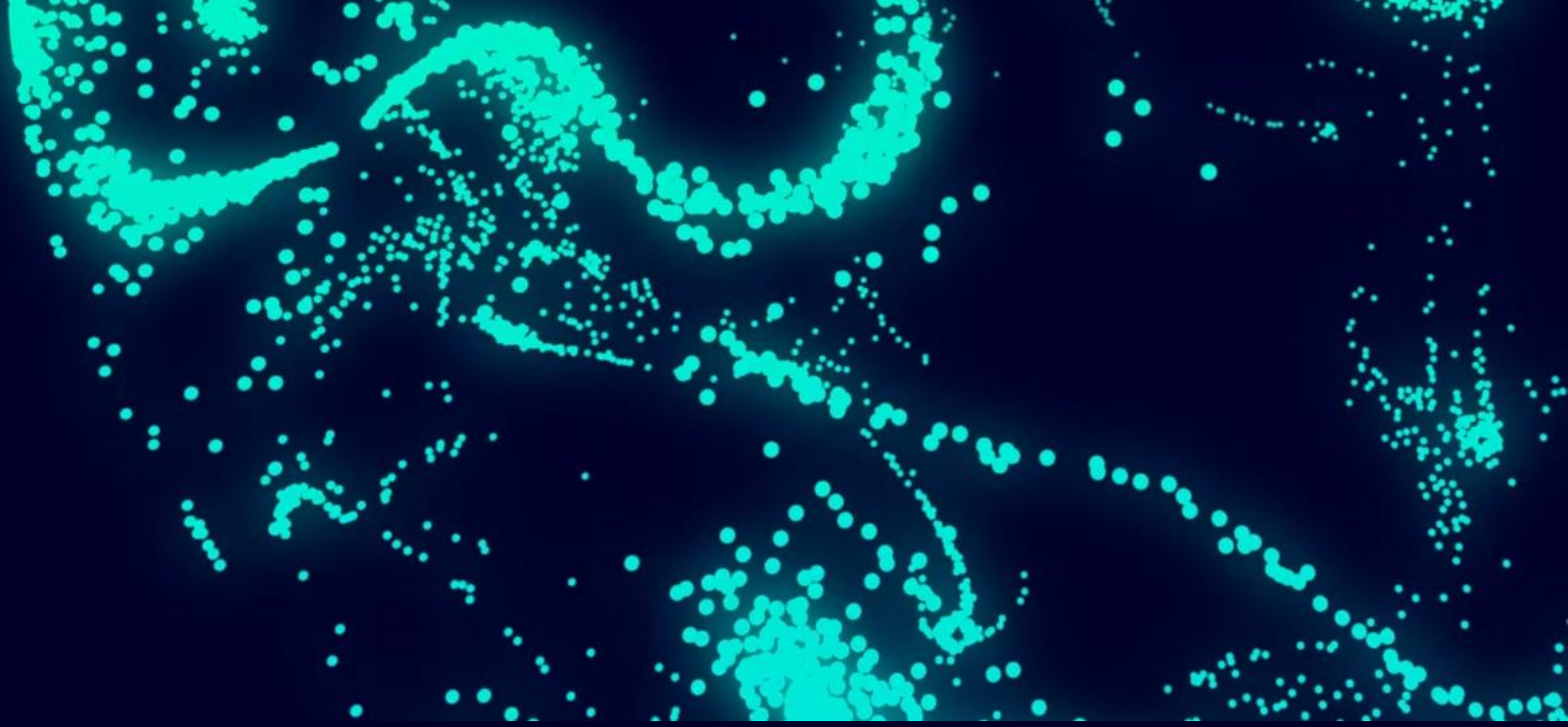




Technology to transform the everyday

Accelerating Sustainability in the Water Industry

www.siemens.com/water

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SIEMENS





We create **sustainable** industrial innovation
for a world we want to live in, **today** and
tomorrow.

