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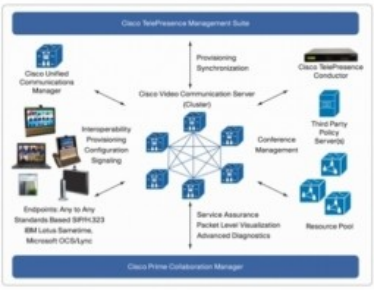
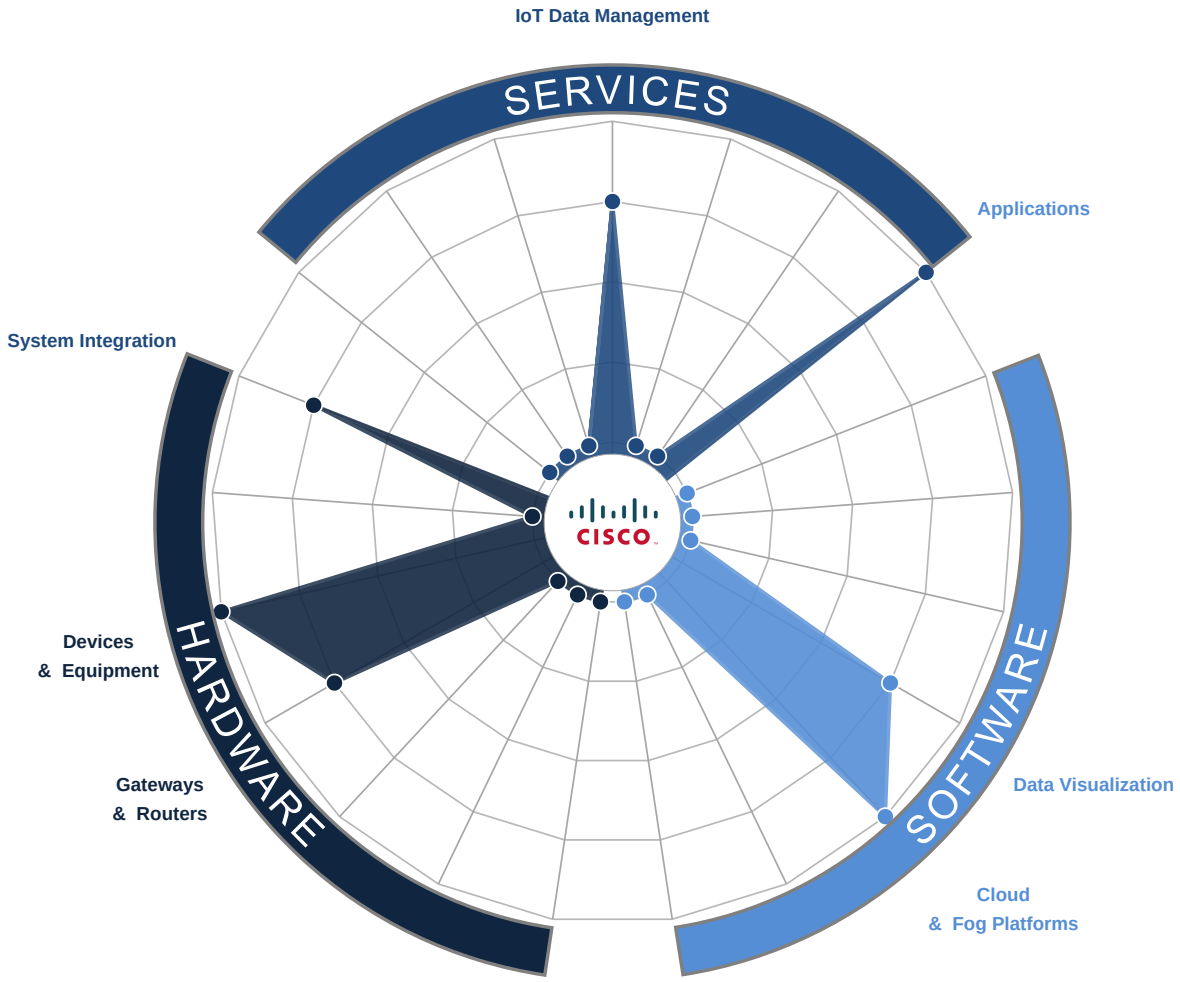


Premium Appliance Producer Innovates with Internet of Everything



Overview

Applicable Industries

Furniture & Home Appliances

Applicable Functions

Quality Assurance

Product Development

Maintenance

Human Resources

Connectivity Protocols

IPv6

Wi-Fi

Challenge

Sub-Zero wanted to launch 60 new products as scheduled, adhere to stringent quality requirements and manage issues from new supply-chain partners and increase staff productivity time and collaboration while reducing travel and costs.

