

Pardubice hospital installs Motorola's POL network

EDERA HELPS THE HOSPITAL LOWER NETWORK BUILD BY 40 PERCENT AND CUT MAINTENANCE COSTS



Pardubice Regional Hospital is the largest medical facility in the region of Pardubice, located in the eastern part of Bohemia in the Czech Republic. It spans 24 buildings, has 5 specialist clinics with 39 departments and 945 beds. Each year the Hospital looks after approximately 32,500 inpatients and conducts 385,000 outpatient treatments.

As part of its commitment to first-class patient care, the Hospital needed to upgrade its IT network. After a competitive tender, it selected network specialist, and Motorola system integrator, EDERA, to build the Motorola Passive Optical LAN (POL) network it had recommended. The extensive network was constructed without any downtime to IT services with a 40 percent reduction in the cost of hardware, and a 60 percent reduction in the cost of cabling compared to similar-sized Ethernet systems. And as POL networks are more energy efficient and have fewer components than traditional LANs, ongoing operating costs will fall too. The network hosts all of the Hospital's IT applications and is expected to be used for VoIP, CCTV and patient monitoring systems. It also provides huge scalability to easily accommodate new users and additional services – including Wi-Fi and IPTV.

Organisation

Pardubice Hospital

Location

Czech Republic

Industry / sector

Healthcare

Partner

EDERA

Benefits

- **Patient care:** With high-speed reliable network access, staff can focus on improving patient care
- **Cost reductions:** Cost savings during construction are estimated to be 60 percent for cabling and 40 percent for hardware
- **Power consumption:** The lower power consumption of the POL network will reduce energy consumption by between 10 and 30 percent
- **Scalability:** It's easy to add new users – the single OLT supports up to 14,336 devices
- **New services:** New services can be added, including Wi-Fi for staff and IPTV and internet access for patients
- **Long-term ROI:** Fiber provides a lifespan of up to 50 years (compared to 10-15 years for copper wiring) and the system can support virtually unlimited bandwidth

 PARDUBICKÁ KRAJSKÁ
NEMOCNICE

“We chose Motorola’s POL network with advanced fiber optic cabling to replace our existing network that comprised a mixture of fiber and copper lines of varying ages and quality. The technology meets our operational requirements and has delivered significant savings. Hardware costs were cut by 40 percent and the entire network is also less energy-intensive compared with traditional Ethernet systems. The network will meet our needs for many years by easily accommodating the rapidly increasing numbers of users and enabling new services such as Wi-Fi, VoIP and IPTV. Our IT partner EDERA built the POL network to time in parallel with the operation of our old network. This meant that we had zero downtime and we could gradually introduce new applications, servers and end stations without impacting services. We are also pleased that the network control systems enable us to easily configure the network based on analysis of its ‘real-world’ performance.”

-Jan Sabo, IT Manager,
Pardubice Hospital

The Motorola AXS1800 Optical Line Terminal



Applications

The Motorola POL network is used to support a wide array of activities including:

- **IT applications:**

Providing access to IT applications and patient databases and the transfer of images between departments, e.g. radiology images

- **Monitoring:** A trial is underway with the network being used to remotely monitor patients and equipment

- **Video:** Video applications are being trialed including CCTV and the recording of surgery

- **Voice calling:** The Hospital plans to use the network for VoIP calling throughout its premises

Motorola equipment

AXS1800 Optical Line Terminals and installation brackets

X1 AXS1800 systems controller

X3 AGPOND, 4-port, 2.4/1.2 GPON inter

X2 ASW200D, 200BGS switch

10 km of XFP fiber-optic cable

X11 BLANKA AXS1800 blank filler

X300 ONT1120E indoor optical network

X300 ONT1120GE power supply – 110/220V

X5 ONTSF21000 indoor optical network

X1 AXS1800 RTU FEE for AXS series SR7.0 OLT+ONT

X1 AXS1800 system software physical media

X1 AXSVision lite kit

X1 AXSVision – central control and management software for network oversight

Challenge

Delivering a high-performance IT network over an extended medical campus

Pardubice Hospital is an extensive medical campus comprising 24 buildings with 5 specialist clinics and close to 1,000 inpatient beds. It is committed to providing administration and medical teams with the best resources to manage their roles. With its existing LAN – connecting 800 PCs – coming to end of life, a complete upgrade was required including all active components and cabling. The Hospital released a tender for the design, deployment, and management of the new system. Key objectives included achieving exceptional network availability and security, providing fast data speeds (including accelerated data services for teams working with radiology and CAT-scan images), and the ability to support VoIP for telephony. The Hospital required that the system provided long-term return on investment with an extended life cycle and the facility to add new services such as Wi-Fi, IPTV and Internet access for patients.

