

## Case Study

# German water treatment and supply association

## German water treatment and supply association implements IP security solution to cut costs and enhance public safety



The Trollmühle water supply association in Rhineland-Palatinate (Germany) supplies and purifies water to 24 municipalities, 14,000 households and 43,000 inhabitants. Over a hundred years ago, the network of water pipes covered a mere 110 km whereas today the association has over 400 km of piping with a 2.1 million cubic-meter capacity. The Trollmühle water supply association supplies their drinking water from 25-foot-deep wells and three well shafts via 19 high-level tanks and two underground tanks. The main pumping station and central distribution plant is located in Windesheim where during peak consumption periods, up to 8,500 cubic meters of water are turned over each day. All of the association's external plants, wells and pumping stations are connected back to the central distribution plant from which they are remotely controlled.

### Business challenge

Each of Trollmühle water supply association's water plants provide up to 90 cubic meters of water per hour. Click on the picture to view a larger version.

Depending on the size of the plant, Trollmühle provides five to 90 cubic meters of water per hour from a depth of up to 200 meters. By way of linking the plants, the association ensures the water supply to the population even during a breakdown of one or several plants.

However, because the protection and health of the population come first, Trollmühle water supply association's most important objective is to guarantee the water supply quality and to take the necessary measures to monitor the plant and deter any potential threats or contamination.

Since 9/11, counter-terrorism initiatives have been top priority for many federal governments. This included Germany who amongst other plans, wanted to ensure the safety of its water supply. Therefore, the State Criminal Investigation Department of Rhineland-Palatinate advised all water supply associations to inspect and evaluate all safety devices and introduce security enhancements.

Since then, the Trollmühle water supply association experienced a break-in which after investigation, turned out to be a minor occurrence. However, this break-in became the decisive factor for the water supply association to start thinking about investing in a new security solution.

### End-user needs

As per German law, the security solution had to respect DVGW notices W 1001 and W 1002, which stated that all objects—apart from the safety devices which are already in use, such as fences, special locks, alarm systems, must be effectively protected. For this, the water supply association decided that all deep wells and water tanks should be gradually equipped with cameras and the recorded video was to be transmitted to the central control office. Although DVR technology with local video recording and storage was considered, it was deemed not suitable for this application. In the event of another break-in, the perpetrators would likely take the recording device with them. Marcus Spira, head of the





engineering department at Trollmühle water supply association added: “If necessary, I want to be able to immediately see the video in the office without having to first drive into the forest to the tank in question to view or collect footage.”

SLK GmbH, a Genetec Value-Added Distributor in Germany, was contracted to assist in deploying a more advanced security solution. Thus the central control office with the main pump station in Windesheim and the seven largest high-level tanks were first equipped with IP cameras and connected back to the central office via the existing telephone lines. However, in time, the Trollmühle water supply association began to realize the limits of their existing and very basic video management software and consulted SLK for a new security platform.

Not only was the water supply association looking for a reliable, user-friendly and scalable system that would allow them to gradually grow their camera count; but they also wanted a software solution that would permit them to unify other systems like access control and other water treatment systems under one platform. SLK thought Genetec’s Security Center unified security platform would be the right solution for the job.

### The perfect solution

Genetec’s Security Center is a leading unified security platform that blends IP video surveillance, access control, number plate recognition and other third-party business systems within one simple solution. Security Center consolidates live monitoring, video playback, alarm management, configuration and reporting across all systems in a simple and easy-to-use interface. In this case, Security Center gave the water supply association the ability to initially install the IP video surveillance component, Omnicast, with the flexibility to add other components, such as the Synergis access control system, in the future.

**“Trollmühle water supply association’s water plants cover 24 municipalities. Remote access from any location was a key feature selected by the association.”**



Specifically, Sony's RZ50 motorized camera with motion detection and zoom, was installed in the central control office and various vandalism-proof fixed IP cameras from Sony such as SNCDF80P, SNCRZ50P and SNCCCH140, were installed at the other locations and connected back to the central control office's system.

Since Omnicast comes with highly-advanced redundant and failover features, the new video management system guarantees that all current and archived data will be available at any time, even in the event of a failed component.