Customer

Sub-Zero, A family-owned business, pioneered the development of the built-in refrigerator in the 1950s and is still the leading manufacturer of luxury appliances in North America.

Solution

This Manufacturing Mobile Video Collaboration solution included Cisco wireless networking infrastructure, Cisco TelePresence, and Librestream Onsight mobile collaboration software and rugged cameras. Cisco also integrates the solution into existing video infrastructure and tools.

Solution Type

IOT

Solution Maturity

Emerging (technology has been on the market for > 2 years)

Operational Impact

Impact #1	End-to-end Service Delivery - Deeper integration of information across departments and business units improves internal collaboration and end-to-end customer service.
Impact #2	Installation Efficiency - Technicians are able to query instruments remotely during commissioning to confirm device functionality.
Impact #3	Time-to-Market - Programming time, collaboration time, and installation time are shortened during the introduction of new products.

Quantitative Benefit

Benefit #1	Sub-Zero estimates they cut 10-20% off the process by immediately connecting teams and speeding decisions.
Benefit #2	Sub-Zero estimates an internal cost saving of $2,500 per production line per hour with a direct 5-10% reduction in downtime related to design and manufacturing issues.
Benefit #3	Sub-Zero estimates an annual travel savings of more than $40,000.

Technology

Hardware

Outdoor Wireless Networking Systems

The RDL-3000 eLTE-MT provides secure reliable wireless transport for very harsh industrial sites including including a HazLoc certified option for deployment in hazardous zones. This extremely tough h ...

Partner

Librestream

Librestream's virtual presence platform Onsight is deployed on over 10 million devices globally, providing a proven video collaboration capability to service, manufacturing,energy, insurance, and pu ...

Premium Appliance Producer Innovates with Internet of Everything

Customer Case Study

EXECUTIVE SUMMARY

Customer Name: Sub-Zero
Industry: Manufacturing
Location: Madison, WI
Number of Employees: 1000 +

Challenge

- Meet launch schedule for 60 new products
- Adhere to stringent quality requirements and manage issues from new supply-chain partners
- Increase staff productivity time and collaboration while reducing travel and costs

Solution

- Integrated manufacturing mobile video capabilities into daily workflows and processes
- Upgraded wireless networks to support mobile devices and video streaming and conferencing within manufacturing facilities
- Integrated solution into existing video infrastructure and tools

Results

- Reduced new product introduction cycles by 10–20 percent, and met aggressive schedules to launch unprecedented number of product releases
- Saved approximately US$100k to date on field testing by decreasing engineers required onsite, utilizing video along with diagnostic data streaming
- Reduced production line downtime by 5–10 percent, saving significant costs based on average US$2500 per production line, for each hour of avoided unplanned downtime

Sub-Zero adopts mobile video technologies to accelerate product design, streamline field service, and improve production uptime.

Challenge: Meeting Ambitious Product Launch Goals

A family-owned business, Sub-Zero, Inc. pioneered the development of the built-in refrigerator in the 1950s and is still the leading manufacturer of luxury appliances in North America after more than 65 years in business. After acquiring Wolf in 2000, Sub-Zero expanded its refrigeration product line to include premium cooking appliances and has since been on a strategic path to expand its production in the United States and its brand presence globally.

In addition to recently opening a 440,000-square-foot refrigeration production facility in Goodyear, Arizona, the company operates facilities in Madison, Wisconsin and Richmond, Kentucky as well as showrooms in Atlanta, Australia, Beijing, Brussels, Chicago, Dallas, London, New York, Mexico City, and Milan. The company also works closely with certified regional installers to ensure that these organizations provide high-quality customer installation and repair services.

