RealiteQ™
Real Time Remote Control and Monitoring

An Israeli pioneer Hi-tech company, the developer & Provider of

Hi Tech Low Cost

RealiteQ™

New Genereration of SCADA & Telemetry Solution

Cloud based SCADA system

.

By Ran Kedem - RealiteQ

Agenda -

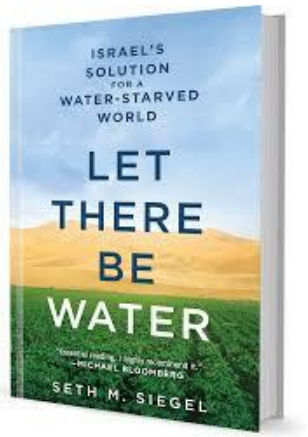
RealiteQ™
Real Time Remote Control and Monitoring

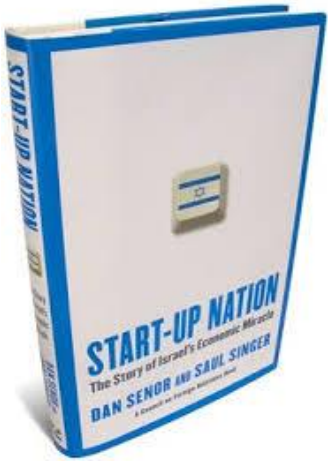
- About RealiteQ
- The market
- The Technology
- System Benefits
- Adapting RealiteQ in developed utilities
- Pilot in American Water

IoW – Internet of Water

RealiteQ™
Real Time Remote Control and Monitoring

Israel is well known for its Hi–Tech industry as well as for its advanced Water Technologies.





Reali Technologies Ltd. Brings most advanced IIoT technologies to the water & wastewater sector introducing **RealiteQ** SCADA, the IoW (Internet of Water).

About RealiteQ

10 years Anniversary

RealiteQ is a one stop solution of Real Time Cloud based Telemetry and SCADA system.

RealiteQ was developed by Reali Technologies LTD., an Israeli company that was established in 2008 and is a technology breakthrough pioneer.

Today, RealiteQ is a well proven state of the art cloud based technology with thousands of installations in 40 countries in 5 continents since 2008.

Among RealiteQ users are Global leading enterprises: Jonson Control, Schneider Electric, Tesla, Volkswagen, L'Oreal, Solenis (Chemicals), Unilever, Coca Cola, city bank…

About RealiteQ

From the press

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"The Marker " one of the leading Israeli financial newspapers:

TheMarker

A July 2017 Article in TheMarker Magazine:

RealiteQ is amongst Israel's most innovative water-tech companies

"Hundreds of companies around the world chose RealiteQ's system for remote management of water infrastructure"

"RealiteQ broght the IoT and the Cloud to the water supply market"

About RealiteQ

The need and the solution

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Real Time Remote Control and Monitoring

SCADA = Efficiency + Safety

Yet, many utilities run without having all its facilities connected to SCADA system as they can't afford it

RealiteQ makes SCADA available and affordable to any water utility

Cloud Based SCADA

Why moving to Cloud based SCADA?

Hi Tech Low Cost
ReRealiteQ™
Real Time I New Generation of SCADA & Telemetry Solution

It's because cloud computing increases efficiency, helps improve cash flow and offers many more benefits…Here's ten of the best.

1. **Scalability and flexibility**
2. **Disaster recovery**
3. **Automatic software updates**
4. **Capital-expenditure Free**
5. **Cost Efficiency**
6. **Work from anywhere any time**
7. **Document control**
8. **Security**
9. **It's open (customized)**
10. **Increased collaboration**

Cloud Technology is already part of our life (at our Home, Banks, data backup, Data storage, software (office 365…), shopping, Payments…) , So…

Why to invest in past technology while the technology of the future is already hear?

