

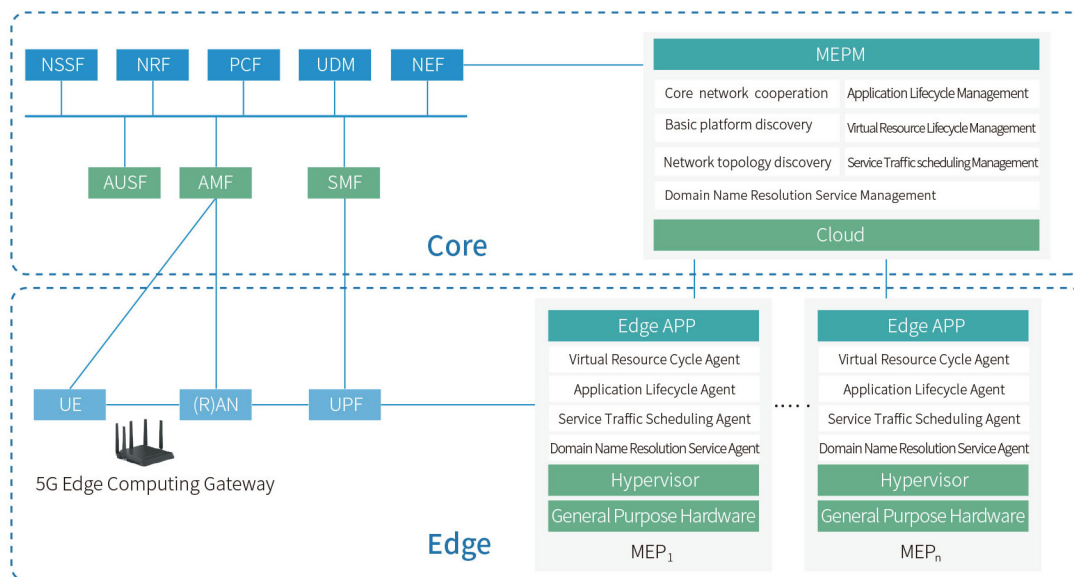
02 5G+Edge Computing



Based on the End-Edge-Cloud collaboration, CertusNet has launched the 5G MEC solution and complete products including 5G edge computing gateway, MEC/edge cloud, and edge computing management platform.

By moving the user plane function (UPF) of the traditional 5G core network (5GC) to the edge of the network, selecting the deployment location of the MEC according to the specific needs of different applications, offloading the application data to the edge MEC for processing, as well as developing open platforms and management capabilities for third party applications, 5G MEC solution provides telecom operators or vertical industry users with efficient, real-time, and secure edge computing services.

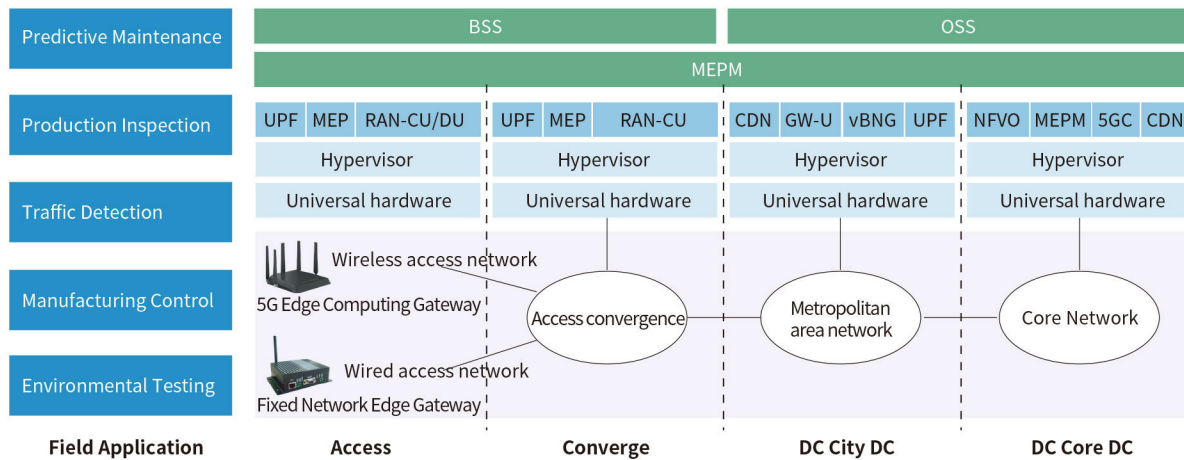
System Architecture



5G MEC solution is composed of 5G edge computing gateway (FlexEGW), edge computing platform (MEP) and edge computing management platform (MEPM), as shown above:

