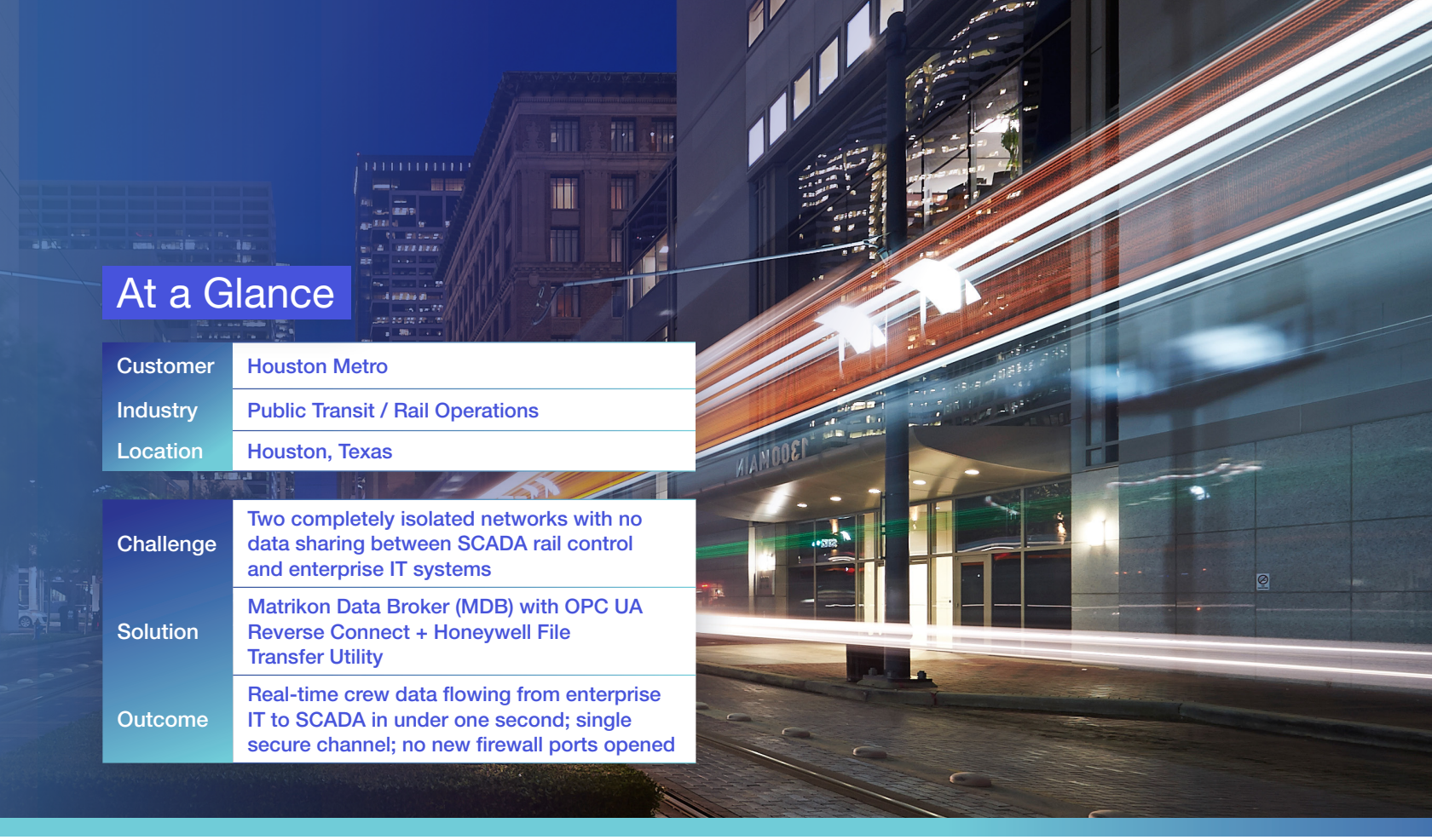
Matrikon®
See. Know. Perform.

CASE STUDY

One Connection. Complete Visibility.

