Innovation therapy for public healthcare

The evolution of services and modernisation of processes within the Health Authority for the province of Siena is based on Cisco networking and unified communications infrastructure and solutions. E-healthcare and innovation are designed to fully benefit local citizens.

EXECUTIVE SUMMARY

Customer name
USL7 SIENA

Location
Siena, Italy

Industry
Public healthcare

Business challenge
- Interconnect the Authority’s facilities spread throughout the territory using a WAN for the transmission of PACS and CAT files
- Create a campus-style network infrastructure which is able to cover the hospital area with a high level of security
- Enable advanced e-healthcare systems on the IP network
- Integrate wireless and RFID technologies
- Exploit the IP network for voice and video traffic too
- Enable a reliable and flexible contact center to provide services that meet local citizens’ needs

Network solutions
- LAN and Wireless LAN network infrastructure
- Unified Communications and Collaboration Solutions
- IP Contact Center

Communication and collaboration technologies are now a critical asset in the healthcare field. Many healthcare organisations have launched a process for transforming organisational models and production processes, in which web-based communication and collaboration technologies also form the basis for more operational areas like patient care. Like other public services, Health Authorities also feel compelled to invest in solutions to improve productivity and efficiency and reduce costs, while at the same time offering a better healthcare service to an ever-growing number of people. It is no coincidence that the adoption of Cisco solutions is also growing within this sector.

Italy’s healthcare system already boasts several examples of excellence in the e-healthcare field. These have occurred where a propensity for innovation and an insight into the real benefits of technology have combined to persuade public healthcare managers to choose Cisco solutions. This certainly applies to USL 7 Siena, the Authority which administers and supplies healthcare throughout the territory under its responsibility. It does so through three hospitals with 350 beds situated in the extreme north and south of the province, in addition to a multitude of services supplied through various health centres, districts and facilities designed to cover the smallest municipalities and localities, adding up to a total of around 60 facilities. Domestic assistance and social services for municipalities within the province are also part of the USL’s remit, as well as the full range of communication and prevention activities in the healthcare field. Though operating over a very extensive province, USL7 has a total of 60 referral centres located throughout the area. This constitutes a complex system made up of 2,500 employees and around 1,200 computerised positions of various types.

In order to support this impressive organisational structure, the area which manages technology issues was recently restructured with the creation of a dedicated information systems and innovation team. The area is formed out of multiple operational units with different areas of expertise: these include the enabling and control of IT procedures for departments within the hospital as well as the retrieval and validation of data to support the decision-making strategies of the Directorate General and individual units. Mr Mauro Caliani is the head of the Corporate Technologies and HTA operating unit and his area of responsibility has evolved following a natural process of convergence between the traditional components of networks, systems and new projects, and technologies that are specific to the healthcare field.
This integration has been useful in improving the organisation and management of patient welfare, as well as for ensuring the quality of the full cycle of services provided. USL7 Siena has already been using Cisco solutions to underpin its Information & Communication Technology architecture for some time. Cisco is seen as an important partner in an environment as critical as technology infrastructure, which requires constant adjustment to support new and better services for patients. “Our experience with Cisco”, reports Caliani, “dates back to the implementation of the full switching and routing section for the high-speed network, but we have also considered Cisco to be an important partner for providing advanced services, such as our Contact Center on IP which is set up with high standards of mobility for operators and is also easy to use: in 2004 it was one of the first such implementations in our sector in Italy”.

A WAN has been created on the USL broadband network which now links up around 85% of the centres across the territory. It was set up mainly to encourage the transfer of PACS (Picture Archiving and Communication System) files, or more specifically the system for the digital storage of radiological images between hospitals and facilities located at some distance from each other. “For example, it was always more difficult to send a CAT scan to provide the patient with an appropriate service using the 8Mb/s network which we had previously. This requirement has encouraged us to implement a 622 Mb/s fiber optic WAN network which is supported by Cisco technology”. It provides us with performance levels which also comply with the legislation on secure data transmission within a healthcare environment. And that’s not all: the Cisco platform has helped us create a LAN within USL7 hospitals. “We have developed an innovative campus-style infrastructure - already in its planning phase – which is divided into virtual LANs that are very easy to manage for each individual department within the various hospitals. The architecture has been strengthened with the introduction of a wireless component - again Cisco - which allows us to expand the network according to our requirements, thanks to its characteristics of scalability and flexibility”.

