DOLFIN

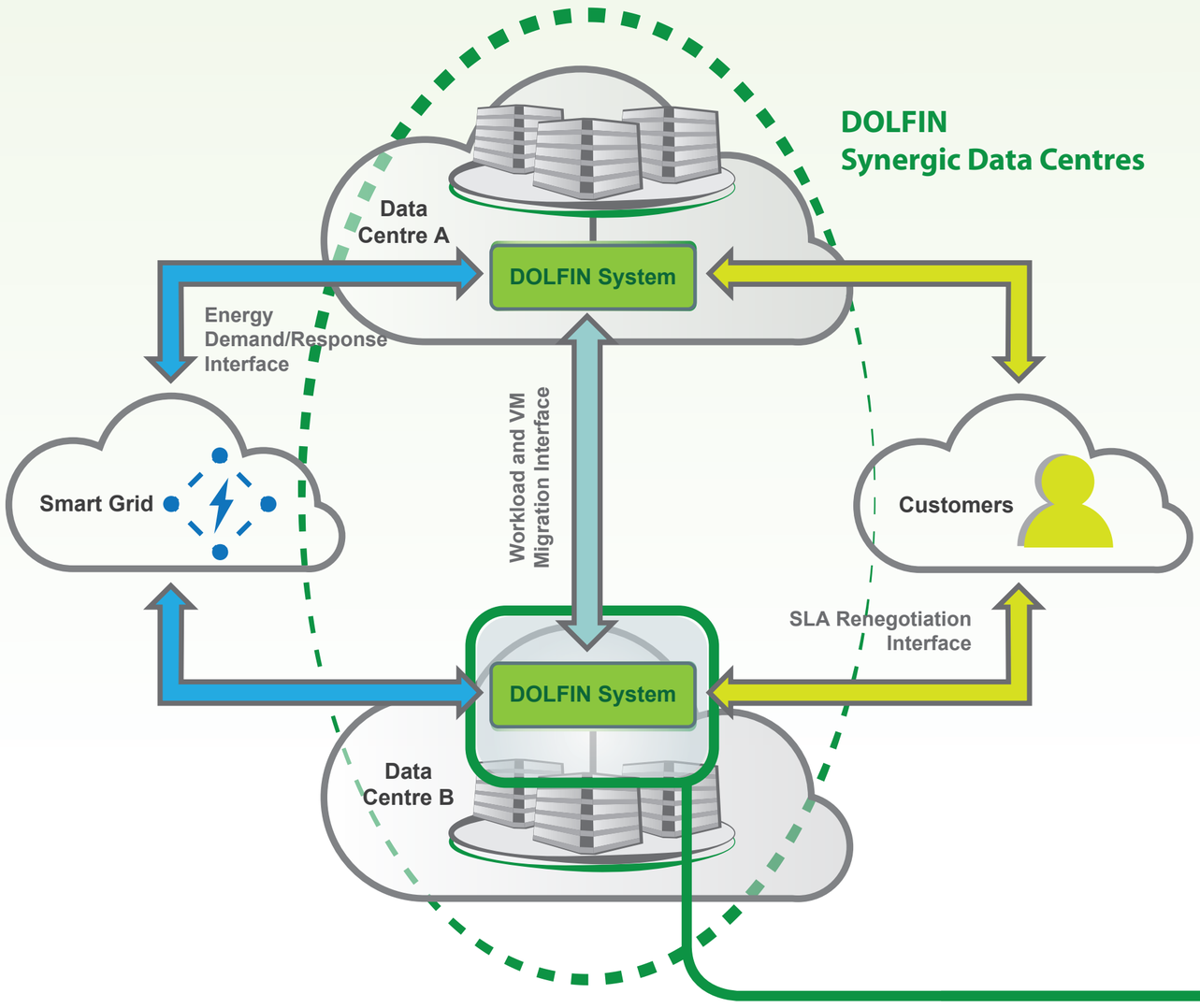
Data Centres Optimization
for energy-efficient and environmentalLy
Friendly INternet

