Connecting things
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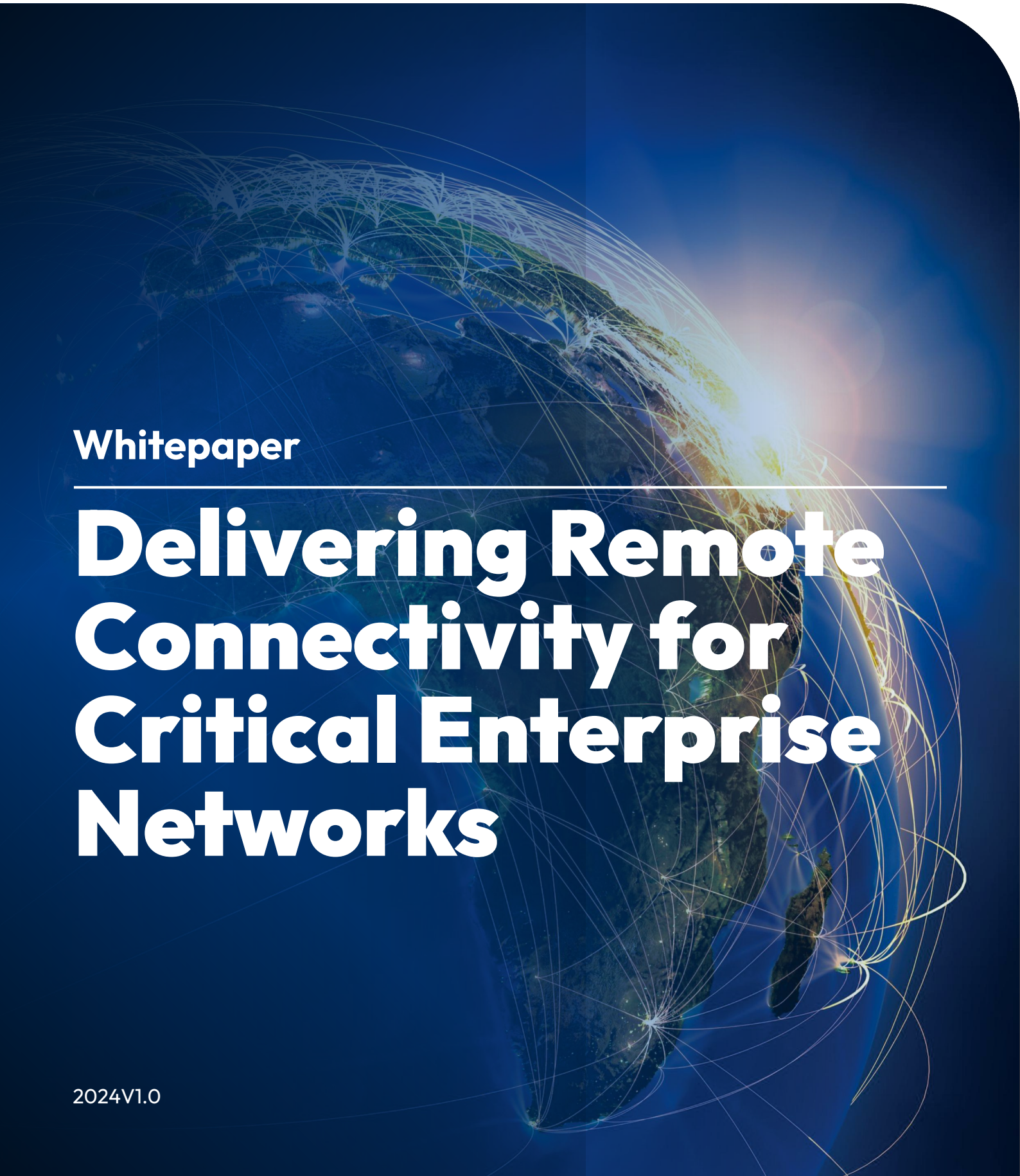