5G Edge Computing Gateway (FlexEGW)	Edge computing platform (MEP)	Edge computing management platform (MEPM)
provides functions such as device connection, data access, and protocol conversion.5G Edge Computing Gateway (FlexEGW)	provides computing, storage and network services with micro service agents for application, resource, traffic, domain name and other modules, to achieve local traffic diversion and capacity delivery	provides the coordination module of edge computing and 5G core,-discovery of edge computing platform,discovery of edge network topology, third-party capability platform and application deployment , life cycle management of applications, resources, traffic, domains and other policies

Deployment



The 5GMEC solution makes full use of the advantages of telecom operators' network resources, and deploys hierarchically based on the different needs of target customers. MEP nodes are usually deployed in the access computer room and the convergence computer room, and MEPM nodes, as the management nodes, are usually deployed in the DC or cloud, as shown above.

At the same time, combined with CertusNet 5G Edge Computing Gateway, it can be on-site delivered for predictive maintenance, production inspection, traffic inspection, manufacturing control, and environmental inspection in various vertical industries.

Key Features

The edge computing management platform (MEPM) has three major functions:

Virtual Resource Management of Edge Computing Platform

- ◆ **Access Authentication of Edge Platform :** Service authentication mechanism that complies with the Mx2 interface of the ETSI standard is implemented.
- ◆ **Interface Configuration and Micro-service Management of Edge Nodes:** manage the physical interface of edge node and micro service of platform itself, such as local DNS service. agent service of virtual resource management, agent service of application lifecycle management, etc.
- ◆ **Interface Shunting Configuration of Edge Nodes:** Bidirectional interaction and distribution of the traffic distributed by 5GC UPF.

Lifecycle management of Edge applications

- ◆ **Edge Application Deployment:** Instantiation of edge applications, KVM & docker supported.
- ◆ **Traffic Policy Configuration:** Deployment of application traffic, and offloading the traffic of edge application to the edge computing platform.
- ◆ **DNS Policy Configuration:** Implementation of the edge computing platform DNS scheduling policy to ensure the service delivery.

