物联工场
IOTWORKSHOP

Product Brochure

www.iotworkshop.com

CONTENTS

Company Introduction

IOTWORKSHOP is a brand about industrial control product line registered by Shanghai High-Flying Electronics Technology Co.,Ltd. We found in Dec.2009 and is a high-tech enterprises specialized in wireless communication domain and designs,develops,manufacture,markets and sells high quality,robust embedded Wi-Fi modules, and provide total IOT soluion to the customer.

IOTWORKSHOP has whole independent technology platform among chip, networking module, networking device, application software, cloud service and station application. We are the most cost-performance, whole industry intelligent hardware provider in China. IOTWORKSHOP aims to become a connecter to let the traditional hardware manufacturer and IOT service provider or opertor join together. We have experienced development and support team to help you familiar with our products and to speed your development period.
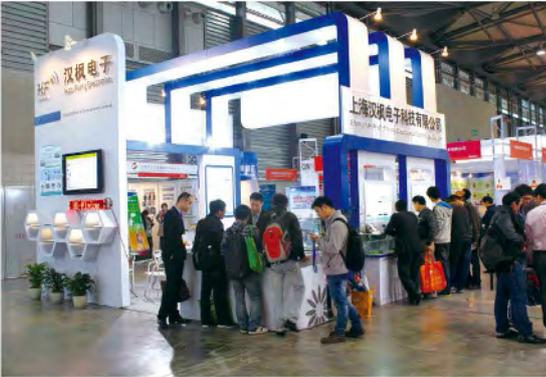
IOTWORKSHOP Development

Total Headcount: 73

- Shanghai: Headquarters/R&D Center (60)
- Shenzhen: Sales/FAE(10) • Beijing: Sales(1)
- USA: Sales(1) • Thailand: Sales(1)

Industrial IOT Solutions

- Firmware customized, cloud server supported.
- Server and E-Port platform customized, interface free.
- More cooperation cloud serve vendors.
- IOTWORKSHOP cloud control platform.

Product Shipment: >600K/Month

- IOT Industry(smart home, smart city, environment monitor).
- Industrial Control(PV inverter, smart power station, automobile charging pile,networking).
- Automatical Management(networking sensor, networking IO controller, numerically-controlled machine tool).
- Consumer Eleceronics(toy control, POS machine, electronic scale)..

More Than 800 Customers

- More than 300 customers are under mass production.
- Others are under design and test .

Main Products
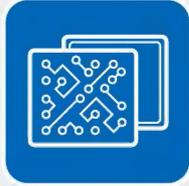
Network Module

Industrial Ethernet, Wi-Fi, GPRS Zigbee,BT,NB-IOT, E-port.

Application Area: Embedded system, System integreated, Complete sets of equipment manufacturers solution

Application Area: Industrial control, Environment monitoring, Rail transit, Access control security etc

Network Device

Serial server, Multiple serial server, Industrial switch

Industrial Control Cloud Service

Cloud user management,
Cloud device management,
Cloud communication management,
Network tunnel,
Value-added services

Ethernet Series

WiFi Series

Cellular Tech

Industrial Control Cloud

Server

PC

Supper App
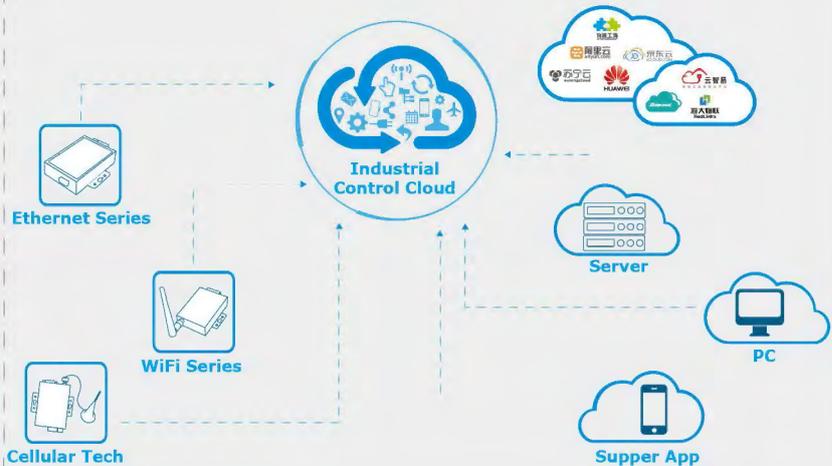
Industrial Network Device Road Map

