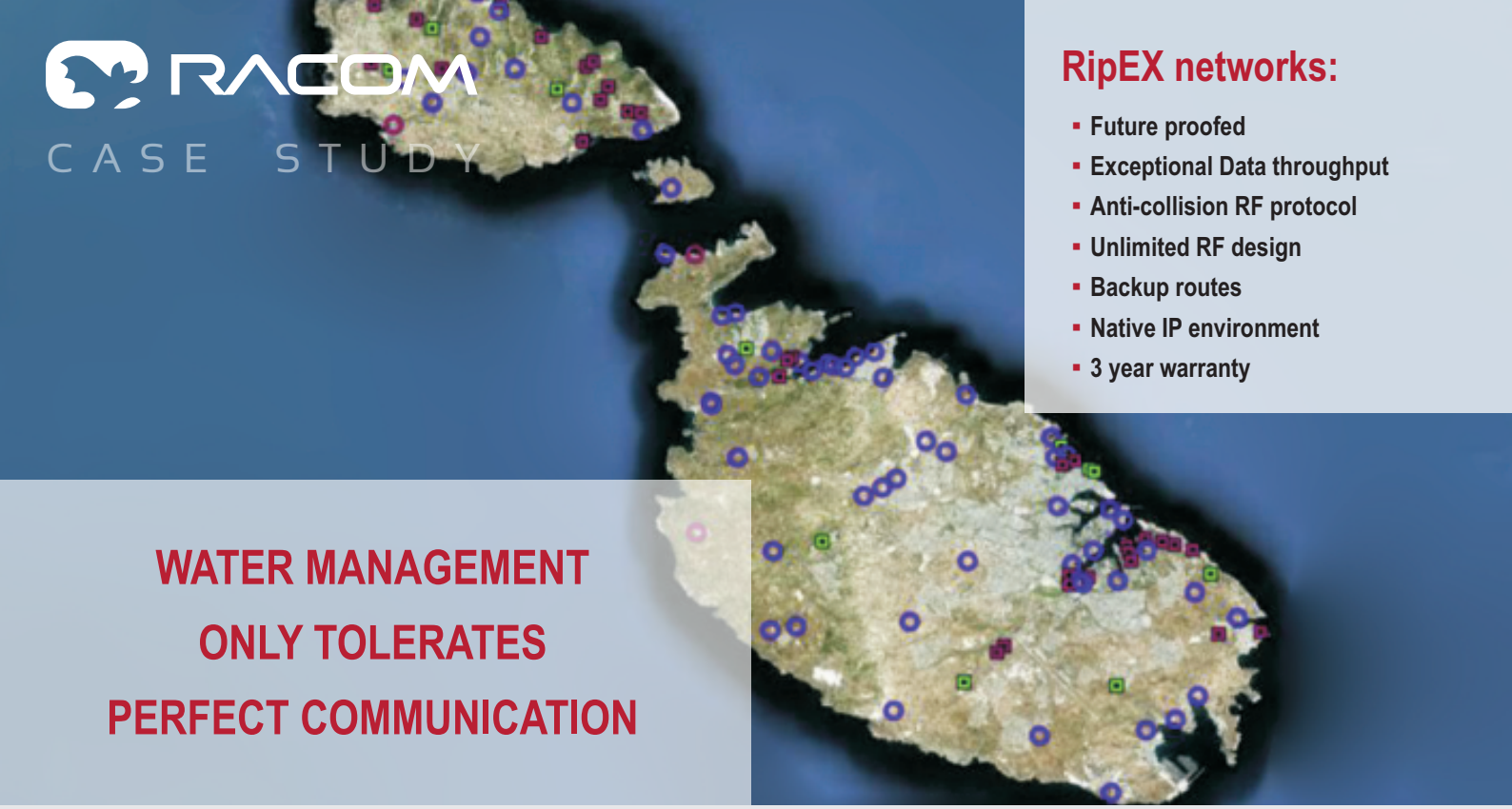
RACOM

CASE STUDY



## RipEX networks:

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

# WATER MANAGEMENT ONLY TOLERATES PERFECT COMMUNICATION

## The Customer

Water Services Corporation (WSC) produce and distribute drinking water and manage the safe disposal of wastewater in the Maltese Islands.

Around thirty one million cubic metres of good quality drinking water is produced each year to meet the needs of inhabitants and tourists alike. Read whitepaper here.

## The Requirement

WSC were using two separate UHF networks, for drinking water and another for waste water; different radios, frequencies, spare parts, management. The required solution demanded drinking and waste water SCADA within one network, with an IP structure enabling simultaneous communication over the same UHF infrastructure. Such a dedicated network must have sufficient capacity, speed, reliability, easy management and maintenance.

A public tender was opened in 2014 to find an optimal solution to cover all 270 remote sites using approx. 18 redundant base stations. Co-funding by European union required all main global brands to be considered.

**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 is particularly suitable for systems requiring uninterrupted operation.**

## Key considerations

- Reliability
- Backup routes
- Redundant hot-standby base stations
- One network for two SCADA's
- Polling & Report-by-exception

## The Solution

WSC realised that RipEX best met all functionality requirements, especially data throughput and anti-collision on the radio channel. Network uptime complemented by backup routes and hardware reliability were also pivotal.

Anti-collision protocol on the radio channel permits polling and report-by-exception for drinking SCADA allowing the sewage SCADA and remote RTU management to run in parallel. 60% of SCADA uses Ethernet/IP and 40% Modbus TCP.

