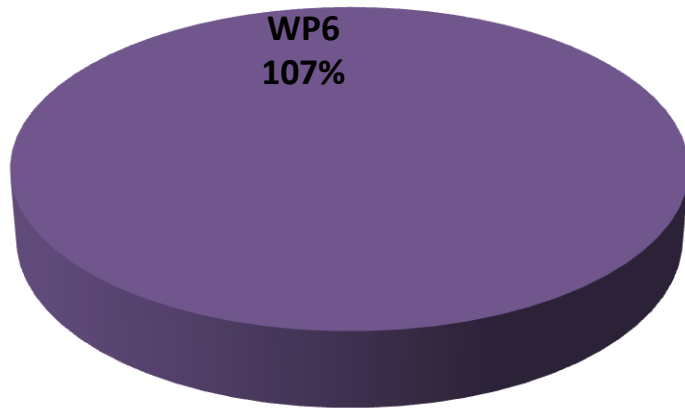
## Specific goals

Understanding the interoperation and integration issues around technology and policy between commercial cloud infrastructures and publicly owned e-Infrastructures:

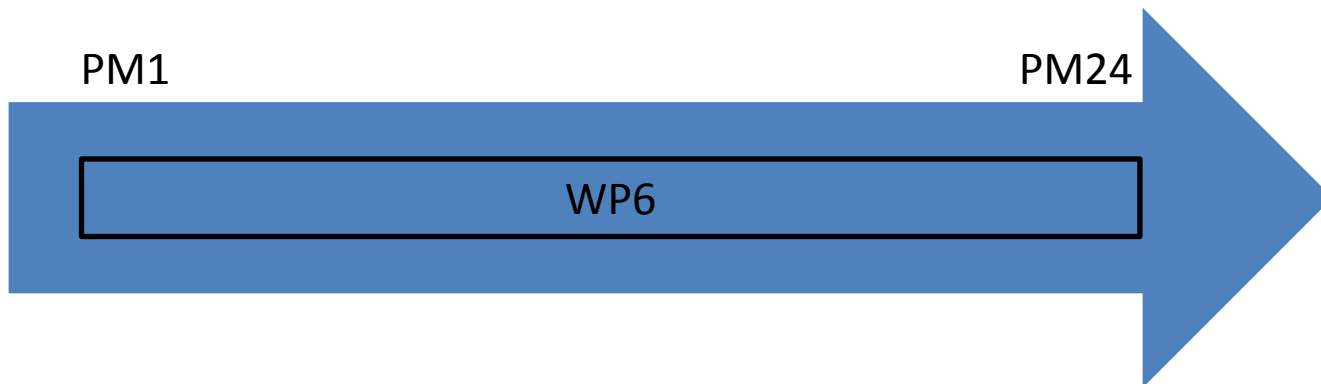
- ☞ GEANT: a pan-European network for the research and education community built on a federation of European
- ☞ National Research and Education Networks (NRENs)
- ☞ EGI: a pan-European federation of resource centres organised into National Grid Initiatives (NGIs)
- ☞ PRACE: a federation of peta-scale and high-end computing centres across Europe
- ☞ EUDAT: a project exploring the data services and support needed in Europe for the European Research Area

# Effort Contribution

Lead Beneficiary: EGI.eu



Person-Months per Participant	
Participant	Person-months
EGI.eu	13.00
<b>TOTAL</b>	<b>13.00</b>



# Recommendations from P1 review

- ☞ Technical, legal/organisational and semantic (especially on data) **interoperability plan** should be **thoroughly analysed** in the second period
- ☞ The reviewers point out the **importance of interoperability of cloud solutions with the existing e-infrastructures** as a core and critical capability for a smooth integration of new service paradigms in the ERA
- ☞ Notable is the **test case with the EGI Federated Cloud** foreseen in the second period
- ☞ Recommend to **increase the cooperation with e-infrastructure providers** (e.g. co-locating workshops, as proved in the first period, could create economies to eventually extend the number of operational events/meetings)

# Implementation of the Recommendations

- *Technical, legal/organisational and semantic (especially on data) interoperability plan should be **thoroughly analysed** in the second period*
- For each interoperability recommendation, implementation actions have been identified with owner, contributors and priority
- Interoperability workshops have been used to focus on progressing in implementing actions
- Not all actions could be implemented as contribution mainly unfunded

# Implementation of the Recommendations

- *The reviewers point out the **importance of interoperability of cloud solutions with the existing e-infrastructures** as a core and critical capability for a smooth integration of new service paradigms in the ERA*
- *Notable is the **test case with the EGI Federated Cloud** foreseen in the second period*
- Through the EGI-InSPIRE project, EGI funded the development of an OCCl connector for SlipStream (HN Blue Box)
- Version 1 (for SlipStream 1.x) successfully enabled to deploy the ESA flagship onto the EGI Federated Cloud
- Version 2 (for SlipStream 2.x) is under testing for enabling the deployment of the ATLAS/CMS flagship in the hybrid model
  - Scheduled for HNX 1.1