Recently, Sub-Zero faced its largest product launch in the company's history. With 60 new appliances in the design process and the opening of a new "greenfield" refrigeration production facility in Arizona, Sub-Zero was focused on designing a series of new generation products that coordinated with the Wolf line of cooking products. This project became known as the New Generation Collaboration Initiative.

"Technological innovation is important for Sub-Zero to stay competitive in the industry, to make sure that we have a product that stands out and provides customers with value," says Tyler Verri, corporate infrastructure services manager for Sub-Zero.

To prepare for the integration, engineers and development teams at Sub-Zero required continuous communication and collaboration with each other and with external suppliers and partners. Additionally the majority of product development and design occurred at the headquarters in Wisconsin, while the manufacturing facility was located in Arizona.

Throughout the project, teams from both locations needed to continually communicate and collaborate to finalize designs, correct production-line issues, and train installers and servicers. Furthermore, Sub-Zero wanted to identify an effective way to access the "experts" without requiring constant travel between offices.

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"With this solution, we found a way to see and discuss very detailed video and images from afar in a highly secure manner. We are now using video collaboration on a daily basis to finalize designs, correct production line issues, work with suppliers, and train installers and servicers."

Paul Sikir
Vice President of Design Engineering
Sub-Zero

Solution: Enterprise-Grade Mobile Video Technology

After experimenting with consumer-grade mobile video collaboration technology, Sub-Zero determined the approach to be ineffective for many reasons such as the lack of security, network bandwidth requirements, limited-to-no interactivity, and poor-quality visuals. In addition, many of the other options were not ruggedized or suited to a factory environment.

Ultimately, Sub-Zero turned to Cisco networking expertise and Librestream's ruggedized cameras for a more robust, enterprise-grade mobile video solution that would effectively support the massive new product design undertaking. This solution takes advantage of the core value proposition of the **Internet of Everything**, where people, processes, data, and things can all be interconnected and networked to yield business improvements. This Manufacturing Mobile Video Collaboration solution included Cisco® wireless networking infrastructure, Cisco TelePresence®, and Librestream Onsight mobile collaboration software and rugged cameras.

The video and voice capabilities were used to share and discuss design and production issues from the manufacturing plant floor with Sub-Zero engineering teams in the office. These tools also enabled Sub-Zero personnel to communicate more effectively with the broader community of users in real time, including global suppliers, distributors, and vendors. For example, they all are now able to participate in secure live video sessions with onscreen mark-up (telestration) and image sharing, to improve overall communication and accelerate more informed decision-making.

"It's important for Sub-Zero not only to embrace the Internet of Everything, but to use it to make our product better, and our jobs easier," says Arturo Bonomie. "It's really about connectivity with data, being able to access video, access information, being able to send that information and data to the right location and to the right people. It does feel like you're part of the future."

Additionally, the solution included Librestream's rugged mobile cameras, which were connected wirelessly through the network, providing high performance and mobility for Sub-Zero. The use of connected smart cameras from the manufacturing facility floor gave engineers immediate and anytime access to colleagues. For example, remote experts were able to see, talk, and interact on their computer or tablet. Sub-Zero recorded these sessions for future use, including training, warranty remediation, and trouble-shooting.

Over a two-year period, Sub-Zero integrated the use of mobile video internally as well as with external suppliers and vendors to support its New Generation Collaboration Initiative. By the time the company was ready for its product launch, Sub-Zero was using the technology on a daily basis across departments and its extended value chain.

"The video and mobile capabilities ushered in a new approach to collaboration for our team," says Mike Grimm, vice president of IT at Sub-Zero. "Meetings, development sessions, and testing used to require hefty budgets and travel for engineers across the country, but the use of video collaboration turned our model on its head and resulted in even greater integration with teams across the country."

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Arturo Bonomie
Staff Engineer
Sub-Zero

Results: Faster Time to Market and Reduced Travel Costs

By implementing a complete mobile video collaboration solution, Sub-Zero is able to solve production challenges more quickly while reducing travel and increasing the productivity of the core team. The New Generation Collaboration Initiative supports the objective of leveraging experts with a new communication model and provides engineers with direct access to issues regardless of their physical location.