Caliani also focuses on processes and activities which have been streamlined precisely because the network is spread over an entire area, in an environment in which cabled equipment in rooms is complemented by mobile terminals and devices – including communication devices – which are put in the hands of the medical and nursing staff to allow them to take full advantage of the potential of Wi-Fi. “We are designing, testing and implementing new Wi-Fi environments for monitoring and telemetry; for example, thanks to the secure and certificated wireless connectivity throughout the hospital area, we are now able to monitor patients vital signs in a way that allows us to track the progress of critical patients who need emergency care, from the moment they enter A&E until the time they leave the operating theatre and go into intensive care. In light of this, we will soon devote a dedicated channel to the transmission of highly-sensitive data, to ensure the utmost security and service continuity for vital patient information, even using a single network based on Cisco access points”. Until now telemetry used a proprietary protocol, which channelled the data collected in the direction of a monitoring station located in the hospital’s cardiology department. “It is important to ensure that this type of information also converges into the IP network, so as to make it available to all necessary applications with a high degree of reliability. Cisco hardware fully addresses all the security requirements and meets the critical need to be protected from interference with healthcare instruments. I am referring for example to the Wi-Fi available in the operating theatre, for which any device must obtain a specific certification for healthcare environments”.

**EXECUTIVE SUMMARY**

**Business value**
- Greater efficiency in patient care due to the rapid transfer of examination and analysis files between the authority’s facilities
- Advanced and certified services in departments and in the operating theatre made possible by a reliable and secure wireless network
- Convergence of data coming from various devices into a single IP network
- Tracking of operations and processes through RFID technology and barcode reading
- Network enabled for the transfer of video files relating to any interventions carried out (laparoscopy)
- Innovative services on the IP network designed to enhance patient comfort (laparoscopy)
- Enabling of an advanced system for the management and distribution of Contact Center calls
- Reduction in management costs and in use of communication systems

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The integration between RFID and wireless technologies completes the circle: thanks to the recognition and recording of data through RFID readers or barcodes, it is now possible to track any operation from the moment that drugs are administered to the tracing of equipment and much more besides. The technology chosen has also allowed the introduction of Cisco telephony and communication systems onto the IP network. Work is underway to migrate to Unified Communication. This will make a single communications and telephony environment available to USL7 which will be common to all the satellite centres making up the Authority. Calls between remote offices will be transported through the data network and will therefore be considered internal, leading to a major reduction in the cost of calls between sites.

The same network also enables the transfer of video traffic, equally significant for organisations within the healthcare field. ‘Again through the PACS system, we can use and store the laparoscopic films recorded in the intervention phase, storing and providing them to patients on DVD’, highlights Caliani. A high-performance network capable of transmitting high-definition video is essential for this activity. ‘We have also launched a trial at the Montepulciano hospital, equipping 20 beds with terminals connected to the IP network which transmit public and pay television channels for the patient’s convenience’. This service also includes an IP telephone which can be used to contact the nursing staff on shift, to request meals and to browse medical records on the display, as well as to access streaming radio transmissions, on-line games, browse the Internet and use instant messaging applications. ‘Our objective is to extend the set-up to a total of 250 patient beds’.

Last but certainly not least is the implementation of Contact Center on the IP network which was again done with Cisco. This serves the entire network of facilities belonging to the Authority and is an advanced system for the management and distribution of calls. In the next few months it will be integrated with a Customer Relationship Management system. The CRM on the IP network will provide local citizens with a constant guarantee of assistance as well as cutting-edge services. All this only confirms the importance of addressing the challenge of innovation, an opportunity which public healthcare in Siena has certainly been quick to grasp.