[siemens water web site](#)

– Our purpose @ Siemens Digital Industries

Today's Drinking Water business is facing many challenges

CLIMATE CHANGE



Decrease carbon footprint



Use less energy

URBANIZATION



Ensure water quality



Secure water supply



Aging infrastructure

DIGITAL TRANSFORMATION



New technologies are often introduced



Cyber security

DEMOGRAPHIC CHANGE



Decreasing number of qualified staff



Loss of plant specific knowledge

REGULATIONS

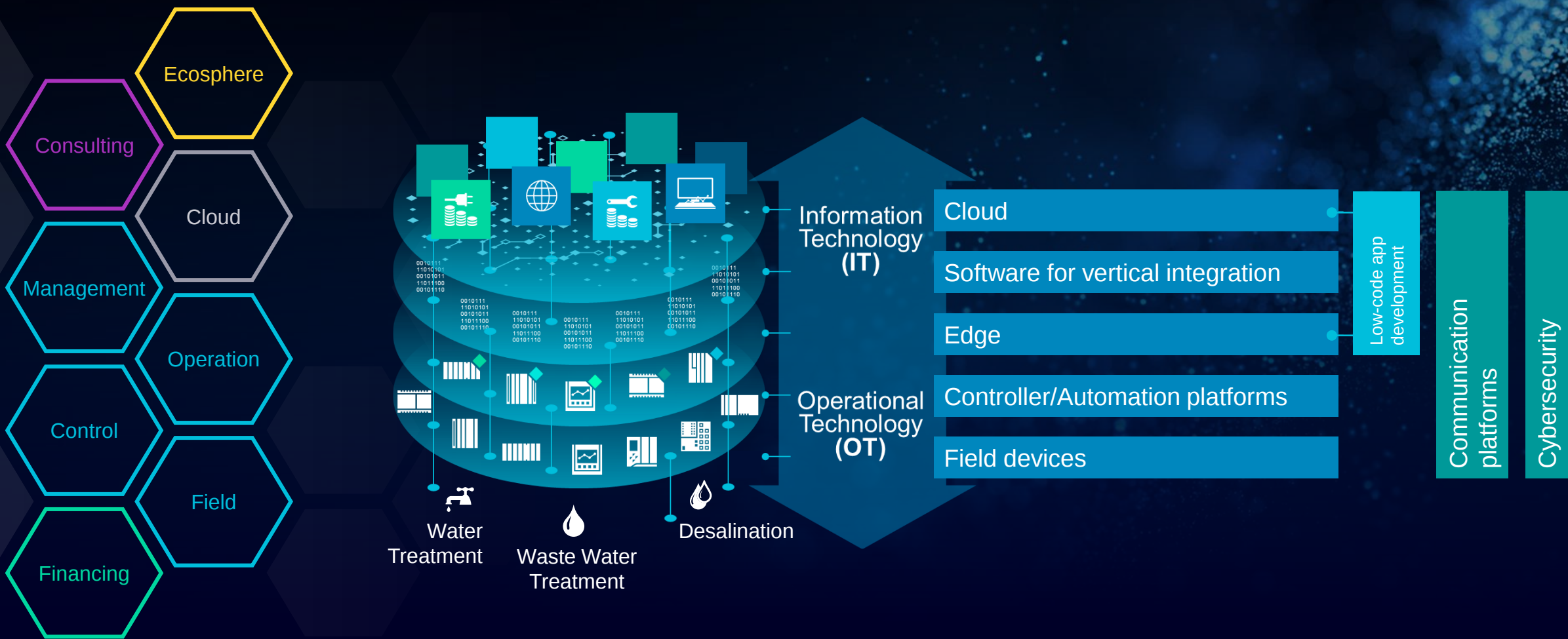


Increasing regulatory demands



Higher risk of penalties

Water technology gets “smart” with horizontal and vertical integration of portfolio based on a strong ecosphere knowledge



