

## Case study

### Modern hospital infrastructure at the Bethesda Children's Hospital

T-Systems and Cisco implemented an integrated IT and telecommunications solution enabling the Bethesda Children's Hospital to perform its healing activities with the most up-to-date infrastructure while rationalizing its costs. Smooth introduction and operation of the new system and project management was carried out by T-Systems, infocommunication devices were provided by Cisco Hungary.

The completed system is a model that can be used in the future as reference for numerous other hospitals in Hungary. Infocommunication services using both conventional technology and radio frequency solutions clearly show the benefits of constructing high quality complex solutions and the reserves to be found in their operation. This solution offers services that enable more successful treatment and more tolerable stay in the hospital for patients. All possible infocommunication support is given to the hospital employees, doctors use up-to-date IT facilities so they can devote the majority of their time and energy to treating the patients. Some elements in the service portfolio go beyond the average current needs, but all of them serve efficient work by the doctors and thereby the interests of patients.

In addition to introduction of the most up-to-date IT and communications solutions, one of the major achievements of the project is the White Book that documented in detail all steps of the development with the involvement of health professionals from the initial steps to the handover. The White Book confirms fast payback of the new infocommunication system with numerous qualitative and quantitative indicators and specific calculations, so the document can be a great help for other institutions constructing similar systems through transfer of the accumulated know-how.

### Solutions, services implemented at the Bethesda Children's Hospital:

- upgrading of the hardware devices,
- extension of the local network to the whole area of the hospital,
- network operation,
- IP cameras,
- wireless network, RFID (radio frequency identifier),
- patient tracking,
- IP telephony,
- Call Manager,
- integration of mobile phones into the Cisco IP telephone system,
- network security,
- distance learning (e-learning),
- customer calling system,
- remote access,
- Tablet PC,
- e-signature and time stamp,
- Internet corner,
- Wi-Fi Internet access for visitors to the hospital,
- MedWorkS hospital system.



## Hospital telecommunications and IT infrastructure

High-tech, operating competence, financing solution



Economic and demographic changes pose increasing challenges for the health care institutions. There is a simultaneous demand for ever higher standard of services on the part of patients, and for cost-efficiency on the part of the the state that finances the operation, and not least of the EU that finances the developments. The EU offers financing help for fulfillment of the requirements – in addition to defining requirements.

What are these requirements? Development and installation of health IT networks and services must be elaborated with the use of conventional and wireless broadband technologies. The hospital must be capable of providing online e-health services: teleconsulting, telediagnosics, e-prescription, e-conference of doctors, telemonitoring. Doctors and nurses must perform their responsible work under these constraints and the management of the hospital has to create the necessary conditions.

T-Systems and Cisco Hungary offer an integrated IT and telecommunications solution with which hospitals can perform their healing activity with the most up-to-date infrastructure while rationalizing their costs. As a result of up-to-date technology and the high standard of service based on it an operational model can be created that fully satisfies the requirements of the patients and the financier.

