Janus@Edge

Overview

Janus is a dedicated software and hardware system for on-site data management of equipment. It supports a variety of mainstream industrial communication protocols, can be accessed by simple configuration, and connects all kinds of different equipment on the site to the same platform. Moreover, it supports the same communication and scheduling between devices using different protocols to meet the real-time, agility, privacy and high availability of device data processing. With the Janus system, device data is collected locally and does not have to be transmitted to the cloud in real time. Download the application and data analysis model from the cloud platform, and the data can be analyzed and applied on-site. The necessary data is regularly synchronized from the edge computing system to the industrial equipment IoT cloud platform. Then use massive data to optimize the model, and continue to return to the edge for execution after training.

Edge computing extends the advantages of security, storage, computing, and artificial intelligence from the cloud to the edge. It is compatible with devices of different industrial protocols and data formats through secure and fast access, and provides local computing services with low delay, low cost, high practicality and easy expansion. In addition, it combines with big data and learning model in Neptune to provide the best data application mode and create a trinity industrial Internet system (cloud platform, edge computing and device side) in the cloud.

Main Features

- Easy access: support multiple industrial protocols without additional development.
- Low cost: data does not need to be uploaded to the cloud in real time to save bandwidth traffic; data center does not need to be built to save construction cost.
- High responsiveness: data transfer and real-time judgment can be realized in the user's local network.
- High expansion: Provide platform API and development portal to facilitate integration with third-party systems or developers to develop applications directly on the platform.
- High integration: equipped with dedicated hardware according to usage scenarios, plug and play.
- High security: users can decide what data they need to connect to the cloud.
- Industrial data collection, processing, decision-making and visualization.
- Equipment expert system, equipment manufacturer customization, OEM.
- Information physical fusion system based on CPS framework design.

Application

- Industrial Control: Smart welding and glass carving. Process optimization and quality control.
- Smart Factory: Equipment interconnection and automatic scheduling of production lines.
- Smart Mine: Remote monitoring and equipment safety management.
- Sewage Treatment: Intelligent monitoring and real-time data acquisition.
- Smart Agriculture: Plant factories, and aquaponics.
- Smart Building: Energy-saving and comfortable personalization.

