



PHOSPHORUS

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**Lambda User Controlled Infrastructure
for European Research**

PHOSPHORUS Team

**1st EU – Japan Symposium on NGN and Future of Internet
Centre Albert Borschette, 9-10.06.2008**

Main objectives

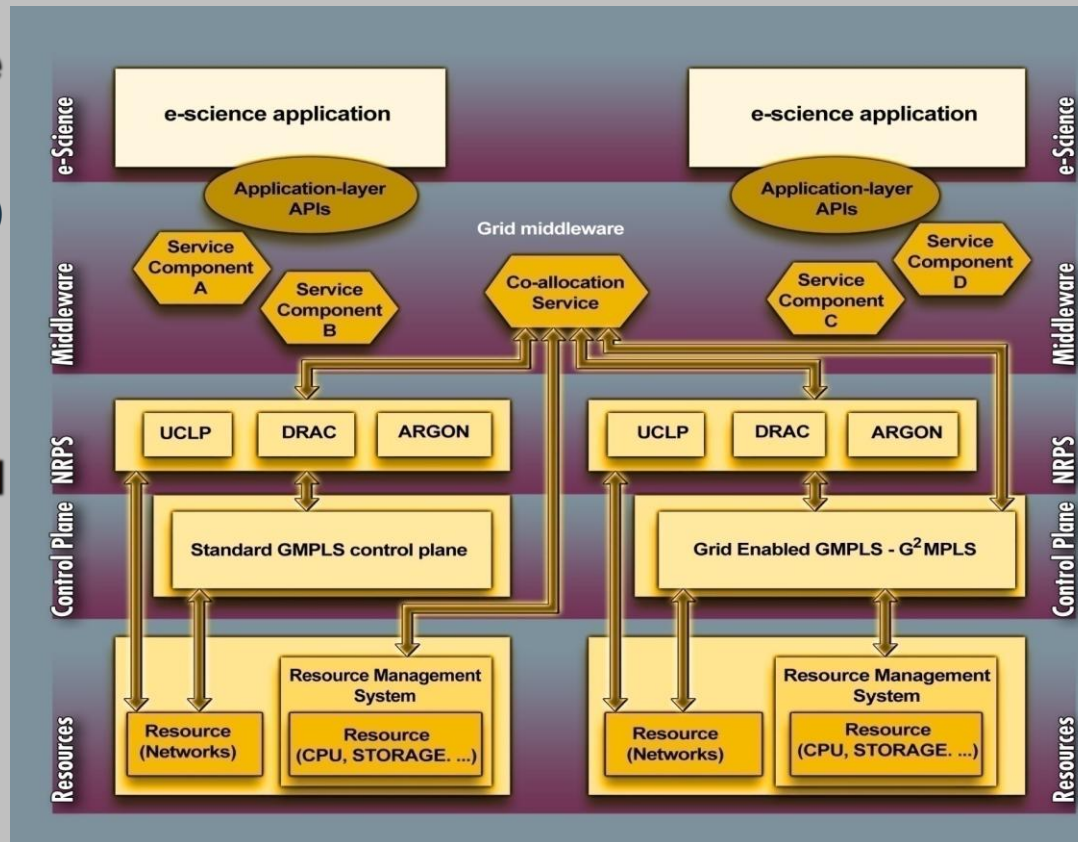


- **Architecture and software solutions** for the on-demand end-to-end **Grid & Network Services** (GNS)
 - single-step provisioning of network and Grid resources across Service and Control Planes on top of the optical transport network
 - **A vertical approach across 3-layers:**
 - Application Service Plane (**Grids**)
 - Network Resource Provisioning Plane (**DRAC, UCLP, ARGON**)
 - Network Control Plane (**Grid-GMPLS – G²MPLS**)
- **Assessment and demonstrations in a global test-bed** involving EU NRENs, GÉANT2, Cross Border Dark Fibre, GLIF, non EU research centers (CRC)
 - large-scale validation of project's achievements
 - potential broad impact and easy **take-up (sw and recomms) by NRENs & HPCs**