2016   2018

Industrial Switch (non-management) (95 Series)

Network switches and
Non-network switches with
more interfaces are under test.

GPRS/NB-IOT
serial cellular modules
（G/N Series）
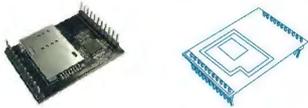
GPRS/4G/NB-IOT serial cellular server （21/24/26 Series）

Serial port+WiFi+Ethernet module
（Wport Series）

Serial to WiFi server （22 Series）

Serial to Ethernet server （51 Series）

Serial to Ethernet module （Eport Series）

IOT WORKSHOP

Patent Copyright Certificate

Patent

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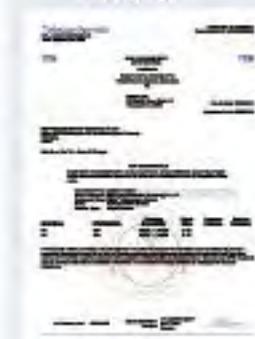
FCC Certificate

TELEC Certificate

RoHS Certificate

CE Certificate

Ethernet Series

Products contain E-port,serial networking module, serial server multiple,serial server

HF51G4B

Eport–E10

HF5111B

Eport–E30

HF5142B

Typical Application

Monitor Room

Ethernet

Ethernet

First Floor

Electrity meter · Water meter · Gas meter · Temp meter

Groud Floor

Electrity meter · Water meter · Gas meter · Temp meter

Basement

Access control device · Electrity meter · Parking space · Fire alarm

Guard

Access control device
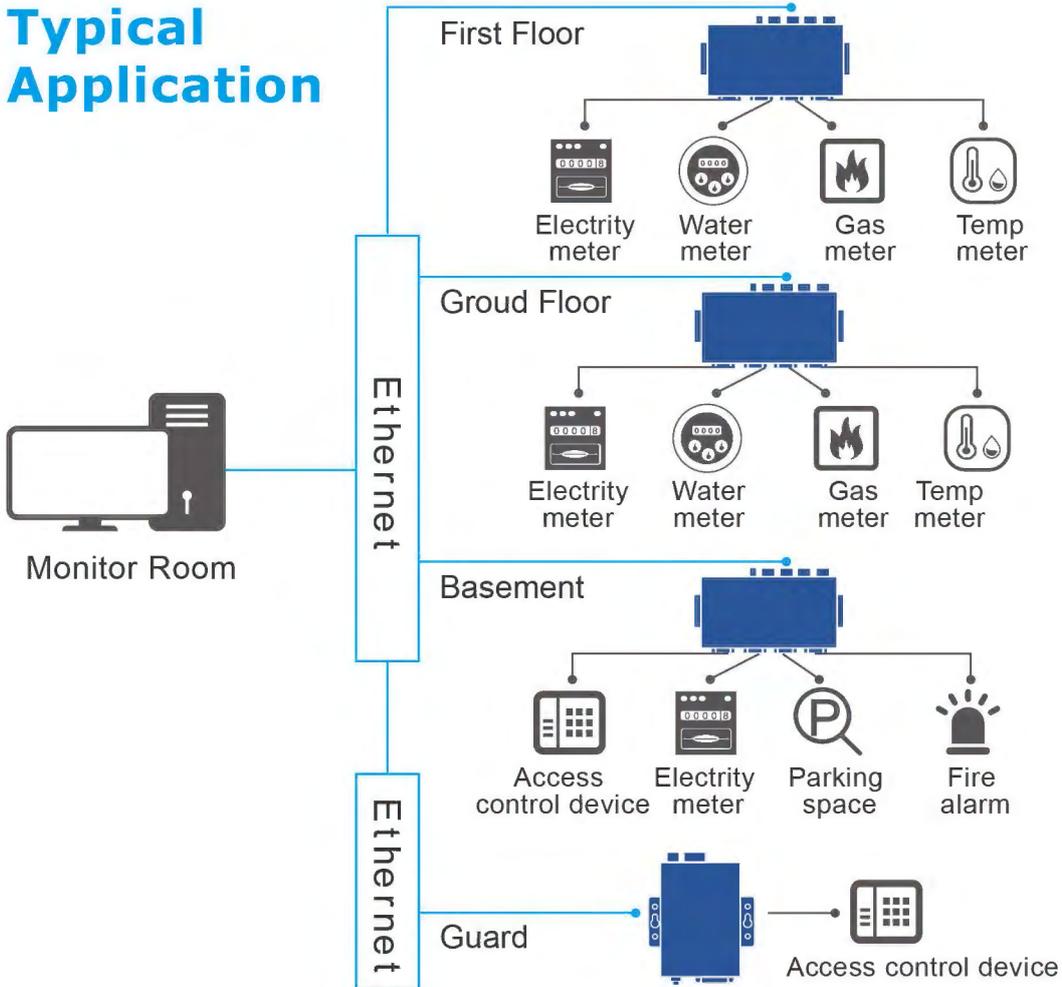
Eport–E10

Product Property

Tiny volume: suitable to demand for high integrated case
Integrated network adapter: convenient and reliable
Serial port: one 3.3V TTL
Ethernet port: one RJ45
Power: 3.3VDC

Eport–E30

Product Property

Modular design: Integrated network adapeter
Serial port: one 3.3V TTL
Ethernet port: 4Pin*2.54mm pin type
Power:3.3~5VDC

HF5111B

Product Property