How Houston Metro Bridged Two Isolated Networks and Gained Real-Time, Integrated Location and Operator Insight

OPC UA MQTT



At a Glance

Customer	Houston Metro
Industry	Public Transit / Rail Operations
Location	Houston, Texas
Challenge	Two completely isolated networks with no data sharing between SCADA rail control and enterprise IT systems
Solution	Matrikon Data Broker (MDB) with OPC UA Reverse Connect + Honeywell File Transfer Utility
Outcome	Real-time crew data flowing from enterprise IT to SCADA in under one second; single secure channel; no new firewall ports opened

Background

A Rail System Running on Legacy Infrastructure.

Houston Metro operates one of the largest light rail systems in the United States, spanning 45 stations across the city. Its SCADA (Supervisory Control and Data Acquisition) system is the central nervous system of rail operations, tracking train locations in real time and preventing collisions.

Though critical to public safety and infrastructure, the system had been running on 14-year-old servers and legacy Windows for years. To bring operations up to modern standards, Houston Metro upgraded to AIM NextGen through WABTEC. Alongside the SCADA upgrade, the agency integrated PDIS (PERDIS Disposition System), a crew scheduling application allowing controllers to see who was operating each train.

Challenge

Two Networks, Completely Isolated.

Houston Metro's SCADA rail control system is air-gapped by design, isolated completely from the enterprise IT network where PDIS, the crew scheduling platform, lives.

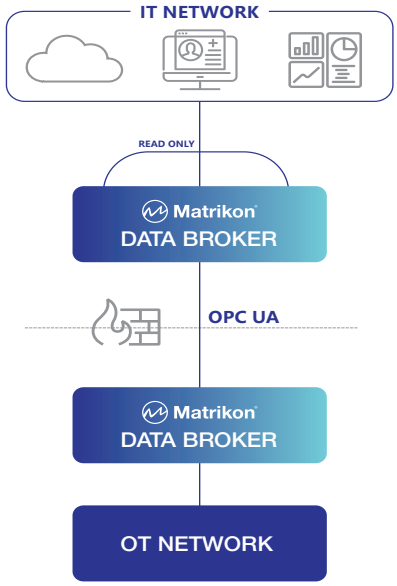
When a rail controller needed to know who was operating a train, the only option was a phone call. And when incidents triggered National Transportation Safety Board investigations or Freedom of Information Act requests, assembling three years of operator history meant days of manual research across disconnected systems. Integrating location and operator data required moving CSV (Comma Separated Value) files securely between networks with no FTP (File Transfer Protocol) port.

Solution

Transparency Powered By Matrikon Data Broker

Matrikon Data Broker (MDB) is an enterprise OT data platform purpose-built, in part, to bridge the gap between operational technology and IT networks, securely, without disrupting existing infrastructure. Matrikon Data Broker's OPC UA Reverse Connect capability allows a secure, outbound-only connection, transforming full data access to read-only data access, keeping inbound firewall ports closed while enabling full data access. For Houston Metro, MDB provided exactly the secure, single-channel backbone the integration required.

Another critical feature Matrikon Data Broker brings to the table? Tried-and-true security credentials. As part of Honeywell Connected Enterprise, we developed Matrikon within an IEC 62443-4-1–certified secure development lifecycle, a certification that few software vendors in the OT data space invest the time, effort, and resources to achieve. This ensures that cybersecurity best practices are systematically applied throughout the full product development process, providing additional confidence that the software protecting critical infrastructure was designed to defend.



Approach

One Channel. Two Networks. No New Ports.

Houston Metro had previously invested in Matrikon Data Broker with future connectivity needs in mind. When the file transfer challenge surfaced in a face-to-face meeting with the WABTEC team, Houston Metro called Matrikon the next day.

The Matrikon team cut through a complex multi-component proposal and identified the simplest path: pair MDB's OPC UA channel with the Honeywell File Transfer Utility. MDB established a secure, outbound-only connection between the two networks via OPC UA. The Honeywell utility moved files over that same channel. One connection utilizing OPC UA security. No new firewall ports opened. No additional protocols to maintain.

Impact

From "Pick Up the Phone" to Right-Click Visibility

Rail controllers can right-click any train icon to see the operator's name instantly, alongside real-time location data. When tracking and operator data live in the same place, supervisors gain a complete, real-time picture of who is where and when: the foundation for faster, more confident decision-making where every second counts.

For compliance, three years of unified operator and train data will be available for full playback, turning days of incident research into a single lookup.

Start Your Digital Transformation Today!

MQTT

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