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LAYING THE FOUNDATION STONE FOR THE NEW ORANGE DATA CENTRE IN VAL-DE-RUEIL



Orange has chosen Ingérop, a major engineering and consulting company, to manage the design and construction of its two new data centres, located in Val-de-Reuil (27) and Chartres (28). Accompanied by the architecture firm A26 and the engineering firm GLI, Ingérop has designed buildings that are exemplary in terms of energy performance, reliability and security, perfectly in line with Orange's IT infrastructure redesign project.

Addressing remote data hosting needs

The remote data hosting needs of individuals and businesses are constantly growing. In response to this trend, Orange launched Phase 1 of its IT infrastructure redesign program in 2008 to replace all of its current data centres in France with new generation and larger centres. The Normandy 1 data centre already offers economies of scale and improved reliability.

To continue this program, the group has launched the construction of two new data centres in Val-de-Reuil and Chartres, each with a 16,000 m² footprint and comprising 6 computer rooms of approximately 700 m² per unit. In June 2017, a tender process was launched to identify the project management group likely to be responsible for the engineering of these two projects.

In the long term, thanks to the "mirroring" of the data from one site to another, Orange will provide its customers with the highest level of security and data availability.

A recognized expertise

- With more than 25 years of experience in data centre and IT equipment engineering (30,000 m² of active rooms) and the expertise of the partners of the project management group (GLI and A26), Ingérop has been selected. The proposed principles for the design of these buildings have helped to reinforce Orange's objectives:
- ensure that the technical architecture will reach the required reliability level;
- design reliable and extremely efficient control systems while ensuring redundancy to cope with any eventuality;
- carry out separate management between IT operating flows and those related to electrical and air conditioning infrastructures;
- calculate the PUE (Power Usage Effectiveness) as soon as possible and update it regularly (at least after each design stage) to validate the planned technical evolutions;
- optimise energy performance in the IT room and commit to achieving the target PUE;
- carry out design and implementation studies in BIM environment.

"In this project, the complementarity of the 3 project management partners was an undeniable asset. Listening to our needs, adapting to our operating constraints, and respecting our long experience in engineering technical rooms have enabled us collectively to design non-standard structures in a short period of time." comments Vincent Huriet, Data Centre Director of Lyon and Project Manager DC2020 - Orange.

Towards exemplary data centres

From this approach, two buildings will emerge that are exemplary in terms of:

- **Energy performance**

As the energy consumption of hosted servers is high, a principle of cooling computer rooms by "free-cooling direct" (injection of external air in volume and quality for the proper functioning of computer equipment and directly in the room) has been developed to reduce it.

This air will be blown by Air Handling Units (AHUs) installed in the basement and ground floor of the building and extracted/recycled by fans. As a backup, air-cooled (GF) cold water production units will manage the production of chilled water.

Based on this design, Orange's PUE (Computer Centre Energy Efficiency Indicator) target is 1.3, among the best in France.

- **Reliability of the installations**

The data centres are designed for 24/7, 365 days a year operation without service interruption. Under these conditions, and to prevent any power outage, the power supply will be doubled, and the site will have back-up generators for all installations (2 generators per room and 1 spare for 3 rooms). All components are redundant: inverters, cold production (cooling units, pumps, cooling units, etc.). These technical installations will ensure TIER II + and III + reliability levels (with the possibility of upgrading to TIER IV).

- **Physical security of sites and data**

Access to both data centres will be controlled and people will need to be identified to enter the computer rooms. The site will also be protected and supervised by GTC (Centralized Technical Management) 24/7 and by access control and video surveillance. Finally, fire protection will be provided by a high sensitivity smoke detection system and a water mist fire suppression system.

The expertise of Ingérop and its two partners A26 and GLI, as well as their skills in dynamic thermal simulation and computational fluid mechanics (CFD), made it possible to overcome a major challenge: to simultaneously carry out studies on two buildings that bring distinct problematics (extension or creation of a site), and within extremely short deadlines.

"Data centres represent real strategic assets for Orange: they will enable us to support the growth of our customers' digital needs in a context of trust, while allowing us to significantly reduce our energy and environmental footprint." said Stéphane Richard, Chairman and Chief Executive Officer of the Orange Group.

About Ingérop

A leading player in France and with a strong international presence, Ingérop is an engineering and consulting group in sustainable mobility, energy transition and living environment. The group is present in all construction sectors: Building, Energy & Industry, Water & Environment and City & Mobility. Independent, based in Rueil-Malmaison (France), it employs nearly 2,000 employees and expects to generate sales of more than €253 million in 2019, including more than 27% internationally. Operating in more than 70 countries, Ingérop continues its steady development both in France and abroad thanks to its shareholder independence, technical expertise, capacity for innovation and proximity to its clients.

About Orange

Orange is one of the world's leading telecommunications operators, with revenues of €41 billion in 2018 and 149,000 employees as of March 31, 2019, including 90,000 in France. The Group served 264 million customers worldwide at 31 March 2019, including 204 million mobile customers and 20 million fixed broadband customers. The Group is present in 27 countries. Orange is also one of the world's leading providers of telecommunications services to multinational companies under the Orange Business Services brand. In March 2015, the Group presented its new strategic plan "Essentials2020", which places the experience of its customers at the heart of its strategy, so that they can fully benefit from the digital world and the power of its very high-speed networks.

Orange is listed on Euronext Paris (symbol ORA) and on the New York Stock Exchange (symbol ORAN).

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