New Hospital Centre, Maubeuge, France

Continuity and readiness for future technologies

The Centre Hospitalier de Maubeuge (CHM) offers a comprehensive range of hospital services for the local population surrounding the city of Maubeuge in the Hauts-de-France region. CHM offers a range of medical specialties, surgery, critical care, an oncology department and a mother-& childcare unit.

www.aginode.net

aginode

Developing a new sustainable hospital

A construction project was initiated in order to develop a new sustainable hospital, capable of evolving and expanding. Buildings needed to be designed in a way that allows for evolution over time, through easy transformation of existing floors and facilities, or extending existing buildings.

To ensure the LAN would meet these demands, several requirements were formulated. Firstly, the network had to be designed around fibre-optic infrastructure to ensure continuity and readiness for future technologies. The solution also had to ensure Fibre To The Office (FTTO) switches were located as closely to end-users as possible, saving space and reducing the number of technical rooms required, while ensuring secure network access and automation, so that fewer manual actions would be needed.

"With our integration partner Axians we chose a solution from Aginode, formerly Nexans Telecom & Data, whose proposal met our requirements in every way. What's more, their solution was the most flexible, in terms of installation as well as administration", explains Nicole Flambard, Director of IT at CHM.

Choosing FTTO for the new "digital hospital"

The hospital was originally built in 1949, and the decision to build a new facility for Medicine, Surgery and Obstetrics, with a capacity of 274 beds, was made in 2014.

To ensure the longevity of the network solution, it needed to be scalable, flexible, and durable. Access points had to be capable of delivering full performance at all times, in all building areas, accommodating ever-higher data rates and state-of-the-art Wi-Fi access points. In addition, the solution needed to feature secure data routes, redundant architecture, and support for PoE power distribution.

Initially, the CHM teams opted for a copper solution, but eventually settled on a future-proof FTTO concept. This involves installing fibre-optic media from the network core to the user. FTTO switches are integrated into the user environment, enabling connection of workstation terminals using copper patch cords.

"Once the decision had been made, we had to move from copper topology in the old hospital to an FTTO solution in the new building, without new technologies disrupting medical activities. As we have a small IT team, with a single person dedicated to network and system infrastructure, administration had to be simple, fast, and centralized, while ensuring strong security. The possibility to implement automation and artificial intelligence was also a requirement. Anticipating future developments, we also wanted a future-proof, scalable network in which new equipment and applications can be integrated," continues Nicole Flambard.

+ 1,700
FTTO switches

Today, CHM boasts state-of-the-art technical facilities, including five operating theatres, five obstetrical rooms, 40 dialysis stations, a central sterilization unit, an in-house pharmacy, a medical imaging centre, a nuclear medicine department and analysis laboratory. The new hospital has also been designed with a helipad on the roof for emergency transports.

Cooperation between a powerful manufacturer and experienced integrator

Unlike traditional copper cabling, which relies on cabling specialists and asset specialists (cores and splitters), FTTO integrates active equipment at the ends. It is, therefore, essential to ensure the manufacturer as well as the integrator have the required skills and experience.

"Aginode products are fully interoperable with core devices, in this case from Aruba (authentication, Clearpass etc.)," explains Nicole Flambard. "Samples supplied by Aginode also enabled us to train our staff."

> **"**
> Aginode's objective is not just to deliver products, but to ensure solutions keep working over time.
>
> **Nicole Flambard, Director of IT at CHM**

"Choosing a fibre optic network not only ensures continuity, but also supports a long-term approach to compliance with future developments, in particular changes in equipment speeds," adds Michaël Guestin, Business Manager at Axians. "Thanks to Aginode's Zero Touch configuration, FTTO switches were automatically deployed, quickly and efficiently."

"Since record management is paramount to structured cabling, Aginode has developed protocols that enable each link to be traced. Not only can we always know the location of each switch, we can also see which zone distribution box, cable, and optical drawer it is connected to, for example. This information can be retrieved using Aginode's LANactive Manager administration platform, which facilitates network operation throughout the building lifecycle".

