

Centre Hospitalier Psychiatrique de Liège

Integration of technical systems and wireless calling with IP telephony



“CONNECTING ADDITIONAL TELEPHONES, CHANGING THE NUMBER OR RELOCATING THE SETS IS NOW VERY QUICK. MOREOVER, THE MAINTENANCE AND TELEPHONE COSTS HAVE DROPPED SHARPLY. ALL IN ALL, WE ARE CURRENTLY SAVING AROUND 25,000 EUROS A YEAR.”

Philippe Meyers, manager of the ICT department at the Centre Hospitalier Psychiatrique de Liège

The Centre Hospitalier Psychiatrique (CHP) de Liège combines various psychiatric institutions and services in the region. Patients with a variety of psychiatric disorders are taken care of there and treated by some 750 staff. The institutions of the CHP are spread over several locations. The hospitals are established at the Petit Bourgogne and Agora sites. In addition, the CHP includes two nursing homes – Les Cèdres and Les Charmilles – and three centres for drug users – START, MASS and CLEAN. Finally, there are also 15 residences for sheltered housing.

In 1998 it was decided to rebuild the outdated Volière hospital with 144 beds under the new name of Agora. The preceding study for the design of the building and its equipment also provided for a budget for a new telephone installation. At that time, they were still thinking of a traditional PABX switchboard.

Choosing a future-oriented system

Halfway through 2002 and well into the building work, it was decided to take the opportunity to provide the brand new building with modern technology. So they also investigated the possibilities of IP telephony, which allows data and speech to travel through one and the same network. Moreover, the CHP was considering a solution that combined an IP

EXECUTIVE SUMMARY

Background

In Liège the Centre Hospitalier Psychiatrique (CHP) combines various psychiatric hospitals and services in the region. The institutions of the CHP are spread over several locations. The most important hospitals are established at the Petit Bourgogne and Agora sites. In addition, the CHP has two nursing homes and three centres for drug users. Finally, there are also around ten residences for sheltered housing.

Challenge

When the old Volière hospital was rebuilt as Agora, a budget was also provided for a new telephone installation. The CHP wanted to seize the opportunity to equip the building with a modern, future-oriented system offering both traditional and wireless telephony.

Solution

Two Cisco CallManagers and IP telephone sets were installed at the Agora site so that data and speech traffic run over the same network. Moreover, a wireless Cisco Aironet network in the hospital connects both the laptops and wireless telephones with the network. Also, the management of the technical systems in the hospital was integrated into the IP telephony system. In addition, the nursing homes were equipped with IP telephones and a wireless network. Finally, the connection of IP telephones in the centres for drug users marked the successful completion of the first phase of the project.

Results

The CHP can manage the telephone installation of four of its five large sites and it has a system that can be easily expanded and adjusted according to the needs of the organisation. Moreover, other technical systems in the Agora hospital are also managed centrally through the Cisco CallManagers. The savings on maintenance and telephone costs currently amount to about 25,000 euros a year. In 2004, the site of the Petit Bourgogne hospital also changes over to IP telephony.

switchboard with DECT technology (wireless telephones are used to guarantee the mobility of the nursing staff) as well as a system that was based completely on IP. In the end the CHP chose the latter solution.

The decision to opt for Cisco IP telephony was inspired by the strong reputation built up by the supplier in the market segment, on the one hand, and the previous positive experiences with Cisco equipment on the other. “We had brought Cisco Catalyst

3524 switches in house during an earlier modernisation of our network. There have never been problems with this equipment. If you are happy with a supplier you keep on using it. Moreover, in this way you get a homogeneous, well-organised infrastructure,” says Philippe Meyers, manager of the ICT department at the CHP.

In the first phase the CHP installed, together with system integrator AB Networks from Liège, the infrastructure for data and speech traffic at the renovated Agora site. The network is based on Cisco Catalyst 3524 switches with inline power that also provide the telephone sets with electricity. The new infrastructure was at the same time integrated into the 2-megabit wide area network (WAN) of the CHP. Meanwhile, the nursing homes Les Cèdres and Les Charmilles and the three drug rehabilitation clinics were also equipped with IP telephones.

Wireless calling with Cisco Aironet

Next to that, in the Agora hospital and the nursing homes the CHP also installed wireless networks based on Cisco Aironet Access Points. These support the network connections for the laptops as well as the wireless telephones. This is possible because of the use of IP telephony. A traditional system requires other aerials to make wireless calling possible. Both data and speech now travel across one and the same network, whether it's wired or wireless.

