

New green datacenter launched in the south of Belgium

- **This datacenter meets the highest market standards in terms of redundancy and energy efficiency.**
- **This datacenter is connected to major European hubs.**

Agility Center Cofely: it is the perfect interface for deploying IT activities nowadays.

1. What is a “green” datacenter?

A green datacenter is a datacenter where the HVAC, electrical installations and computer systems management are designed to optimize energy efficiency. Green datacenters are part of a global trend (referred to as *Green IT* or *Green computing*): the energy performance of all the computing production tools, including technical equipment in the datacenters but also servers and telecommunications, is systematically measured and optimized.

2. Why does energy efficiency matter for datacenters?

To meet the increasing demand of the data processing sector, the requirements of data processing rooms in terms of surface area are exploding. A Google search is equivalent, for example, to the energy consumed for one hour by an energy-saving bulb. This is because each time an internet user (or a payment terminal user, for example) presses a key, a server gets activated. The number of servers throughout the world is estimated to be approximately 44 million units. These electronic brains in our “knowledge society” are essentially grouped in the 2087 datacenters on the planet. When it is known that a datacenter of approximately 1500 m2 consumes on average around 40 GWh, that is to say the energy equivalent to 10,000 households, the stakes relating to the improvement of the energy efficiency of these complex systems are better understood.

3. Where does the increasing demand for datacenters come from?

In our “knowledge society”, datacenters have become essential. In order to ensure the security of their data, all companies need these centers, which contain the majority of computer servers on the planet. For these companies, installing their equipment in a datacenter enables them to reduce their operational cost. Moreover, private requirements in terms of storage are also constantly increasing. Our “knowledge and multimedia society” stores millions of data that it generates digitally, in contrast to paper media. Finally, the great increase in social media and networks, which also increases demand for datacenters, should certainly not be ignored.

It should also be noted that not all datacenters have the same requirements. A bank cannot permit itself to reduce its reliability and resilience level. On the other hand, this poses fewer problems to actors in the internet world such as Yahoo, Facebook, Amazon, etc., who use the Cloud. It must be remembered that, the more severe the reliability and resilience criteria demanded, the more energy will be consumed by the datacenter.

4. How does Cofely respond to the demand for datacenters?

In general terms, Cofely offers its clients the technical, facility and energy management of their installations, in a spirit of real partnership, with a long-term vision and for an optimised TCO (*Total Cost of Ownership*). More precisely (for datacenters), the company sets up completely suited operating and management procedures in order to guarantee the availability of the electrical and refrigeration capacities installed, for all the data processing equipment. The credo: no interruption of electrical supply to the servers and no interruption of the cooling of the rooms. Continuity of functioning plays a crucial role in datacenters.

These veritable “energy-consuming factories” consume and heat enormously. They therefore need an effective cooling system. Cofely has developed and patented a ventilation installation called FRAU, using “free” external air to cool the rooms equipped with racks. FRAU is an abbreviation for FRee cooling Autonomous Unit. The entire advantage of this system lies in the fact that it revisits a concept well known in the building sector: *free-cooling*.

This approach makes it possible to respond to specific requirements in terms of energy efficiency of datacenters, with great flexibility and excellent reliability. The result is spectacular with regard to efficiency. The only restriction is the cooling capacity per m², limited to 2.5 kW/m².

Free-cooling uses the external air to cool the interior of an installation. An ingenious idea that can be envisaged today because the quality of servers has greatly changed. In 2013, it is possible that data processing systems can withstand a temperature regime of 21°C to 36°C. The

use of fresh air, when this is at a lower temperature than this range, makes it possible to achieve substantial energy savings.

For the datacenter in the Crealys park, the only water used provides a sufficient humidity level for the data processing equipment. To this end, rainwater tanks are provided and provide most of the requirements.

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5. When will the Agility Center Cofely be up and running? Which are the first companies to use it, at what capacity?

The long-term project is to establish a datacenter of ten IT rooms of 514 m² with a load of 1000 W/m² that can be developed to 2000 W/m². The first implementation phase concerns three rooms. During this phase, the load of the datacenter will amount to 1000 W/m². The first three rooms were commissioned on 1 October 2013. Two of these rooms host the GDF SUEZ data processing services. The third is currently available. All the companies that use the rooms in the datacenter in the Crealys Park may also have offices in an administrative building and, if they so wish, "twin" rooms situated in a building being designed at a few kilometres from the datacenter in what, those in the industry call, a dual site.

6. What are the economic implications for the region?

The direct investment made by Cofely for the construction of the datacenter in the Crealys Park amounts to 30 million euros. This investment will be recouped in a few years. The location of this datacenter in the region is also good news for employment. In the long term, this project could give rise to the creation of several tens of direct and indirect jobs. It is necessary to count on the personnel of the various companies that will use the rooms in the datacenter, in addition to the Cofely personnel and its subcontractors, who will have to provide the 24H maintenance and monitoring of the site.

In addition, the location of a datacenter intended for hosting the IT activities of companies involves a natural concentration of activities in it. Apart from the technical quality and the innovative design, Cofely also offers a commercial model based on flexibility to its clients.

