Coca-Cola Consolidated Inc. (CCC Inc.), the largest Coca-Cola bottler franchise in the United States, sees connecting all production assets through a "Connected Factory" capability as a key to improving operational performance.

**Connecting the Factories at Coca-Cola Consolidated**

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**Introduction**

Coca Cola Consolidated Inc. (CCC Inc.) recently acquired ownership of eight Coca-Cola Refreshments (CCR) production centers, increasing the number of production centers that it operates from 5 to 13 in just two years. Through the transition and integration of the CCR facilities to the CCC Inc. network, CCC Inc. realized that working the new plants into a more integrated and timely reporting structure for operational information was an important aspect of the new organization. The leadership team of CCC Inc. wanted to make sure it was working with the latest and most accurate operational information to support faster decision making.

**In the Beginning**

As the integration of the plants commenced, various opportunities have presented themselves when integrating the operations technology (OT) of the 13 plants. These opportunities include:

- Cybersecurity protection capabilities
- Data management for analytical insights
- Asset preventive strategies and development

CCC Inc.'s IT team has begun discussions with each plant OT team regarding how to best connect the data in the plants to CCC Inc. as well as to each of the other plants. This “Connected Factory” approach will allow the plant OT teams and CCC Inc. IT to more quickly deliver data, insights, and decisions for improving plant and production operations.

**SOLUTION SNAPSHOT**

**Organization:**

Coca-Cola Consolidated Inc. (CCC Inc.)

**Organizational Challenge:**

CCC Inc. has 13 bottling and production plants throughout its franchise footprint. The integration of the plants into the reorganized business revealed that the overall organization lacks transparency into plant operations. What visibility is available currently looks at data that lacks timeliness and potentially relevance because of age.

**Solution:**

CCC Inc.’s proposed solution is to use Cisco networking systems and overall communications capabilities to connect to the disparate plant production hardware and systems.

**Project Duration:**

The project started 18 months ago and is ongoing.

**Benefits:**

- Consolidated view of production performance
- Improved production asset management
- Improved cybersecurity in operations
- Better IT and OT collaboration
The Complexity of a Multiplant Environment
Most of the infrastructure in the plants is proprietary to the production equipment though standard programmable logic controllers (PLCs). But even with this standard, OEMs deliver equipment with other control systems. In addition, the support and ancillary equipment in labs, as well as material handling equipment, have their own specialized controllers and communications functions.

In the end, CCC Inc. IT and CCR operations has been working in a very heterogeneous environment. CCC Inc. IT must work with the technology in place today, which was acquired by CCR, including OEM vendor-specific production systems. As happens in most companies, the OT decisions are typically left to the individual plants, which are held accountable for production goals. The friction between IT infrastructure goals and OT production goals can cause organizational issues if not addressed over a long period of time.

Implementation Strategy

Choosing Cisco as a Partner
As CCC Inc. and its OT team continued to discuss and plan the concept of the "Connected Factory," the CCC Inc. IT team looked at several approaches to connecting all the data and information scattered in the numerous OT systems. The IT team has leaned on Cisco for advice around the following:

- Basic communications technology portfolio, including cybersecurity
- Knowledge of the OT communications world, especially control communications
- Partnerships with critical process control technology vendors
- Use of existing Cisco infrastructure
- Knowledge of the Cisco technology

But probably the most important aspects of the relationship between CCC Inc. and Cisco were the OT team's knowledge of and comfort level with a Cisco-branded system.

Challenges
While CCC Inc. had a head start on collaborating with the plant OT teams, implementing a "Connected Factory" strategy presents a number of challenges, include the following:

- Cybersecurity coordination is still somewhat difficult with new equipment and systems arriving in plants.
- Collaboration is necessary and must be driven by currently common goals.
- A communications strategy that crosses IT and OT boundaries is still difficult.

One thing is clear though: CCC Inc. trusts Cisco because of its experience in overcoming these challenges. Cisco is one of the few technology vendors that can cross IT and OT boundaries with limited issues.
Benefits

The benefits for connecting all the data and information coming out of the plants sometimes seem both obvious and opaque at the same time. Therefore, this paper looks at the significant benefits that a company such as CCC Inc. may experience, both directly and indirectly, from the transformation to a fully connected operation:

» Executives will get a corporate-level view of operational performance for benchmarking and financial forecasting.

» Asset management information can be quickly shared to set best practices. This leads directly to asset performance improvement and throughput increases.

» Planning improvements can be made through a rapid alignment with asset outages and supplier deliveries.

» A corporate-level view of asset security and risk management performance is possible from an OT perspective.

Without a future Connected Factory strategy, the preceding benefits are manual and time-consuming processes. However, most of the benefits are around being able to make better large-scale decisions and driving best practices in production asset management.

Methodology

The information and conclusions in this document were drawn from multiple sources such as interviews with CCC Inc. executives, including CIO Darrell Thompson; personal knowledge of the author based on his experience working at CCC Inc.; and Cisco as a technology supplier to CCC Inc. and numerous other manufacturing companies.
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Kevin Prouty is Group Vice President for IDC Energy Insights and IDC Manufacturing Insights. He is responsible for managing a group of analysts that provide research-based advisory and consulting services that will enable energy executives in oil and gas and utilities to maximize the business value of their technology investments and minimize technology risk through accurate planning. Kevin’s research specialties are Utilities, Manufacturing, Enterprise Applications, and Product Innovation research.