Solution

EDERA deploys a Motorola POL network

After a competitive tender, Pardubice Hospital selected network specialist, EDERA, to build its new network. The decision was based on two key factors. First was EDERA's experience in deploying networks of similar scale. Second were the operational and commercial benefits that could be achieved by deploying a Motorola POL network.

The high-level architecture of the Motorola POL network deployed by EDERA comprises a single AXS1800 Optical Line Terminal (OLT) with 56 fibers available to the network – each providing 2.488Gb in the downlink (split across up to 64 users) and 1.244Gb in the uplink. The system is highly scalable: a single OLT enables the connection of up to 14,336 devices. The scale of the network is indicated by the cabling used that totals 8500 meters of backbone cabling and 20,000 meters of cables from splitters to sockets.

There are 23 optical splitters in the network that divide each line by up to 64 times on each floor of every building. The lines connect into 300 Motorola ONT1120E Enterprise Workgroup Terminals (with a further 400 ONT1120Es to be installed as the network expands). The terminals include 4Gb Ethernet ports to link users' devices such as PCs, phones, IPTV and Wi-Fi hubs to the network. The network is being used to

underpin a range of IT and communications applications in the hospital including: database access, email, and images for radiography. The hospital is also looking at the network to provide patient monitoring, system monitoring, VoIP, and video applications from CCTV to recording surgery. The network is fully controllable; the administrator can manage speed, application priority and security settings.

EDERA built the POL network in parallel to the operation of the legacy Ethernet LAN to ensure continuous service. It also installed Motorola's AXSVision software to enable network monitoring and control.



Benefits

Cost, performance, and network longevity

The benefits of the POL network installed at Pardubice Hospital span reduced construction costs, security, performance and scalability, and return on investment.

The reduction in build costs comes from three key areas. First, fiber was used to network the whole site to achieve an estimated saving compared to copper of 60 percent. Second, passive optical splitters replace floor cabinets to generate a cost of hardware saving of around 40 percent. And, third, by removing the power and air-condition requirements associated with floor cabinets, power savings are expected to be between 10 and 30 percent.

The network is inherently secure as it integrates 128bit Advanced Encryption Standard (AES) data encryption – essential to protect sensitive patient data. Reliability is also exceptional. And the technology creates no electromagnetic interference that can disrupt medical equipment.

On the performance front, the POL network supports high-speed voice, video and data services to hundreds of users. Its versatile configuration also means that it is easy to connect new users and services. And should teams working with data-intensive applications – e.g. radiology and CAT-scan departments – require more bandwidth, this is simply achieved by providing a dedicated port from the OLT. Network operation is overseen by EDERA using Motorola's AXSVision software to remotely provision the network, isolate faults and troubleshoot problems. This helps EDERA to deliver against the 24x7 service level agreements targets agreed with the Hospital.

Moving forward, Pardubice Hospital's new network, with its virtually unlimited bandwidth and lifespan of fiber of up to 50 years, provides a strong return on investment. The Hospital is already planning to add Wi-Fi connectivity for staff to use mobile computers to access and update medical records from the bedside.

About EDERA

EDERA Group SpA was founded in 2004 as a purely private owned Czech company. Core businesses are providing specialised telecommunications services and sale of computer and telecommunications technology. Currently is a leader in providing telecommunications services in eastern Bohemia.

About Motorola

Motorola Mobility, Inc. (NYSE:MMI) fuses innovative technology with human insights to create experiences that simplify, connect and enrich people's lives. Our portfolio includes converged mobile devices such as smartphones and tablets; wireless accessories; end-to-end video and data delivery; and management solutions, including set-tops and data-access devices.

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Motorola Mobility, Inc. Redwood, Crockford Lane, Chineham Business Park, Basingstoke, Hampshire, RG24 8WQ, UK
www.motorola.com

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EDERA GROUP a.s.
Kocian Stefan
Arnošta z Pardubic 2789
530 02 PARDUBICE
CZECH REPUBLIC
phone: +420 608 233 533
fax: +420 466 616 443