Comprehensive Solutions for the Water Industry

Seamless Interoperability – From Field to Cloud

Cloud, Management.,
Operation, Control, Field

Cloud




SW Applications



MindSphere



Digital Twin
Cloud Services

Management




SIWA Process
Optimization



Asset Performance
PlantSight



Operations
Intelligence



Simulation

Operation




Industrial Edge
Management system



Network
Management system



SCADA



Process Control
system



Energy
Management



Maintenance
COMOS MRO

Control

◆ Edge-enabled
devices




Industrial Edge



Controller



Human Machine
Interfaces



Industrial PC



Industrial
Communication

Field




Industrial Controls



MV & LV Drive
Systems



Distributed I/O



Process
Instrumentation



Analytics

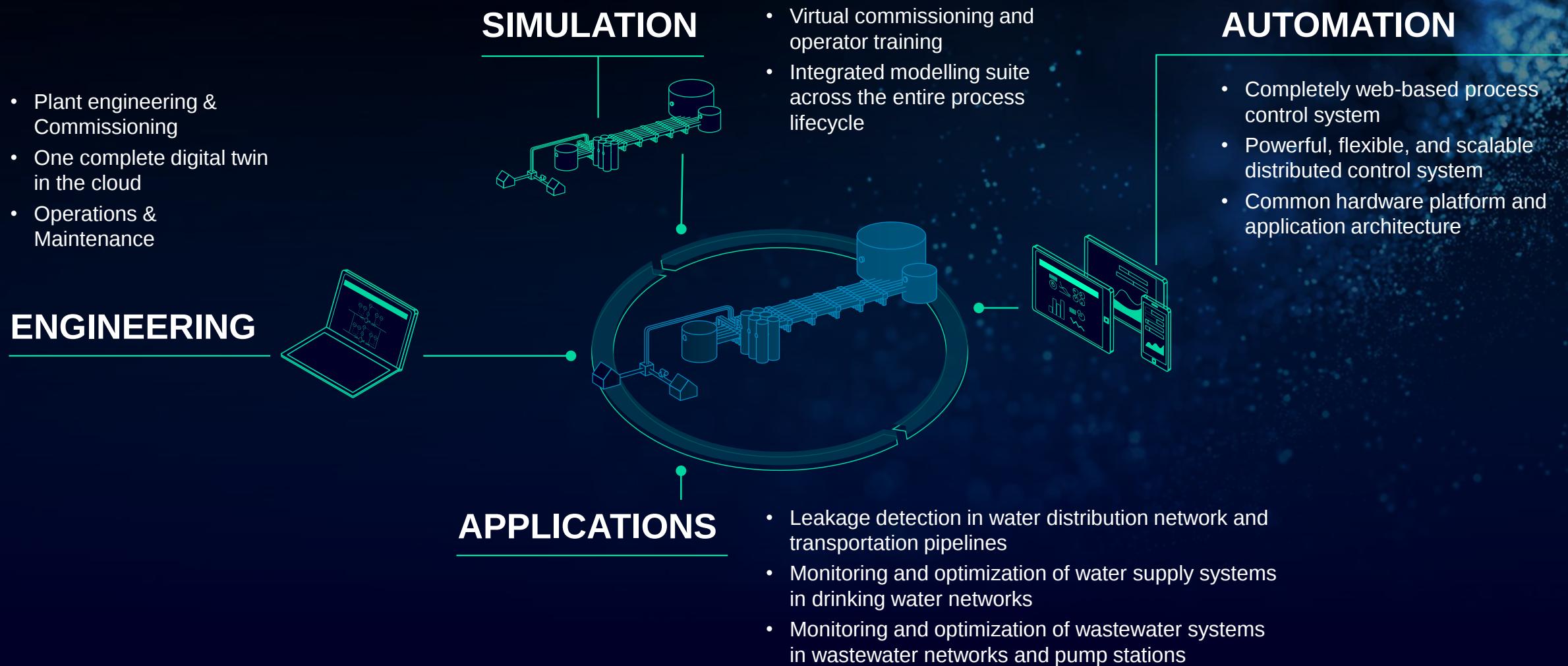


MV & LV Power
supply & Distribution



MV/LV Distribution
Transformer

Our digital twin approach for the water industry

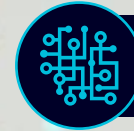


Siemens Water (SIWA)

Applications tailored to the Water Industry



Monitoring and optimization
of the waste water systems



Monitoring and optimization of the
drinking water supply systems



Leakage detection



| References

Success - from Theory to Reality

Al-Khafji

Drinking water from the sea in Saudia Arabia



Portfolio

TOPIC

Resource
efficiency



CHALLENGE

Desalination in a desert area to obtain additional drinking water or process water for people, industry and agriculture. Stable drinking water supply for the west coast of Saudi Arabia with minimal energy consumption.