Smart Welding

Glass Carving

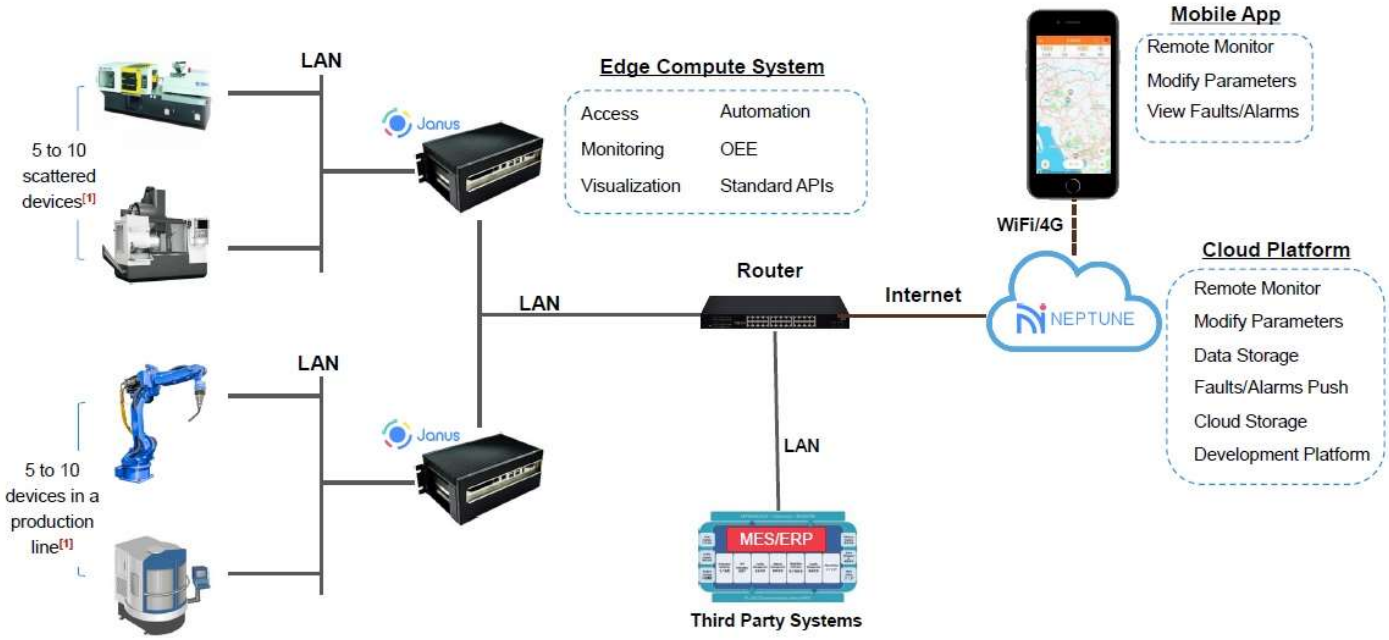
Smart Factory

Sewage Treatment

Smart Agriculture

Smart Building

System Structure

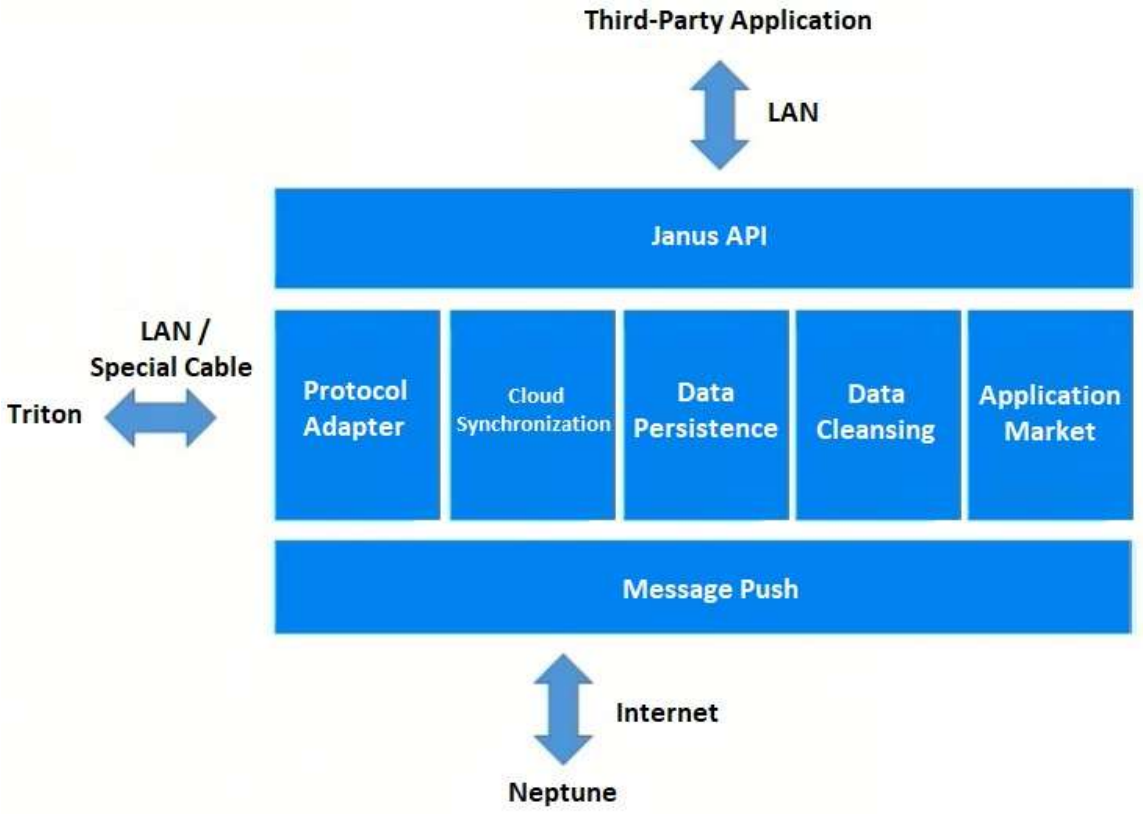


1: Typically, 5 to 10 devices per edge compute node is recommended. Actual numbers may vary according to device data.