About RealiteQ

RealiteQ Vs. Traditional SCADA

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	RealiteQ	Traditional SCADA
CAPEX	Low	Very high
OPEX	Less then $ 1/day/site (SAAS model)	High
Infrastructure	Not required	Required
Installation	Simple, fast and inexpensive	Complicated, long and expensive
Maintenance	No (SAAS model)	Yes
IT team	Guidance and supervision	Intensive involvement
Integrative	Can be integrated with many protocols	Usually unique protocols
No. of users	No limits of users with No extra payment	Payment per user license
No. of sites	No limit	Limited by technology and cost
Catastrophe	Redundant Global Architecture	May lose communication or be blocked
Suppliers	One stop solution (Hardware, Software, service)	Usually integration of several different suppliers/products

The market

Technology (Market research)

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"**Fourth Generation** – Cloud / Internet Based SCADA System…."

…" Cloud-based SCADA **dramatically lower the costs** associated with a traditional SCADA system… getting started with a cloud-based SCADA, users can achieve about 90% reduction in costs…"

…" Cloud-based SCADA **improve the system's reliability**. Cloud computing platform enables water and wastewater utilities to deploy redundancy and disaster recovery capabilities far beyond that found in the typical water and wastewater IT departments…"

Source: 2017 Zion Market Research

The market

Water & Wastewater (Market research)

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"The water and wastewater industry is in transition to a digital revolution that has the potential to transform the industry from innovations such as the **internet of things** and machine learning."

"…there has been an increased uptake of monitoring and control systems that are able to detect changes **in real-time**..."

"In the future data-feeds and cognitive **computing could** govern water management and inform every decision in the municipal and industrial sectors"

source: Water's digital future, GWI 30.9.2016

The technology

System components (End-to-End)

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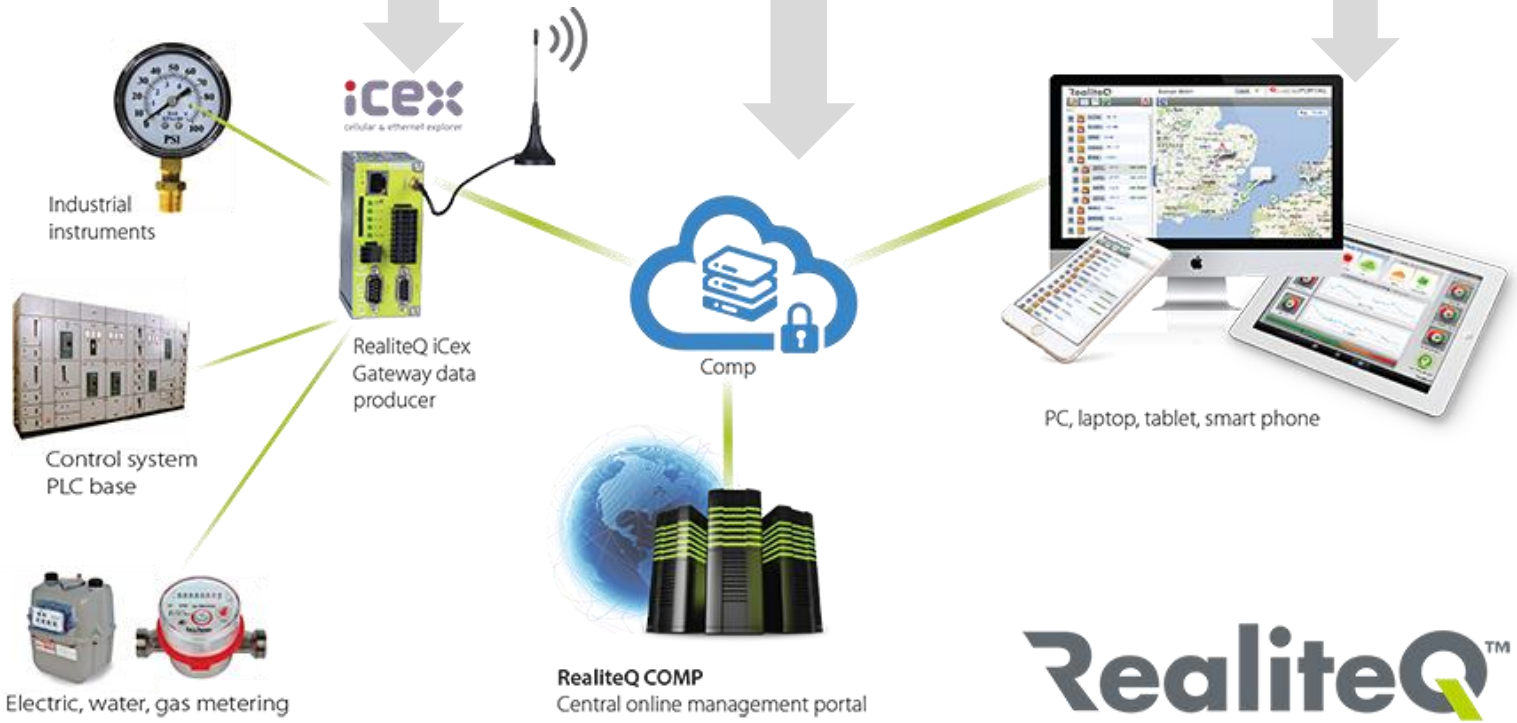
iCex (Integrated Cellular and Ethernet eXplorer).
Embedded or Encapsulated Data Producer that explores sensors, analyzers, controllers etc. over I/O, Ethernet or Serial protocols, and link them to the internet by any cellular, satellite or other connection.