Whitepaper

Delivering Remote Connectivity for Critical Enterprise Networks

2024V1.0

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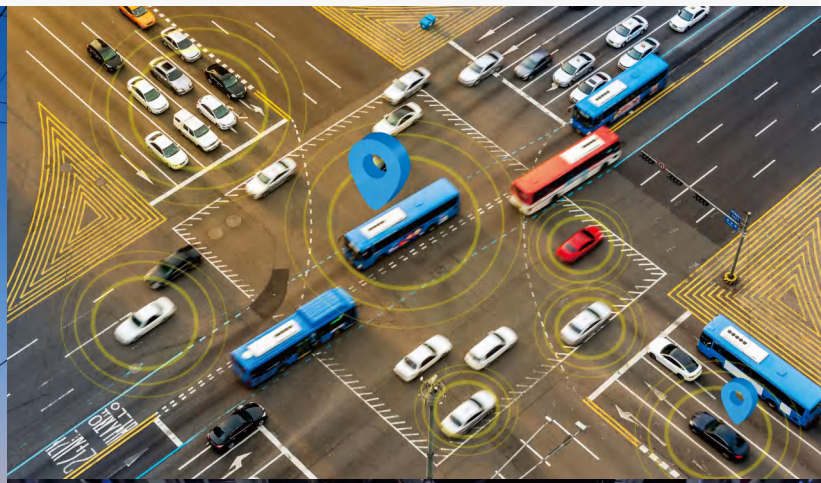
Introduction

The landscape of connectivity solutions for geographically dispersed organizations, such as utilities and energy companies, is undergoing a transformative shift. Traditionally dominated by large multinational conglomerates specializing in IT, networking, and cybersecurity, smaller independent players were often relegated to product-only offerings with limited support. Moreover, proprietary protocols from major providers often bound enterprises into single-vendor strategies.

Today, the paradigm has shifted significantly. Proprietary router protocols are now accessible to a broader market, enabling organizations like utilities to benefit from robust, responsive services provided by independent providers. Hongdian, for instance, recently secured a major contract with a prominent utility company in Asia, displacing an established multinational competitor. This achievement underscores a notable industry shift towards cost-effective solutions that fully meet customer requirements, from backend systems to user equipment.

This whitepaper delineates the evolving demands across sectors such as energy, transportation, and manufacturing, focusing on the optimal approach to deliver remote connectivity solutions for critical enterprise networks.



Current Trends

In today's connectivity arena, two distinct types of wireless IoT dominate: Massive IoT and Critical IoT.

Massive IoT

Involves monitoring large numbers of battery-operated devices and sensors across expansive areas. Data transmissions are intermittent and low in volume, making latency less critical.

Critical IoT

Offers substantial potential for applications in sectors like utilities, demanding highly reliable connectivity. It supports dense coverage, ultra-low latency, and high data throughput, crucial for managing diverse energy sources and facilitating smart control systems.

Public Sectors

Industries such as utilities face escalating network complexity due to the proliferation of energy sources like nuclear, wind, solar, tidal, and hydro power. The challenge lies in efficiently managing and distributing varying energy capacities in sync with demand, necessitating robust telecom networks.

Additionally, the emergence of 'prosumers'—small facilities that both produce and consume electricity—adds complexity to network management, historically constrained by proprietary protocols but now benefiting from increased competition and interoperability.

Other Sectors

The transition away from large conglomerates in remote connectivity is not exclusive to utilities but extends to transportation and manufacturing sectors. Each sector faces unique challenges:

Transportation

Requires robust communication systems for centralized traffic management, emphasizing cybersecurity across private and enterprise networks.

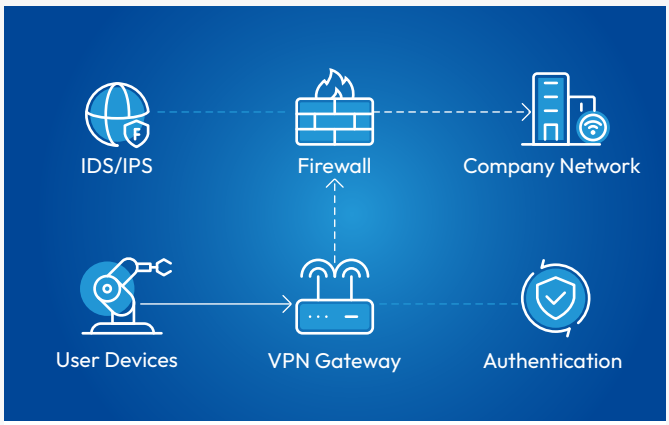
Manufacturing

Focuses on local network control in factories and plants, yet strives to integrate centralized production networks for enhanced operational efficiency.