SOLUTION

Siemens delivered state-of-the-art electrification, automation and instrumentation technology for one of the biggest solar powered desalination plant in Al-Khafji.



BENEFITS

- Through the efficient use of solar power, the plant reduces carbon dioxide emissions significantly compared to plants supplied with energy from non-renewable sources
- The Siemens technology ensures system availability of about 98%



[Al-Khafji](#)
[Plant video](#)

Taweelah Desalination Plant

Enabling sustainable water in the UAE



Finance

TOPIC

Sustainable water supply, financing



CHALLENGE

Carbon footprint, financing



SOLUTION

In Abu Dhabi, modern technology and project financing are instrumental in realizing what will soon be the world's largest desalination plant using seawater reverse osmosis technology. While Siemens contributes as a sub-supplier of digital industry and smart infrastructure technologies, the majority of the financing behind the \$869-million project was enabled by senior project finance loans from a club of six lenders, in which Siemens Bank, the banking subsidiary of SFS, took a significant share.

LINK

Reference Story and Video



BENEFITS

- 909,200 cubic meters of water per day (m³/day), 44% more than the world's current largest reverse osmosis plant
- meeting the water needs of 350,000 households
- increasing Abu Dhabi's water production by 21%





VA Syd

Leakage detection with AI at Water Utility in Sweden

TOPIC

Sustainable water supply, leakage reduction, energy and resource efficiency



CHALLENGE

- Continuous water loss of 10 %, impacting economic performance and increasing pressure on natural water resources



SOLUTION

- AI-based application SIWA LeakPLus detects and reduces leaks in water pipes
- “On-premise” solution using a locally delivered hardware with the installed software, ensuring all data and calculations are not saved in the cloud
- State-of-the-Art solution making optimum use of the available flowmeters and smart meters



BENEFITS

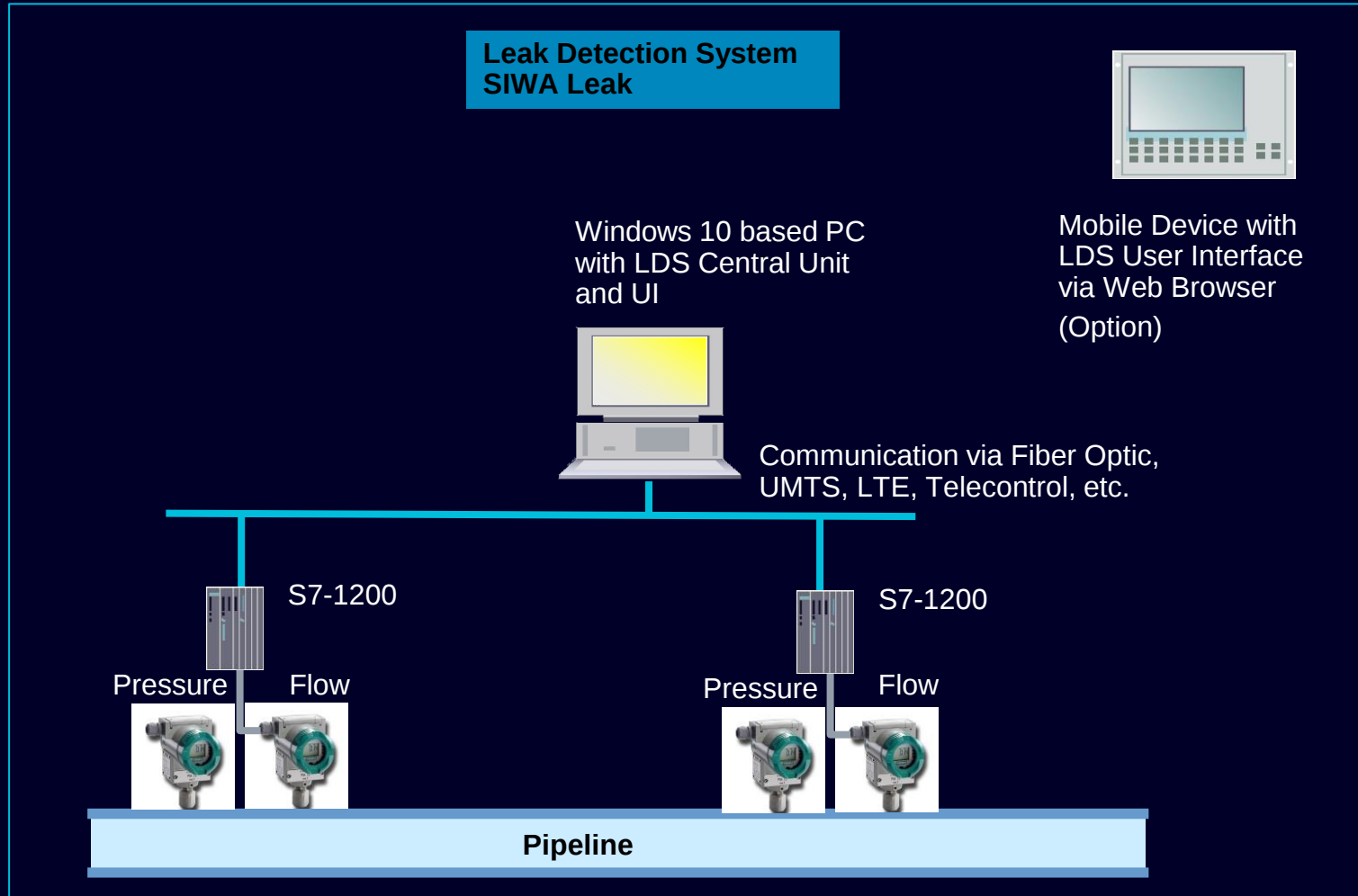
- Pinpoint leaks through smart metering zones up to 0.2 – 0.5 l/sec
- Detecting and fixing small critical leaks efficiently
- Economic benefits by streamlining physical leak detection
- Saving energy and resources
- Contribution to the goal of zero unplanned interruptions of service