COMP (Central Online Management Portal) Mediates all communication, define security and users permissions, manage the Historian, streams live data and send Alarms notification.

UI - Browser based (HTML5) User Interface (HMI/SCADA), displays Real Time information, Alarms, Historical data, Tables & trend charts.
enables Remote operations and modification.
Work with any desktop and mobile device.



RealiteQ™

The technology

iCex (Integrated Cellular & Ethernet Explorer)

RealiteQ™
Real Time Remote Control and Monitoring

- Remote Data gateway with or without cellular modem.
- A Data producer, generates real-time data from controllers instruments and sensors.
- Includes serial, Ethernet and I/O interfaces
- Supports standard industrial protocols such as Modbus RTU, Modbus TCP, Rockwell DF1, Siemens ProfiNet TCP/IP, GE SNPX and more.
- Does not act as a server but rather as a client that access the **RealiteQ** servers cluster. By this approach no fix IP and no special or private network configuration is required.

The technology

COMP (Central Online Management Portal)

RealiteQ™
Real Time Remote Control and Monitoring

- Mediates all communication of data producers & consumers.
- Stores all system configuration.
- Updates producers & consumers with any configuration, data or command.
- Keeps all security settings and users permissions.
- Manages the historian data.
- Sends alarm notifications.
- Allow basic logic capabilities (Soon to have BI capabilities).
- Allows data sharing among distributed sites.

RealiteQ COMP is located at the Amazon server - Option for on premise server

The technology

UI (User Interface / HMI)