Now that the first phase is finalised, all the big sites use IP telephony, with the exception for the time being of Petit Bourgogne. The two redundant CallManagers – Cisco's IP switchboard – set up in the Agora hospital serve around a hundred Cisco 7940 IP telephone sets, 10 Cisco 7910 sets and 50 wireless IP telephones from Cisco partner Spectralink. The fixed Cisco telephone sets all have an inbuilt switch so that a computer can be linked to the network via the telephone. This means you need fewer sockets, which is very convenient in existing buildings.

Central technical management

AB Networks of Liège is supporting the CHP not only in the phased implementation of the telephony system and wireless network, but it also performed very well when integrating the technical alarm systems into the telephony.

So the CHP is now using the wireless office alarm manager, a system that allows all kinds of technical signals and urgent calls to be sent automatically via the Cisco CallManager to the wireless phone set of the right person in charge. The technical management of the hospital is therefore fully centralised. The fire alarm, the nurse call system, the doorbells of closed departments, as well as for example the thermostat of the heating system and the alarm systems for technical defects; they are all connected to the CallManager, which automatically sends a message to the right person if something goes wrong. In a psychiatric hospital this is very important. For instance, patients starting a fire in their rooms is a regular occurrence. Also, aggression is not unknown. In such cases, the staff member can immediately call a guard for assistance by pressing a special button on his wireless telephone.

Moreover, a number of traditional technologies were integrated into the IP telephony system. A converter takes care of the connection of traditional fax machines and a couple of analogue telephones in the lifts and for the patients.



Substantial saving on maintenance

Meanwhile, in practice the IP telephony system is also showing other advantages. So maintaining and supporting the switchboard is greatly simplified. Not only is the telephony for the different sites managed centrally, but it is also easier and cheaper to adjust things.

Philippe Meyers: “Connecting extra telephones, changing the number or relocating the sets is now very quick. IP telephony is a very dynamic system and that is necessary in an organisation such as ours, where things change regularly. As soon as a place is provided with a network connection, you can also telephone there. The same applies to more extensive expansions. You have one piece of central equipment for all your sites. If you add a location, then all you need to do is provide it with a network link and you can straightaway connect telephones. In March 2003, the drug rehabilitation clinic CLEAN is relocating. In their new location they will be able to call without having their own switchboard and without time-consuming technical interventions. The telephone system can be moved, so to speak, in 15 minutes. Moreover, the maintenance costs and telephone costs have dropped sharply. The external costs of a traditional PABX switchboard are much higher. Furthermore, with IP telephony the telephone conversations between the sites now run via our WAN. So they are free. All in all, we are currently saving around 25, 000 euros a year.”

Greater availability

In 2004, during the second phase of the project, the 300 analogue telephone sets at Petit Bourgogne may be switched over to IP telephony and 50 wireless telephones will be connected there. Moreover, one of the two Cisco CallManagers at the Agora hospital will be moved to Petit Bourgogne. As soon as that happens, the physical separation of the redundant sets will give the CHP an even safer network setup.

As far as security and availability go, more measures are being taken. So at each site with IP telephony a special SRST router is installed in case the connection with the CallManager breaks down. The set then temporarily takes on the function of a switchboard and provides a connection with the external telephone network. A backup is also provided for the rental line between the sites and the local network at the Agora site has a redundant triangular structure. To avoid problems due to power cuts, the telephony switches and the CallManagers are linked to separate UPC ports and the CHP also has an electricity generator. Finally, the wireless network also provides for sufficient security of the data and speech traffic.



Active change management

Philippe Meyers stresses two important points that should be kept in mind with such projects: choosing the right partner and the human factor. According to Philippe Meyers, a good partner has thorough as well as wide-ranging knowledge: "On the one hand your partner must be an expert in IP telephony. On the other hand, for a successful implementation in an organisation like ours he has to have sufficient insight into a number of technologies that are essential in a hospital. These go beyond standard IT. The integration of our specific components into the new infrastructure is not so obvious but is still clearly possible thanks to the openness of the IP telephony system and the insight of AB Networks. So there is a possible third phase of the project, where we would integrate our IT systems with the IP telephony.

In addition, Philippe Meyers point out people's resistance to change. He therefore chose a gradual transition through a phased implementation and an active change management. Not only did the end users have documentation available, but they could also count on a demonstration. "You don't rush into IP telephony. You have to convince the management, the technical experts and the end users of the advantages of the new system. Whenever, as in our case, the person responsible for telephony is not the same as the person in charge of IT, you automatically face scepticism. The change requires a new way of working together, a reorganisation of tasks. There are two different worlds coming together. You have to make time for this. Now that the first phase is behind us, our telephony manager has been won over and is enthusiastic to begin phase two. For me, that is the best evidence that this project has succeeded," concludes Philippe Meyers



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