

I'archipel, a Smart and Unifying Building for VINCI

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With the help of Cisco solutions, the new VINCI headquarters is a benchmark for collaboration among 3500 people.

Executive summary

Customer name: VINCI

Industry: Construction

Location: Nanterre, France

Number of employees: 260,000

Challenges	<ul style="list-style-type: none">• Simplifying how users connect to the network• Increasing network security• Streamlining employee collaboration within smart buildings
Solutions	<ul style="list-style-type: none">• Cisco Software-Defined Access• Cisco DNA Center• Cisco Secure Network Analytics• Cisco Catalyst 9000 switching family• Cisco Catalyst 9000 wireless family• Cisco Identity Services Engine
Results	<ul style="list-style-type: none">• Installation of a dynamic and mobile workplace• 430 m² increase in floor area, with 269 km less cabling• 50 ton reduction in the building's carbon emissions• 50% Reduction in the network's electrical consumption



Sustainable headquarters

VINCI is a global leader in concessions, energy, and construction with a presence in 120 countries. In 2015, when the Group decided on the location of its new headquarters, it chose an area of Nanterre that was undergoing regeneration, Les Groupes, very close to the Paris La Défense business district.

On the environmental front, VINCI implemented numerous innovations. For example, l'archipel uses recycled concrete, which includes up to 50% aggregate sourced from demolished concrete buildings. It also uses ultra-low carbon concrete, in which the cement is almost entirely replaced by blast furnace slag, a by-product of steel production, a first by and for VINCI. The result is a reduction in greenhouse gas emissions of over 60% compared to the use of traditional concrete. In terms of energy performance, heating and air conditioning are performed by active thermal regulation panels—with hot and cold air or water circulation (Green Floor), depending on the buildings. Bio-sourced construction materials, such as wood, are integrated into the cladding of some buildings, and solar technology is found on the roofs and on some exteriors.

While l'archipel invests in environmental performance, the company also must prioritize effective employee communication and superlative networking performance in its smart buildings. The site houses 3500 employees representing all of VINCI's corporate divisions and includes a total surface area of 74,000 m², with nearly 500 meeting rooms and 6000 pieces of IT networking services equipment. A primary objective of the project was to enable very simple connectivity for all occupants, while providing a high level of security. To improve building management going forward, options for future IoT equipment enhancements were also provided. The challenge was to effectively combine aesthetics, sustainability, and communication.

"Thanks to Cisco's solutions, every VINCI employee, regardless of their business unit, can work where they want with the same access rights in all buildings. We now have a network platform that is focused on the future and is able to handle both technical and operational developments."

Rémi Drouin
Infrastructure and IT Services Director, VINCI

Network virtualization

When the occupants of l'archipel connect to the corporate network, it must be secure. To meet the needs of IT administrators and to reach the highest possible satisfaction level for users, Rémi Drouin, VINCI Infrastructure and IT Services Director, called on Axians (VINCI Energies) and Cisco solutions from the very first iterations of the project. Drouin states, "Our technological choice is based around the Cisco solution which, with a software/DNA approach that provides an open architecture, stands out from the competition because of its level of maturity in terms of Software-Defined Access."

"When making our technology selection, Cisco offered us their Digital Network Architecture solution which had the required level of maturity in terms of Software-Defined Access."

Rémi Drouin
Infrastructure and IT Services Director, VINCI

Thanks to Cisco Software-Defined Access (SDA), Axians established a layer of services above the network transport layer in order to create a flexible platform, enabling the creation of virtual networks. The ability to virtualize the infrastructure enabled the creation of networked equipment classification and segmentation strategies, ensuring the implementation of the desired security policies. To administer these access strategies, Rémi Drouin and his teams called upon Cisco DNA Center. Through centralized orchestration, they automated and ensured the proper distribution of network services to the correct equipment.

Additionally, most switches were installed in the false ceilings using EcoFlex'IT housings. The SDA-compatible Cisco switches were then connected close to the equipment to be connected. The major concern here was for these devices to save space, electrical energy, and cabling, and to reduce the carbon footprint by nearly 80%.

Finally, within the IT transport network Rémi Drouin's team also positioned a security block, Cisco Secure Networks Analytics (SNA). Cisco SNA streamlines devices with Artificial Intelligence and Machine Learning in order to follow flows in real time, analyze behavior, and detect anomalies that lead to problems.

Another advantage of the solution is its standardization. The switches, terminals, cabling, and procedures are all standardized, which saves time for IT support. In April 2021 all network core connection designs were approved, and installed in September 2021 during delivery of the buildings before employees moved in the following month. As a result at the end of November 2021, all users were immediately able to log in and work.

"We actually chose to separate the physical layer from the service layer. Thus, my team provided our users with services that are much better, and can be accessed more rapidly and efficiently over a network with a bandwidth of 20 Gbs/sec."

Rémi Drouin
Infrastructure and IT Services Director, VINCI

The networks of tomorrow

L'archipel is a technological showpiece, demonstrating what is possible for the Group's continued construction expansion. But for Rémi Drouin, one of its biggest advantages is demonstrating how the network has transformed toward greater efficiency. The network administrators will become analysts and architects, able to meet the diverse requirements of the IT managers. "Now we have a model that must be rolled out to the other entities within the VINCI group," says Rémi Drouin. Because the site offers significant operational and financial benefits, the environmental performance of the site has also been enhanced.

Thanks to the EcoFlex'IT cabling model, the carbon emissions and financial costs of the buildings have been reduced. The number of components required has been reduced by 62%, which means 269 km less cabling, 50.5 tons CO2 not emitted, and 43 technical premises not constructed, resulting in 430 m² of recovered surface area. These combined factors reduce the overall building cost and operation by limiting the use of superfluous resources. Workspaces and network operations became more flexible, with the option to welcome new employees easily and at any time, connecting them to the network without delay. Thanks to EcoFlex'IT, VINCI will halve the energy consumption of the IT network and will see a fivefold reduction in the carbon footprint of IT cabling compared to the traditional ISO model.

Cisco solutions have provided l'archipel with total network availability for employees, supported by total security.

For the future, l'archipel will continue to progress in its Green IT direction. The aim is to install IoT-linked equipment, such as motion detectors in meeting rooms, which will also be networked.

VINCI's new headquarters aligns with the city of tomorrow, more restrained in energy use but more functional, open to the next technological revolutions, without forgetting the need for employees to communicate face to face. Thanks to Cisco solutions, recommended and installed by Axians, l'archipel reflects VINCI's DNA: a great diversity of sectors and a collective mindset. L'archipel symbolizes the Group's transformation, demonstrates its know-how and innovations, and physically exemplifies quality in work life and energy performance.

"In reality, we separated the physical layer from the service layer. Thus, my employees provided our users with services that are much better, can be accessed more rapidly and efficiently over a network with a bandwidth of 20 Gbits/sec."

Rémi Drouin
Infrastructure and IT Service Director, VINCI

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