RealiteQ™
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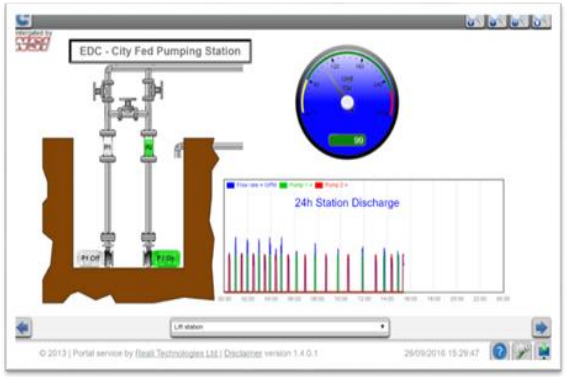
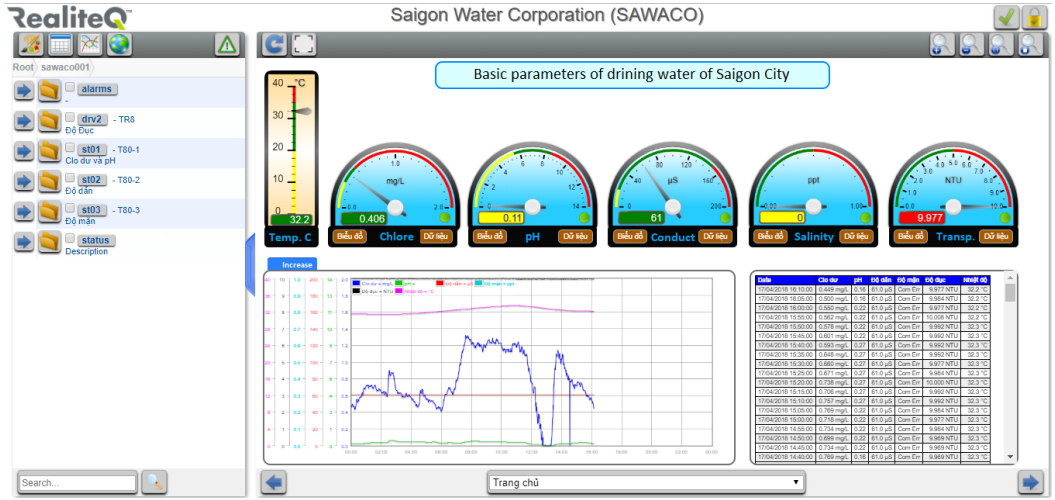
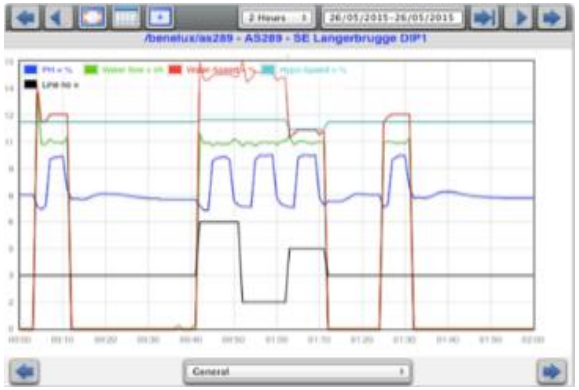
- Browser based.
- Screens & Dashboards.
- Build in screen/graphic editor (customization).
- Nodes list management.
- Geographic presentation.
- Report & trends.
- Full alarm management.





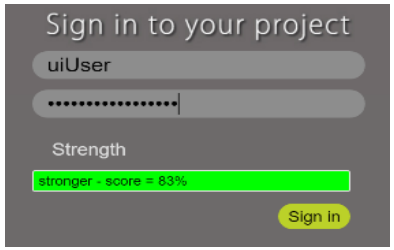


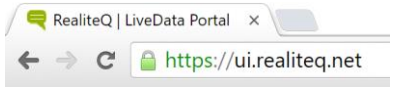
The technology

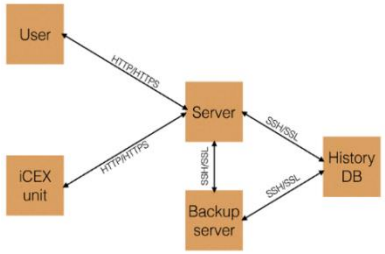
Security highlights

RealiteQ™
Real Time Remote Control and Monitoring

- No static IP, no private APN is required (but possible).
- User names and Passwords with score.
- Full user managements.
- Detailed credentials.
- Salted & encrypted passwords.
- All communication is done over SSL.
- Users sessions expire automatically.
- Password renew reminder.
- False log in activates delay & block.
- A Real time “Value Change” Notification
- Option for “Read Only” system.







