



**OWL PERIMETER DEFENSE SOLUTION (OPDS)  
INSTALLATION AT SAFCO**



## About SAFCO

Saudi Arabian Fertilizer Company (SAFCO), a division of Saudi Arabia Basic Industries Corporation's (SABIC), produces, processes, manufactures, and markets the principal fertilizers found in local and international markets. SAFCO products include ammonia, urea, melamine, and sulfuric acid. SAFCO is controlled by SABIC, a 50 billion dollar diversified manufacturing company active in chemicals and intermediates, industrial polymers, fertilizers, and metals.

## Problem Challenges

In August of 2012, a number of heavy industry locations in the Middle East suffered a serious cyberattack. As a result, many of the companies in the region disconnected their manufacturing and process plant networks from their corporate networks. This disconnection reduced the vulnerability of the process plants by isolating their process control networks from their business networks. SAFCO was no exception, isolating its process plant networks to minimize their risk exposure. This plant network isolation disrupted the normal information flows thereby creating operating inefficiencies because data examination and queries had to be physically performed within the plant perimeter.



## Challenges

The process plant network isolation challenged SAFCO with the tasks of safely and efficiently moving their process data from applications on the plant network to the business network. This included:

- Restoration of business continuity to allow data flows to resume
- Ensure network security with network domain separation
- Limit unauthorized access to plant network from outside the plant
- Replication of Yokogawa DCS and GE Bently Nevada operations data to the business unit OPC servers and OSIsoft PI Historian applications



### SAFCO Company Snapshot

Saudi Arabian Fertilizer Company engages in the manufacture and sale of fertilizer products in Saudi Arabia and internationally. Its products include ammonia, urea, melamine, and sulfuric acid. The company was founded in 1965 and is based in Jubail, Saudi Arabia.

\*Source: [http://investing.businessweek.com/research/stocks/snapshot/snapshot\\_article.asp?ticker=SAFCO:AB](http://investing.businessweek.com/research/stocks/snapshot/snapshot_article.asp?ticker=SAFCO:AB)

## The Business Decision

To meet the challenges of safeguarding the process network applications against cyber-attack and to reinstate required, high-priority information flow to support efficient business operations, SAFCO selected the OPDS product from Owl Computing Technologies along with its OPC Server Transfer Service (OPTS) software application. SAFCO selected the Owl products because of the company's leading product line for next generation cybersecurity, its DualDiode Technology®, a proprietary data diode, that has been successfully deployed in over 1500 solutions across government, military, and critical infrastructure networks, including power generation and oil & gas, and that the OPTS was OPC Foundation Certified as compliant for OPC-DA and OPC A&E data types.

## SAFCO Implementation

To restore business continuity SAFCO installed the Owl Perimeter Defense Solution (OPDS). The OPDS is a one-way data diode transfer solution, to support the secure transfer of industrial control information, using OPC-DA and OPC A&E to the corporate network into the OSIsoft® PI database.

To this end, the first step was the installation of the OPDS network isolation security product at the customer site to protect the process control network from cyber-attack. Next, Owl OPC Server Transfer Service (OSTS) application software was installed to provide efficient and robust transfer of the required OPC data from the process control network to the corporate network. OSTs extracts data from various customer OPC servers on the process network. The OPC data is then transferred across the OPDS network boundary isolation product. The Owl OSTs software creates an OPC server on the customer business network making the data available to corporate applications as necessary.