"With the Cisco and Librestream technology, we are able to log onto any device at any time and connect to a camera to examine problems as they arise, helping us bridge the communication gap," says Mark Swartz, corporate director of quality for Sub-Zero.

Sub-Zero follows a rigorous seven-stage process for new product introductions. During this process, the teams saved considerable time by implementing live video collaboration.

Depending on the initiative, Sub-Zero estimates they cut 10-20 percent off the process by immediately connecting teams and speeding decisions. Saving this time can have a major impact on the company by accelerating the time to orders and revenue. Without this savings, being late to market creates high costs from lost orders, inventory carrying costs, and staff productivity time.

As part of the process, teams now show the latest product prototypes to colleagues across facilities using live video collaboration. For example, remote experts can view products up-close to determine if even the slightest surface blemish exists or if a hole is just slightly off center. Together, the participants can talk, pause the video, and draw ("telestrate") both ways to bring attention to these slight imperfections immediately. Teams can take pictures and record the sessions for comparison and learning, during future review meetings. Sub-Zero also uses the technology to show suppliers quality testing with live video and discuss the performance issues in real time.

At the new production facility in Goodyear, Arizona, the team improved flexibility and reduced downtime by engaging experts directly with ongoing issues, in real time, meeting daily production goals and optimizing manufacturing throughput. As a result of these sessions, Sub-Zero estimates an internal cost saving of $2500 per production line each hour with a direct 5-10 percent reduction in downtime related to design and manufacturing issues. This kind of improvement translates into significant cost savings that quickly dwarfs the travel cost savings. The company also increased the productivity of the engineering team with faster decisions and fewer travel requirements for design reviews, production-line troubleshooting, and distributor training. For one project, Sub-Zero estimates an annual travel savings of more than $40,000.

In field test inspections, Sub-Zero reduced the number of engineers required onsite by bringing in colleagues using video, a new paradigm for Factory Acceptance Testing that fundamentally reduces order-to-remittance cycles. A process that typically required two or three Sub-Zero engineers at a customer home can now be accomplished by sending just one person, which translates into an estimated cost saving of over $100,000 for this project alone based on $2500-$5000 per field test location, and dramatically reduces the time required to make design adjustments from days to hours.

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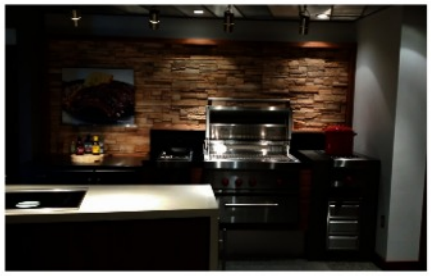

"With this solution, we found a way to see and discuss very detailed video and images from afar in a highly secure manner. We are now using video collaboration on a daily basis to finalize designs, correct production-line issues, work with suppliers, and train installers and servicers," says Paul Sikir, VP of Design Engineering at Sub-Zero.

The real-time interaction made possible by the video collaboration allowed Sub-Zero to meet its new product launch schedule while adhering to the high-quality standards by increasing staff productivity time, reducing ongoing and emergency travel, and improving overall communication internally and externally.

Next Steps

The company is concluding the first phase of the New Generation product launch and has met its internal timelines and goals. This project is expected to continue over the next 18 months, and Sub-Zero expects to continue expanding the use of the collaboration technology every day.

In addition to ongoing new product development initiatives in the works at Sub-Zero, the company also plans to incorporate mobile video collaboration more fully into its supplier audit processes and field service organization, improving the overall experience for customers and service partners.

For More Information

To find out more about the Cisco manufacturing solutions go to www.cisco.com/go/manufacturing.

To find out more about Cisco Wireless, go to www.cisco.com/go/wireless.

PRODUCT LIST

Video

- Cisco Video Communication Server (VCS)
- Cisco VCS Expressway
- Cisco TelePresence

Mobile Devices and Platforms

- Librestream Onsight 2500R rugged camera devices
- Librestream Onsight Connect collaboration software
- Librestream Onsight advanced management tools
- Librestream Onsight SIP and TeamLink hosted services

Wireless

- Cisco Wireless Access Points

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