Del	Path	Access token
del	/icex	6424dd9b534746c69b02fa6444e7adde

System benefits

Smart Water Network (SWAN)

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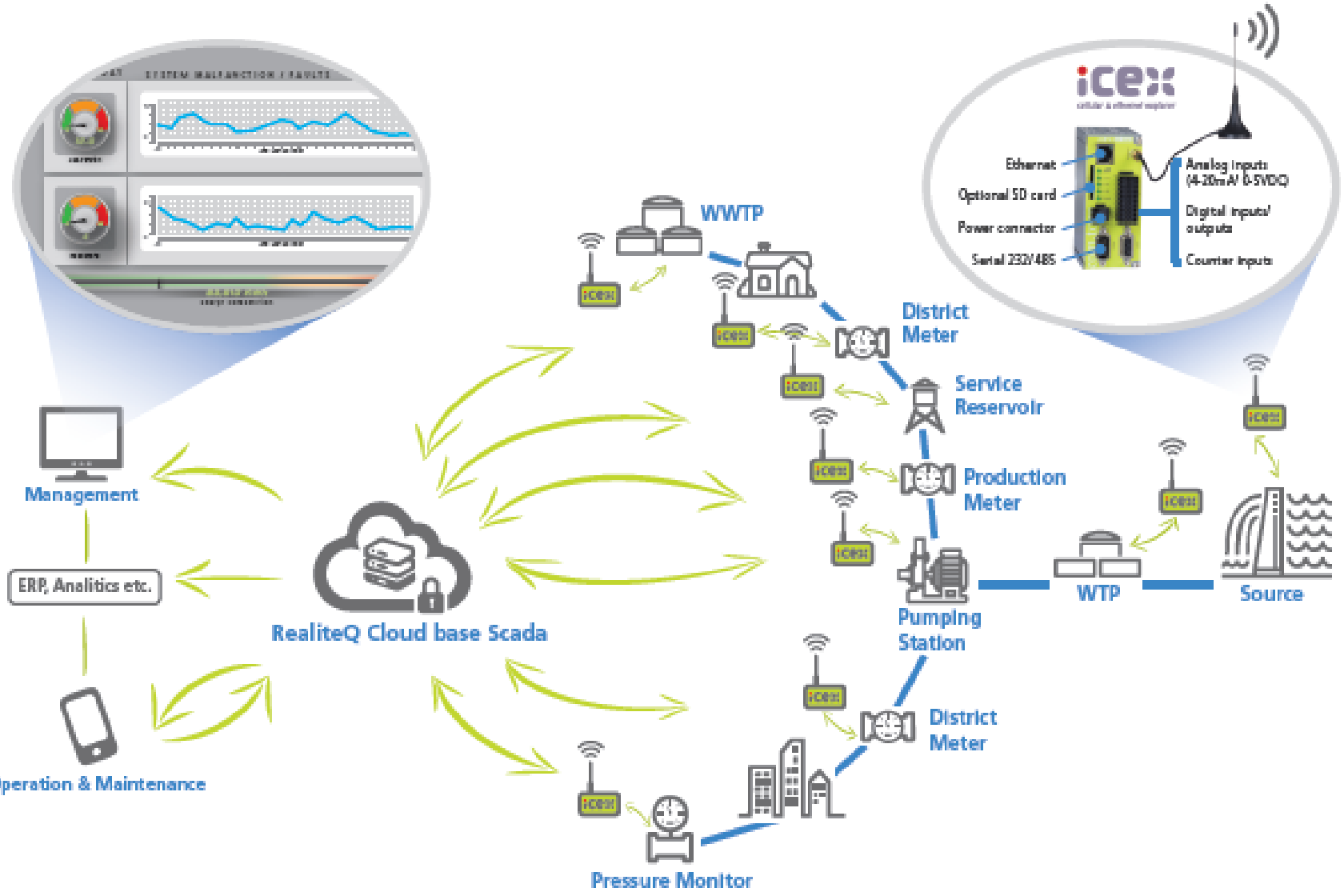

