SmartCap speeds U.S. market growth with 400,000 square foot smart factory

Innovative truck cap designer utilizes autonomous IoT robotics using Managed Network Edge

In Fort Worth, Texas, a massive 400,000-square-foot building houses the manufacturing and assembly of stainless-steel truck caps that are growing the U.S. market for SmartCap — a global truck accessory brand out of South Africa. Dozens of robotic devices, deployed using the Internet of Things (IoT), move across the factory floor in careful coordination, fabricating parts to be assembled for shipment.

Designed to autonomously weld, bend, cut and paint hundreds of SmartCap components with AI-enhanced precision, the smart factory is engineered to achieve market-leading standards for accuracy and efficiency. It also needed to be up and running within months of its construction. To help bring this into reality, SmartCap consulted with Spectrum Business.

"We needed a team of network people to help us build the network that manages the automation and the data it runs on," says Andrew White, Vice President, Operations, SmartCap. "Spectrum Business came to the table providing us with the right resources, especially with launching this facility in the short amount of time we had."

A constant flow of data throughout the smart factory is critical to enabling IoT operations and deeper use of AI services. By leveraging their robust WiFi network, factory managers can more closely program and monitor robotics across multiple work shifts, ensuring a steady and efficient throughput.

Streaming data to the factory floor

SmartCap introduced the world's first modular truck cap business in South Africa. There, two factories produce stainless-steel canopies and accessories for pickup truck beds. Utilizing five-piece customizable modular designs, these caps are used to increase storage space and enhance a vehicle's overall utility.

As their U.S. business grew, so did awareness of the need to have a state-of-the-art manufacturing plant to serve high North American demand more quickly and efficiently.

"We knew we were coming to North America, and the only way for us to come here was to automate," says Jason Ehrlich, Vice President of Global Marketing, SmartCap. "The way the factory was designed sets us up to deliver the production output needed to truly compete in the largest truck market in the world."

To run properly, the Fort Worth factory communicates with different computer systems to help manage throughput. These include an enterprise resource planning system, a manufacturing execution system and a warehouse management system.

Inside this building in Fort Worth, Texas, SmartCap is spearheading revolutionary new ways of manufacturing its product. Dozens of robotic devices are monitored by WiFi controlled by a Managed Network Edge platform.

Client profile

Company
SmartCap

Industry
Manufacturing

Services
Managed Network Edge with WiFi and Cameras
Dedicated Fiber Internet (DFI)

Spectrum
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Overview

• SmartCap, a global manufacturer of stainless-steel truck caps and accessories, built an automated factory in Fort Worth, Texas to expand their U.S. market.

• For this new smart factory, SmartCap needed connectivity to better integrate its assembly process using AI and IoT functionality.

• Also critical was WiFi coverage to control and monitor precision engineered robotic equipment across a 400,000 square foot assembly space.

Outcomes

• A powerful network, strategically bolstered by access points, has extended WiFi across all parts of the dock using Managed Network Edge.

• A managed connectivity platform enabling autonomous smart factory design, network visibility and ease of use was deployed with Managed Network Edge.

• Complete WiFi coverage was established on the factory floor and in surrounding offices.

• Expansive oversight into factory operations is provided with 35 AI-operated cameras that incorporate AI-directed pan, scan and zoom features and 4K visual clarity.

Why it matters

• SmartCap can now more efficiently ship product across the U.S., satisfying growing customer demand while foregoing the cost of overseas shipping.

• The new factory connectivity network enables full control of IoT operations from a central portal.

• SmartCap IT can draw on the expertise of a dedicated Spectrum Business team in responding to its present and future needs.

SmartCap serves a large and growing contingent of drivers who want to augment their vehicles with extra cargo room and other features. Its stainless-steel modular truck cap system is designed for Sport, Adventure, and Commercial purposes.

"This is a truly smart factory, and you can only manage it using data," White explains. "There are all kinds of data to make the factory run: machine data, network data, raw data, listening data; and it all needs to interconnect holistically."

At the center of this network is a modular platform designed for ease of use and full visibility, with managed oversight and support from Spectrum Business. It includes a portal that can be accessed from a computer or mobile device via the cloud. Scalability built into its design enables SmartCap to expand network capability as the factory grows. Just as the smart factory's efficiency is built on data, the flow of that data is controlled by Managed Network Edge.

"Obviously, the infrastructure must be in place before anything works in a smart factory. Spectrum Business has helped us make this possible on the core network side."

– **Andrew White, Information Technology Executive, SmartCap**

Running robots with WiFi

SmartCap leaders chose Managed Network Edge for its robust, dynamic WiFi features. WiFi is how robotics are controlled and monitored throughout the manufacturing plant. This includes bending, shaping and welding steel plates as well as painting the finished components. Final assembly is done with hands-on support from 130 employees.

"SmartCap is at the cutting edge of how IoT and robotics are helping revolutionize manufacturing to better serve today's customers," says Nicholas Jimenez, Inside Account Generalist, Spectrum Business. "It is thrilling to be of assistance as they set a path for a very bright future."

Robotics integration is an advancement on the company's South African manufacturing model. The result has been greater efficiency; in just two years the Fort Worth factory is already producing as many units per shift as the factories in South Africa, with more IoT refinements still to come.