Serial port: one RS232/RS485/RS422 combination
Ethernet port: one RJ45
Power: 5~36VDC/9~60VDC
Hardware protection design

HF5142B

Product Property

Serial port: four RS232/RS485/RS422 combinations
Ethernet port: two RJ45
Power: 5~36VDC/9~60VDC
Hardware protection design

HF51G4B

Product Property

Serial port: 16 RS232/RS485/RS422 combinations
16 independent IP address: modified IP related to each serial port
Ethernet port: four RJ45
Power: 110~260VAC
Hardware protection design

Product Features

Work Temperture: -40~85℃
Work Humidity: 5~95%RH

Support Modbus

TCP/IP FTP HTTP ICMP ARP AutoIP DHCP TPN
Support Various Network Protocols

Build-in Customized Webpage

SDK
Support SDK

Flexible Operation

Hardware Protection Design

Ethernet Series   Pro Edition

Products contain Eport, serial network module, serial server,multiple serial server

HF5142A

HF5111A

Eport Pro–EP20

Eport Pro–EP10

Powerful Resource, Convenient Development

Strong Hardware Resource:

Processor: MIPS32 4KE series
Operation System: Linux system(OpenWRT)
SDRAM: 32MB
Flash: 16MB

Rich Software Resource:

More than 3000 software packages, including network,audio,vedio,code development and Linux system managemnet etc. Users can conveniently customize a special function firmware by a easy command.

Professional ODM Design Experience:

Based on powerful hardware resource and rich software resource, IOTWORKSHOP can response quickly to users' customized demands. Professional R&D team has years experience about bottom layer, applicaiton layer,APP and cloud service.

