

## Case Study of Mitsubishi Electric Corporation

## Mitsubishi Electric Corporation

**Challenges**

- A secure connection environment is needed when customers' data is obtained through IoT.
- Products used worldwide require global support.
- Customers want to check the production status at any time and carry out optimal production management. However, enough information is not available at present.
- Service staff can't understand the problem until they visit the actual site.

**Solution**

- A secure network environment that includes the cloud was created.
- IoT-enabled dashboard was deployed to give its users an immediate picture of the production status in quantitative terms and to enable remote diagnosis by the service staff.

**Results**

- Downtime due to emergency stoppages was reduced, especially at night.
- Operating rates were increased and restoration times after stoppages were shortened.

Remote monitoring and diagnosis of laser processing system using IoT  
Improving the operating rate and productivity of companies who use the system

**Overview****Promoting IoT by means of the e-F@ctory**

Mitsubishi Electric Corporation has expanded a wide range of businesses, including Energy and Electric Systems, Industrial Automation, Information and Communication Systems. The company also has extensive world-class products and technical capabilities in the FA (Factory Automation) business, and has promoted the concept of the e-F@ctory since 2003. The concept aims to reduce development, production, and maintenance costs by integrating FA technology with IT and by providing continuous support for improving production processes.

As the e-F@ctory, Mitsubishi Electric Corporation has now begun the IoT development of the laser processing system, their core product.

**Challenges****A one-stop service for providing secure IoT solutions to the world**

The leader of the e-F@ctory project, Masayuki Yamamoto, commented on the potential effect of IoT in this operation:

“The gap between the consumption and supply has been reduced to a great extent through advances in IT. While consumers used to have only a sense of the value of tangible aspects of the products they bought, these days, they are placing more importance on intangible aspects. To cope with this changing sense of values, the supply side, i.e., the producers, have to be able to create a variety of products in variable quantities, while maintaining levels of quality that are optimized for the demand. Moreover, new products must reach the market quickly; I foresee that by using IoT we can make not only the engineering chain more responsive, but also the supply chain more responsive.”



“The sole purpose of using IoT in the laser processing system is to improve the operating rate. The company wants to accomplish this by discovering any abnormality in real time and quickly remedying it. Moreover, by obtaining various processing information and giving advice on processing, Mitsubishi can help customers to realize new value. The various data obtained through IoT is an important asset for customers. A secure connection environment is needed to handle such important data. Further, our laser processing systems are operated by our customers worldwide, so we need to be able to provide support anywhere in the world.”

Hiroko Takada, former project manager at Mitsubishi Electric Corporation Nagoya Works, describes the effect that secure communications would have.

“Customers wanted to check the production status at any time and carry out optimal production management. However, the available information was never enough. Further, when problems occurred, the service staff who received the call needed to visit the site to understand the details of the situation. This resulted in delays in remedying the situation. I think that such delays can be reduced or avoided by making secure connections through mobile devices.”

## Solution

Gain a quantitative understanding of the production status through the introduction of IoT solutions

Mitsubishi Electric Corporation selected NEC as a partner that would enable it to meet the above goals.

Yamamoto commented of the results of the partnership: “NEC provided us with a secure network environment that includes the cloud. Through this partnership, we can securely expand our business.”

Takada was also pleased with the results: “NEC’s IoT solutions helped us in implementing a dashboard that allows us to understand

the production status in quantitative terms and in actualizing remote diagnosis that can be conducted by the service staff. There were a lot of issues in the course of the development. However, we created a one-stop service with flexible support from NEC engineers and NEC’s secure IoT solutions.”

## Results

Improved operating rate and productivity with the dashboard and remote diagnosis functions

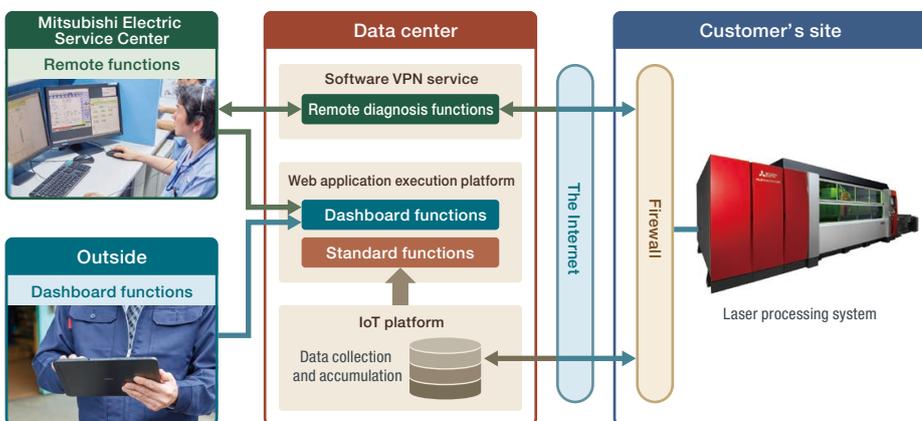
Mitsubishi Electric Corporation launched a laser processing system cloud service called “iQ Care Remote4U.” The benefits that this service brought were quickly evident to its users.

In particular, Takada stated that companies using the new laser processing system are impressed with its improved operating rate and productivity. “It meets the growing demand for shorter delivery times and lower costs. There has been reduction in the duration of emergency stoppages, especially at night. The operating rate has improved, and operations are quickly restored if there is a stoppage.” Yamamoto commented that Mitsubishi Electric Corporation is considering using NEC’s IoT solutions in its future projects and explained how IoT helps its operations.

“We aim to improve production efficiency and to create new value in harmony with the different business styles of our customers. With this service, we have come one step closer to realizing the ideal solution.”

“Without making changes in the essential nature of the industry, IoT can help manufacturers evolve and keep pace in the market by releasing products quicker and by meeting diverse needs; it creates more possibilities for new business.”

NEC aims to develop next-generation manufacturing solutions under the banner of “NEC Industrial IoT” and will continue to contribute to the development of the e-F@ctory.



Remote diagnosis functions: Providing support to customers through a secure connection to the service center.  
Dashboard functions: Confirming the operational status remotely via personal computer, smartphone, or tablet.

## About

The Mitsubishi Electric Group operates on the corporate principle of contributing to creating a vibrant and affluent society by enhancing its technologies, services, and creative powers, as a leader in the manufacture and sales of electric and electronic equipment used in Energy and Electric Systems, Industrial Automation, Information and Communication Systems, Electronic Devices, and Home Appliances.

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