



## Case Study

# Waterfall Helps Detroit Water Secure its Operations Network

## The Challenge

Detroit Water and Sewerage Department (DWSD) provides water service to the entire city of Detroit and several neighboring counties making up approximately 40 percent of the state's population. Wastewater service is also provided to a 946-square-mile area that encompasses Detroit and 76 neighboring communities.

For many years, Detroit Water had contracted a large, well-known communications supplier to provide a pair of firewalls to serve as the sole safe connection between the utility's operations networks and the utility's business network. In early 2011, DWSD carried out a risk assessment of the security of the firewalls between the operations networks and the business network.

Even though firewalls look like hardware components, they are essentially software, with all of the vulnerabilities of software, and with the potential for dangerous misconfiguration which comes with software security. The conclusion of the risk assessment was that the risk of a security compromise of the operations network from the utility's business network, or from the Internet via the business network, was unacceptably high.

## The Solution

To address their concerns, Detroit Water's Process Control System designers replaced the firewall pair with Waterfall Unidirectional Security Gateways. The gateways replicate an OSIsoft PI Historian from the operations network to the business network, and replicate a file server as well. This allows data to be pushed from the process control network to the business network, where it can be shared or analyzed.

- Real-time reservoir levels, pressures and pump running / not-running indications are fed from the replica historian into a hydraulic analysis application. The analysis application must be on the business network in order to have access to GIS information and applications describing the water system.
- Equipment status information, 5-minute sewer billing information and other readings are fed to a secure corporate portal, where they are available to utility management, large end users and field personnel.

“We can see that it eliminates external networks as threats to the safety or availability of our operations.”

**Biren Saparia**, Detroit Water's Process Control System Manager

## Challenge

To protect the safety and integrity of water and wastewater operations networks, while preserving access to real-time data.

## Solution

Deploy Unidirectional Gateways to replicate servers from operations networks to corporate networks.

## Benefits



**Business:** Online access to real-time operations data, with no change in end-user or business application-integration procedures.



**Security:** Absolute protection from attacks originating on the corporate network, and from Internet-based attacks which might pass through the corporate network.



**Cost:** \$10,000 saved every month – Unidirectional Gateways require no third-party security management services.

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## Eliminate External Cyber Threats

The Waterfall Unidirectional Security Gateways provide business users online access to real-time data while preventing cyber attacks from external networks. Unidirectional Gateway hardware permits no signal from the business network to enter an operations network or affect its operation in any way. All external network attacks are stopped by the hardware including denial-of-service attacks, viruses, business-network insider attacks and Internet-based attacks launched via the business network.

In addition, unlike complex firewalls where errors and omissions in the configuration and management of the equipment can create attack channels, the Gateways are fool-proof. No change to the software configuration of the Gateways can cause the hardware to permit a signal to enter the operations network from the business network.

## Cost Savings

Since the Waterfall Unidirectional Gateways went live at Detroit Water, the solution saved the utility roughly \$10,000/month. This is the sum the utility was investing monthly in firewall management with the third-party provider. Business network connectivity for operations data saves the utility large sums every month, and deploying strong security for the business connection in the form of Waterfall Unidirectional Security Gateways saves even more.

## Detroit Water Benefits

01

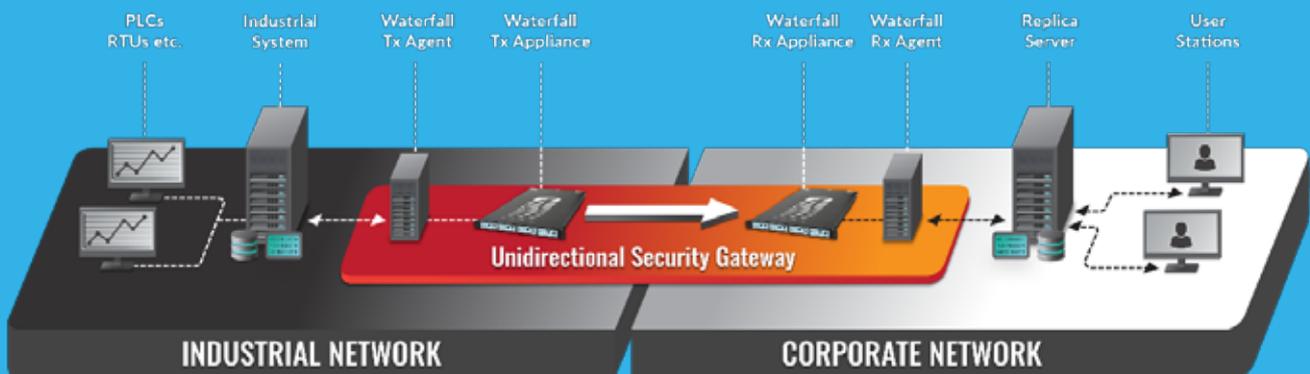
The utility benefits from cost-saving and customer-service-enhancing integrations between operations data and business systems.

02

The utility is confident with the level of security protecting its network perimeter by the Waterfall Gateway eliminating the possibility of threats penetrating from all external networks.

03

Every month, the utility saves the \$10,000 it used to spend on firewall security management.



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