Hybrid networks
Radio and Cellular together

RACOM

RACOM equipment was originally used in either **private radio** or **public cellular networks.** Over time, more and more situations have arisen that require communications networks to offer a **combination of both.**

We have customers that transmit **critical data** requiring **guaranteed quality of service** which is provided by **private radio** that also have **larger data** or **not so important sites** where it is better to use a **cellular network.** Other customers are happy to rely on a cellular network for data communications but need to have a backup service for key data when the public service is down.

RACOM networks are a **perfect solution** for anyone who requires a **hybrid network** thanks to the versatility of our equipment. RACOM offers a one stop shop for hardware. Both **M!DGE** (cellular router) and **RipEX** (radio modem) use **the same SW drivers** for SCADA protocols and logic offering a **smooth transition of routing** to cellular or radio channels and high levels of stability within the network. RipEX has a unique **Backup routes feature**, used to automatically switch transmissions to other radio or cellular links in case of failure or if configured to do so. **No additional hardware** is required within the network.
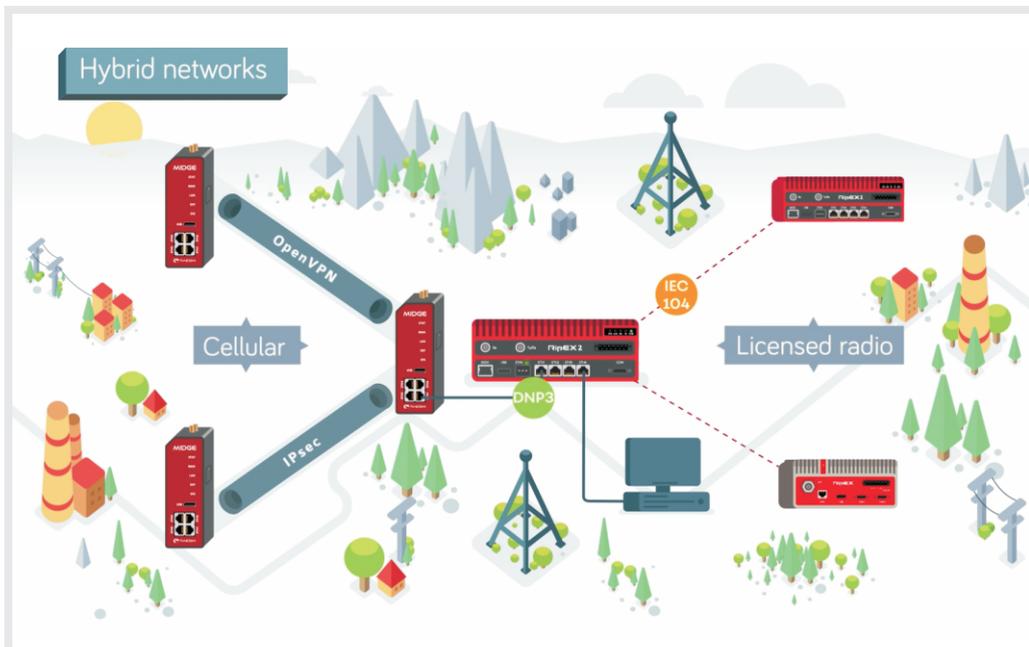
RipEX2
- **1.1 Mbps - 256QAM**
- **6.25-200 kHz**
- **4×ETH, 1×SFP, 1×COM, 1×USB**

RipEX
- **166 kbps - 16DEQAM**
- **6.25-50 kHz**
- **1×ETH, 2×COM, 1×USB**

M!DGE
- **4G / 3G / 2G**
- **2 x SIM, 4×ETH, 1×COM,**
- **1×USB, 1×DI, 1×DO**

Radio	Cellular
Private network - completely under user's control	Public network – 3rd party dependency Make use of existing infrastructure
Single user - guaranteed capacity and behaviour	Multi users can affect capacity and behaviour
Licensed frequency - guaranteed quality of service	Public networks - quality of service not guaranteed
Higher investment, guaranteed running fees paid to government	Lower investment, unpredictable running fees paid to private company
Mission critical real-time applications	Non-mission critical applications

RACOM Networks

- Exceptional Data throughput
- High level of flexibility
- Advanced Security
- Future proofed
- Excellent network stability
- Low maintenance
- Remote management

RACOM
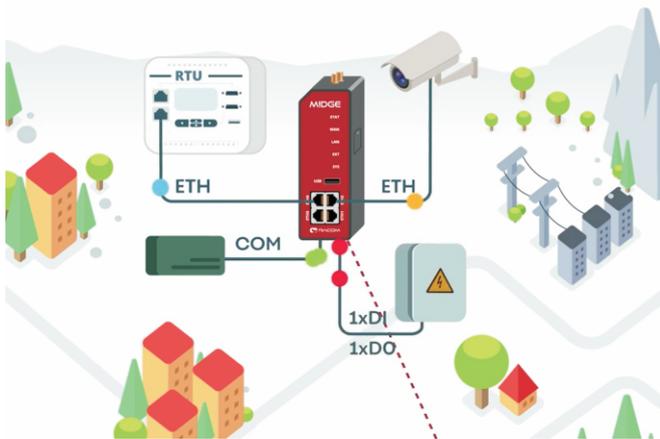www.racom.eu

Customer Benefits

Standard units

The RipEX Routing feature automatically manages network selection for data transmissions. Within a RACOM hybrid network, the user can configure this feature within the **central RipEX** to **manage which data** is sent on the **cellular network** and which on the **radio network. No additional hardware required!**

Industrial grade

Both RipEX and M!DGE come with a **rugged metal case, industrial hardened design** and the option of **DIN rail mounting,** using only **heavy-duty industrial components** sourced directly from manufactures or authorized distributors. All units are tested to operate comfortably between **- 40 and + 70 °C.** Both products are well proven in extreme climatic conditions around the world.

Security

All RACOM products come with **advanced, future-ready** Physical, Management, Access control and Data security mechanisms maintaining **network integrity** in line with the robust demands of **cyber security.** Management access options are available allowing **different levels of secure access** to be set. **Cryptographic end-to-end tunnelling** secures data transmissions and **data integrity control. Origin authentication** provides additional security and the **firewall** blocks all unwanted traffic at the network boundary.

Flexibility

RipEX and **M!DGE** have **many different interfaces** that can handle independent applications in parallel. Proprietary and standard **mPCI** slots allow a high number of hardware **expansions.** With RipEX different modes of operation and different protocols on Radio channel allow users to **customize** their **network** to **match** their exact **needs,** supporting both legacy and the newest RTU's within the same network. This enables **the best possible data throughput and stability for any application.**

Management and diagnostics

M!DGE and RipEX are designed with the **user in mind.** Basic IP knowledge is sufficient to configure the devices which come with an **intuitive web interface. Remote management** over the air and **automatic Firmware upgrade** from **USB flash** disc are possible **for both. SMS management** of **M!DGE** is also available. Every part of the network can be remotely monitored and analysed using **SNMP** industry leading software. The units have the capability of **real time and save to file monitoring** analysis. **Alarms** can be set where appropriate with **SNMP traps** and/or **SMS** notifications generated.

Compatibility

By having our own R&D team, there are high levels of compatibility within RACOM products. This applies equally between hardware and software. **RipEX** and **M!DGE** share the **same SW protocol drivers and logic** in every device. This not only makes a RACOM **hybrid network** very **robust** and **stable,** but **easy to configure** and manage by engineers.

ver. 1.0