A seamless move

One project constraint was the need for extensive administration flexibility, required to facilitate the move and avoid issues with physically reconnecting equipment as staff entered the new space and working environment.

Thanks to automation and automatic profile recognition, all staff members arrive at the new hospital, plug in their devices, and can start work. Numerous security features are directly provided by FTTO switches, including access control through authentication of all equipment, and secure, reliable backups.

Deadlines were managed tightly in an action-packed environment with both patients and medical staff. Clinicians left the old hospital and picked up their work in the new facility the next day, without any disruption to their daily technical routine. The technology change was totally transparent for users, who soon noticed the improvements.

Nicole Flambard summarises: "We had less than a day of downtime, and no additional IT staff were required for the move! Everything was ready before the staff arrived, and everything was taken care of from the central administration". Of the 1,700 FTTO switches deployed, only one didn't work as intended right away. A diagnosis was made immediately, enabling the problem to be resolved quickly. The Aginode team supported and trained the employee that took care of this."

"Regarding the power system, we opted for a semi-centralized 48V supply rather than a local one, as this is a stable, secure, and scalable solution. The power supply for each floor is distributed over two premises. This configuration also saves maintenance time."

Easy day-to-day operation

Thanks to Aginode's LANactive Manager configuration and administration platform, finely tuned service distribution is possible, and networks can be easily managed from a single location. Precise mapping of infrastructure status enables rapid detection and repair of faults or configuration errors, saving vast amounts of time.
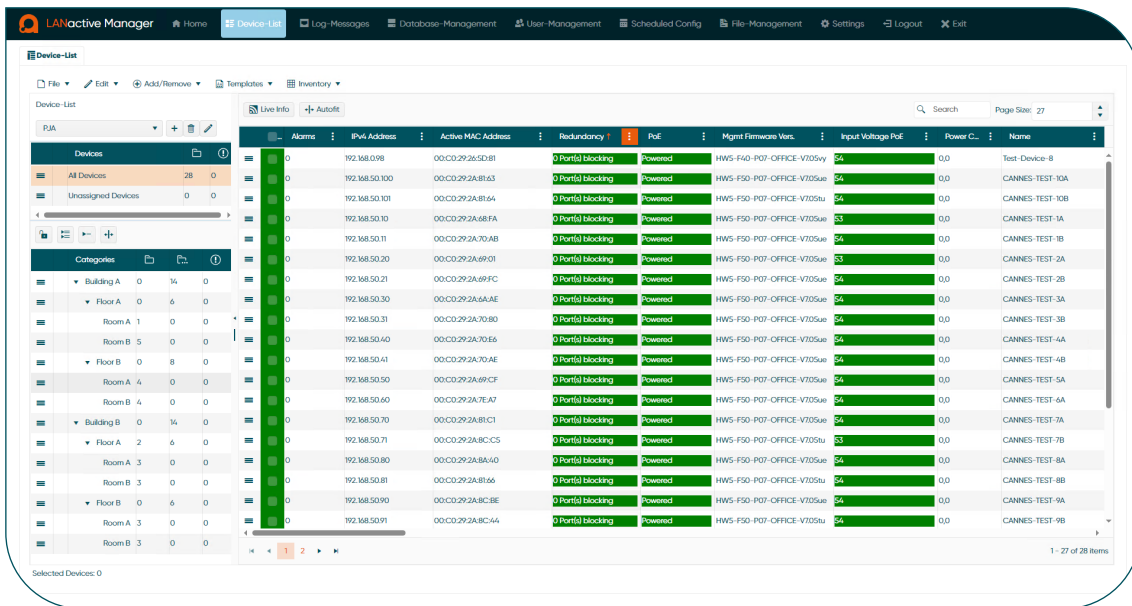
"The LANactive Manager platform has been specially designed for deployment, configuration and monitoring of large networks with up to several thousand devices," explains Géraud Danzel d'Aumont, Sales Manager Western Europe at Aginode Germany GmbH. "The universal license has no time or user limits and ensures backward compatibility between products."