LINK

Industry Reference Story



Detection and localization of Leaks in pipelines



The leak monitoring system uses (if available: the existing) flow and pressure instrumentation to detect and localize leaks

A combination of different methods ensures that both large and small Leaks are detected quickly and reliably

- Communicates with existing SCADA or PLCs
- Used in static state (stable pressure and flow rate)
- Parameters set alarm sensitivity (to allow for measuring inaccuracies and pipeline noise)



Ecosphere, Cloud, Portfolio

Yorkshire Water

Blockage prevention in the sewer network

TOPIC

Reduction of flooding risks, pollution incidents, and sewer collapse



CHALLENGE

- To remove CSO blockages and thereby minimize the probability of a release of sewage water into rivers of Yorkshire thus preventing flooding in public areas
- To cut pollution incidents by 50 percent within Incident Reduction Plan 2020 – 2050



SOLUTION

- Evaluates combined sewer overflow behavior in real time
- Provides a better understanding of the system's performance of any issues
- Identifies if a sewer is blocked, not operating correctly, or if a CSO is soon to have operational issues

LINK

Industry Reference Story



BENEFITS

- Pinpoints problems within the network
- Gives you more time to act and increases your operational efficiency
- Warning of identified issues 2 weeks earlier
- Blockage prediction 3x more effective



Thune Dam

From Dam to Tap: Reliable water supply for Botswana



TOPIC

Sustainable water supply, resource efficiency

LINK

Industry Reference Story



CHALLENGE

Providing people in rural Botswana access to safe and clean drinking water.



SOLUTION

Siemens Solution Partner Moreflow supplied automation and drive technology, electrical equipment, process instrumentation and services for the new Thune Dam water treatment plant. All Siemens systems were engineered using the Totally Integrated Automation (TIA) Portal.



BENEFITS

- Provision of 11 million liters of clean and safe water per day via the transmission of drinking water from dam to the residents in rural areas of Botswana
- Reliable automation SCADA based solution incl. electrical system, drive components and process instrumentation.
- Seamless device integration using TIA Portal and the Profinet backbone, which reduced the configuration time by up to 40%



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