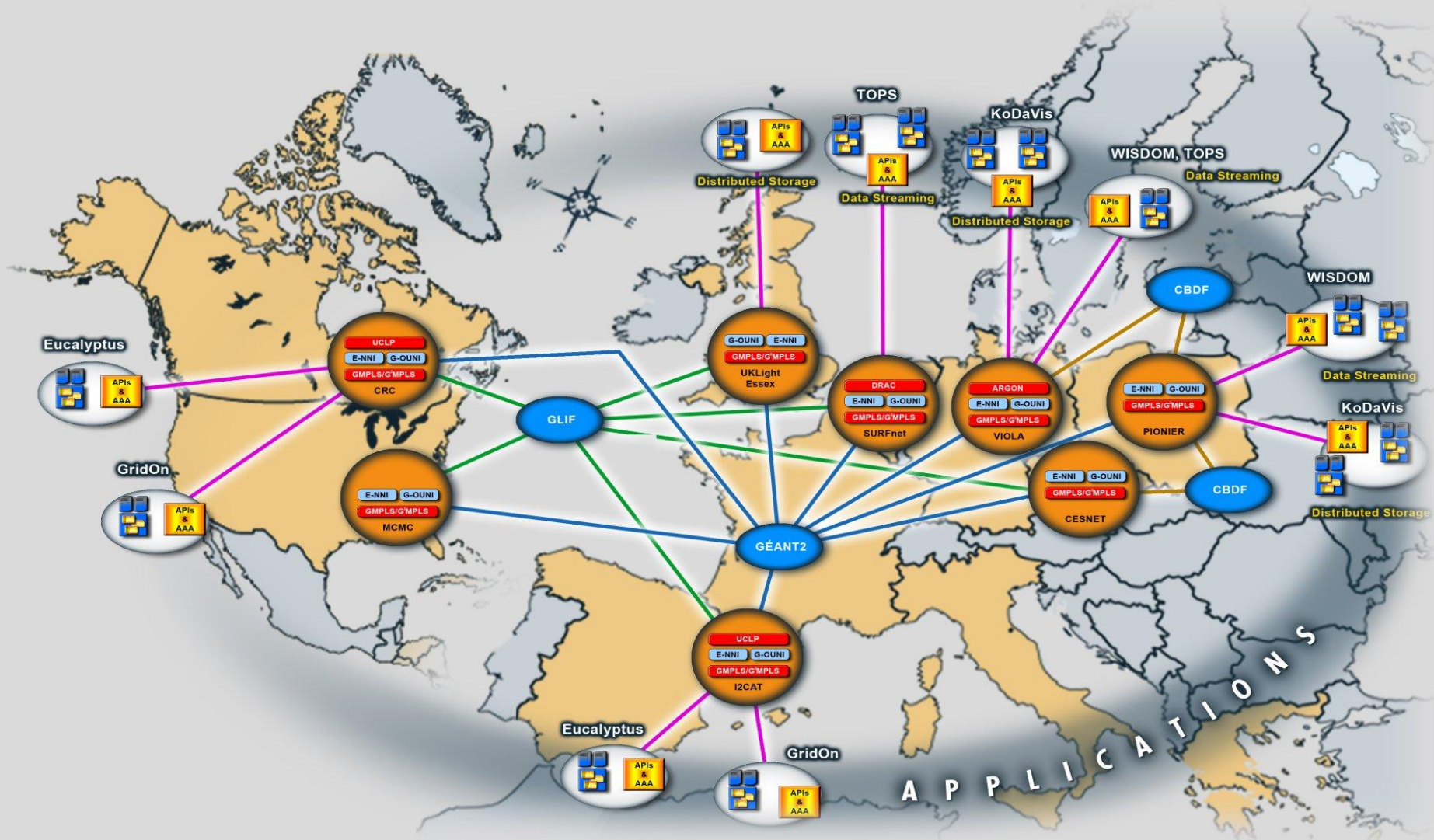
Achievements



- Interoperation among NRPS-es through **Network Service Plane** (open source sw)
- Grid-enabled GMPLS (**G²MPLS**) architecture and prototypal controllers (open source sw)
- Grid **applications and middleware adapted / extended** for PHOSPHORUS services
- Generic AAA Authorisation architecture (**GAAA-AuthZ**) for Optical Network Resource Provisioning (**ONRP**)
- Supporting studies, simulations and design recommendations



Multi-domain testbed



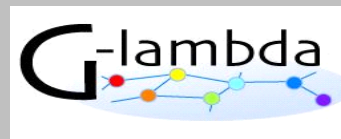
Proposal of cooperation



■ A solid framework for the development of **synergies**

• **Collaboration across Three Continents**

- EU - Phosphorus,
- Japan - G.lambda,
- US - EnLIGHTned Computing,



- for interconnected testbeds and develop/ standardize common interfaces for Grid Network Services

- Discussions with **Internet2** for the integration of our BoD systems (DICE)

■ **Contributions to std. development process**

- Architecture specifications and experimentations **directly feed / stimulate discussions with relevant standardization bodies** (OGF in particular, but potentially ETSI, ITU-T , IETF)
- OGF has been the main collector of Phosphorus std. contributions in the past year
 - Approved OGF documents (2)
 - Working Group / Research Groups drafts (7+)
 - Directly steering Working Groups / Research Groups (5+)
 - **FI-RG** (Firewall Issues)
 - **GHPN-RG** (Grid High Performance Networking)
 - **NML-WG** (Network Markup Language)
 - **GRAAP-WG** (Grid Resource Allocation Agreement Protocol)
 - **GSA-RG** (Grid Scheduling Architecture)

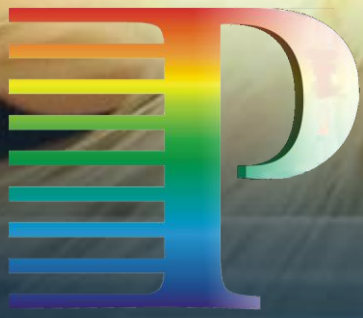


■ Openness to **interoperability events**

- A powerful and unique global and multi-domain **optical testbed infrastructure for experiments and standard/research validation**
 - multi-domain integration of Control Plane (G²MPLS), NRPS-es (UCLP, DRAC, ARGON), Grids (UNICORE, GLOBUS)
 - advanced network devices + experimental hw and research prototypes
 - **established high-capacity lightpath links between Europe and Japan**

■ Synchronise the possibility to establish common projects

- **How such projects could be funded by EC and Japan funding bodies?**



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Thank you

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