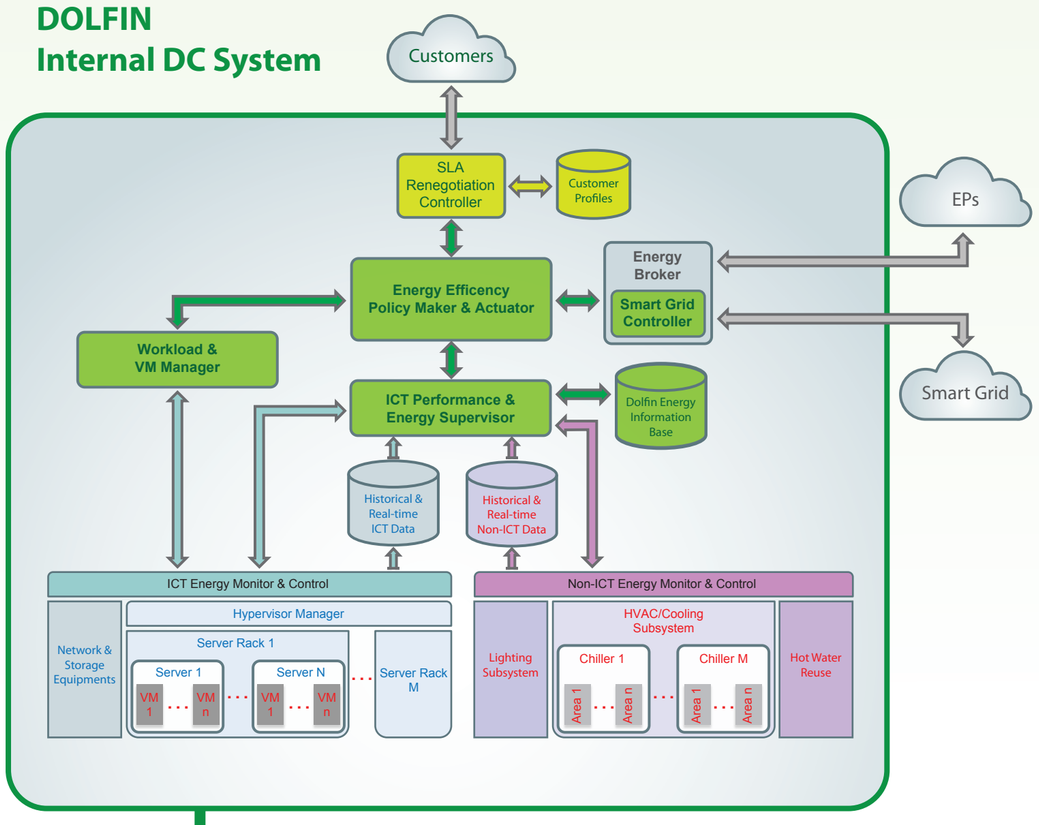
About DOLFIN

DOLFIN aims to drastically improve current DC energy efficiency as well as establishing viable interfaces allowing inter-DC cooperation, dynamic SLA renegotiation and workload redistribution. Today, most DCs are part of computing and storage clouds, offering their customers Virtual Machines (VMs) as a virtual operating environment. DOLFIN will model, monitor, and measure energy consumption and enable seamless, autonomic migration of VMs between servers of the same DC or across a group of Energy-conscious, Synergetic DCs.

