Base Driven Protocol

TCP/IP protocols finally solved!

Info sheet

RipEX

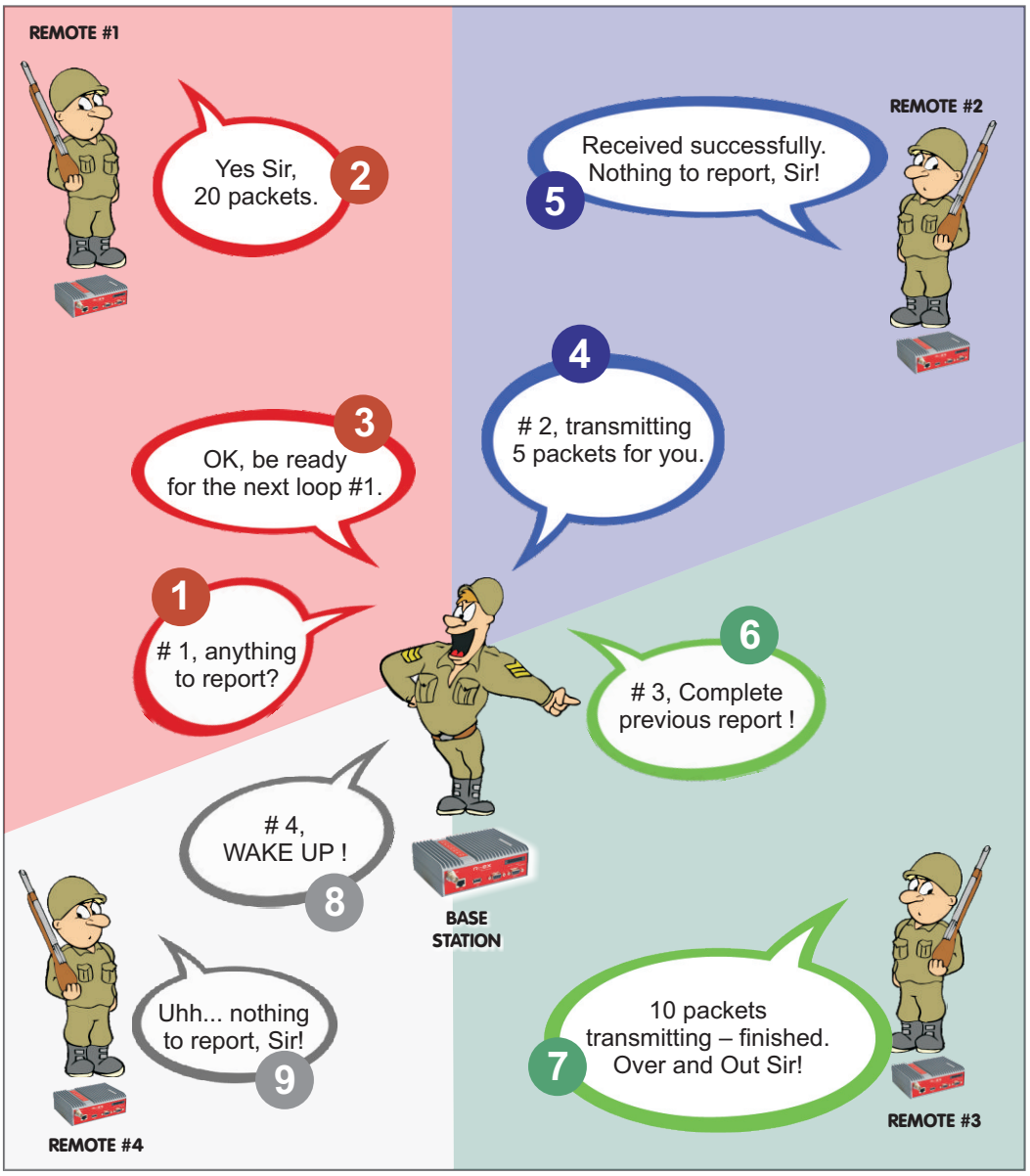
RACOM has found a solution the market has been requesting for years:

Base Driven protocol, primarily optimized for **TCP/IP (IEC104)**, and also suitable for collision networks when a remote **(Hidden remote)** is not to be heard by other remotes and/or different Rx and Tx frequencies are used.

RACOM had, in their **20 years of experience** developing protocols on the Radio channel within narrowband networks, always used **collision protocols** where base stations and remotes alike had communicated spontaneously, competing for the Radio channel against each other.

Many algorithms were simulated and **tested, including access request** when the base station reserves time slots based on request by remotes. The **results** were still **unsatisfactory**, especially for TCP/IP applications with short SCADA packets where numbers of collisions increased further.

RACOM developers, in cooperation with Technical University in Prague, found after two years dedicated research that **the only way** to successfully **manage TCP/IP** traffic is a **protocol without any collisions.** I.e. remotes can't communicate spontaneously and **everything** must be **managed** by the local **base station.** This allows Radio channel capacity to be distributed uniformly, even when high numbers of remotes with very different RSS are connected.