7. Details of the contract: who is involved, who does what?

The design of the Agility Center Cofely is the result of numerous synergies and excellent sharing of knowledge. Though Cofely is the thinking brain of the status center, implementation of the project would not be possible without the support of Technum-Tractebel Engineering (for the design), Cofely Fabricom (for the installation of the electrical equipment and the data cabling), Cofely Axima for the installation of the HVAC and cooling equipment and Cofely Nederland (for the development of the WAN).

8. Does the Cofely group have its own servers in the Agility Center Cofely?

Until now this is not the case, but in the future all Cofely servers will be grouped together in this datacenter.

9. Does this Agility Center Cofely follow a defined strategy?

The location of this datacenter in the Namur region follows Cofely's integrated Benelux strategy, which makes this datacenter one of the centers concentrating activities for everything that relates to machine-to-machine communication. In other words, given that we find ourselves in an industrial environment filled with machines that are beginning to have the interfaces necessary for communicating with each other, Cofely will in time contribute added value in this field. The development of the datacenter at a strategic place from a geographical point of view (at an international data exchange "crossroads") fits in this strategy, which aims to offer more connectivity in order to be able to recover all the information and process it optimally.



This datacenter meets the highest market standards in terms of redundancy and energy efficiency

10. Which specific measures are taken to ensure the security of the Agility Center Cofely?

Data security is crucial for any company and naturally constitutes one of the essential preoccupations of Cofely for all its clients. The Agility Center Cofely is therefore optimally protected against all types of intrusion.

Apart from the purely practical and physical arrangements such as electric fences and cameras, the Agility Center Cofely has only one access point to facilitate surveillance. This surveillance is reinforced with teams of several persons available 24 hours a day, 7 days a week. The security personnel also verifies the identity of all visitors during a check at the entrance lobby, with a weighing system (at the entrance and exit from the datacenter) installed in order to prevent a visitor leaving the center with data.

Moreover, all the data processing processes are duplicated from A to Z: the Agility Center Cofely has two "data" paths and two "battery" paths leading to two different high-voltage pylons. There also exist two "cooling" paths. The "fibres" path for their part have been quadrupled.

Concerning the electricity supply, the eventuality of a prolonged cut has been envisaged: without direct supply, the Agility Center Cofely has a reserve of fuel oil for three days. If the supply problem persists, a supply contract with a fuel oil supplier is provided. The Agility Center Cofely cannot therefore theoretically "break down" and the data stream cannot be interrupted, which also represents a guarantee of security for all clients.

11. Is the new datacenter in the Crealys Park efficient/competitive?

The Agility Center Cofely was designed using the highest performance principles and technologies. Its major quality features are:

- A capacity for load change without interruption of activity. The load density starts at 1000 W/m² and may change to 2000 W/m² or even to very high density while keeping the data processing equipment in service.
- The reliability of the Agility Center Cofely conforms to market standards with a guarantee of global availability of 99.982%.

- Such a performance level is generally obtained at the cost of heavy energy losses but the Agility Center Cofely is however characterised by exceptional energy restraint with a complete power usage effectiveness (PUE), without any trickery, of 1.25, which makes it one of the finest in the world.
- The Agility Center Cofely is environmentally friendly. Rainwater is used to control the humidity level in the rooms, which avoids using drinking water for this purpose. A lagoon is provided for treating waste water and, finally, the noise emitted is very low with a sound level less than that of the ambient environment.

12. General technical characteristics of the Agility Center Cofely

Technical characteristics DATACENTER CREALYS

Surface	
	Multiple separate rooms offering a total of 1550 SQM
Energy	
PUE	PUE = 1.25
Energy supply	3.5 MVA with extension till 25 MVA
Transformers	4* 1600 kVA and 4* 1000 kVA
Capacity	1000 W/SQM ready for 2000 W/SQM with HD zone
UPS systems	6* 600 kVA
Diesel gensets	4* 1600 kVA and 4* 1000 kVA
Fuel autonomy	Sufficient for 72 hrs of continuous operation
Cooling system	12 FRAU* with capacity of 200 kW each
	Warm and Cold aisle concept
Temperature range	21°C (Cold aisle) - 36°C (Hot aisle)
Humidity	35 % - 70 % RH
Connectivity	
External network	Multiple redundant Dark Fiber connections
Internal network	2 Meet Me Rooms with 2 separate distribution loops
Security	
Fire protection	VESDA system with INERT gas
Security system	Supervised camera circuits with movement detection
	Central rooms individually badge controlled with Biometric reading
Fencing	Intruder detection system with IF camera controlled
Alarms	24 x 7 x 365 monitored alarm systems
Guarding	24/7 manned security
Environment	
Energy	"GREEN Electricity" combined with photovoltaic panels
	CO ₂ reduction of 2500 Tns/yr
Cooling	*FRAU: Free cooling Autonomous Unit
Waste	Waste collection and treatment
	Sorting and recycling waste to turn it into resource

This datacenter is connected to major European hubs

13. How is a site chosen for constructing a datacenter?

Various sites were examined before deciding on the construction of this datacenter in the Crealys Park. The regions in which datacenters can be constructed must in fact combine many factors, in particular:

- the area available (often several thousands of m²);
- access to electrical energy;
- the presence of an optical fibre network;
- the absence of a risk of flooding;
- a situation outside Seveso zones;
- the absence of a nuclear power station or airport close by;
- a stable social climate;
- a moderate average temperature;
- etc.