RealiteQ connect it all

One network One SCADA system

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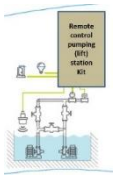
iCeX – For real time control in any facility with 24/7 electricity

iCEX solar kit – For real time control in any outdoor facility without 24/7 electricity



iCEX kit – plug & play real time control for specific applications (pumping station, water tower…)

RDL kit – Battery operated RealiteQ Data Loggers (RDL) Plug & play monitoring kits

Comp

RealiteQ UI

PC, laptop, tablet, smart phone

RealiteQ COMP

Central online management portal

System benefits

Cross organization efficiency

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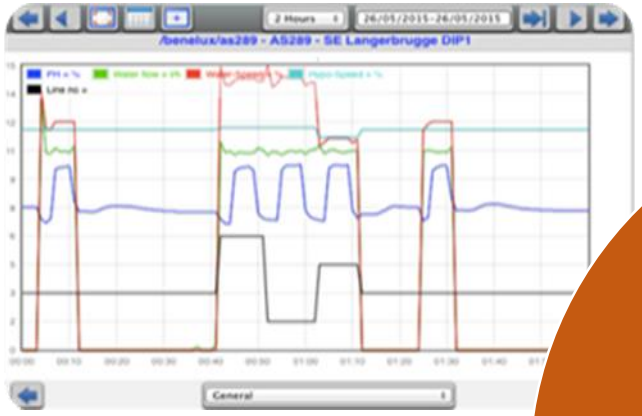
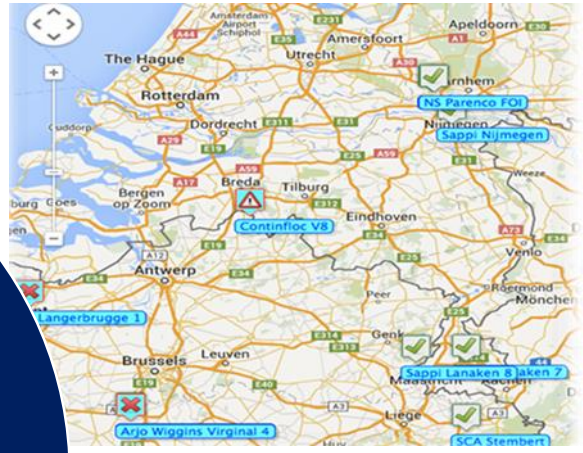


Professional department

Professional department – Trends and reports

CEO – system

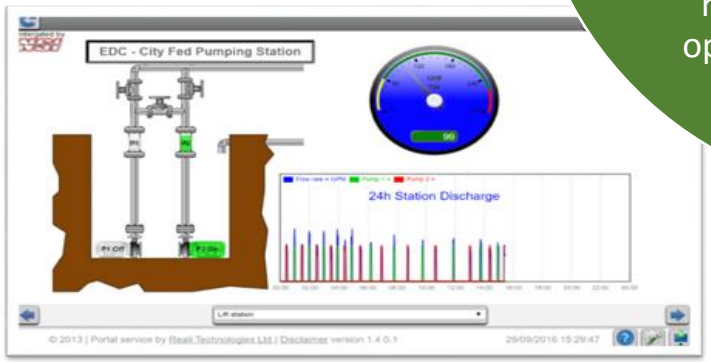
Real time status overview



CEO

Field technician - real time remote operation

Operational manager – real time operational indicators



Field Technician

Operational Manager

System benefits

Special features

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Security & Safety:

- An advanced Firewall has been added to iCex (field gateway) new hardware.
- A “Monitoring only” configuration file allows monitoring only and blocks any
- (!!!) remote operation activities.
- A “Value Change” Notification, function which allow, for sensitive remote operations, a real time notification message to the relevant person in the utility with the details about the user that made this change and the new value (so any remote unauthorized change will be notified in real time and will be re change to the original value with no time).

