A data 'highway' to improve efficiency

By Bob Vavra, *CFE Media*

At rush hour in your manufacturing plant, the last thing your operations team needs is a traffic jam clogging up your data flow.

"The most important objectives every customer seeks is to increase system efficiency and reduce unplanned downtime," said Eric Lauber, a licensed Professional Engineer in the Manufacturing Systems and Solutions Division of Matrix Technologies. "The customer may not realize that their network infrastructure is a key component of meeting the goals they have defined."

"Think of your network like a series of major highways," said Tom Lycans, senior consultant and team leader in the Industrial System Division of Matrix Technologies. "A network needs to be designed to handle the current and future data traffic needs of a control system. At the cross-section of cost and capability, there is a sweet spot that will meet your needs."

The challenge, Lycans noted, is that many data highways aren't built for the rush of new data in the age of Industrial Internet of Things (IIoT). "Your network may not be ready to handle the additional traffic introduced from IIoT endpoints and devices," Lycans said. "Like a highway, the increased traffic could slow down communication of other components. In a manufacturing plant's network, this might be data on an HMI not updating quickly with new data from a PLC, or database data logging failing due to connection timeouts."

With this surge in network complexity, manufacturers have turned to system integrators such as Matrix Technologies to help unsnarl the traffic and keep the operation rolling along. "Skills such as configuring managed network switches and firewalls have traditionally been full-time jobs in the IT world," said Lycans. "It may not be feasible for plant personnel to quickly adopt these skills, and it is therefore important that plant managers seek out experts who can provide guidance on adapting these technologies to manufacturing plants."

Additionally, cybersecurity often is an overlooked part of an effective industrial network. "In the past, manufacturers paid little attention to cybersecurity. Facilities lacked connections to the internet, and the hardware and software were generally not compatible with the traditional means of cybersecurity attacks," said Lauber. "Today, most facilities have some form of internet connection, and many are using cloud computing. The hardware and software components used in control systems are much more similar to consumer technologies. As a result, the relevance of cybersecurity in manufacturing has gone up immensely."

Matrix Technologies' expertise in these areas provide a bridge of knowledge for manufacturing plant managers to connect their needs with the latest technology available to deliver a secure network. "Our customers range from small facilities collecting data from a single conveyor to large intricate process control systems, batching systems, and multi-zoned bottling facilities with dozens of OEM-provided machines with hundreds of data communication endpoints," said Lauber

"We help our customers by asking them key questions about their pain points and production targets, identifying what components and systems may be affected, and guiding them through the process," added Lycans. "For our customers who are unsure how to proceed, we offer Network and Computing System Audits to evaluate their current systems and identify a roadmap to improve availability, integrity, and security."

Eric Lauber, PE, Project Engineer, Manufacturing Systems & Solutions, Matrix Technologies

Tom Lycans, Senior Consultant, Industrial Systems Division, Matrix Technologies

Matrix Technologies is a versatile, platform-independent, full-service resource for process design, automation and information system engineering. Industrial manufacturers around the world have trusted us with their most challenging projects for nearly 40 years. Throughout the constant technical and business challenges over the past three plus decades, Matrix has been a strong, consistent, stable partner to meet all your project and production challenges.

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Key statistics:

- **54%** of recently surveyed manufacturing companies have experienced at least one Internet Connection Sharing (ICS) security incident in the last 12 months.

- **57%** of overall IIoT spending is in the manufacturing operations space.

- **85%** of Matrix Technologies business comes from repeat clients.

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