# Implementation of the Recommendations

- ☞ *Recommend to **increase the cooperation with e-infrastructure providers** (e.g. co-locating workshops, as proved in the first period, could create economies to eventually extend the number of operational events/meetings)*
  
- ☞ Three interoperability workshops were expected from the DoW
  - ☞ Two out of three were co-located with EGI forums
  
- ☞ WP6 supported the organisation of an extra interoperability workshop co-located with the EGI Community Forum (May 2014)
  
- ☞ In total, three out of four workshops were co-located with EGI events
  1. **EGI Technical Forum, Prague, Sep 2012**
  2. Helix Nebula General Assembly, Frascati, Jan 2013
  3. **EGI Technical Forum, Madrid, Sep 2013**
  4. **EGI Community Forum, Helsinki, May 2014**

# Scientific/technical achievements and their impact

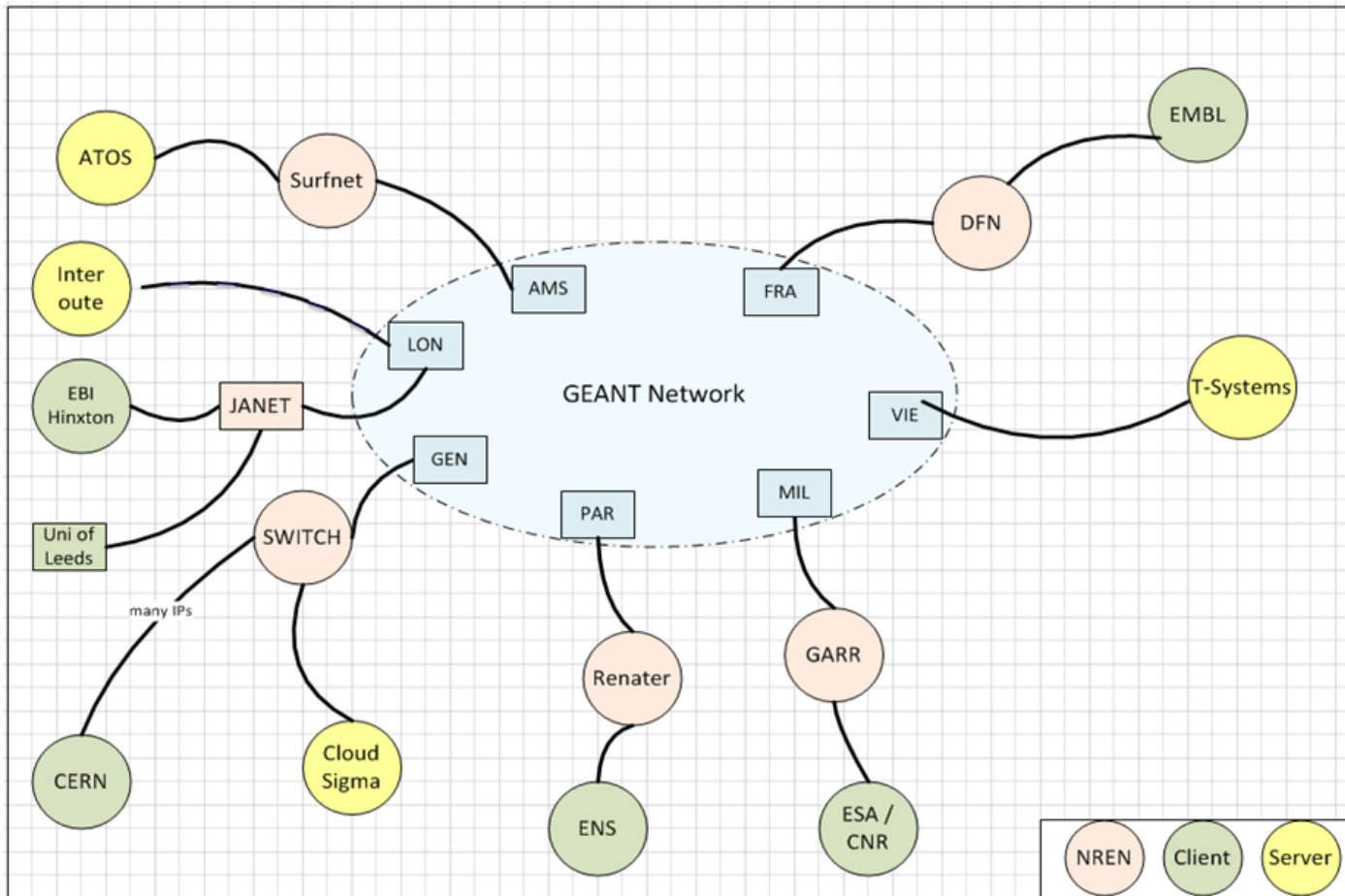
- 17 high level recommendations with implementation actions, tracked progress
- Provide focus on key interoperability aspects to be addressed