After analysis, Belgium did not offer more than 25 to 30 interesting sites. The site in the Crealys Park was favoured because, in addition to satisfying all these criteria, this scientific and teaching environment benefits from an ideal geographical situation, at the center of the Walloon region in Belgium and at a crossroads between the Netherlands, Germany, Luxembourg and France.

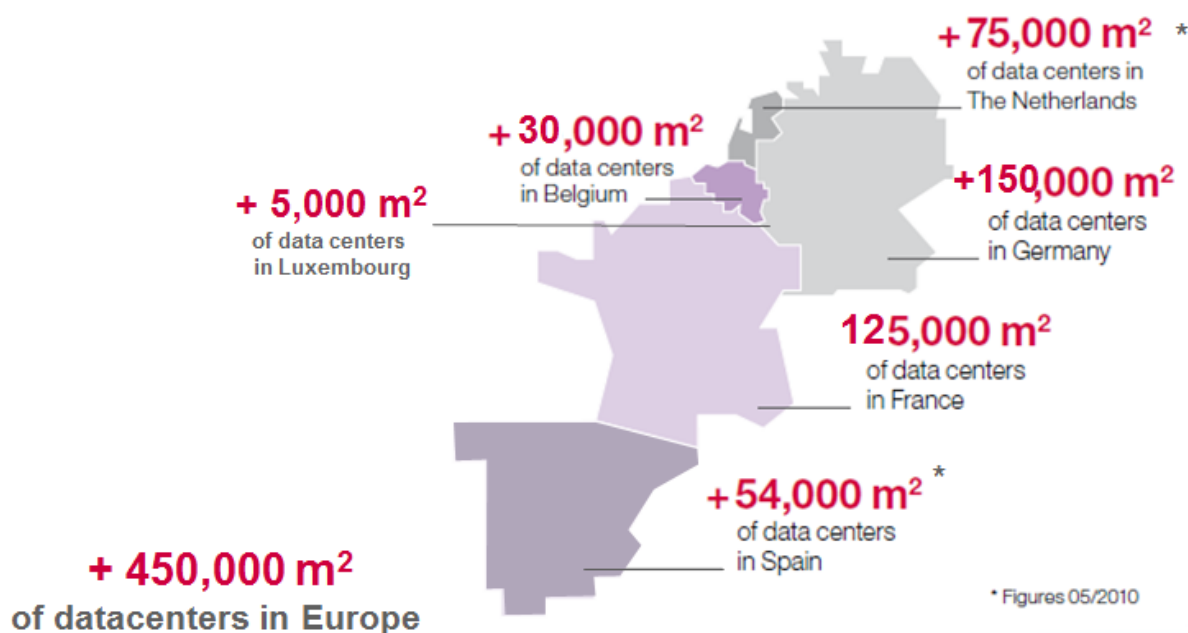
14. What is the position of the Agility Center Cofely with respect to the Internet Exchange / interconnectivity? (Amsterdam, Maastricht, Frankfurt, Luxembourg, Paris)?

A datacenter without connectivity would have no meaning. The majority of users of datacenters need an enormous secure and reliable capacity for communication with the outside world and their dispersed entities.

The Agility Center Cofely meets this requirement. Cofely has connected its datacenter with two datacenters in Belgium hosting the BNIX (*the Belgian Internet Exchange*). In addition, Cofely has also connected with two other datacenters situated in Maastricht (Netherlands) and Aix-la-Chapelle (Germany). Cofely makes this infrastructure available to its clients and their suppliers in order to guarantee access to connectivity and to offer possibilities of connectivity to the largest European *Internet Exchange* network situated in Amsterdam and Frankfurt.

This connectivity offers access to several hundreds of Service Providers in the entire world.

15. The datacenters of the Group in Europe



About Cofely

Cofely Axima, Cofely Fabricom and Cofely Services (in Belgium and Luxembourg), Cofely (in the Netherlands) and their subsidiaries provide technical solutions for the infrastructure, buildings and industry sector as well as energy, Oil & Gas markets and airports. In fact, wherever their expertise can help improve energy performance, sustainability and quality of life.

Together, they make up the Benelux division of GDF SUEZ Energy Services. Operating as separate entities, they are driving commercial and operational synergies to meet the needs and requirements of their clients as efficiently as possible in the area of multi-technical services, in the Benelux and abroad. They employ 18,500 people and generated a turnover of EUR 2.95 billion in 2012.

GDF SUEZ Energy Services is a business unit of the GDF SUEZ Group, which has a workforce of 78,000 and generated a turnover of € 14.7 billion in 2012.

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