Provide SDK And Community Support:

IOTWORKSHOP provides SDK from serial port to Ethernet application. It is convenient to configure serial port, network parameter, and its rich defination can achieve rapid application development. Besides, it also offer strong support called 'IOT Community Forum' to extend all kinds of applicaton and find and solve various problems immediately.

Eport Pro–EP10

Product Property
Tiny volume: suitable to demand for high integrated case
Integrated network adapter: convenient and reliable
Serial port: one 3.3V TTL
Ethernet port: RJ45 itself
Power: 3.3VDC

HF5111A

Product Property
Serial port: three RS232/RS485/RS422 combinations
Ethernet port: one RJ45
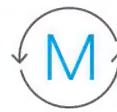Power: 5~36VDC/9~60VDC
Hardware protection design

Eport Pro–EP20

Product Property
Modular design: Integrated network adapeter
Integrated network adapter: convenient and reliable
Serial port: one 3.3V TTL
Ethernet port: one RJ45
Power: 3.3VDC

HF5142A

Product Property
serial port: four RS232/RS485/RS422 combinations
Four independent IP address: modified IP related to
each serial port
Ethernet port: two RJ45
Power: 5~36VDC/9~60VDC
Hardware protection design

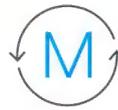## Product Features

Embedded Linux System(OpenWrt)

Support Modbus

Support Various Network Protocols

Build-in Customized Webpage

Support SDK

Flexible Operation

Hardware Protection Design

Product	Eport-E10	Eport-E30	Eport Pro-EP10	Eport Pro-EP20
Ethernet Interface				
Interface Type	one RJ45 with LED	Pin Header	one RJ45 with LED	
Standard	10/100 Base-T Auto-Negotiation	10/100 Base-T Auto-Negotiation (4pin TX/RX)	10/100 Base-T Auto-Negotiation	10/100 Base-T Auto-Negotiation
Protection	2KV electromagnetism isolation			
Network Adapter	Integrated			
Network Protocol	IP,TCP,UDP,DHCP,DNS,HTTP Server/Client,ARP,BOOTP,AutoIP,ICMP,Web socket,Telnet,FTP,TFTP,uPNP,NTP,Modbus TCP			
Security Protocol (data tunnel)	AES- 128Bit，DES3，SSL/TLS v1.2			
SNMP V1/V2/V3	nonsupport		support (SDK)	
IPV6	nonsupport		support (SDK)	
Serial Interface				
Serial Number	one			
Standard	3.3V TTL			
Baud Rate	2400~460800bps			
Protection	\			
Data Bit	5,6,7,8		8	
Stop Bit	1,2		1	
Parity Bit	None，Even，Odd，(Space，Mark)		None，Even，Odd	
Flow Control	No flow control,hardware RTS/CTS,software Xon/Xoff		No flow control,software Xon/Xoff	
Network Tech Parameter				
Work Mode	TCP Server、TCP Client、UDP、HTTP、Telnetd			
IP Acquire Method	DHCP or Static IP, AutoIP			
DNS	Support			
Simple Transparent Transmission	Support			
HTTP	Support			
Modbus	Support			
Webpage	Standard or Customized			
Malfunction Alarm	Syslog/SMTP		Syslog/SMTP/SNMP trap	
Configure Method	Webpage,Cli,XML,Telnet,IOTManager			
Customized Registered Package				
Customized Heartbeat Package				
Special Function				
IOT Service	Support			
Virtual Data Tunnel	Support			
Virtual Serial Port	Windows XP/Vista/7/8/10(32bit\64bit)、Win Server 2003/2008/2012			
Firmware Update	Webpage,IOTManager,IOTService			
Parameter Import Export	Support			
SDK Supplied	Support			
Mechanical Property				
Protection Level	\			
Size(mm)	33*18.6*15	45*32*8	33*18.6*15	50*23*11
Environment Parameter				
Work Temp	-45~85℃		-25~70℃	
Storage Environment	-45~85℃，5~95%RH（no condensation）			
Power Parameter				
Input Voltage	3.3VDC			
Interface Type	RJ45	2.54mm pin type	RJ45	2.54mm pin type
Protection	\			
Work Current	~100mA		~200mA	
Power Consumption	<400mW		<700mW	
Other				
Certification	3C/FCC/CE/RoHS			