#	Description	Action	P	S	Owner	Progress
1	Ensure a level playing field for the various players in the service delivery field and eradicate any potential fear of unfair internal competition among the publicly funded and commercial actors	1.1 Agree on appropriate policies/business models that ensure level playing field when accessing resources through the <u>BlueBox</u>	H	P	HN WP6	<p>EGI affiliated resource centres can offer their resources through the Helix Nebula marketplace: 1) free of charge to user communities that received a grant (resource owners) and aim to expand the resource usage to commercial providers; EGI resource providers do not appear in the marketplace and are enabled on case by case to eligible users; 2) pay as you go for EGI resource providers that can support this business model.</p> <p>Open actions:</p> <ul style="list-style-type: none"> <li>- agree with CGI on the policy and possible pricing scheme for using HNX to access free resources</li> <li>- define the commercial agreement for EGI resource centres</li> </ul>
2	Both publicly funded and commercial cloud providers should agree on a core set of open standards endorsed by the user communities and liaise with ETSI to ensure that their view on standards selection and road-mapping is considered	2.1 Agree on a minimum set of agreed formats to simplify interoperability	H	P	HN <u>TechArch</u>	<p>Helix Nebula adopted an adapter-based approach to technical interoperability where programmatic calls are translated from common user-facing interface to the providers.</p> <p>Common formats that have been defined or adopted are:</p> <ul style="list-style-type: none"> <li>- connector architecture including OCCI</li> <li>- most connectors use common <u>libcloud</u> based capabilities</li> </ul>



# Scientific/technical achievements and their impact

## Connection of Helix Nebula partners to GÉANT



Support for first 6 months of production

Supplier-to-supplier supported for ESA case

Business model will be reviewed during the period

# Scientific/technical achievements and their impact

- FitSM is a lightweight IT service management for federated infrastructures (output of EC funded FedSM project)
  - Based on ITIL, CoBIT, ISO20K
- Through interoperability workshops, FedSM experts were invited
- This led to decision to adopt FitSM and organise a dedicated training + certification + implementation workshop for Helix Nebula experts (Darmstadt, Jan 2014)

## Impact:

- IT service management interoperability with EGI
- Exploitation of EC project results
- Increased maturity of service management and skills



# Scientific/technical achievements and their impact

Customers/User

Integration with EGI Federated  
Cloud through an OCCI connector



Web, Console or Broker API

Broker



Cloud Providers

OCCI

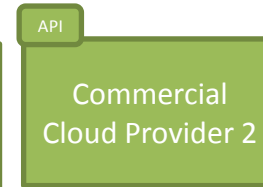
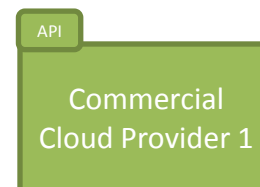
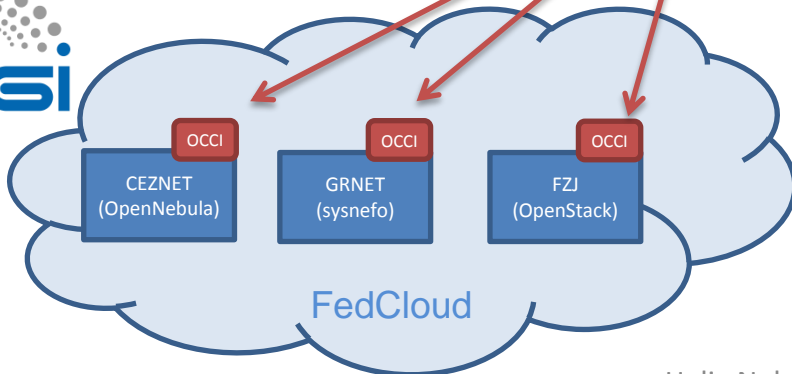
OCCI

OCCI

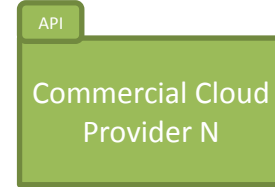
Native  
CP API

Native  
CP API

Native  
CP API



...



# Deliverables and Milestones – Period 2

Type	Del. no	Name	Nature	Dissemination level	Date Delivered
Mil	16	Technical workshop (co-located)	Report	PU	30 Oct 2013
Del	6.2	Roadmap for the integration and interoperation of commercial cloud with e-Infrastructures	Report	PU	6 Jun 2014

# Overall modifications, corrective actions, re-tuning of objectives

None

# Exploitation and use of foreground

- Interoperability roadmap
  - will serve as a reference to guide future joint actions among commercial providers and publicly funded e-Infrastructures
  - It can be used by policy makers to understand gaps
- The interoperability with the EGI Federated Cloud and the integration with GEANT/NRENs can open up the possibility for new business models to serve the ERA

# Collaboration with other beneficiaries

- TechArch, ServArch, Wp4, WP5, WP7 for the interoperability analysis/implementation
- WP2 for dissemination

# Interaction with other FP7 projects, and stakeholders outside the consortium

- ☞ FedSM
- ☞ EGI-InSPIRE
- ☞ DANTE
- ☞ PRACE
- ☞ EUDAT
- ☞ SixSq



# Contribution to the dissemination of project results

- Support to dissemination of news, events, results via EGI channels
- Co-location of interoperability workshops with EGI events
- Demo of ESA flagship deployment at Future Internet Assembly 2014