Radio modem & Router

- **166 kbps**
- **1× ETH, 2× COM, 1× USB**
- **0.1–10 watts, -40 to +70 °**
- **Sleep & Save modes**
- **Wifi management**
- **Fast remote access**
- **SW feature keys**
- **Native IP device**

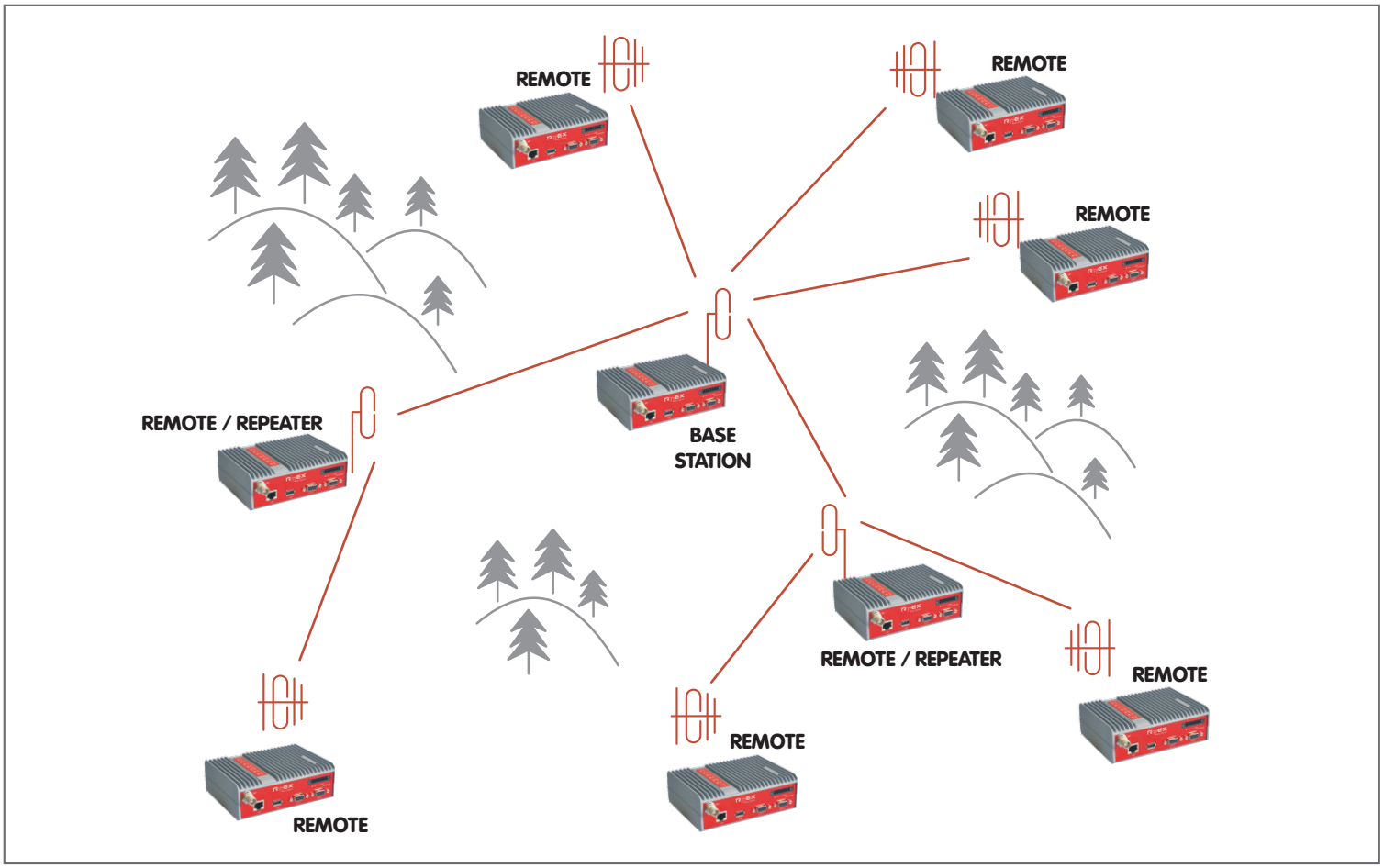
RipEX networks

- **Future proofed**
- **Exceptional Data throughput**
- **Three Radio protocols**
- **Unlimited RF design**
- **Backup routes**
- **Native IP environment**
- **3 year warranty**

RACOM
www.racom.eu

FEATURES

- More than 90% of Radio channel capacity dedicated for user data
- Designed for Star topology, Repeaters and Hidden remotes supported
- Traffic managed and optimized by Base station
- There are never collisions in the network
- Up to 255 remotes under one Base station
- Stable response times with minimum jitter
- Fair distribution of channel capacity among all remotes
- High reliability - acknowledged unicast packets on Radio channel



TCP / IP

TCP/IPprotocols like IEC104, used by modern RTUs, create challenging problems because of unstable response times and limited data throughput.

Base Driven protocol Solution:

- TCP/IP transparent
- Optimized for IEC104
- No TCP errors
- No TCP disconnections

Tests confirm that Base Driven protocol handles 5-10x more remotes under one base station and with higher reliability compared to others.

Hidden remotes

Radio protocols using Listen Before Transmit principles, create collisions with 'hidden remotes'. Different Rx and Tx frequencies create the same issues.

Base Driven protocol Solution:

- No collisions even in difficult terrain
- Suitable when different Rx and Tx frequencies are used
- Fair access to Radio channel for all remotes
- Channel capacity distributed fairly amongst all remotes

Base Driven protocol provides significantly higher user data throughput and creates much improved levels of stability and reliability !

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