

ICS 25.040.40

CCS N10



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44860-2024

Edge computing for industrial scene - Application guidelines

面向工业应用的边缘计算 应用指南

Issued on: October 26, 2024

Implemented on: May 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword

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Edge Computing Application Guide for Industrial Applications

1 Scope

GB/T 44860-2024 gives the Chinese application guidelines for edge computing in industrial settings. Edge computing is often described in terms of latency, but in a factory the reasons are more specific: the control loop cannot wait for a round trip to a cloud, the network to the plant is not reliable enough to depend on, the data volumes from vision and vibration sensing are too large to ship, and the operator will not let process data leave the site. The standard sets the industrial edge computing application architecture and then works

through the application: the deployment patterns and where the edge node sits relative to the control system, the capabilities required of the edge platform in computing, storage, networking and real-time behaviour, the data acquisition, processing and synchronisation with the cloud, the application lifecycle and orchestration, the interoperability with existing automation systems, the security and the operation and maintenance, together with the typical application scenarios that illustrate each. It takes effect on 1 May 2025.

This document provides guidance on the application architecture, equipment selection, application indicators, and application models of industrial edge computing. This document is suitable for industrial system integrators, edge computing equipment suppliers, network operators in the "cloud-edge- Design of new edge computing solutions, network construction, and selection of edge computing equipment based on "end-to-end" collaboration.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 To meet the key needs of industrial digitalization in terms of agile connection, real-time business, intelligent application, security and privacy protection, At the edge of the network at the industrial site or data source, a distributed open platform integrating network, computing, storage, and application core capabilities is provided for industrial applications. Edge intelligence services provided nearby.

Note. In this document, edge computing refers to industrial-oriented edge computing, referred to as industrial edge computing.

3.2 Industrial edge gateways, industrial edge controllers, industrial edge servers, etc. have the common characteristics of digitalization, networking, and intelligence, and are in line with Different levels of industrial applications have requirements for real-time performance, reliability, and other capabilities, and provide physical resources such as network, computing, and storage in edge computing. equipment.

3.3 Deployed in industrial sites, it has enhanced network, computing, storage and other capabilities, runs intelligent algorithms, and provides open programming, data processing, and collaborative Controllers or units with equivalent functions.

3.4 Deployed in industrial sites, it connects the physical and digital worlds through network connection, protocol conversion and other functions, providing lightweight connection management, A gateway for real-time data analysis and application management functions.

3.5 Industrial Edge Server industrialegeserver Located at the edge of the industrial

network, it connects multiple industrial edge gateways and provides low latency, Lightweight server.

3.6 Equipment that executes specific production processes in a workshop through its own functions and in collaboration with other auxiliary equipment.

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