To ensure added reliability and privacy of data, Trollmühle water supply association only saves recorded video and data for two weeks. After that, all data will automatically be overwritten. Spira explained "The server on which the video is saved uses redundant array of independent disks (RAID) storage technology. In case of a failure of a hard disk, it can be replaced without any risk of data loss."

However, in order to optimize bandwidth and keep the quantity of archived data as low as possible, the water association is using Omnicast's sophisticated multistreaming feature to configure different video settings for live viewing or recording. For instance, depending on the setting, a server will record all video from high-priority cameras and then only event-driven video from lower priority cameras.

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Similarly, another tool used to reduce network load and save storage space is Omnicast's built-in motion detection algorithm. Certain cameras installed in the water tanks will only start recording when motion has been detected in the system. This feature is also combined with Omnicast's event-action mechanism which dictates the system to trigger specific actions such as start/stop recording, point a camera to a specific preset, send email notifications, or trigger an alarm when an event is detected in the system.

The combination of these features provides the water supply association with a highly-intelligent tool that helps them immediately respond to only the situations they deem critical. For example, when entering the tank or facility for maintenance and water samples, authorized personnel must swipe their access card to enter which tells the system this is not an important event and does not require recording. However, in instances where there is no card swipe and motion is detected, the camera will immediately start recording and an alarm will be sent to operators to address the situation.

Other key system features of Omnicast that have helped secure the water supply, include the system's open architecture which allowed Trollmühle to preserve their existing hardware; configurable user-access privileges and authenticated user logins that prevent manipulation and falsification of video through an unauthorized access to the system; and easy upgrade paths which enable Trollmühle to increase camera counts and benefit from even more advanced feature sets when they are ready.

## Edge Device Key Features

### SNC-CH140

The SNC-CH140 from Sony delivers excellent picture quality in HD 720p resolution at 30 frames per second (fps). Incorporating Sony's Exmor™ CMOS image sensor, which is specially designed for surveillance applications, this camera features state-of-the-art image enhancement technology such as View-DR which realizes an extremely wide dynamic range.



As a result, this camera provides not only high-quality HD images but also HD images with excellent sensitivity and visibility even in challenging lighting environments.

- Three codec (H.264/MPEG-4/JPEG) and dual streaming capability
- XDNR ( eXcellent Dynamic Noise Reduction )
- DEPA Advanced Intelligent Video and Audio Analytics
- Edge Storage

For more information, please visit the following sites:

[www.pro.sony.eu/videosecurity](http://www.pro.sony.eu/videosecurity)  
[www.sony.com/security](http://www.sony.com/security)  
[www.pro.sony-asia.com/security](http://www.pro.sony-asia.com/security)

### SNC-RZ50

The SNC-RZ50 is Sony's compact PTZ network camera that allows users to monitor a wide viewing area thanks to pan and tilt ranges of 340° and 115°, respectively. The SNC-RZ50 also has robust detection methods – Intelligent Motion Detection (IMD) and Intelligent Object Detection (IOD) – to maximize the efficiency of the monitoring system.



- Three codec (H.264/MPEG-4/JPEG) and dual streaming capability
- Sensor input and alarm output capabilities
- Image storage capability

## The benefits

According to Marcus Spira, the handling of the Genetec solution is comfortable and convenient. During investigations for example, retrieving information is very simple and the quality of the images is excellent. Likewise, Security Center helps Trollmühle water supply association build consistent workflows across their system and set standardized procedures to address critical situations. All in all, this unified platform simplifies operations and helps streamline the operator's daily tasks in ensuring the safety of Trollmühle's water supply.

To date, not one single break-in has occurred since video surveillance system and cameras have been installed in the central control office. Combined, the Sony cameras and the Omnicast system act as a deterrent to any vandalism, theft or sabotage. In the event of any such intrusion in the future, Trollmühle water supply association can now quickly identify to the reason for break-in and apprehend suspects faster than ever before. Further plans to offer remote access to local authorities are also being discussed to enhance situation awareness for first responders and speed up investigations. The Plant manager, Willy Orben, adds: "Genetec's solution makes it possible for us to quickly make sound decisions."



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