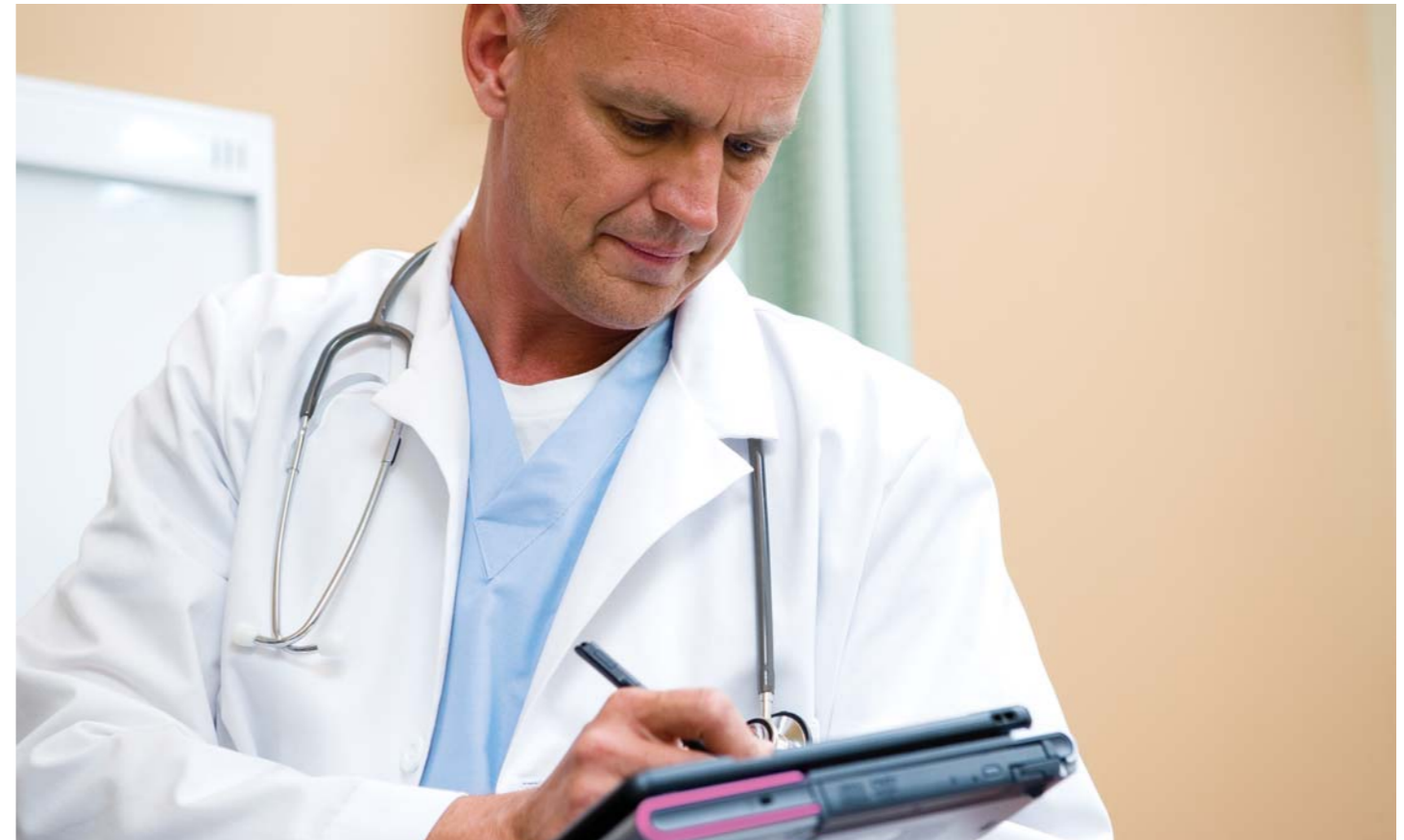
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## Benefits gained with the use of the service

An infrastructure with new innovative technologies brings significant quality improvement in patient care for the hospital.

- Patient data (administrative data, earlier treatments, test results, etc.) are quickly available in constantly updated form.
- Large data files can be transported via high bandwidth, high security connections.
- Efficiency of medical work improves.
- Performance of the hospital's reporting obligations improves.
- Efficient management of resources is achieved.
- Patient paths can be traced.
- Internet access ensures more comfortable hospital stay.
- Future patient needs can also be satisfied through system upgrading.



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### Service package elements

#### New fixed and wireless IP network and telephony based on it.

As a result of the new convergent network, data, voice and video signals are carried on a single network ensuring simplified operation tasks and improved communication. Internet access can be ensured on the wireless network for both patients and their relatives. The IP telephone system with Call Manager software brings numerous innovative solutions to the operation of the hospital. With this system videoconference calls can be made between different buildings of the hospital which can result in significant time saving, e.g. for morning briefing, because doctors do not have to go from one building to another. Naturally, doctors can also participate in videoconferences and teleconferences with other institutions.

#### Remote access

The clinical software that helps the work of doctors and patient servicing becomes accessible anywhere in the territory of the hospital. A secure connection enables the management and the doctors of the hospital to connect to the hospital's telephone system and information system from home or anywhere in the world. This way the doctor is accessible via his workplace extension number even when attending a conference abroad without extra costs, i.e. he can make a free call to the hospital from anywhere. Later this connection can be extended to family doctors' surgeries, so family doctors can connect with a secure Internet connection to the patient database and immediately access test results and book a time for a medical examination.

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#### Wireless identification

A positioning system with RFID (radio frequency identification) is a big help in preventing theft of highly valuable equipment and enables positioning of patients too. In many cases it can save lives. Additionally it makes patient servicing more efficient if the doctor knows that a patient who is to undergo an examination is still at another point of the hospital undergoing another examination and he can examine another waiting patient before he arrives.

#### IP cameras

Fixed-line or wireless cameras can at any time be interfaced to the network and their monitors can be viewed – with appropriate right – at any point of the hospital. Camera monitoring of wards can help the nursing personnel's work, e.g. the nurse on duty can simultaneously monitor more than one ward which greatly improves the standard of patient servicing.

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#### Integration of mobile phones into IP telephony

With a wireless network dual-phone enabled mobile phones (i.e. enabled for handling both GSM and Wi-Fi networks) can function as hospital extension lines within the buildings, then automatically change to GSM mode when leaving the hospital. In this way significant phone costs can be saved.

#### Other possibilities

The new infrastructure enables faster and more accurate data supply, waiting time can be reduced with the patient calling system. E-learning (distance learning) solutions mean that the necessary training sessions can be held efficiently. E-signature and time stamp services facilitate and accelerate the performance of administrative tasks of the hospital's management. Smooth introduction and operation of the new system and project management is ensured by T-Systems' competence.

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