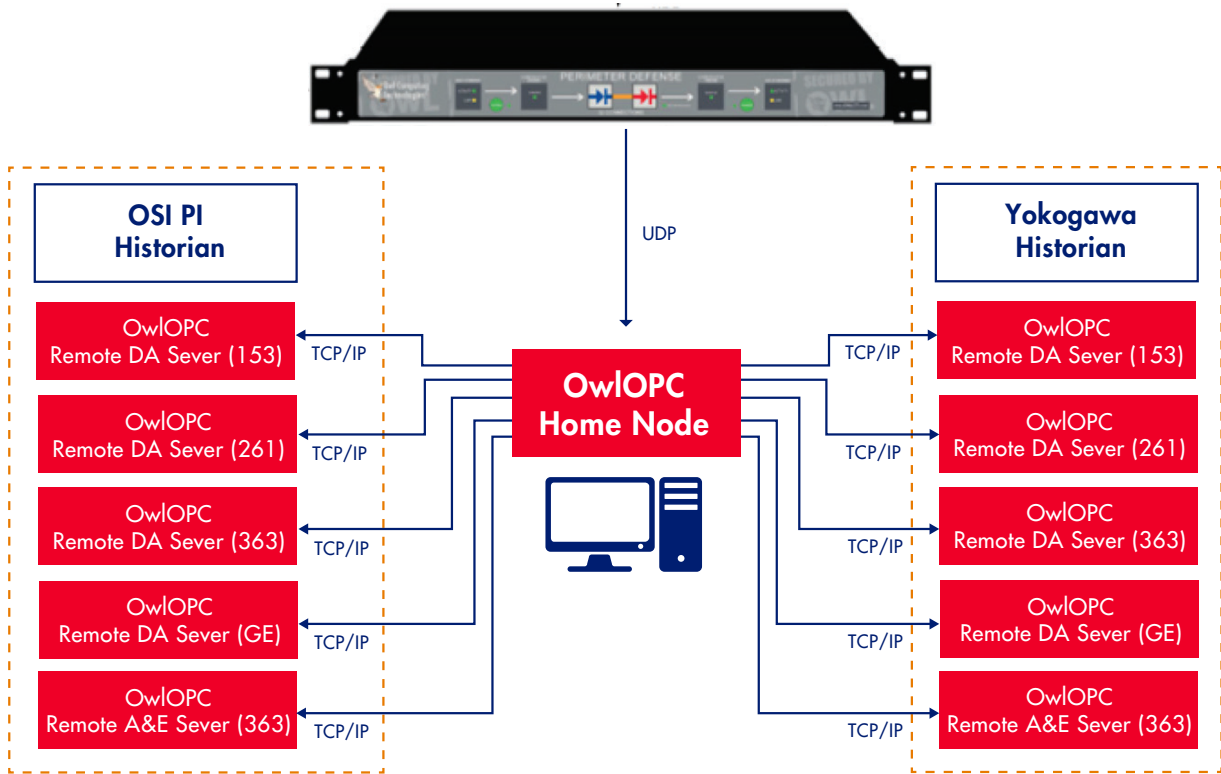
The Owl OSTs software solution utilizes the OSI OPC Client connector to extract the data from the Owl created OPC server and place it into an OSIsoft® PI historian. In doing so, the Owl OSTs software solution interoperates with the PI historian, OSI OPC Connector, and ProcessBook.

As a result of this implementation, high priority data is now flowing from the SAFCO plant network applications to the OSIsoft® PI system historian located on the SAFCO business network. Additionally, the plant network is no longer subject to compromise from a cyberattack originating on the business network.

