

Intelligent Device Management in the Medical Marketplace

TODAY'S HEALTHCARE ENVIRONMENT IS FILLED WITH CHALLENGES. HIPAA COMPLIANCE, CRITICAL SHORTAGES OF SKILLED NURSES AND COST CONTAINMENT PRESSURES ARE JUST A FEW OF THE ISSUES THAT BOTH HOSPITALS AND MEDICAL DEVICE MANUFACTURERS FACE. DEVICE NETWORKING CAN PLAY A MAJOR ROLE IN AUTOMATING AND SAFEGUARDING THE PROCESS OF COLLECTING AND TRANSFERRING MEDICAL DATA, REMOTE PATIENT MONITORING, ASSET TRACKING AND REDUCING COSTS THROUGH REMOTE EQUIPMENT MONITORING AND SERVICING.

With device servers, medical equipment such as patient monitoring devices, mobile EKG units, blood analyzers, infusion pumps, ventilators and virtually any other diagnostic equipment with a serial port can be connected to a network.

DATA COLLECTION AND DISSEMINATION

By connecting medical equipment directly to the network, information collected can be securely transmitted from devices to electronic medical records located virtually anywhere, such as the nurses' station, central laboratory, pharmacy or even to the

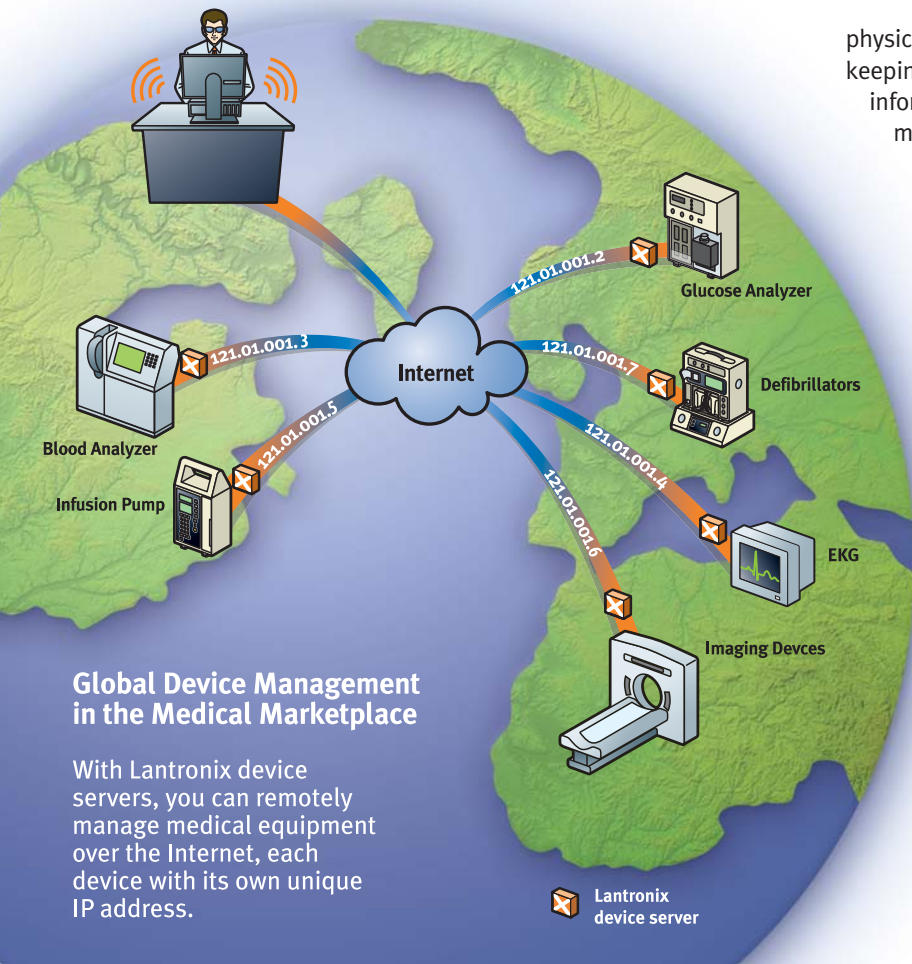
- Provide secure transmission of patient information.
- Offer encryption to protect patient privacy.
- Provide the ability to remotely monitor patients, review diagnostic data, analyze test results, etc.
- Enable hospitals to do more with leaner staffing and improve work flow processes.
- Support mobility of both medical staff and equipment.
- Use the network to track mobile medical equipment
- Reduce risk of downtime and associated costs by remotely monitoring and servicing medical equipment.

physician's office or home. This reduces time required for record keeping and eliminates inaccuracies caused by handwritten information or erroneous transcription. And because the information can be securely accessed locally or remotely by doctors and specialists, diagnosis time is reduced, ultimately with the potential to save lives.