Aginode FTTO switches are equipped with diagnostic functionality for testing optical links, avoiding the need to look for the source of faults on-site. This digital monitoring enables optical parameters to be checked and ensures fibre-optic link disturbances can be recognised as early as possible.

What's more, FTTO switches are equipped with a LANactive Head, which can be easily exchanged without pausing operations, for example when removing a plug. A single head part number is available for all FTTO switches, making replacement and maintenance far easier.

Since installation of the FTTO network 18 months ago, no network-related problems or malfunctions have been observed, even though the building is constantly evolving. To date, just one person still takes care of all infrastructure and IT systems.

Extensive list of professional applications

CHM took advantage of the FTTO switchover to set up full Wi-Fi coverage for the new building and make the switch to full IP telephony. Television, especially for patients, is supplied via IPTV with digital signage.

The new solution makes it possible to meet hospital departments' requirements. The latest generation of medical devices, such as a PET scan and new MRI machine, could easily be connected, as the network enables integration of future hospital device developments. Another example is flexible integration of FTTO switches, enabling the installation to be adapted to specific needs. In offices, switches are installed next to electrical outlets. In patient rooms, these are positioned at the head of the bed, integrated into technical ducts, or placed outside in cabinets. With the unified and linked security system, it is possible to zoom in, point cameras towards areas of interest, or open and close doors, for example.

The list of applications supported by the new installation is extensive. These include generic applications such as video security, Wi-Fi coverage in the entire building, IP telephony, meeting rooms fully equipped with videoconferencing and interactive whiteboards, or unified security with access controls. Hospital-specific applications are also supported, such as medical devices and automation, medical data feedback, connected medicine cabinets, entry/exit alerts in the event of moving sensitive equipment, or movement of individuals, such as children wearing anti-abduction tags.

Solution benefits

- **Long-term future of fibre optics, anticipating future technologies**

- **FTTO access switches close to the end users**

- **Saving on floor space and technical rooms**

- **Secure access to the network**

- **Network automation to reduce manual actions**

Key figures - The new hospital

Capacity: 274 beds

- Approximately 35,000 m^2 on 4 levels
    - emergency department (between 50,000 and 60,000 visits per year)
    - Surgery, critical care, and oncology hospital units
    - medical-technical support
    - outpatient facilities
    - helipad
- Project budget – €115 m

Technological solution

- Over 1,700 FTTO switches, spread over two computer rooms
- 2 FTTO switches per ring, i.e., 850 rings
- 5 levels : RJ RDC N1 N2 N3 (roof)
- 9 fibre-optic cables installed: 144 strands covering the 4 levels
- Singlemode simplex connections between zone distribution boxes and FTTO switches
- Multimode duplex links between 2 FTTO switches on the same ring
- Centralised 48V power system
- 15W and 30W PoE/PoE+ (with the option to migrate to PoE++)

Completion schedule

- **2014 :** formalisation of the "Digital Hospital" programme
- **2016 :** signing off on the programme
- **2017 :** FTTO selected
- **2020 :** construction begins
- **April 2021 :** activation of the FTTO network
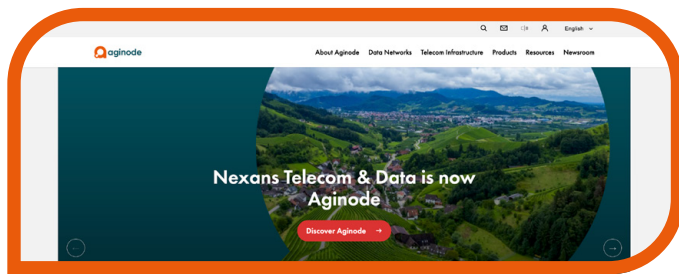- **September 2021 :** handover of the building

Additional information

www.ch-maubeuge.fr
www.aginode.net

#smartconnection

Connect via **LinkedIn**

Learn more on **YouTube**

Visit **www.aginode.net**

www.aginode.net

aginode