



Innovative applications for a next-generation hospital based on a communication network by Soitron

“Now, more than ever, information technology is helping to increase treatment success, safety, and adequacy. We are pleased to be able to innovate our processes using the modern network infrastructure and improve our performance for the benefit of the patient.”

Luboš Laslop
ProCare & Svet zdravia, CIO

1. REQUIREMENTS

- Building a complete **network infrastructure, including a Wi-Fi network**, for the newly built Svet zdravia hospital in Michalovce
- Ensuring **connectivity for various devices, instruments, and software systems**, and providing a wireless connection for hospital visitors
- Preparing **the environment for the deployment of innovative applications** and the seamless operation of the hospital, the processes of which rely, to a large extent, on the use of modern technologies and digitalization

2. SOLUTION

- The design, delivery, and **installation of a Cisco-based network infrastructure** and building of a Wi-Fi network within the hospital premises
- **Securing the network** against attacks or sensitive data leaks
- The installation of **network management and security tools** in the customer's private cloud

3. OUTCOMES

- **A stable, reliable, and secure network infrastructure** essential for the seamless operation of internal processes as well as for patient connectivity
- Establishing the **technological base for increasing patient safety**, e.g., in relation to drug delivery
- The ability to effectively analyse and **identify potential connectivity problems** for individual devices and systems by means of a detailed overview of communication flows, making it easy to add new functionalities to the hospital's technology base

Background

When dispensing medicines around the rooms, nurses in this next-generation hospital in Michalovce do not have to read anything or take manual notes. First the nurse scans their own identification bar code and then the patient's unique identification code on the bracelet they received when hospitalized and finally the identification code on the medication package.

Doctors in the new hospital of the Svet zdravia network prescribe drugs electronically, and the prescriptions are automatically transferred from the information system to a central medication dispensary where automated robotic devices prepare medication packages for individual patients in a few seconds. *"The system ensures that every patient gets the right medicine at the right dose, at the right time, and even by an authorized nurse,"* says Vladimír Dvorový, CEO of the Svet zdravia hospital network.

The hospital in Michalovce is different from other health care facilities in Slovakia in terms of its organization, layout, and the technology used. Such a healthcare facility fitted with vast amounts of technologies unparalleled in Slovakia would not be able to operate without an exceptionally stable and secure high-availability computer network.

To secure their communication infrastructure, the Svet zdravia hospital network has chosen Soitron, because it was able to meet strict quality criteria and

offer a competitive price and guarantee extremely fast project implementation.

"Since we had worked on similar and very demanding network infrastructure installations and we had a branch with experienced experts in Košice, we were able to guarantee the project implementation in a very short time," says František Cvanciger, sales manager at Soitron.

Solution

The entire delivery and installation of the network infrastructure for the Michalovce hospital, including the Wi-Fi network for internal purposes and for patients, took about one and a half months. The network is based on Cisco technologies and has 31 switches, one virtual wireless controller, and 76 access points used in the initial installation. The network is managed using the Cisco Prime Infrastructure tool, with network security being ensured by Cisco ISE and Cisco Umbrella.

The network installation and commissioning were challenging not only because of the relatively short time in which the client needed to have the contract completed but also because of other specific conditions. The most important one was the diversity of technologies to be connected to the network.

While conventional companies or public organizations need network connectivity for computers, phones, printers, or other

"The parameters of the local data network of the next-generation hospital in Michalovce are very different from any other Svet zdravia hospital. The demands on availability, security, and quality are significantly higher. Without that, we would not be able to provide many of the modern services that are ground-breaking in the context of the Slovak health care system. One year of its operation has proven that the network had been designed and implemented correctly and meets the required performance parameters."

Luboš Laslop

ProCare & Svet zdravia, CIO





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Vladimír Macko
Soitron, System Engineer

office equipment, the next-generation Michalovce hospital needs a network connection for many different medical devices, including an automatic medication dispenser.

This is why Soitron’s specialists had to analyse and fine-tune many details to make sure that they function properly. *“Some network components in a hospital network do not behave as simple computers. For example, they do not recognize standard protocols through which terminal stations usually ask a server for an IP address. Due to that, the configuration was not always easy and straightforward,”* says Vladimír Macko, Soitron’s System Specialist.

There were also challenges with the commissioning of several IP telephony systems that Svet zdravia decided to use in the Michalovce hospital. Even though the telephony solution was delivered by another company, Soitron experts helped configure and fine-tune the connection using sophisticated network traffic management and visibility tools available from Cisco. *“Cisco technologies make it easy to see the behaviour and communication of any device in the network and troubleshoot possible problems if they don’t work or communicate as expected,”* says V. Macko as he explains one of the main advantages of the platform that the hospital network is based on.

Network reliability, supported by the diagnostic capabilities, is particularly important for hospitals. Unlike businesses

or public organizations that usually become deserted late in the afternoon, allowing the contractor to deal with any potential technical problems without disrupting the operation, hospitals run 24/7 and any network downtime can make processes more difficult or even impossible, especially if a large number of devices and software systems are connected.

From the technological point of view, it is worth noting that Soitron installed the network management and security technologies directly into the private cloud of Svet zdravia. What this means in practice is that these tools can be used by the Michalovce hospital as well as by the other healthcare facilities of the Penta investment group.

Benefits

After one year of operation of the next-generation hospital in Michalovce, it is clear that Svet zdravia wisely chose the network technologies and their supplier. The hospital now has a stable, reliable, and secure network infrastructure which is essential for the seamless operation of internal processes as well as for patient connectivity. *“We are responsible for dealing with any potential network problems in the hospital, but over the year of the network operation we did not have a single network downtime that would be related to the configuration or a problem with any of the active network components,”* said Roland Rais, a Soitron’s network specialist.

SVET ZDRAVIA

HEALTH CARE



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Since some technologies are deployed in the private cloud and Soitron's specialists managed to debug problems with the connection of various systems used in hospitals during the project implementation, the customer now can easily extend this solution to its other

medical facilities. With sophisticated network analysis and management and troubleshooting tools, it will be easier for Svet zdravia to add new devices or systems to the technological base and identify potential network communication issues in their hospitals.

“Implementing a network access management software using the Cisco Identity Services Engine made it possible to build a secure network segmentation in the hospital, which is a prerequisite for combating cyber-attacks. More than 90 % of attacks exploit DNS (Domain Name System). This is why Svet zdravia decided to strengthen their cyber security by implementing the advanced Cisco Umbrella protection.”

Peter Mesjar
Cisco, Consulting System Engineer



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