



MES/ERP

NexWMS

IOC

IPDM 4.0

CyberSEC

Mesh Wifi

ACCELERATING THE DIGITAL TRANSFORMATION IN A SMART FACTORY WITH SECURED PRIVATE 5G SERVICE

Cloud SCADA

Facility

Production

Prediction

Energy

HARMONIZING IT & CT & OT

As the requests from enterprises for digital transformation boomed, the role of wireless communications is one of the key elements in accelerating this change.

This case study features the partnership of Trend Micro, CTOne, Inventec, and NEXCOM. From diverse perspectives and angles, we highlighted the importance of ecosystem building and forming alliances to complete the 5G service for enterprises with security considerations in IT, CT, and OT.

Why does NEXCOM need private 5G in their factory? Why does NEXCOM need "Security" for Private 5G?

The global Industry 4.0 trend has led to the demand for smart manufacturing. For more than a decade, NEXCOM has been dedicated to pursuing leadership in enterprises' digital transformation by embracing the belief in open platforms. With the fourth industrial revolution underway, its core objectives are to make "highly efficient, connected, flexible, and secured factories of the future."

NEXCOM HUAYA FACTORY TRANSFORMATION CHALLENGES

High Volume Data Transmission with Low Latency

Maximum Efficiency & Production

Cost & Damage Issues Caused by Cables

Interference of Wi-Fi Connection

Security Visibility of IoT Devices

Comprehensive Cybersecurity Planning

HUAYA FACTORY PRIVATE 5G INSTALLATION CHALLENGES

1 Complexity of the Used Spectrum

Only recently did the Taiwan government reserve 100MHz bandwidth in the 4.8 to 4.9 GHz and dedicated it for private network use. However, the spectrum of most wireless devices remains unmanaged.

How did Inventec solve it?

Applying RF scanning devices to widely search for spectrum signals to find out and resolve all possible causes of disturbance.

2 Signal Interference

Due to the extensive use of wireless devices (such as Wi-Fi and ISP boosters, etc.) in NEXCOM Huaya Plant, there was a serious interference problem when deploying the 5G antennas.

How did Inventec solve it?

Since signal interference is directional, adjusting the antenna angle is one of the easiest ways to eliminate it. If not resolved, the key is to move the frequency band of wireless devices.

3 Time Delay and Synchronization

Time synchronization is an important function provided by wireless communication. In the 5G era, low latency is critical, and the importance of time synchronization among all devices is then highlighted.

How did Inventec solve it?

Optimizing the settings and parameters of Baseband Unit and 5GC accordingly, and to fine-tune through testing and verifications to guarantee the best application performance.

CYBERSECURITY PAIN POINTS & OUR SOLUTIONS

1 IT Security is Not Equal to CT Security

Existing IT security product designs do not suit information technology (IT) and communication technology (CT) hybrid environments.

How did Trend Micro & CTOne solve it?

CTOne solution provides seamless integration and secure environments across heterogeneous networks of IT and CT.

2 Various & Numerous Endpoints Need to be Protected

In a factory, there are lots of endpoints that need to be protected - including the expansion plan of endpoint devices which is to be expected in the future.

How did Trend Micro & CTOne solve it?

Plug-and-play SIM card solution easily helps NEXCOM protect the newly added devices without complex settings, and provide the security visibility of endpoints.

3 Lack of Knowledge of Cyberthreat in CT Area

The current InfoSEC & IT individuals are only familiar with IT threat & security. Lacking knowledge in the CT area, people will find fend off CT threats challenging.

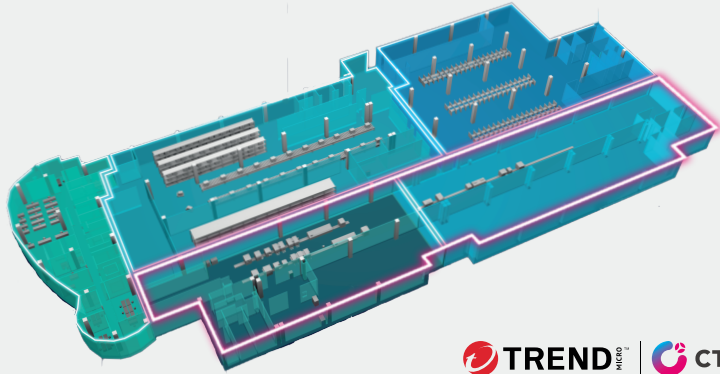
How did Trend Micro & CTOne solve it?

