

Cisco DNA Center Case Study

DENSO Corporation

With Cisco DNA Center, DENSO updates its factory network automatically and resolves operations management issues resulting from increased load and individualization



The customer summary

Customer name
DENSO Corporation

Industry
Auto and Truck parts

Location
Kariya, Aichi, Japan

Challenges

- Streamline network operations that have become complicated due to the expansion of wireless LANs
- Simplify individualized network operations that require experience and advanced skills
- Efficiently update the factory network, which requires major effort and coordination with the site

Solution

- Introduce Cisco DNA Center, which can automate network operations
- Get mastery support from Cisco CX Customer Success

Results and the future

- AI will help investigate causes and deal with them, so problems can be resolved quickly.
- Network operations can be performed through the GUI, eliminating the individualization of the work.
- Automatically update the network equipment in 400 factories. Establish a new operational scheme.

The auto parts manufacturer DENSO has overhauled its network operations management, which had become unwieldy and individualized due to the introduction of wireless LAN. Cisco DNA Center was introduced, which enables the visualization and automation of operations through software control. Implementing Cisco DNA Center enabled quick troubleshooting regardless of the skill of the person in charge, minimized network downtime, and automated network equipment updates in factories, which previously required a massive workload. Thus, DENSO achieved significant sophistication and efficiency in network operations management.

DENSO continues to support the Japanese automotive industry with its high technical capabilities. The company's automotive components are focused on miniaturization and improving energy efficiency, including powertrain systems that deliver the required amount of air to the engine's combustion chamber and air-conditioning systems that make vehicle interiors more comfortable. These components have become essential for the evolution of today's cars.

The company is also known for its active involvement in new fields in addition to its automotive parts business, such as HEMS, healthcare, and biotechnology (fine meshes).

Challenges

Work style innovations and smarter factories increase wireless LAN needs

The IT infrastructure supports the company's wide range of businesses, from existing businesses to new businesses. The company is constantly optimizing its IT infrastructure as the business environment evolves, such as with the adoption of SD-WAN technology and the active use of the cloud. Under such circumstances, the requirements for networks have changed drastically in recent years.

There were two changes in the background.

The first was the transformation of work styles in the office. "In the past, there were times when physical PCs were severely restricted from a security perspective, but in order to further improve productivity and make effective use of diverse human resources, conventional work styles alone were not suitable. We are making a major shift towards teleworking utilizing mobile devices, such as by strengthening flexible security measures using new technologies, adopting free addresses, and actively using video conferencing services," says Yutaka Matsunaga of DENSO.

Also, major changes have begun in the factories. It is "smartification" utilizing IoT. Through data obtained from IoT sensors, IoT cameras, and production facilities, we are trying to visualize the operating status of factories in real time and dynamically control production activities.

"With Cisco DNA Center, the operations team will also take on new challenges."

Mr. Yutaka Matsunaga,

Chief of NW Service Section, IT Service Office, IT Infrastructure Promotion Department, DENSO Corporation

“With these changes, the need for wireless LAN has rapidly grown. In the office, we need to create an environment where mobile devices can be connected to high-quality networks anytime, anywhere. And at the factory, the need for IoT devices using PDAs and Raspberry Pis for visualization and control was also growing rapidly,” says Takuya Ohira of the company.

The rapid expansion of wireless LANs increases the network operational management load

To address these needs, the company accelerated and expanded its wireless LAN deployment. However, that has brought new challenges, specifically with the network complexity and increased operational load.

In the first place, the premise of the network is that troubles lead directly to business outages, therefore it “cannot be stopped.” Thus the responsibilities and burdens related to operational services are extremely high.

For example, when a failure occurs, the person in charge checks the scope and symptoms of the failure, determines what kind of trouble may have occurred in which device, and verifies and confirms it. Isolating and identifying this cause is a very challenging task, and whether it can be done quickly or not depends on the experience and skills of the person in charge. “Wireless LANs were introduced all at once, and the network became even more complex. Unlike wired LANs, wireless LANs literally have no ‘wires,’ and one cannot see what is happening where. Investigating the causes of problems has become even more difficult, and the risk of prolonged downtime has increased,” says Katsuya Muramatsu of the company.