System benefits

Special features

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Alarms handling:

- It is possible to define escalation mode (unlimited escalation steps)
- It is possible to configure “Nagging” for alarms (may also combine Nagging + escalation).
- It is possible to monitor open and duration of alarms as part of the BI part (see below).

System benefits

Special features

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Reports & Trends:

- High flexibility - freely selection of each column (in table) and pen (in trends) by the user.
- Smart dashboards - Possible to display inside a graphical screen several trends and table.
- Time frame - In graphical screens it is possible to configure a dedicated time frame (day, week, month, year) for each one of the trends/tables presented.

System benefits

Special features

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BI (Business intelligence) & Data analytics

- BI functions that use aggregated data and present, as part of the real time system, the calculated results to be used in dashboards and all parts of the system. Some functions are for Alarms (such as average alarm duration, amount of active alarms, amount of historical alarms over period), some are for values (such as Max, Min, Average) and more.

System benefits

Cascade architecture (CASCADA)

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- **Site level –** Real time monitoring and control from any device, any place by any authorized personal.

- **Utility level** – Data sharing (& control) visibility of all the utility facilities.

- **State level –** Real time state facilities status, single centralized professional experts support.

- **National level**- Real time, Managerial and historian information for crises management, real time event channel for immediate (emergency) actions, information analyses for system improvements, BI.

What you can't see you can't improve

System benefits

Installation

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- Modular –from one site to hundreds and more sites
- Nearly Infrastructure free - No physical infrastructure is required.
- Fast installation – Instant set up.
- Non destructive installation
- Seamless interfacing with existing equipment & software
- Maintenance free - SaaS model
- One stop shop - End-to-End SCADA (telemetry, HMI, Service).

Headache free installation

System benefits

Using RealiteQ

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- Real time communication.
- Bi & Multi directional communication.
- Efficient data handling - minimizing of Big Data issues (Smart filtration).
- Automatic backups of data on cloud.
- Easy to use.
- No limits of user (with no extra cost), increase system efficiency.
- No limits of Data (with no Extra costs).
- Self customization and personalization of screens and reports.

Smart & Simple to use

System benefits

Economical

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- Low CAPEX & OPEX – No infrastructure, SaaS model.
- Modular system – May start from a single site.
- Cross organization efficiency.
- No user (license or other) fees.
- No local software installations (Full browser based technology).

Cost effective

Adapting RealiteQ

in developed utilities

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- RealiteQ first projects were in water utilities which already had a traditional SCADA system in some of its facilities.
- RealiteQ can transfer the information to any existing HMI software installed in the utility
- RealiteQ can work in parallel to the existing SCADA (connecting new sites to the existing HMI of old users), and as a stand alone system in the same time (for new users)

RealiteQ allow to upgrade the system in the most cost effective and nondestructive way

Pilot in American Water

EDC NJ – two (2) distributed sites

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Starbucks Meeting the integrator • 10:30 AM

Arriving to the WTP meeting the installer • 11:30 AM

Start installation • 12:00 AM

Lunch brake • 12:45 PM

WTP Finish installation • 1:30 PM

Arriving to the lift station • 2:30 PM

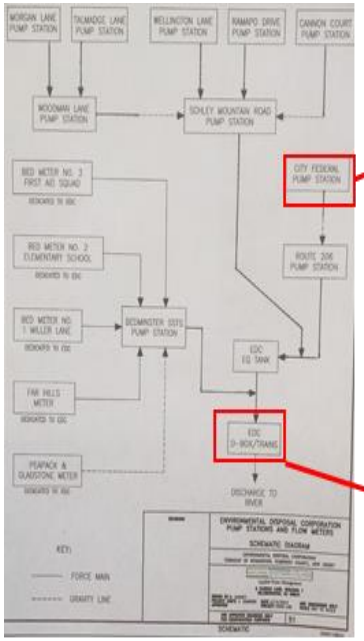
Lift station finish installation • 3:00 PM

On the plain to SD • 6:00 PM

Background:

This pilot project was being carried out on September 2016.