Product	HF5111A	HF5111B	HF5142	HF51G4
Ethernet Interface				
Interface Type	one RJ45		two RJ45	four RJ45
Standard	10/100 Base-T Auto-Negotiation			
Protection	Static: 8KV contact discharge, 15KV air discharge			
Network Adapter	Integrated			
Network Protocol	IP,TCP,UDP,DHCP,DNS,HTTP Server/Client,ARP,BOOTP,AutoIP,ICMP,Web socket,Telnet,FTP,TFTP,uPNP,NTP,Modbus TCP			
Security Protocol (data tunnel)	AES- 128Bit，DES3，SSL/TLS v1.2			
SNMP V1/V2/V3	support (SDK)	nonsupport		
IPV6	support (SDK)	nonsupport		
Serial Interface				
Serial Number	1（RS232/485/422）		4（RS232/485/422）	16（RS232/485/422）
Standard	RS232:DB9 pin type RS485/RS422: 5.08mm bliding post			
Baud Rate	2400~460800bps			
Protection	Static: 8KV contact discharge, 15KV air discharge, surge: different 2KV, common 4KV			
Data Bit	8		5,6,7,8	
Stop Bit	1		1,2	
Parity Bit	None，Even，Odd		None，Even，Odd，Space，Mark	
Flow Control	No flow control,software Xon/Xoff		No flow control,hardware RTS/CTS,software Xon/Xoff	
Network Tech Parameter				
Work Mode	TCP Server、TCP Client、UDP、HTTP、Telnetd			
IP Acquire Method	DHCP or Static IP, AutoIP			
DNS	Support			
Simple Transparent Transmission	Support			
HTTP	Support			
Modbus	Support			
Webpage	Standard or Customized			
Malfunction Alarm	Syslog/SMTP/SNMP trap	Syslog/SMTP		
Configure Method	Webpage,Cli,XML,Telnet,IOTManager			
Customized Registered Package	Support			
Customized Heartbeat Package	Support			
Special Function				
IOT Service	Support			
Virtual Data Tunnel	Support			
Virtual Serial Port	Windows XP/Vista/7/8/10(32bit\64bit)、Win Server 2003/2008/2012			
Firmware Update	Webpage,IOTManager,IOTService			
Parameter Import Export	Support			
SDK Supplied	Support			
Mechanical Property				
Protection Level	IP-30			
Size(mm)	95*65*25		90*200*25	480*180*45
Environment Parameter				
Work Temp	-25~70℃		-45~85℃	
Storage Environment	-45～85°C，5～95% RH（no condensation）			
Power Parameter				
Input Voltage	5～36VDC/9～50VDC			110～260VAC
Interface Type	5.5*2.1mm socket and 5.08 binding post			International three hole socket
Protection	inversely connect			adapter isolated
Work Current	~200mA	~100mA	~600mA	~1A
Power Consumption	<700mW	<400mW	<4W	<10W
Other				
Certification	3C/FCC/CE/RoHS			

WiFi Series

Products contain WiFi module, serial to WiFi server, multiple serial to WiFi server