Our solution helps IT/InfoSEC individuals reduce the learning cycle and manage cybersecurity in a user-friendly manner.

PARTNER'S SOLUTION

Inventec

Inventec integrates its legendary data center hardware, O-RAN architecture, and cloud software as a complete connectivity infrastructure solution: O-Rack - building a strong foundation for private 5G networks and enabling smart factory with NEXCOM's offerings, such as integrating AI with industrial IoT devices, AMR and iAT2000 (a cloud-based intelligent monitoring system).



Trend Micro Mobile Network Security, developed by CTOne, delivers a hybrid mobile network security solution, that includes two layers of protections - one for the network and the other for the endpoints. The two solutions can work independently, or work closely together as a "joint defense" to provide the most comprehensive cybersecurity for customers.

SOLUTION RESULTS



Getting 100% Production Line Data in a Glimpse

Unleashing the power of NEXCOM iAT2000 dashboard system with 5G private network, on-site managers are now able to get 100% of production information and device status data in a glimpse through AR-aided Smart Surveillance.



95% Coverage of 5G Signal for AMRs in the Whole Manufacturing Line

Compared to WiFi, the high speed and ultra-low latency of a secured private 5G network allows for more efficient deployment of the AMR, enabling seamless movements in most manufacturing lines.



Comprehensive Mobile Network Security

To prevent any unauthorized device from accessing the 5G network at the endpoint level. Meanwhile, vulnerability exploitation, malicious content, and suspicious network behaviors are identified and blocked at the network level.

PARTNER'S VOICE

Q: Why were Trend Micro & Inventec selected as solution vendors?



NEXCOM valued Inventec, Trend Mirco & CTOne's experience in end-to-end manufactory applications. Inventec's high speed and ultra-low latency of a secured, private 5G network facilitate production lines with a higher level of integration and dynamic flexibility.

Q: Why choose TM & CTOne as solution partners?



On top of having O-RAN architecture to develop a zero trust mobile network security, we need a trustworthy partner to overcome challenges of enabling network and endpoints security in real production lines, providing the most comprehensive and reliable solution. Trend Micro x CTOne plays the role to offer mobile network security solution, covering both IT and CT.

Q: How does it feel to cooperate with Inventec & NEXCOM?



To work with partners who are aware of the importance of cybersecurity is exciting to us. Through the cooperation, we have learned what enterprises actually think, and what kind of challenges and pain points they are actually experiencing while deploying a private 5G environment in a smart factory.



NEXCOM - Clement Lin, CEO

"NEXCOM's Huaya Plant demonstrates a fully automated Industry 4.0 smart factory. Inventec's complete 5G end-to-end connectivity and Smart Factory solutions perfectly complement our own offerings and fill the communications technology gap. CTOne's advancing 5G network security for enterprises solution is also crucial to our success. By collaborating with these partners, we are setting the standards for the industrial ecosystem."

Inventec - Sam Yeh, CSO

"As private 5G networks emerge, Inventec first deployed one in-house to transform a world-class factory to be 5G-enabled. We are thrilled to see NEXCOM follow our footsteps to build one soon after. Especially, NEXCOM adopted Trend Micro's Mobile Network Security, providing peace of mind end-to-end protections throughout a private 5G network."

CTOne - Jason Huang, CEO

"Private 5G is an important enabler to help enterprises introduce critical applications, successfully moving towards digitization and creating more business value. In addition to a stable 5G communication system, cybersecurity is a key success factor. We are honored to partner with Inventec to build a reliable and secure 5G communication environment for NEXCOM smart factories."