HOLISTIC FLOOD PREVENTION SOLUTION WITH REALITEQ

HIGHLIGHTS

RealiteQ™

- Reali Technologies Ltd. is an Israeli developer of RealiteQ – a cloud-based SCADA and telemetry solution for bringing cost-effective digital transformation and remote capabilities to facilities worldwide.

- Its clients in Mexico had large, manually-operated water treatment facilities. These facilities experienced accidental sewage overflows in dams, resulting in damaged facilities and the high cost of repairing them.

- To prevent accidental overflows and improve overall system efficiency, it connected the facilities to the RealiteQ cloud platform using our TRB245 cellular gateway with ICEX embedded edge software – together forming the ICEX TRB245.

- Connected to the PLC via Ethernet and to numerous sensors, pumps, and valves via Ethernet, RS232, or RS485, the ICEX TRB245 provides this solution with the foundations for enhancing communications, reducing maintenance costs, introducing remote management capabilities, and eliminating flood risks.

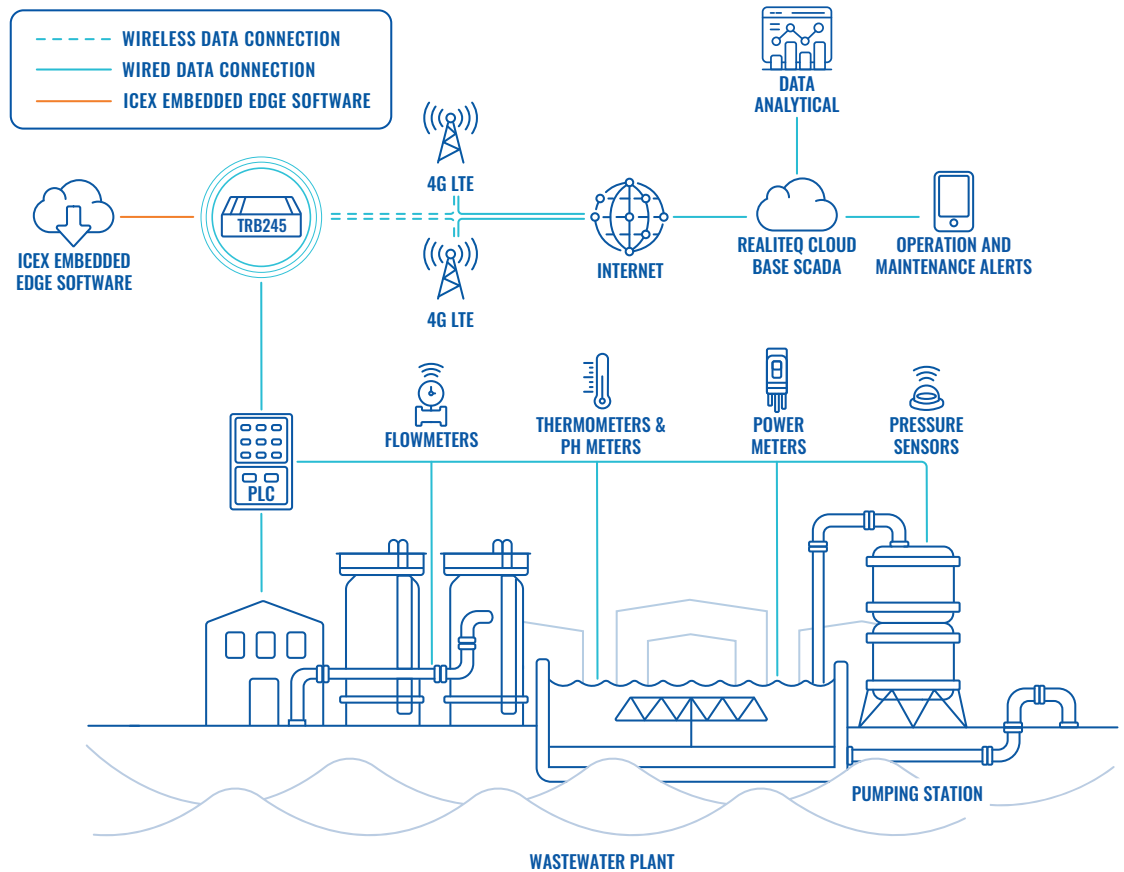## THE CHALLENGE – YESTERDAY'S MANUAL ACCIDENTS

Digital transformation is not just a matter of optimization and efficiency; it mitigates risk and reduces costs. A notable example of this is the water utilities sector, in which demand for digital transformation grows each year. Our partner, Reali Technologies, has seen what happens when digital transformation is not prioritized.

Its clients in Mexico have been dealing with multiple accidental sewage overflows in dams. These overflows had massive adverse consequences: they caused floods that reached drinking water treatment plants, resulting in the high costs of repairing these now-damaged facilities.

These floods occurred in part because the plants operated completely manually. There was no preventative maintenance, operating equipment like pumps and motors required human intervention to start or stop, metrics readings were done with unreliable methods like drawing scales on walls, and the analysis of these readings was performed by verbally transmitting what personnel could see by radio.

The truth of the matter is that IoT makes such costly accidents easier to prevent. Data gathered by sensors, remotely transmitted to a cloud server for analysis and monitored 24/7 shouldn't be a luxury – it should be the baseline. In order to establish this baseline for its clients, Reali Technologies needed the right networking device for the job. Naturally, they came to Teltonika Networks.

TOPOLOGY

- - - - WIRELESS DATA CONNECTION
———— WIRED DATA CONNECTION