With Cisco DNA Center, we believe that not only veterans, but also younger people, will be able to operate the network more smoothly and minimize downtime.

Solution

AI suggests causes and solutions to challenges

How to streamline network operations complicated by wireless LANs was the basic challenge. That’s why the company focused on Cisco DNA Center.

Cisco DNA Center is a central solution for IBN (intent-based networking) that significantly enhances and streamlines network operations through software-controlled network virtualization, policy control, and automation.



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“The GUI (graphical user interface) can be used instead of the CLI (command-line interface) to make configuration changes and visualize the network configuration and connected devices. Especially for wireless LANs, it is possible to optimize them by understanding the performance and interference with heat map displays. I felt it was a solution that supported network operations with various functions. I was particularly impressed by the fact that AI supports us in determining causes. Cisco DNA Center automatically collects information from network equipment, and AI analyzes it to identify the type and cause of the problem and suggest solutions. We believed that not only veterans, but also younger people would be able to operate the network smoothly and minimize downtime,” explains Eiji Hiro of the company.

Results and the future

Achieves quick and accurate troubleshooting

As expected, Cisco DNA Center enabled the company to significantly improve and streamline its network operations.

For example, in a factory, if a device is unable to connect to the wireless LAN, in the past we often asked about the situation at the site, carefully determining whether the cause was on the network side or the device side, and if there was a problem on the network side, we often went to the site to handle it.

“Depending on the location of the factory, it could take several hours to make a round trip. On the other hand, the status of the network and the device can now be checked through Cisco DNA Center, the cause can be identified

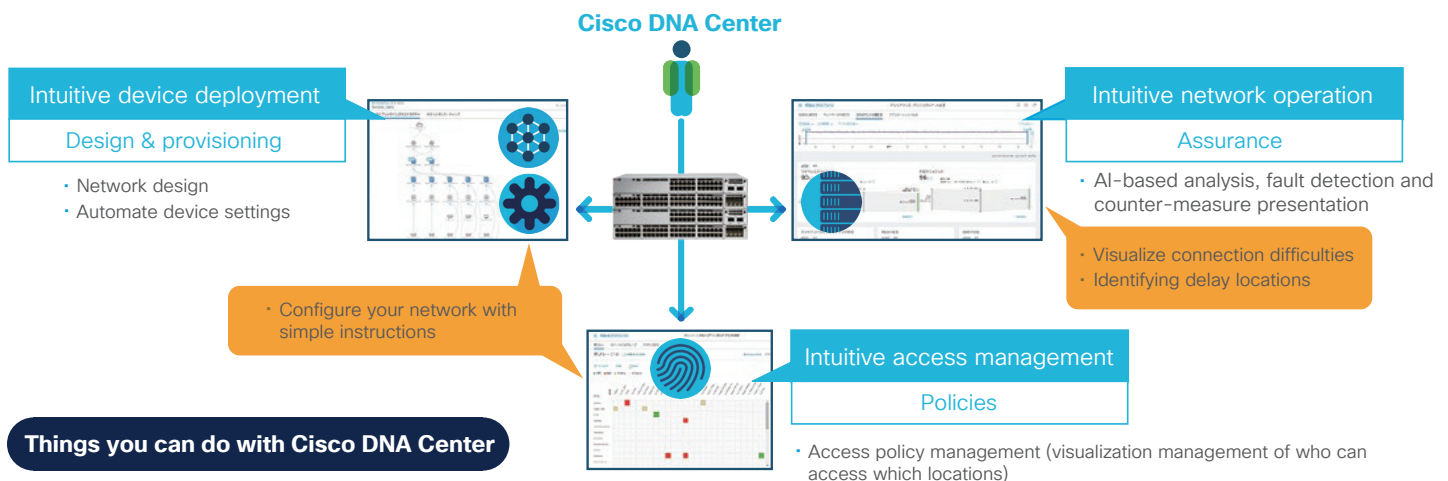
quickly, and if there is a problem with the network, the access point can be restarted remotely through Cisco DNA Center. Also, if there is a problem on the device side, instead of leaving the subsequent handling to the job site, the job site can be supported by checking the connection process exchanged between the access point and the device, and checking which process is causing the issue,” says Katsuki Ito of the company.

