RACOM

CASE STUDY

RipEX networks:

- **Future proofed**
- **Exceptional Data throughput**
- **Anti-collision RF protocol**
- **Unlimited RF design**
- **Backup routes**
- **Native IP environment**
- **3 year warranty**

RELIABLE POWER DISTRIBUTION FEEDS OFF RELIABLE COMMUNICATION

The Customer

Comisión Federal de Electricidad (CFE) is a company in charge of monitoring, generation, transmission and sale of electricity in all of Mexico. Founded in 1937, CFE supplied to around 27 million customers in 2012 and is a leading company in the electricity sector in Latin America.

The Requirement

In July 2012, CFE issued a tender to provide the radio communication network of its SCADA system to control the power distribution. The initial contract was for 1000 sites to provide data acquisition and RTU management in the metropolis of Mexico City.

The existing solution had become outdated and outsized by current demand. There was an immediate need for a seamless migration to a modern wireless communication infrastructure that could comfortably accommodate present traffic and allow for straightforward expansion in the future.

RipEX provides continuous, reliable service for mission-critical applications like SCADA & Telemetry for Utilities, SmartGrid power networks or any packet networks.

RipEX is a best-in-class modem known for reliability, performance and quality, implementing all relevant state of the art concepts and are particularly suitable for systems requiring uninterrupted operation.

Key considerations

- **Effective anti-collision radio protocols**
- **RTU management within same network**
- **Smooth network expansion**
- **Highest levels of remote support**
- **Future proofed product**

The Solution

After testing all the main global brands, RipEX was the only solution to meet all functionality requirements, especially data throughput and anti-collision protocol on the radio channel. This is needed to allow more applications to run in parallel on one frequency.

Units operate with two serial ports on each location concurrently, one for data acquisition and the second for RTU management. All the acquired data is concentrated via Ethernet in the control centre. The network uses DNP3/TCP in the centre and DNP3 serial or DNP3/TCP on the remotes.

Coverage footprint and reliability were also key factors: 400 MHz band with 25 kHz channel spacing, no frequency split and robust 4CPFSK modulation with 21 kbps were chosen. The longest radio link in the network can then be 100 km, some units are installed under the streets of Mexico City and some in environment with very high electromagnetic interference. RipEX also provides an unlimited number of repeaters on the way, so radio design is not limited to a traditional 'star' topology.

Flexible RF Design

The same hardware can serve as central master, repeater [base] and remote stations or all of these simultaneously. Utilising this function and unlimited repeaters on the way, permits an unlimited RF coverage footprint, reduces base station cost and enables easy reconfiguration if there is an issue in the network.

Multiple Applications

Anti-collision RF protocol and its unique performance allows CFE to use more applications in parallel within the RipEX network. Primary SCADA application response times continues to be excellent while using DNP3/TCP (+ Terminal server) in the centre and DNP3 serial or DNP3/TCP on remotes, even if the second serial interface is used for RTU programming or other purposes.

Pre-sales support

RACOM, in tandem with local partner Solstand, created an optimal design in terms of radio coverage, frequencies and communication protocols etc., in order to meet all the customer´s requirements.
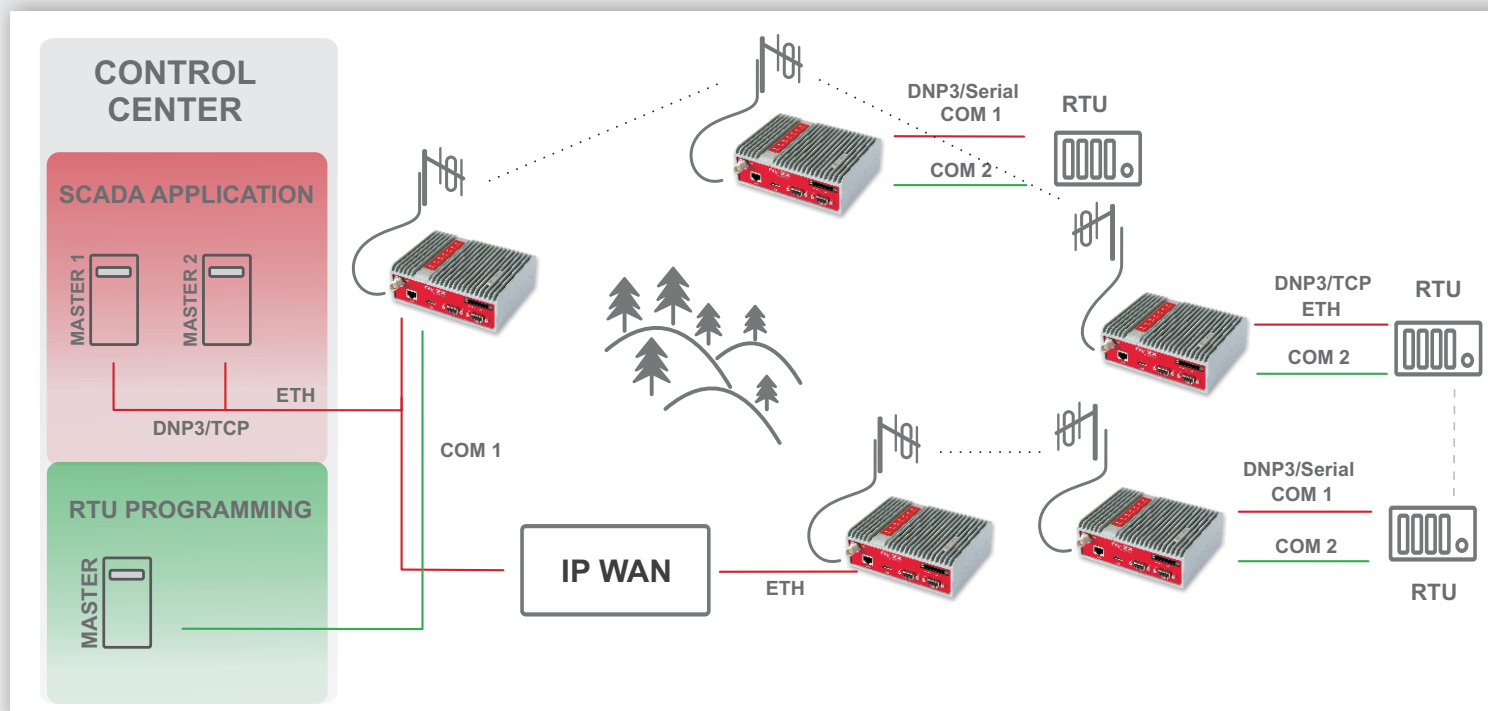
Implementation

Installation and commissioning was completed by local companies, initially trained by RACOM.

After-sales support

First level support is provided by Solstand. If and when required, RACOM provides 24/7 technical support to the local partner and to the end user.

Conclusion

In addition to the technical structure of the network, CFE were very impressed with the design and reliability of the RipEX modem, the high levels of remote support offered by RACOM's technical support team and the potential longevity of the solution implemented. Due to the success of the solution CFE have expanded the network and as of 2015 are operating over 3500 sites and still growing.

ver. 1.0