The machine building market within manufacturing integrates IoT devices for seamless asset communication and control, necessitating sophisticated router technologies.

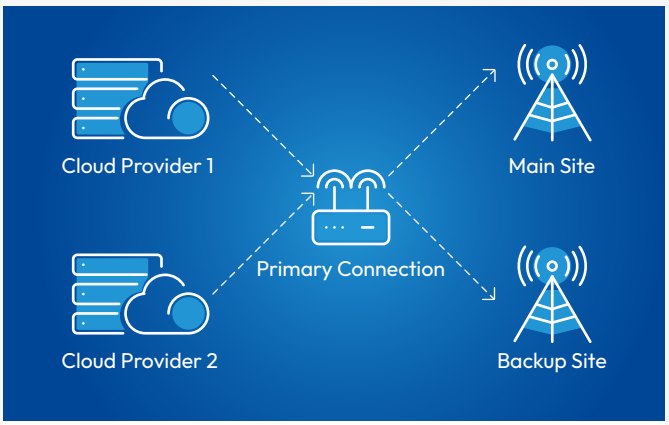
Requirements:
Security, Redundancy, Management

Security, redundancy, and effective management are critical for deploying remote connectivity in enterprise networks:



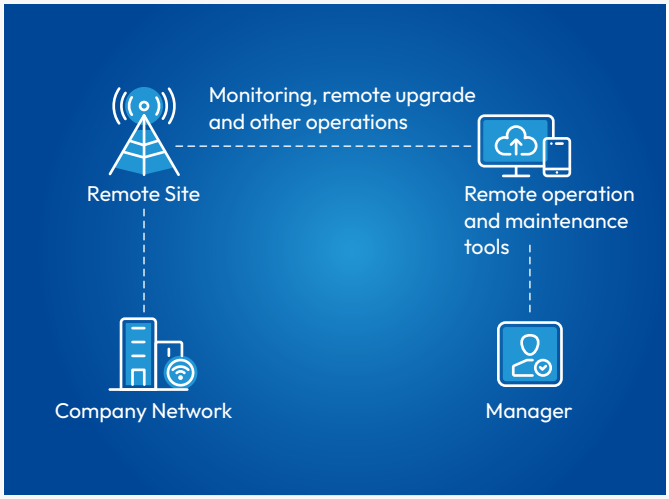
Security

Enterprises demand stringent security measures such as VPNs and certifications that align with corporate policies. Third-party security consultants play a pivotal role in evaluating proposed solutions against industry best practices.



Redundancy

Organizations deploy redundant connections to cloud or management sites to ensure continuous operation in case of primary connection failures.