DOLFIN Goals

- Optimizing the energy consumption within the limits of a single DC
- Optimizing the cumulative energy consumption in a group of DCs
- Optimizing the energy consumption at the smart city level and stabilizing the Smart Grid

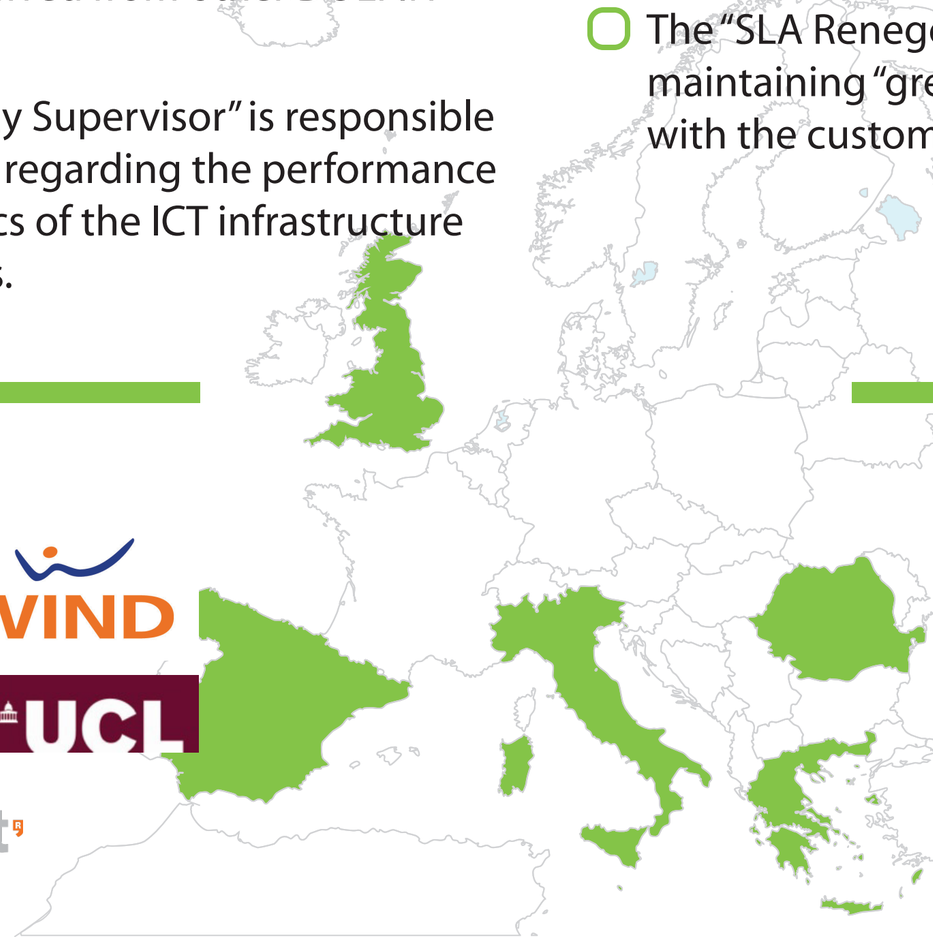




DOLFIN Overall Structure

At DC level a sets of energy control and measurement functions are defined and are implemented by specialized modules, each of them is responsible of a subset of actions.

- The "Energy Efficency Policy Maker & Actuator" is responsible for activating or deactivating energy policies, based on the criteria defined or the input received from other DOLFIN components.
- The "ICT Performance and Energy Supervisor" is responsible for maintaining the information regarding the performance and energy-consumption metrics of the ICT infrastructure and other non-ICT DC's facilities.
- The "Workload & VM Manager" is a specialised component that controls the process of workload and VM migration inside the DC and Cross-DCs.
- The "Smart Grid Controller" is responsible for interacting with the Smart Grid network. It defines and utilises the energy demand/response interface.
- The "SLA Renegotiation Controller" is responsible for maintaining "green-SLA" information and for negotiating it with the customers.



DOLFIN Consortium

interoute — from the ground to the cloud
SIEMENS
WIND
SYNELIXIS
NEXTWORKS — ENGINEERING FORWARD
UCL
grnet — Networking Research and Education
i2cat

DOLFIN at a glance

Project Number: 609140
Strategic objective: FP7-SMARTCITIES-2013 (ICT-2013.6.2)

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