———— ICEX EMBEDDED EDGE SOFTWARE

DATA ANALYTICAL

4G LTE

4G LTE

ICEX EMBEDDED EDGE SOFTWARE

TRB245

INTERNET

REALITEQ CLOUD BASE SCADA

OPERATION AND MAINTENANCE ALERTS

FLOWMETERS

THERMOMETERS & PH METERS

POWER METERS

PRESSURE SENSORS

PLC

PUMPING STATION

WASTEWATER PLANT

THE SOLUTION – TODAY'S DIGITAL ADAPTATION

Reali Technologies's holistic solution combines remote IIoT hardware and cloud software, covering all levels from infrastructure, ICT and SCADA, and cybersecurity and data analysis. The water facilities were connected to their RealiteQ cloud platform using our TRB255 cellular gateway with Icex embedded edge software – together forming the ICEX TRB255.

In some stations, where control is needed in addition to monitoring, PLC is applied to keep the local logic and then PLC is connected via Ethernet to ICX-TRB245. In smaller stations, where only monitoring, data analytics and alarming were required, pressures, level and flow sensors were connected direct to ICX-TRB245 via RS232 and RS485.

In stations where both control and management are needed, the ICEX TRB255 is connected to a PLC via Ethernet. In smaller stations, where only monitoring, data analytics, and alarms are required, this connection to the PLC isn't needed. In both cases, while a number of different devices in the treatment plant are also connected to the PLC, some are connected directly to the gateway via Ethernet, RS232, or RS485. These include level sensors for measuring water tank levels, pressure sensors for measuring pipe pressure, flowmeters for measuring water quantity of moving water, pH meters, thermometers, voltmeters, amperemeters, and power meters.

The TRB255's ability to integrate modern and legacy industrial equipment into a single solution is the foundation upon which this solution is built. Dual SIM with auto-failover and backup WAN ensure uninterrupted 4G connectivity, while a wide range of industrial and networking features, such as Modbus, GNSS, SMS control, Firewall, OpenVPN, and more, keep the solution adaptable and secure. All of this comes in durable, compact housing engineered for adverse industrial environments without adding needless complexity to the setup.

With all the sensors under its watchful eye and with the TRB255 gateway guaranteeing steady connectivity, this solution made all forms of communication better, faster, and more accurate, and enabled determining target water flow at specific times and areas. It reduced maintenance costs, introduced remote management capabilities, and most importantly – eliminated flood risks.