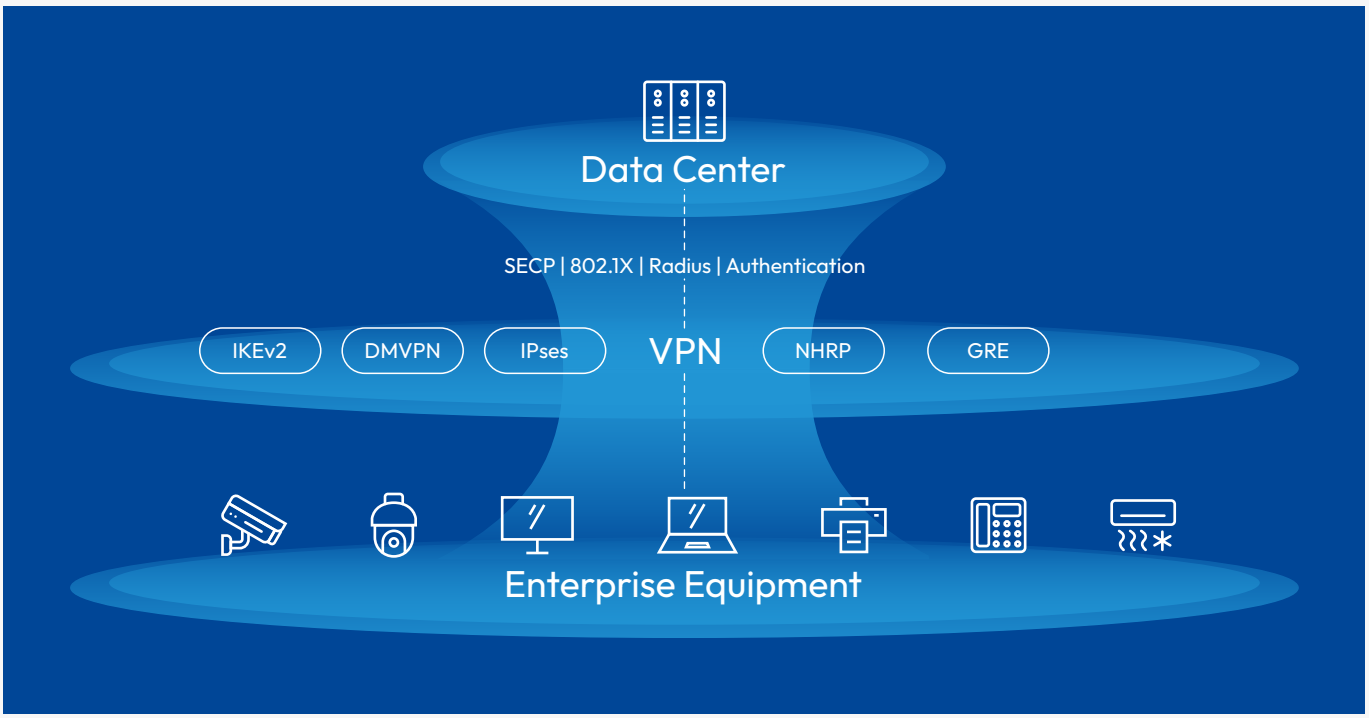


Management

Simplified remote management tools are essential post-implementation, enabling efficient monitoring and security upgrades, often necessitating close collaboration between connectivity specialists and IT teams.

Protocols and Frameworks

Integrating industrial and enterprise networks requires leveraging diverse protocols and frameworks:



Ipsec, DMVPN, NHRP, and IKEv2

These protocols facilitate secure VPN tunnels, ensuring data confidentiality, integrity, and authenticity across networks. Originally proprietary, they are now accessible to a broader market, enhancing connectivity options for enterprises.

GRE, SCEP, BGP, VRF, 802.1X, RADIUS, DHCP

Each protocol addresses specific networking needs—from tunnelling and encryption (GRE) to device authentication (SCEP, 802.1X, RADIUS) and IP address allocation (DHCP), crucial for seamless network integration and management.

The Hongdian Offer

Hongdian provides robust cellular router and gateway platforms—H series, X series, and Z series—tailored for industrial applications. These platforms offer varying computing power, RAM capacities, and interface options to suit diverse enterprise needs. Hongdian's Wedora platform complements these devices with advanced capabilities for remote device management, provisioning, monitoring, and configuration. It integrates seamlessly with existing IT infrastructures via OpenAPI, ensuring operational flexibility and scalability.

