MOBILE ROUTER FOR MEDICAL SUPPLY INVENTORY MANAGEMENT

HIGHLIGHTS

- Bitua is a Chile-based health tech company focusing on operational efficiency through enhancing hospital inventory management and medical supplies traceability.

- Teltonika's RUT200 mobile router ensures stable and secure connectivity for real-time monitoring of medical supplies. The TSW100 PoE+ switch simplifies the solution's architecture.

- The integrated hospital inventory management system provides automation with real-time monitoring, network redundancy, and secure data transfer.

- Teltonika's Remote Management System (RMS) enables remote management and firmware updates of the RUT200 4G router, streamlining maintenance operations.

THE CHALLENGE – TACKLING INVENTORY INEFFICIENCIES IN HEALTHCARE

Healthcare facilities worldwide face significant challenges in managing medical supplies efficiently. Traditional hospital inventory management methods are often manual, time-consuming, and prone to human error, leading to critical operational issues that impact patient care.

Hospitals and clinics have a hard time keeping accurate inventory records. This can lead to running out of essential supplies when staff needs them the most. Conversely, overstocking ties up valuable resources and increases the risk of supplies expiring before use.

In 2022, research showed that more than a third of hospital budgets go to inventory management. US hospitals lose about $25 billion each year because of poor supply chain practices.
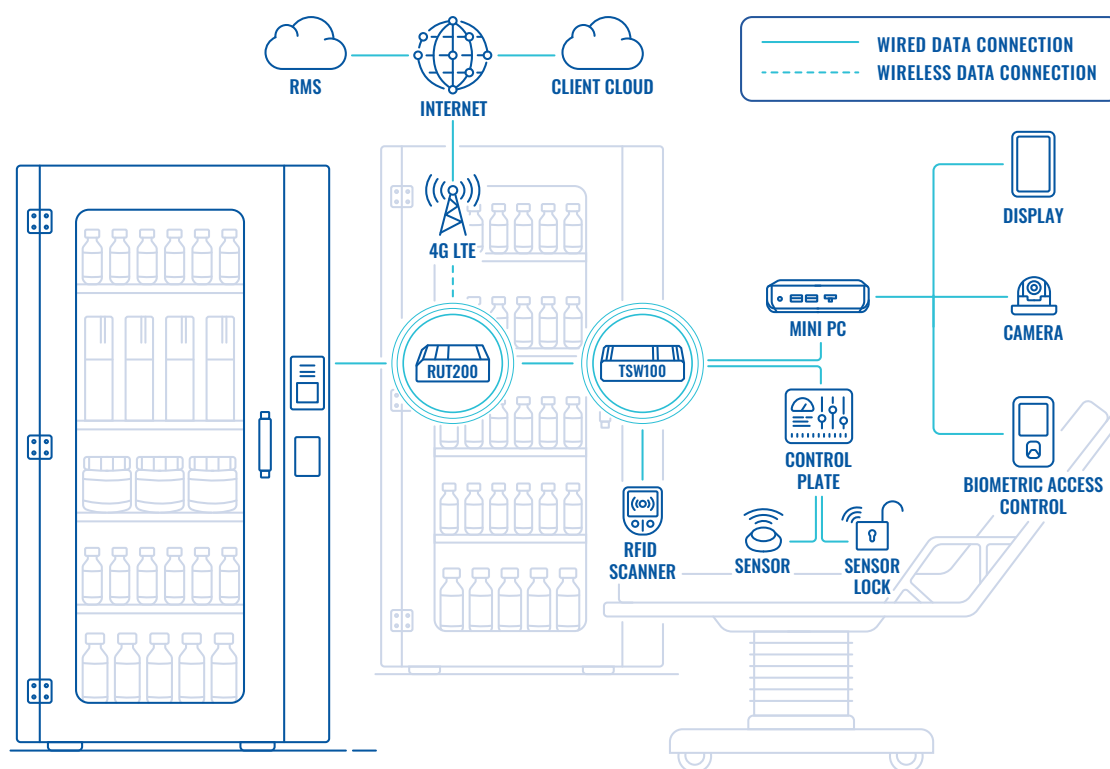
This hospital inventory management challenge is complex. Firstly, there is a lack of real-time data availability. The staff needs immediate access to accurate inventory information to make informed decisions and prevent critical stockouts.

