TRBOnet
Dispatch Systems

MAKE THE MOST OF YOUR RADIO NETWORK

Next Generation (Enhanced) MOTOTRBO radios allow system owners to leverage iBeacon technology to enable efficient tracking and management of their assets. iBeacons are not restricted to only indoor use but can be utilized whenever and wherever proximity is essential. MOTOTRBO provides iBeacon proximity information to TRBOnet to be used by for tracking and management. However, this technology has its limitations that may be critical in some cases hence the creation of TRBOnet's Option Board software to overcome these hurdles.

CHALLENGES

iBeacon information is sent to the dispatch system by the radio's GPS location protocol and is prone to the same issue – location data is unable to be updated frequently enough. The more radios there are in the fleet, the less frequently GPS/iBeacon updates can be received due to increased channel loading. Because the location updates are not frequent enough, it is difficult to determine the exact route taken by a specific radio unit.

→ In a typical layout for iBeacons, there can be two or more iBeacons detected by the radio. The radio does not determine its location relative to these iBeacons, instead, it sends the information from all these iBeacons to TRBOnet for processing. The more iBeacons are detected by the radio, the more location packets are sent over the radio channel, which in turn, means less packets (or location updates) will be able to be transmitted in the system. TRBOnet Server then compares the signal strength from the different iBeacons and finds the unit with the strongest signal to determine the user's location. If the channel is congested with a large amount of location updates, then it is difficult to quickly and accurately locate the unit.

→ The standard location protocol update intervals may be too slow to operate effectively with certain TRBOnet location events, such as geofencing. For example, if there is a restricted or designated area associated with iBeacons, but, due to long (slow) location update intervals (5 minutes), the console operator may not be aware that the radio user is (or was) in the restricted/designated area. If the radio user enters and leaves this area within a short period (less than the example 5 minutes), then the operator will not be aware of this violation as the location update will now be from the authorized geofenced area.

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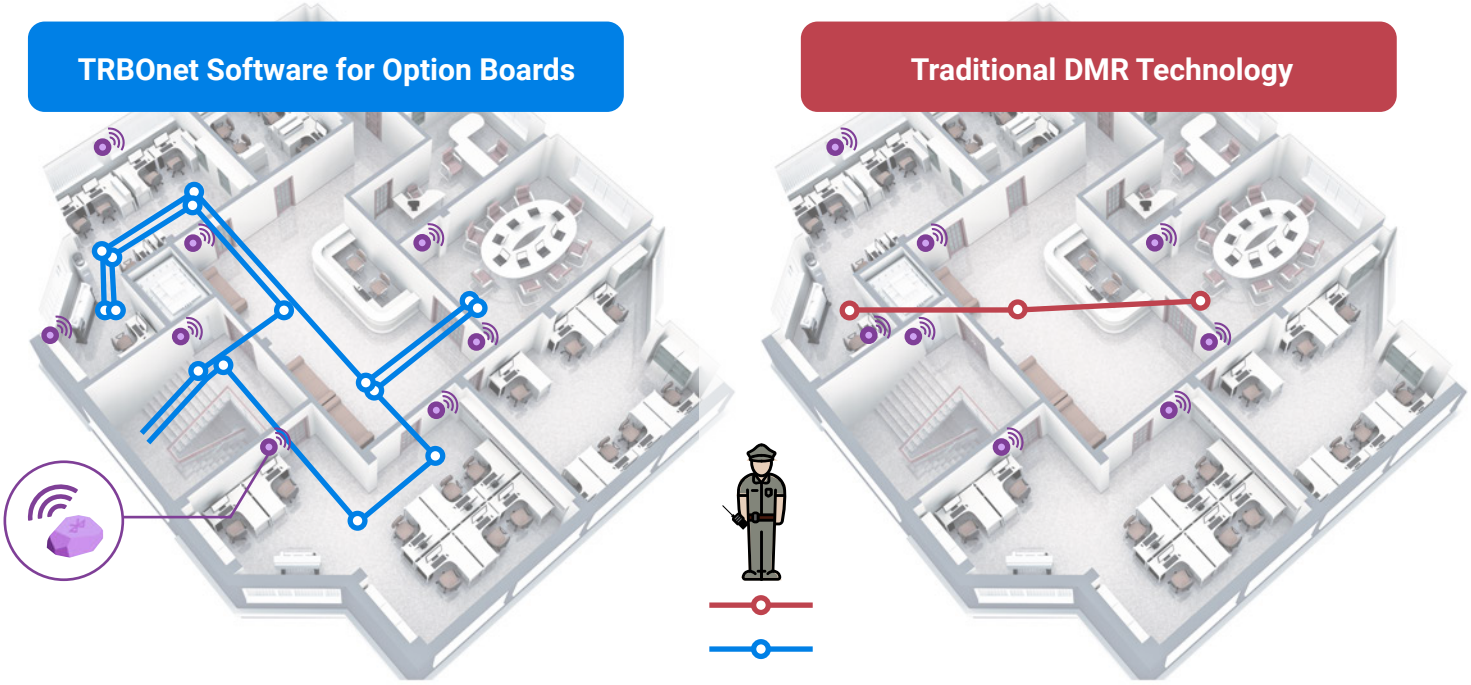
TRBOnet Option Board Software for iBeacons



SOLUTION

Neocom Software has introduced an Option Board based solution that overcomes all these difficulties and challenges. This Option Board software solution is similar to that used for GPS location tracking (aka GPS Store and Forward) that currently exists today. The Option Board software solution improves the accuracy of iBeacon positioning while also providing a number of other benefits for radio system owners, dispatchers and radio users.

The new features and benefits are:

Frequent Location Updates

The TRBOnet Option Board software monitors for nearby iBeacons every 3-5 seconds instead of the typical 30 seconds.

Efficient Channel Usage

The Option Board software compares the signal strength from all the iBeacons located nearby and selects only one prior to reporting its location to TRBOnet Server. In other words, only essential information is sent to TRBOnet, while useless data is discarded.

Fast iBeacon Detection

As long as the radio user stays within range of an iBeacon, the radio will not send any updates to TRBOnet. As soon as the user approaches a different iBeacon with a stronger signal, the radio will report the new location immediately. No matter how fast the radio user moves, the dispatcher always receives correct and accurate location information.

Geofencing

Geofence rules are customizable to each radio, and now, due to frequent location updates, the radio will immediately alert the dispatcher if it enters or leaves a restricted area.

Store and Forward

The Option Board software can collect and store location data and transmit it to the dispatcher at predefined intervals, for example, every 60 seconds. Every location update packet sent by the Option Board to the dispatcher contains information about all iBeacons that were passed over the last 60 seconds. The radio unit's route will be updated on the dispatcher's console correspondingly. Rather than receiving location data at regular intervals, the dispatcher may choose to download the location data on request, for example, initiating an unscheduled download to investigate an emergency. The Option Board's internal storage is large enough for a few weeks to months of operation depending on the poll rates.

Seamless Tracking

Your radio with the TRBOnet Option Board can be configured to send ALL location data, both GPS and iBeacon information. So, while the radio user is outdoors and his radio has a GPS fix, the Option Board will report GPS location to the dispatcher. As soon as the radio user enters an iBeacon range, the radio will immediately send its iBeacon location, thus providing continuous tracking.

Compatibility

Radio models:

Enhanced portfolio radios (portable, mobile units)

Option boards:

- Generic option board by Motorola (the memory capacity is 8 MB)
- SWIFT option board by Neocom (has a slot for an extended memory card with the capacity of up to 32 GB)