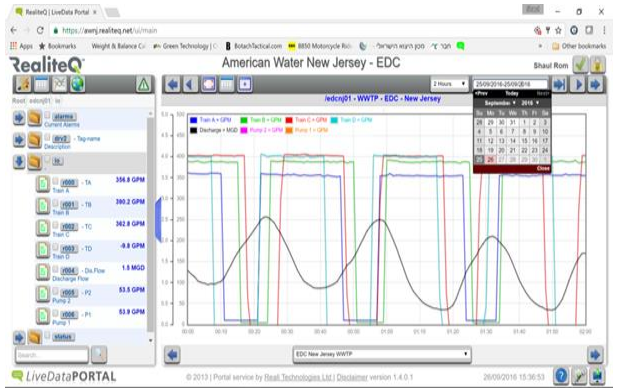
For the pilot, two Environmental Disposal Corporation (EDC) facilities were connected – a wastewater treatment plan and pumping station.



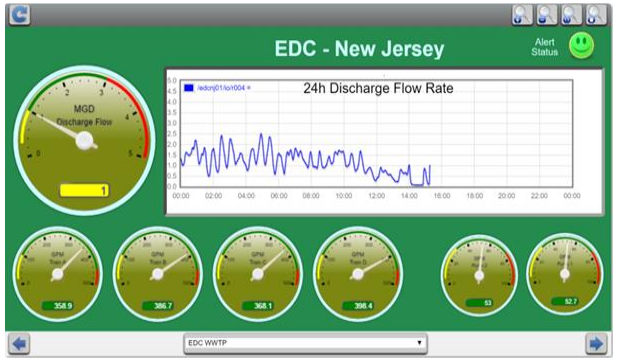
All that resulting in the command and control of all of the corporation's facilities being managed by a single system.

Summary and results:

- The customer received a working system within hours of its installment with no disruptions to the facilities' ongoing operation.



- Screens were defined (management and operation) allowing to receive the required information in real time, and to operate the system from off-site in an effective, safe and highly secure manner.



- Access via the management interface allowed authorized managers to view the problems; occurrence timetable ; their confirmation time by the duty operator (including identification of implementing parties), the problems' end time and their overall duration.

Clients Comments:

- The user (operational manager) Liked the system very much, and continued to use it long time after the pilot was ended.

- The operational manger requested some customization:

    - Customized Reporting
    - Voice alerts in addition to mail & SMS
    - Alert escalation

Present RealiteQ technology can address all the above requests and many more functioned that were and will be added.

As for restructure in AW the continuance after the pilot was delayed till recently

RealiteQ – offer you (at list) Must consider

RealiteQ™
Real Time Remote Control and Monitoring

Most advanced & Secured technology (IoT)

Mature product

(since 2008, in USA since 2010, thousands sites, 40 countries

Jonson Control, Schneider Electric,

Tesla, Volkswagen, L'eoreal, Unilever, Coca Cola, city bank…**)**

Hi Tech Low Cost
RealiteQ™
New Generation of SCADA & Telemetry Solution

Headache free

All in one - Hardware, Software, UI

Fast , Simple & Un-distractive install

Simple to use

Low cost - CAPEX & OPEX

("…about 90% reduction in costs…")

Summary in one sentence…

RealiteQ™
Real Time Remote Control and Monitoring

The future is already hear, so why not to use it?

RealiteQ™

Hi Tech Low cost
new generation of SCADA

Thank You!

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