Facing the challenge of updating the factory network equipment all at once

In addition to streamlining traditional operations, the company is also attempting to establish new operational schemes utilizing Cisco DNA Center. The first thing we did was remotely update the factory network equipment firmware.

“Among the networks, factory networks, which require exceptionally high reliability and availability, are not easy to update the firmware for. Basically, we didn’t update it, and even if we did, it was once every few years. However, the risk of factories being exposed to cyberattacks has increased recently, and we wanted to increase the frequency of updates.” (Matsunaga) However, in order to update the factory network equipment, after coordinating the schedule with the factory personnel in order to minimize the impact on operations, it was necessary to actually go to the site and operate the pieces of equipment one by one. With more than 400 devices in 15 locations to cover, performing updates for all the factories is a long-term project that takes about six months.

Cisco DNA Center increases operational efficiency and sophistication



Cisco DNA Center, on the other hand, allows you to easily schedule and automatically perform operations on devices. In addition, after the implementation, it determines which equipment has errors and follow-up work is supported. The company believed that using this feature would greatly improve the efficiency of factory network updates.

After verification in the test environment, the challenge was determined to have been a success. We succeeded in updating all the network devices in the factory all at once, without any errors such as devices failing to update and stopping. “Updating the factory network all at once remotely without going to the site. It was something that could never have been thought of before. I was convinced that the success of this challenge could further enhance network operations,” says Hiro.

Rune Kinbara, a young member who participated in this project, said, “Network operation is a difficult task with no margins for error, so I thought it would take skill acquisition and experience to be able to do such a task. However, by participating in this project, I realized that Cisco DNA Center makes it easy to manage network operations. It gave me confidence that ‘I could do it too,’ and it changed my proactivity towards work.”

Cisco CX Customer Success supports “Mastery”

The company also praised the support of Cisco’s CX Customer Success, which triggered this challenge.

“The Cisco DNA Center offers drastic changes in network operations management, but there are a variety of features that we weren’t able to use successfully right after it was introduced. That’s why Cisco suggested CX Customer Success.” (Ohira)

Specifically, Cisco’s CX Customer Success provides training and introductions to Cisco DNA Center. Among them, we introduced DNA Center Automation, which is a function for automatically updating network devices, and explained from specific operations what kinds of application it would be beneficial to use it for. It helped promote taking on the challenge of the project.



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Ideal performance network operations in the DX era

The company will continue to transform its network operations with Cisco DNA Center. “We recently heard that with Zero Touch Provisioning, which we were introduced to the other day, we can set up new network devices via the cloud without visiting sites. I would definitely like to use it when there is a need to replace network equipment,” says Muramatsu.

He also says that there is an idea to use Success Tracks, which includes the support of CX Customer Success mentioned above, for more proactive network operations with a view to preventative maintenance. Stable operation is the greatest mission of network operations, but the existing ways are not the only ways to do it. We will strive for stable operations and operational efficiency while challenging new methods without being conservative. DENSO’s challenge with Cisco DNA Center is likely to serve as a new proposal for network operations in the DX era.

DENSO Corporation



With a vision of “well-being every day for each and every one,” the company develops business in the mobility field centered on automobile parts and the industry field such as industrial solutions for factories. Recently, the company has been actively engaged in innovation fields using digital technologies such as IoT and AI.

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- Cisco Catalyst® Series
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