For example, to improve the data collection process, reduce the potential for error and maximize staff mobility i-STAT incorporated Lantronix Micro device servers into the recharger base units for their handheld blood analyzers. After collecting samples from patients using the handheld analyzers, nurses dock the devices into the base unit at the nurses' station. The data is automatically transmitted directly over the network to the patient management system, the lab and/or the doctor's office. This greatly increases efficiency, eliminates hand-written notes or any transcription and increases accuracy and the quality of patient care.

REMOTE PATIENT MONITORING

Device server technology also opens up a whole new world of remote monitoring in hospitals, clinics, laboratories, doctor's offices and patients' homes. With a network-enabled medical diagnostic



Global Device Management in the Medical Marketplace

With Lantronix device servers, you can remotely manage medical equipment over the Internet, each device with its own unique IP address.





device a physician, nurse or laboratory technician can essentially "dial in" to the device via the network or the Internet to check the equipment readings and instantly get an update on the patient's condition, from anywhere at any time.

PROTECTING PATIENT PRIVACY

Transmitting information directly from network-enabled devices to medical records, the laboratory or doctor's office eliminates the chances of hardcopy or handwritten information from accidentally being "shared" or lost. Medical professionals considering the benefits of direct transfer of medical information from the equipment over the network and the ability to monitor patients through the network-enabled devices from anywhere should, of course, be cognizant of data security and patient privacy.

With robust 256-bit Rijndael data encryption and WEP security on its wireless products, Lantronix offers the most secure device servers available on the market today. And, for an additional level of security Lantronix offers the only device servers with a National Institute of Standards and Technology (NIST)-certified implementation of AES 256-bit (Rijndael) encryption as specified by Federal Information Processing Standards (FIPS) 197.

THE FLEXIBILITY OF WIRELESS

A high level of mobility is essential to the workflow of medical personnel and many types of equipment in medical facilities. Lantronix offers device servers that support mobility by network-enabling equipment using the industry-standard 802.11b technology. This affords the benefit of not having to run wire through the hospital or laboratory for much easier deployment. It also provides a great deal of flexibility by making equipment truly mobile components of the Ethernet network. Lantronix offers embedded wired and wireless device servers that can be easily incorporated into the designs of new equipment and external device servers which can network-enable existing (legacy) equipment in a matter of minutes.

INVENTORY AND ASSET TRACKING

Making equipment a functioning part of the hospital network with wireless device networking enables it to be easily tracked. In every large hospital, there are huge numbers of mobile diagnostic devices that are frequently moved with a patient, often without notification of where they are going. Asset tracking is also a big challenge with short term rental or leased medical equipment and supplies. Putting each medical device on the network provides the added benefit on an easy, affordable way to track equipment eliminating wasted time spent trying to locate or account for missing devices.

PAR Excellence is a company that has taken network-enabled inventory tracking to a new level and

enables caregivers to automatically track and bill for supplies by patient. With a handheld data collection device, the caregiver identifies each item dispensed for the patient. Their PAR Display™ base unit is network-enabled with a Lantronix Micro device server. When the handheld device is returned to the base unit, the information collected by the handheld device is sent over the network to the Material Management Department for supply replenishment, inventory management and critical alert notification. The patient's account can be updated to record appropriate charges and/or credits. Cost accounting information by doctor, patient, procedure, DRG, etc. is also available.

REMOTE DEVICE SERVICING

Device networking enables equipment to be continuously and proactively monitored over the network. Instead of repairing devices after they break down, service personnel can monitor devices in real time, receive alerts instantly if a device is performing outside of standard parameters and perform predictive maintenance, greatly reducing downtime and unnecessary service calls. If an device does fail, the service technician knows what is wrong before making the trip so he does not have to spend field time diagnosing the problem and leaves with the proper equipment and parts.

MIGRATION PATH FOR NETWORKING MEDICAL EQUIPMENT

When it comes to medical applications, Lantronix provides a clear path to network-enabling equipment. Existing devices with serial ports can be networked quickly, easily and very affordably through external box products such as the highly-secure SecureBox or WiBox wireless device server. New medical devices can have connectivity built in with XPort™ and WiPort™ embedded device servers and Lantronix board level solutions. Whatever your need, with thousands of different types of medical devices already networked in hospitals and healthcare facilities around the world, Lantronix has the solution.



Example Applications:

- Patient Monitoring Devices
- Glucose Analyzers
- CT Scanning Equipment
- Breathalyzers
- EKGs
- X-Ray Equipment
- Ventilators