HF2221

Wport–W20

HF2211

Wport–W10

WiFi Typical Application

LAN

Management
Server

WiFi

AGV Robot
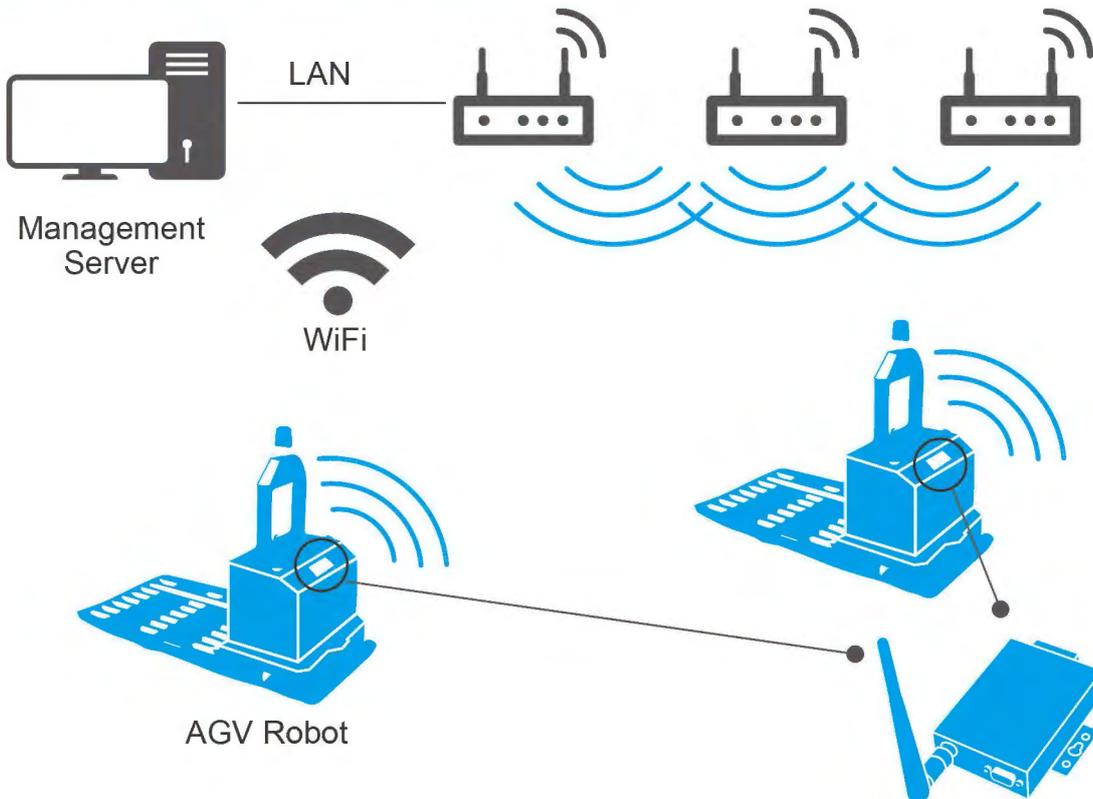
Wport–W10

Product Property
SMT Package: easily integrated
Serial port: one 3.3V TTL
Ethernet port: 4Pin*2.0mm stamp hole
WiFi: IEEE802.11 b/g/n stardard
Antenna: external I-PEX connector
Power:3.3VDC

HF2211

Product Property
Serial port: three RS232/RS485/RS422 combinations
Ethernet port: one 10/100 Base-T MDI/MDIX automatical interface
WiFi: IEEE802.11 b/g/n stardard
Antenna: External RP-SMA stick antenna/sucker antenna
Power: 5~36VDC/9~60VDC
Hardware protection design

Wport–W20

Product Property
Modular design: double row needle
Serial port: two 3.3V TTL
Ethernet port: two 4Pin*2.54mm pin type
WiFi: IEEE802.11 b/g/n stardard
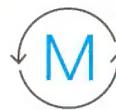Antenna: external I-PEX connector
Power:3.3VDC

HF2221

Product Property
Serial port: twoRS232/RS485/RS422 combinations
Ethernet port: two 10/100 Base-T MDI/MDIX automatical interface
WiFi: IEEE802.11 b/g/n stardard
One IP with two Sockets: Each port whcich can be modified
                                    related to one serial port
Antenna: External RP-SMA stick antenna/sucker antenna
Power: 5~36VDC/9~60VDC
Hardware protection design