Specifications

Function

1. Multi-protocol access support: Triton/MQTT/HTTP(HTTPS)/Socket(TCP/UDP)/Modbus(RTU/TCP)/CANOpen/HostLink/ Serial communication protocol based on RS232, RS485.
2. Data interface: Pay attention to the time utilization rate and performance utilization rate indicators of the equipment, and provide intelligent interaction for the MES system.
3. Data full load processing strategy: real-time streaming data processing, distributed storage, persistent storage, integration of many industrial bus communications.
4. Users can customize the data stream processing logic.
5. Users can customize data synchronization to Neptune.
6. RESTful API is used by third-party applications or system calls. Complete API documentation and access guidelines further improve platform integration and users' flexible use.
7. CPS architecture: Designed according to the CPS physical information system architecture, focusing on solving the industrial equipment field networking and real-time data processing.
8. Expert system: With the goal of improving the intelligence of equipment with information technology, an expert system for equipment is developed to give equipment intelligence and improve efficiency and quality.
9. Master control scheduling: The user can customize the scheduling logic of the device. Industrial site level dispatch; commander of industrial site.
10. Working condition restoration: restore the on-site production situation in 3D, and focus production conditions in real time.



Ordering Guide

Function	Ordering Number	Description
Hardware + Software	Janus Edge Computing System	- Hardware: Industrial computer CNV7704-01. Software: Janus edge computing & analytics. - A single set of Janus supports up to 500 devices concurrent data interaction. - Support data synchronization to Neptune cloud platform (users need to have enough data space support in Neptune). - After Janus is registered and activated by Neptune, it does not depend on the Neptune cloud platform and can run independently.
User License	User License	Device access authorization: - Every device connected to Janus or Neptune requires a license. - It needs to be used with Janus edge computing system or Neptune cloud platform. - Duration of license: Permanent. - One device is connected to Janus and Neptune at the same time, only one license is needed.

Optional Item

Function	Ordering Number	Description
Cloud Platform Service	Neptune@Cloud	Cloud platform storage pricing (calculated per GB per year): - Provide user data access and usage services in the cloud. - Provide device data remote monitoring and management tools. - Provide system interface to support data exchange with third-party systems. - No concurrent limit on the number of devices. - Neptune cloud platform can be used in series with the Janus edge computing system, or it can be used separately.

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Optional Item

Function	Ordering Number	Description
Software Custom Development Service		Software development service (calculated per person per day): - Customize Janus edge computing system or develop applications on Neptune cloud platform according to user needs (App). - Determine the man-day workload required for development according to the content of the user's needs.
Hardware	CNV7704-01	Industrial computer: CNV7704-01 Configuration: i5/16G/512GB

GOOGOLTECH

GOOGOL TECHNOLOGY (HK) LIMITED
Unit 1008-09, 10/F C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong
Tel.: +(852) 2358-1033
Fax:+ (852)2719-8399
E-mail: hkgoogol@gmail.com / sales@googoltech.com
Web: http://www.googoltech.com

GOOGOL TECHNOLOGY (SZ) LIMITED
Room W211, IER Building (PKU-HKUST High-tech Industrial Park, Nanshan District, Shenzhen, PRC (Postal Code: 518057)
Tel.: +(86) 755-26970817, 755-26970824,
Fax: +(86) 755- 26970821
E-mail: googol@googoltech.com
Web: www.googoltech.com.cn

GOOGOL TECHNOLOGY (TWN) LIMITED
2F., No. 22, Ln. 10, Fuzhong 2nd St., Xitun Dist., Taichung City 407, Taiwan
Tel.: +(886) 4-2358-8245
E-mail: twinfo@googoltech.com
Web: http://www.googoltech.com

www.googoltech.com