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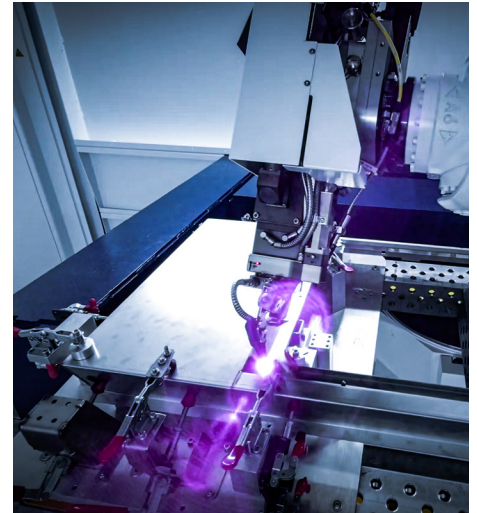
Robotic welders and automated lasers are two of the many tools used by SmartCap to build their various truck cap designs. They all run on the Internet of Things (IoT). This requires special bandwidth channeled via WiFi from the central Managed Network Edge platform.

The automated factory floor is self-contained.. "The whole facility is very impressive," says Richard Wines, Technical Sales Consultant, Spectrum Business. "It comes in as big sheets of metal, and it comes out as truck tops. They have cutters, benders, welders, with lasers going at all times. There is a whole section just for painting. It's all automatic."

WiFi also enables employees to automatically clock in and out via tablets and use a multitude of devices inside and around the factory.

"We have automated guided vehicles (AGV) like forklifts roaming the facility using the WiFi network," White notes. "These AGVs have a sensor on top which must see three reflectors at any time to remain operational. They depend on WiFi both for safety reasons and to always keep a step ahead of the process."

The factory was built to be larger than its current needs to accommodate additional production as business grows. "We sublease about a third of our space and that will eventually be used to accommodate our future growth," Ehrlich explains.

Stronger security inside and out

Any smart factory needs a system to immediately detect and defend against potential cyberattacks. Monitoring security for the SmartCap network where it meets the internet is a Cisco Meraki firewall managed 24/7/365.

> "What we are doing has never been done before in the automotive aftermarket. Having this factory that is fully automated and supported with Managed Network Edge allows us to be both innovative and cost-efficient."
>
> **– Jason Ehrlich, Vice President of Global Marketing, SmartCap**

Installed throughout the factory to automatically track movement and store thousands or hours of video information are 35 Cisco Meraki MV93 cameras. These cameras are equipped with AI which automatically tracks movement.

"Being able to manage these cameras from the portal is phenomenal," White notes. "So is storing data on the camera instead of on a network video recorder and being able to pan, tilt and zoom whenever I need to."

The flexibility of these security features, how they dovetail with other types of software to augment the network design, also appeals to White. "Working with Spectrum Business, I was able to give them the basic idea of what I wanted from the security side, and then they worked with me to implement that," he says.

In addition to helping manage its data, SmartCap relies on Spectrum Business for the resiliency of their network. This comes in the form of a Dedicated Fiber Internet (DFI) circuit. This provides the network with diverse connectivity in the event of a sudden fiber cut or loss of signal.

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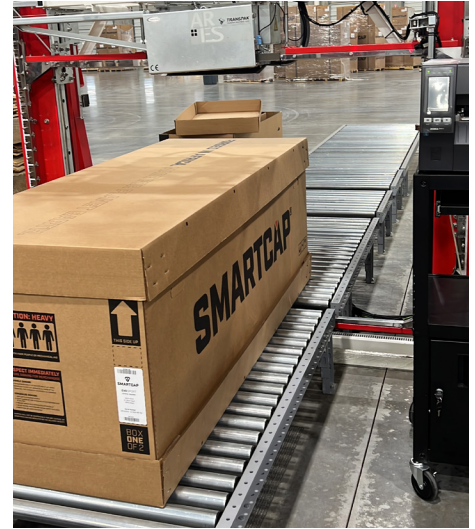
The journey from factory floor to the open road is not as long as it used to be for SmartCap. Year-over-year productivity growth at their Fort Worth factory is at 50%. Just as important are the greater quality assurances made possible by data-driven engineering and Managed Network Edge.

A technology partnership tested over time

When White first reached out to Spectrum Business, he had a clear vision of how the factory infrastructure should be set up. He described the relationship as "unproblematic" because of their support for his vision.

"Managed Network Edge just makes it so easy for me," he explains. "The way the cameras interface, the WiFi switches, the rest, it's like a dream. It's super easy, to the point where you don't need the knowledge you used to need to keep the network up and running."

The factory has already achieved 50% year-over-year growth in productivity and anticipates more expansion on the immediate horizon. "We make a really cool product, and it's fun to work here," White says. "It is really a next-level operation, and having Spectrum Business helps a lot."

"When we started putting this factory together in 2021, I thought the infrastructure was going to be my biggest problem, and to date, it's been the least. If I had to describe my partnership with Spectrum Business in a single word, that word is 'easy.'"

– Andrew White, Information Technology Executive, SmartCap

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