At the same time, network infrastructure can be unreliable, especially in many healthcare facilities in remote or developing regions, calling for backup connectivity solutions.

And lastly, data security concerns are nonetheless paramount. Medical supply data contains sensitive operational and financial information that requires secure transfer and storage.

These challenges highlight the need for robust networking devices to provide seamless and secure communication in inventory management automation. Without addressing these fundamental connectivity issues, even the most sophisticated hospital inventory management system would fail to deliver its promised benefits.

TOPOLOGY

THE SOLUTION – REAL-TIME MONITORING FOR STREAMLINED INVENTORY CONTROL

Bitua's smart cabinet solution, powered by Teltonika's networking devices, provides a comprehensive answer to hospital inventory management challenges. The company successfully implemented the system across Brazil, Colombia, Costa Rica, the United States, and the Dominican Republic.

Teltonika RUT200 mobile router provides critical internet connectivity for the entire hospital inventory management system. While the solution may use wired or wireless connection as the primary option, the 4G capabilities of the RUT200 mobile router serve as a reliable backup. This ensures constant communication even in facilities with unreliable network infrastructure.

At the heart of the solution are Bitua's smart cabinets, storing and tracking medical supplies through integrated RFID technology. Each cabinet contains several key components working together. First, RFID readers track the usage and availability of medical supplies. Then a control plate manages cabinet operations, while sensors monitor cabinet status. And finally, there is a Mini PC that connects to a display, cameras, and biometric access control.

All the components and the RUT200 mobile router connect to the Teltonika TSW100 Gigabit Ethernet switch via five RJ45 ports. So, TSW100 serves as the central connectivity hub within the cabinet.

Data flows from the RFID modules through the TSW100 PoE switch to the RUT200 mobile router, which transmits it securely to cloud servers. The hospital inventory management system utilizes protocols like HTTP/MQTT for efficient data transfer. Secure VPN connections protect sensitive information.

This connectivity architecture enables powerful inventory management automation with several key benefits. Through real-time monitoring, RFID modules automatically capture data on medical supplies, providing instant updates on stock levels.

Teltonika's networking devices guarantee seamless data transmission to the cloud. The 4G backup provides network redundancy, maintaining continued operation even if the main network falters. This is a crucial feature for healthcare settings where reliability is essential.

Teltonika's RMS makes remote management straightforward, allowing for remote configuration, monitoring, and firmware updates of mobile routers, thus removing the necessity for on-site visits.

Combining Bitua's smart cabinet technology with Teltonika's robust networking devices has resulted in an innovative hospital inventory management system with immense potential. This integration significantly increases efficiency and reliability to managing medical supplies across healthcare facilities worldwide.

By leveraging the RUT200 mobile router and TSW100 Gigabit Ethernet switch, the system effectively addresses key challenges such as real-time monitoring, network reliability, and data security. Consequently, Bitua's solution not only streamlines operations but also ultimately enhances patient care by guaranteeing the availability of essential medical supplies when they are needed most.

As Tomás Venegas, Bitua's Supply Chain Manager, states: "We chose Teltonika routers because they offer stable and secure connectivity in hospital environments. This allows us to ensure real-time monitoring of our smart cabinets and maintain the integrity of the transmitted data."

Discover how our integrated system, featuring real-time monitoring, robust connectivity, and secure data transfer, can address your unique challenges and drive operational improvements. Contact us now for a consultation and take the first step towards a more streamlined and effective supply chain.