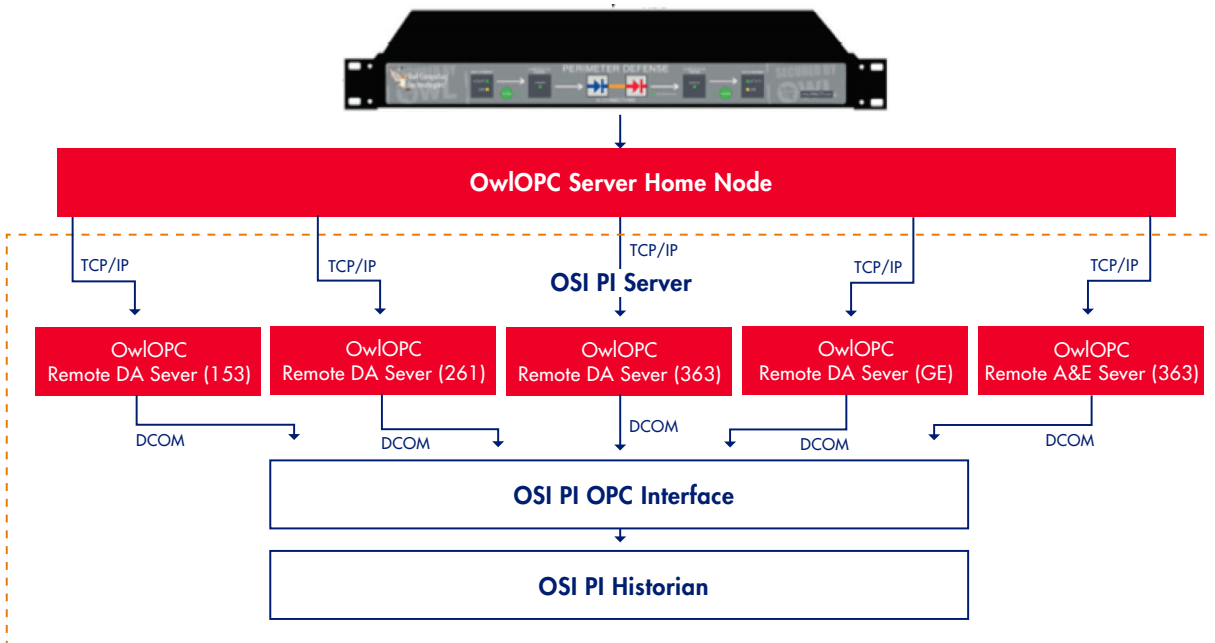
Engineers and business management have immediate access to both real-time and historical data from the OSIsoft® PI historian located on the business network, which had been unavailable following the forced disconnect. SAFCO no longer had to physically perform data examination and queries from within the plant perimeter thus reinstating the operational efficiencies lost as a result of the plant network isolation.



# SABIC/SAFCO OPDS Installation



# SABIC/SAFCO OSIsoft® PI System



## Owl OPC Server Transfer Service

- OPC Foundation Certified – OPC-UA, OPC-DA and OPC Alarms and Events
- Windows OPC for OPC server interoperability, point selection, and collection ease
- Conforms with OPC 2.05 & OPC 3.0 specifications
- Integrated platform functionality eliminates the need for changes to legacy networks
- OSTs installed in an OPDS
- Non-routable protocol separation of networks with embedded data diodes; Owl proprietary DualDiode Technology®
- Owl Security Enhanced LINUX OS for transfer security & reliability levels of security classifications.

### Benefits of the Owl OPDS Installation

Restored business data flows:

- Yokogawa DCS OPC data sent via DCOM
- GE Bently-Nevada OPC data sent via TCP/IP
- OPC Servers are precisely replicated
- OSIsoft® PI System Historian precisely and timely updated
- Yokogawa historian timely and accurately updated

## Conclusion

The cyber-attacks created an urgent need to secure the applications operating on the plant operations network. Business continuity of important data flows was re-established with the Owl OPDS and OPTS installation. When SAFCO was forced to disconnect their process network from their business network, they had no immediate or convenient method of extracting or examining plant data without putting their operations at risk. By installing the Owl Computing Technologies' OPDS and OSTs products, operational data, including current and historical values, are now available to users on the business network. Furthermore, the system architecture was deployed to be scalable for easy replication to other sites.

## About Owl

Owl Computing Technologies is the leading source for next generation cyber security. Owl's DualDiode® Technology, a proprietary data diode, has been successfully deployed in over 1500 solutions across government, military, and critical infrastructure networks, including power generation and oil & gas. Owl's hardware-enforced, non-routable technology enables secure, reliable, and robust information sharing for all files sizes and data-types.

As a privately owned US company, Owl maintains a domestically-controlled supply chain that delivers NIAP Common Criteria EAL-4 certified and government approved data diode products. Owl is the source for secure network connections enabling the operational efficiencies from information sharing.

