

# How a Global Beverage Maker Upgraded its Network

**The company replaced its aging cabling with an industrial network that improved plant-to-business data collection and reporting and overall network performance.**

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network performance and communication disruptions between its factory-floor assets.

These disruptions were causing unplanned production losses because of network convergence issues. The existing network was more than 15 years old with an aging infrastructure of cabling, including Ethernet copper and fiber optics. Although new data requirements for plant reporting were initiated, the system hadn't been upgraded to keep up with the manufacturer's changing data needs.

In addition, new components were continually being "bolted on" to the old infrastructure, and it was close to collapsing. To further complicate matters, no in-house expertise existed to manage network-related issues.

## Roadmap to Network Convergence

The company asked Rockwell Automation® Solution Provider and system integrator Polytron to evaluate and design a network architecture that focused on improving overall bandwidth utilization and efficiency across all manufacturing areas. The new network requirements were to configure and install a reliable, expandable and robust infrastructure, and to maximize the benefits of plant-to-business data collection and reporting systems.

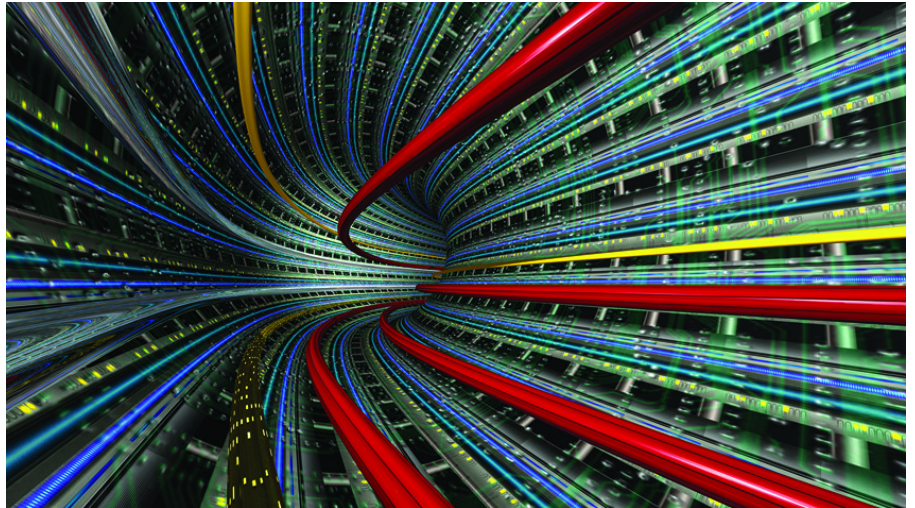
It was going to take the installation and configuration of a high-performance Ethernet and fiber-optic network to meet and exceed the client's networking standards requirements for the industrial network.

Following Polytron's "Roadmap to Network Solutions," a network audit was conducted using diagnostics; a design plan was developed; and a schedule was created for implementation. The system integrator's team reviewed the design plan with the manufacturer's stakeholders for alignment.

Alignment with all stakeholder groups was crucial because the project touched every area of the plant. Support was needed from IT, all department managers, plant engineering and control support technicians.

The project required minimal disruptions to plant operations. To accomplish this, the installation and network migration schedules had to be adjusted constantly to the plant's schedule.

The network upgrade included updates to legacy controls hardware from Rockwell Automation and companies



in its PartnerNetwork™, which enhanced the beverage manufacturer's technical resource support. The new plan comprised the following:

- Allen-Bradley® ControlLogix® communication cards — 1756-EN2T. The CLX Controllers would manage communication to other controllers and switches.
- Allen-Bradley Stratix switches — Stratix 2000™ unmanaged, Stratix 8000™ modular managed and Stratix 8300™ modular — would be used to direct and manage traffic between end points, controllers, etc.
- All of these technologies and most of the communications on the network would be managed by technology from Rockwell Automation Strategic Alliance Partner Cisco, such as 2960 switches for Layer 2, and 3750 switches for Layer 3.
- These switches along with fiber optic and Ethernet copper solutions from Rockwell Automation Strategic Alliance Partner Panduit would provide a more reliable and flexible solution.

## Laying the Foundation

**Step 1:** The implementation began with the lowest risk area. The first step was to install and configure the network's new fiber-optic infrastructure, connecting the new infrastructure to the existing infrastructure.

The installation focused on replacing the existing Ethernet copper cabling and existing fiber-optic cabling with a new cabling system that would support the updated network topology and designed bandwidth. Validation helped verify the existing network could effectively communicate with assets on the new network before proceeding.

To reduce migration risk because of old, dated medium, the project team installed all new Ethernet copper cabling and fiber-optic cabling in parallel to the existing network. This parallel installation allowed the project team to reduce installation risk, continue with day-to-day operations, and have a seamless migration cut-over. In a project such as this, the installation is about 60% of the total project cost.

**Step 2:** The next step involved moving all of the plant's industrial servers to the new infrastructure. The project team then tested and validated all communications with existing plant operations. This installation required the most resources from the facility's IT support group.

Once validated and stable, it was time to migrate the other automation components and operational areas to the new network.

**Step 3:** The next several migration areas followed the operational flow of the plant. Strategically migrating each area from a low-risk area to a high-risk area, ending in a low-risk area allowed the team to focus on installation effort closing with documentation effort. Each area was validated in real-time against an agreed-upon checklist and required 100% accuracy before moving to the next area.

**Step 4:** After completing the migration of each of the operational areas, the team conducted a Network Health Assessment. This step involved connecting to the core switch and running a number of tests, checking for any issue areas and/or communication disruptions.

## Performance Continuity

The Polytron team delivered training to the appropriate operations support groups following our Roadmap for the project process (see **illustration**). Hands-on training and operations handoff were conducted as each area was validated and running smoothly, before moving on to the next area. This process enabled operational efficiency with the network upgrade.

This method of training suited this project. In other projects, a more formal process might be appropriate based on the manufacturer's structure. Formal training would involve all of the technology vendors contributing to the project, and feature formal classroom and hands-on sessions.

## Communicating Success

The updated network provided the desired performance results and delivered a secure, sustainable and scalable system — eliminating network-related production downtime issues.

The updated network also increased the plant's networking support structure and ease of maintenance, and introduced new technologies that can be used in future projects.

Rockwell Automation Solution Partner [Polytron Inc.](#), Duluth, Georgia, is a CSIA Certified system integrator and 2015 System Integrator of the Year that provides full system services and solutions for the food and beverage, consumer products, life sciences and automotive industries.

[Polytron, Inc.](#)

## Solution Partner Program

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*The Journal From Rockwell Automation and Our PartnerNetwork™ is published by Putman Media, Inc.*

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