Hongdian's Wedora platform

Hongdian's H Series

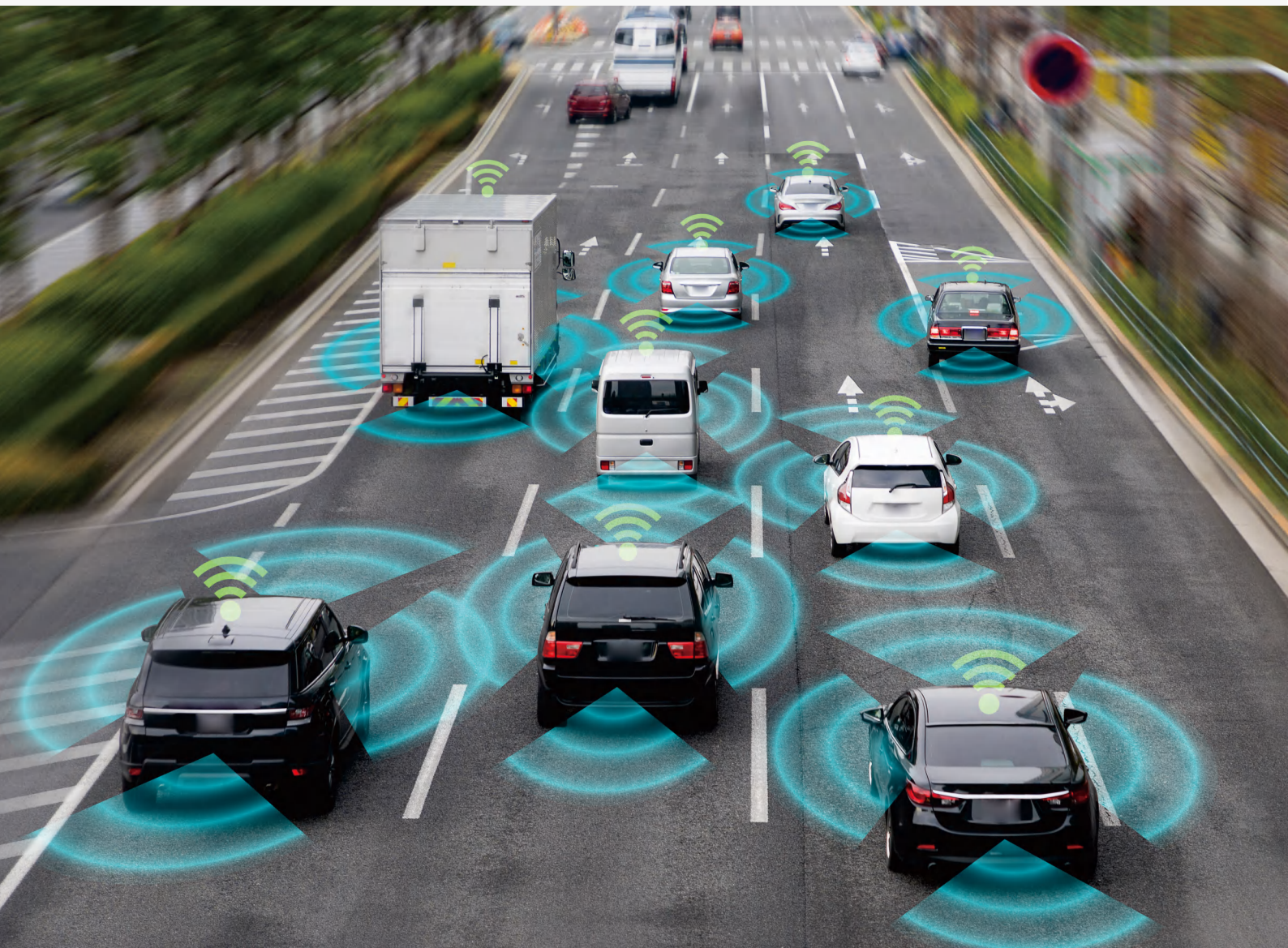
Hongdian's X Series

Hongdian's Z Series

Summary

As enterprises expand their networks amid technological advancements like 5G, the demand for comprehensive IoT connectivity solutions continues to rise. IT teams increasingly assert control over network deployments to ensure security and efficiency across vast, complex infrastructures. The convergence of industrial and enterprise networks marks a pivotal shift, driven by affordability and accessibility of advanced networking technologies.

In conclusion, the trajectory towards robust, scalable remote connectivity solutions is set to reshape industries beyond utilities, encompassing transportation and manufacturing sectors. As enterprises navigate these transformations, leveraging versatile protocols and platforms becomes paramount to achieving operational excellence in a connected world.



About Hongdian

Who we are?

Founded in 1997, we are a 5G+AIoT expert and global provider of IoT products & solutions. With rapidly growing technology, we've helped our customers create smarter connected products with high quality, reliability, and rock-solid stability performance.

We developed a broad portfolio of products for the most complex areas of Industry 4.0, smart city, smart grid, smart vending, etc. We control every stage of the product development cycle, allowing us to respond quickly and efficiently to market demands.

What we do?

We focus on cellular routers, industrial gateways and modems, edge computing devices, 5G CPE, cloud software and end-to-end IoT solutions.

Core competence

27+yrs
Industrial Experience

60%+
R&D Engineers

10000 +
Successful Projects

30000+
Industry Customer Recognition

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