RipEX built-in Modbus TCP converter eliminates TCP overhead on the radio channel leaving maximum capacity for real user data. There is also the possibility to add RTU's with serial Modbus polled from the same master.

Since capacity and response time were also key factors, a 400 MHz band with 25 kHz channel spacing, no frequency split and 16DEQAM modulation with 83 kbps was chosen. RipEX also provides an unlimited number of repeaters on the way, so radio design is not limited to a traditional 'star' topology.

## Backup routes

An unlimited number of prioritized alternative paths can be defined between two RipEX IP units (even behind a repeater or LAN). These paths are continuously tested and if the primary route fails, switch-over to the next functioning backup.

## RipEX- Hot standby

Base stations use a redundant RipEX-Hot standby chassis (fully monitored, hot swappable, 1+1 redundant) with two booted-up standard RipEX units inside with automatic switch-over capability (< 2s) on detection of failure. “Auto toggle” mode automatically switches traffic over to RipEX “B” at periodic intervals, even if “A” does not have an alarm, to confirm “B” is in full working order.

## Project preparation

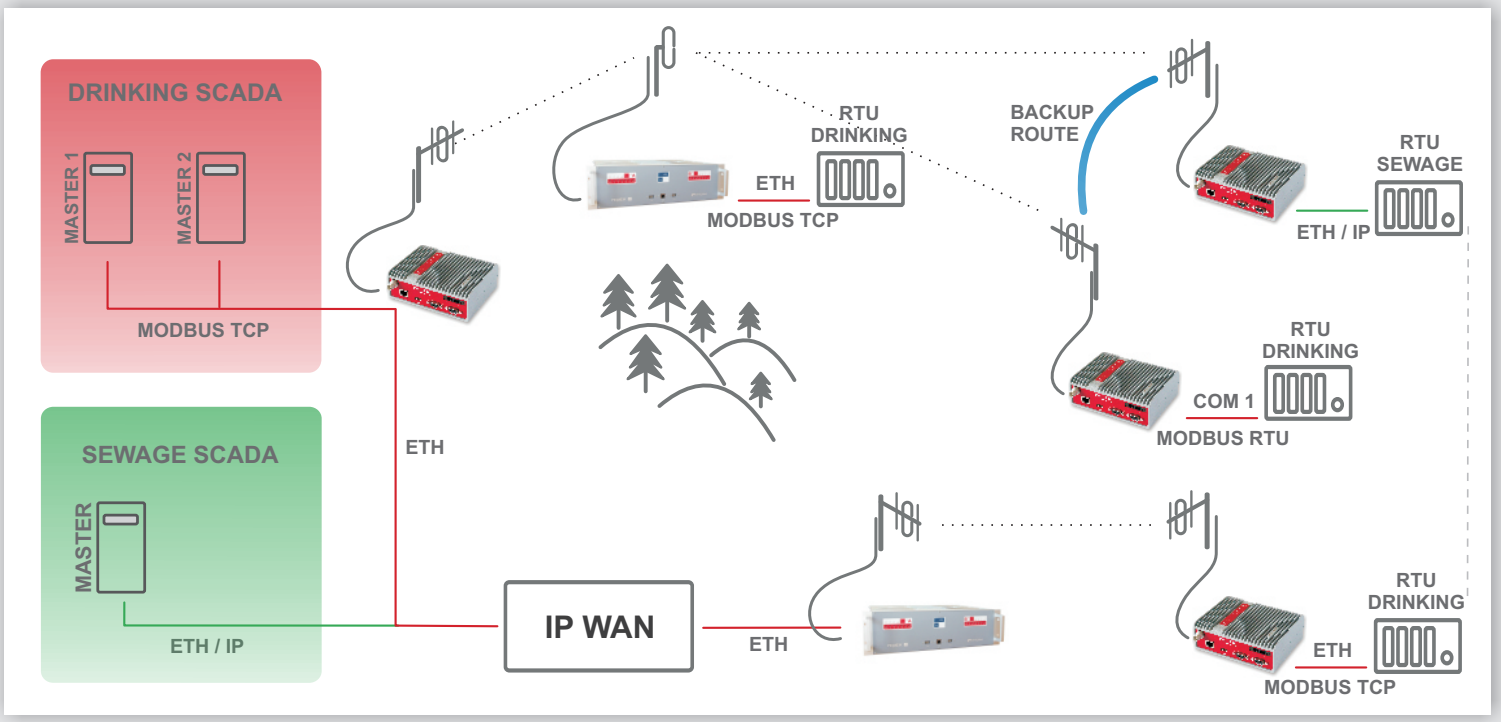
**Since WSC is an experienced private radio modem network user, initial project preparation, network design and tender specification were completed by themselves.**

## Implementation

**The WSC team was trained in RACOM premises allowing installation and commissioning to be supervised by WSC with RACOM backup.**


## After-sales support

**First level support is performed by WSC themselves. If and when required, RACOM provides 24/7 technical support to them.**




## Conclusion

RipEX has many features that can be applied in different situations; in this case to encompass both water and wastewater outstations under one umbrella. During a training visit to RACOM, WSC engineers also appreciated RACOM's complete in-house approach to manufacture. The use of modern high-tech equipment and continuous, detailed quality assurance further confirmed their choice of top quality products within the solution.

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