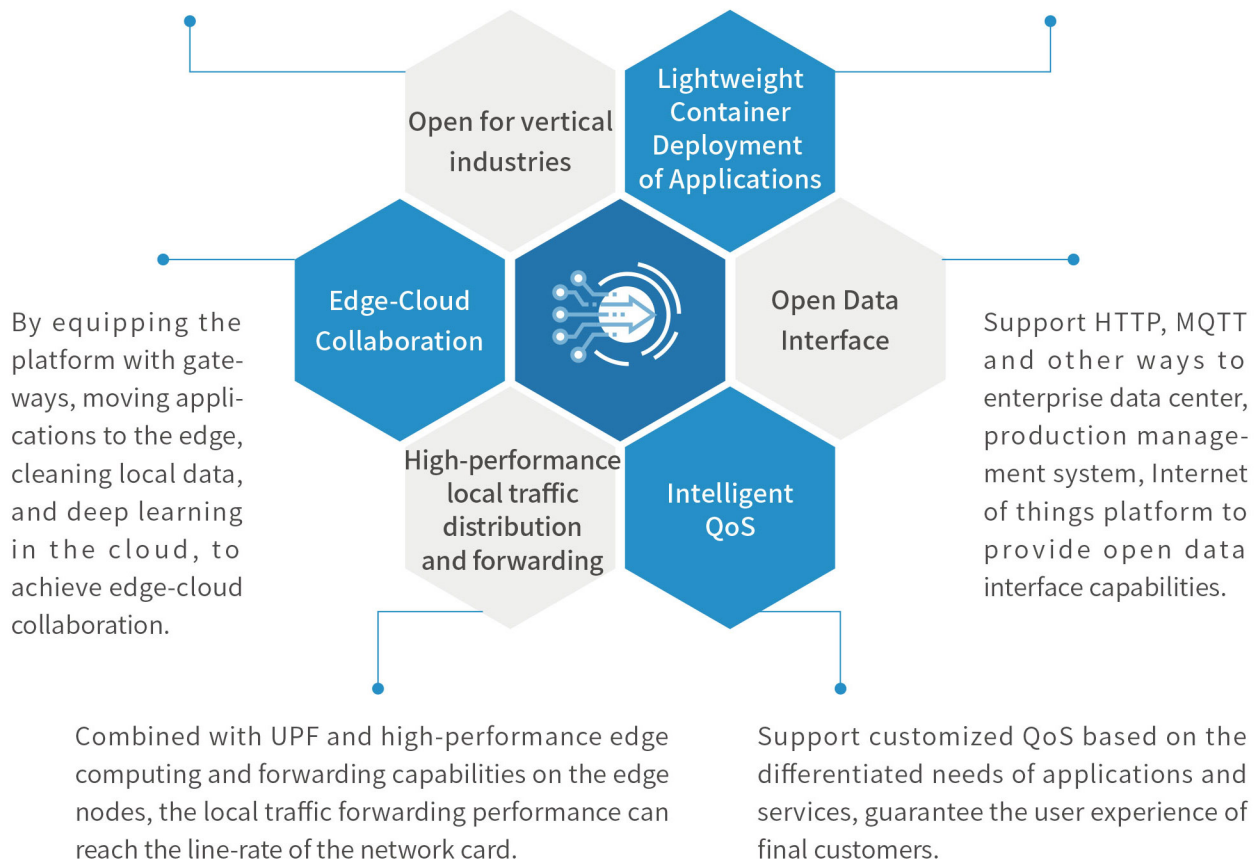
5GC Coordination

- ◆ Register edge computing applications as application functions in the 5GC to achieve the coordination.

Highlights

Support multi-protocol access and conversion, with complete industrial attributes and extensive IoT access, such as PLC, serial port protocol equipment, CNC, OPC UA/DA, power protocol equipment, etc.

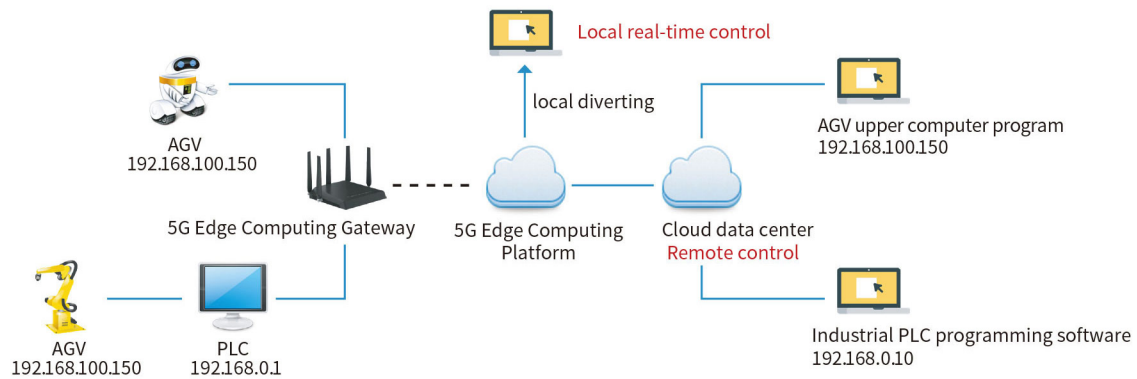
Container deployment of massive applications on edge nodes, takes less resources, supports simple and flexible deployment and installation, and elastic capacity expansion.



Application Scenarios

Industrial Application Scenarios

The 5GMEC solution helps an industrial robot remote control scenario, using the ultra-low latency characteristics of 5G edge computing to control the real-time route navigation and scheduling of AGV in the workshop, the grabbing and data collection of the robotic arm, and the fast fault location and handling, greatly improving the production efficiency of the factory.



- ◆ 5G edge computing gateway is connected to AGVs and robotic arms for protocol conversion and data collection;
- ◆ Local traffic distribution of edge computing platform for local real-time control, scheduling, data processing and data cleaning;
- ◆ Edge-Cloud collaboration: cloud data center for PLC programming and deep learning, coordinates MEC through trusted VPN for remote controlling.

5G Edge Computing Gateway

FlexEGW3000

High-performance edge computing, multi-source data processing, 5G low-latency and stable communication, flexible expansion of container deployment.

Product Introduction

FlexEGW3000 is an industrial-grade 4G/5G edge computing gateway based on 32-bit Intel X86 processors with a fanless design. Besides high-performance processors and 5G communication modules, it provides RS232/RS485 interfaces, LAN ports, USB, HDMI, RJ45, as well as expandable WiFi, NB IoT and other IoT communication modules. It supports flexible secondary development and application upgrades.

The product has been widely used in the IoT industry, such as industrial automation OICT integration, V2X, smart grid, water conservancy supervision, environmental supervision, smart agriculture, smart meteorology, finance, medical care, petrochemical, public services, coal mining, etc.

