MOBILE VACCINATION UNITS

SUMMARY

The invention of not even one but several vaccines against Covid-19 was among the greatest highlights of 2020. The vaccine is the safest and most effective measure of controlling the virus and ending the pandemic. Around 70% of the population needs to become immunized to reach the desired effect. However, although it took less than 12 months to develop the vaccine, it may take longer to complete the vaccination. The process is not progressing as quickly as desired. The challenges are many, including factors like high numbers of patients requiring hospitalization, lack of infrastructure needed to start the vaccination quickly and efficiently, and limited access to people living in remote or rural areas.

CHALLENGE

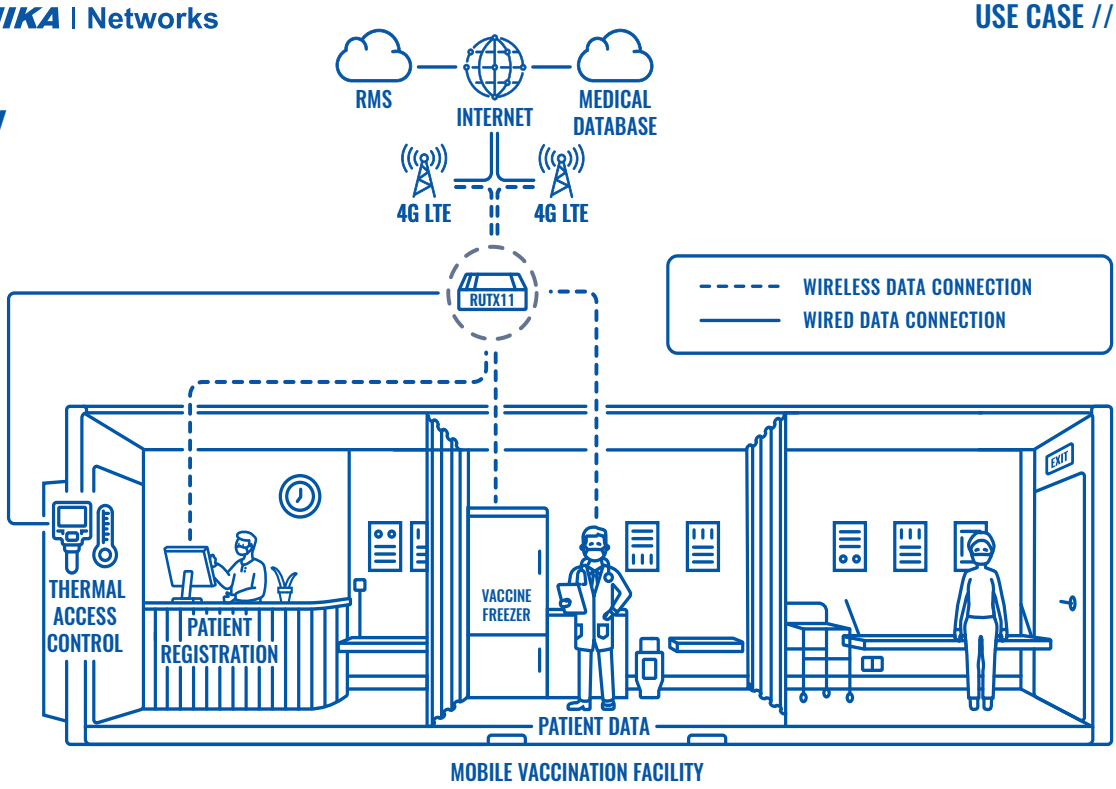
Since vaccinating in the hospitals is not an option at this moment, the governments are looking for efficient ways to establish temporary vaccination sites. However, the setting up process is challenging because of a few reasons. Usually, these locations are not suited for similar purposes and take quite a while to get up and running. Also, their availability is limited and it is hard to reach them for non-city residents, especially elderly people. Due to troubled accessibility, the vaccination is slowed down and the planning becomes inefficient, which sometimes results in discarded unused vaccines.

SOLUTION

Setting up mobile vaccination units is an efficient method, helping to speed up the overall process by enhancing accessibility to the public. The principle is very similar to the drive-through testing posts. The unit can be quickly set up almost anywhere, even in rural areas, and it requires very low resources on staff.

The mobile vaccination unit includes thermal access control for measuring the temperature of patients and granting or denying access based on the result. Automating this step lowers the risk for the employees as it reduces contact with potentially infected people.

TOPOLOGY



The data from the control unit is sent to the medical database and shared with the reception desk and the medical staff. All of these devices get connected to the network by the RUTX11 - LTE Cat 6 cellular router providing wired and wireless connectivity and ensuring network redundancy with dual SIM functionality.

Since the vaccines are highly sensitive to changes in temperature, BLE sensors are installed in the freezer and communicate with the router through Bluetooth. The router sends the data to the Medical IoT platform via the MQTT protocol. An alert is set up to notify the staff whenever there are any changes in the temperature metrics. This way the chances are minimized that such changes could affect the quality of the vaccine.

BENEFITS

- Quick deployment using a single device - RUTX11, which suffices all the connectivity needs.
- Mobility of this solution allows to relocate it within a matter of hours.
- Reliability ensured by dual SIM with auto-failover and backup WAN.
- Security of data provided by Firewall, multiple VPN options, Web Filter, and Access Control.
- Easy setup ensured by a small ecosystem of the solution, using wired and wireless connectivity for devices, and the Bluetooth to connect the sensors straight to the router.
- Scalability allows to quickly set up multiple mobile vaccination sites in locations where they are needed the most, especially remote areas with people having limited accessibility.

WHY TELTONIKA NETWORKS?

Teltonika Networks has been developing professional networking equipment for over decades now and has long-standing experience in a variety of sectors, including medical. Understanding the nature of the solution, we can offer a product that meets the essential requirements of this solution, like top-level data security, quick deployment, easy set-up, and mobility. Such a setting would not have an IT professional present; therefore, it is essential that it would be simple to use for every member of the staff and would not require any special training. However, if any IT issues would occur, they could be conveniently resolved remotely by using Teltonika Networks Remote Management System (RMS).