



# IoT Healthcare: Preventive Maintenance of Medical Equipment with **InRouter900**

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GE Healthcare has been working with InHand Networks for many years.

Their commitment and constant endeavor to improve has made them highly competitive.”

Owen Lu,

Digital Program Manager, GE Healthcare

## Background

CT scans have been widely applied in medical diagnostics. Featuring sophisticated structures and high costs for management, the large professional equipment poses many challenges on the maintenance and service capabilities of their manufacturers.

When the novel coronavirus swept across the globe, GE Healthcare’s CT scanners, both traditional machines operated in hospitals and the newly-developed mobile equipment installed in trucks, were employed as a supplement to the nucleic acid test. As an increasing number of suspected patients were sent to the hospital, the scanners became overloaded, working 24/7 for disease diagnosis. It was important to ensure that the devices were running reliably and faultlessly.

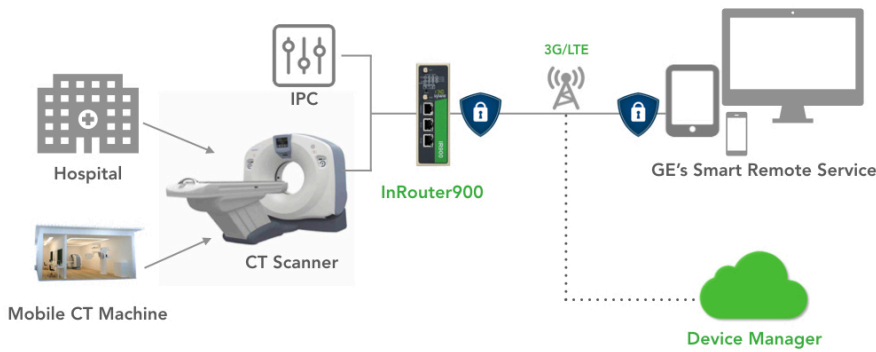
## Challenges

- Reliable, uninterrupted networking to ensure real-time communication with medical equipment
- Sophisticated data security mechanism and encrypted data transmission
- Connected to cloud for easier management and deployment
- Industrial design, stable operation for long time in harsh environments



GE Healthcare

As a leading global medical technology and life sciences company, **GE Healthcare** provides a broad portfolio of products, solutions and services used in the diagnosis, treatment and monitoring of patients and in the development and manufacture of biopharmaceuticals.

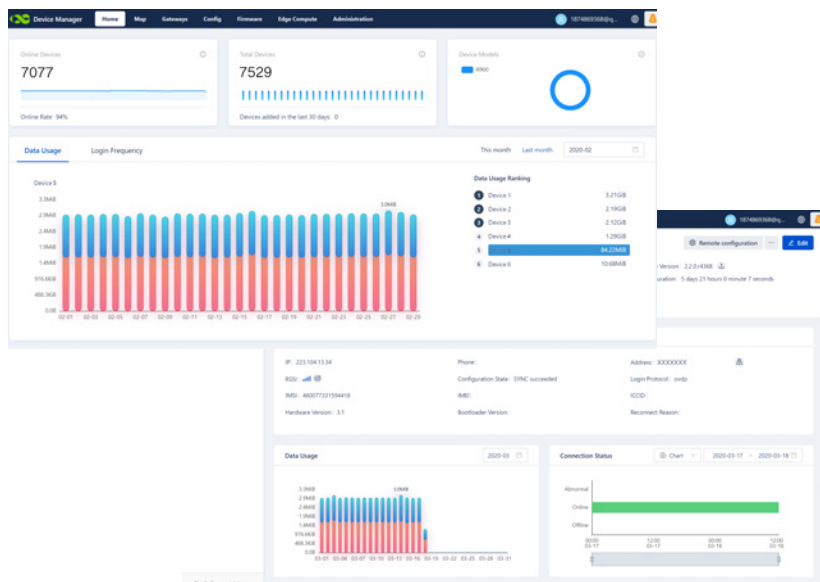


## Solution

To meet GE Healthcare's needs, InHand Networks offered a solution using its **InRouter900** industrial LTE M2M router, delivering fast and reliable connectivity with GE's CT scanners.

The **InRouter900** connected IPCs and CT scanners to the industrial IoT. Real-time data on temperature, humidity and other variables were constantly sent by the routers via secure IPSec VPN tunnels. On the other side, GE's smart remote service offered 24\*7 real-time monitoring of each scanner, kept track of their operating environments and automatically sent warnings in case of problems. Once a fault occurred, it could immediately locate the equipment, thus facilitating troubleshooting and reducing downtime. The system also offered remote assistance in CT/MR equipment application, sharing knowledge about equipment operation and maintenance.

Meanwhile, the routers were managed by InHand's cloud platform **Device Manager**. With an easy-to-use visualization user interface, the **Device Manager** enabled the customer to remotely monitor and control the **InRouter900**, configure the devices in batches and upgrade them on a regular basis.



## Features



**InRouter900**

- Fast and reliable 3G/4G networks, available with LTE CAT6/CAT4
- Dual SIM for carrier failover
- Multi-layer auto link detection & recovery
- Multi-layer security protection:
  - ✓ Network security: firewall
  - ✓ Data security: VPN secure tunnel, digital certificate
  - ✓ Management security: multi-level user access and authentication
- Wide temperature range: - 25°C~+70°C for harsh environments
- Metal enclosure, IP30 protection, EMC level 4

## Benefits

### Fast, reliable and uninterrupted connectivity

The **InRouter900** provides continuous access to high speed cellular networks. With multi-layer auto link detection and recovery, the **InRouter900** ensures that all the medical equipment is always online.

### Efficient diagnosis and immediate troubleshooting, lower operational and maintenance costs, and less downtime

The **InRouter900** makes communication smooth and reduces downtime. Once an issue occurs, the problem can be quickly identified and located from the maintenance center, so that immediate measures can be taken.

### Better protection of data transmission

Medical data is transmitted via IPSec VPN tunnels, freeing customers from security concerns.

### Connected to cloud for easier management and deployment

The **InRouter900** is connected to InHand's **Device Manager** cloud platform, which is easy for remote monitoring and batch management.

## More Application Areas

Integrating 3G/4G cellular routing and VPN technologies, the **InRouter900** is a high-end industrial router. Now available with LTE CAT6/CAT4, the **InRouter900** can provide highly efficient and reliable LTE connectivity for various M2M/IoT applications including healthcare, industrial automation, remote monitoring, traffic management and more.

Learn more at:

<https://www.inhandnetworks.com/products/industrial-4g-router.html>



When we were searching for suppliers for the remote maintenance of medical equipment, InHand Networks was still fledging, but they made it. Their solution perfectly met our needs.”

Yantong Zhao,

Senior IT Support Engineer, GE  
Healthcare



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