Product Features

Work Temperture: -40~85℃
Work Humidity: 5~95%RH

Support Modbus

TCP/IP FTP HTTP ICMP ARP AutoIP DHCP TPN
Support Various Network Protocols

Build-in Customized Webpage

SDK
Support SDK

Flexible Operation

Hardware Protection Design

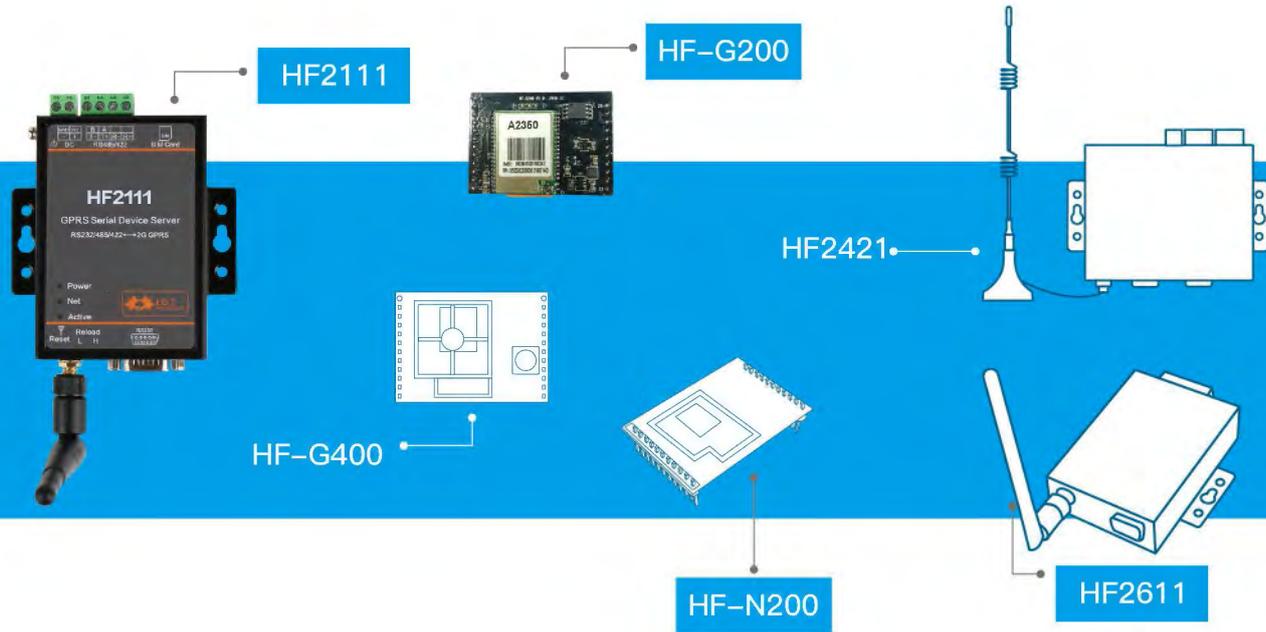| Product	Wport–W10	Wport–W20	HF2211	HF2221
Ethernet Interface				
Interface Type	stamp hole SMT	Pin type	RJ45	two type
Standard	10/100 Base-T Auto-Negotiation(8 pin TX/RX)		10/100 Base-T Auto-Negotiation	
Protection	1.5KV electromagnetic isolation		Static: 8KV contact discharge, 15KV air discharge	
Network Adapter	non-integrated		integrated	
Network Protocol	IP,TCP,UDP,DHCP,DNS,HTTP Server/Client,ARP,BOOTP,AutoIP,ICMP,Telnet,uPNP,NTP,Modbus TCP			
Security Protocol (data tunnel)	AES- 128Bit，DES3，SSL/TLS v1.2			
SNMP V1/V2/V3	nonsupport			
IPV6	nonsupport			
Serial Interface				
Serial Number	one	two	one（RS232/485/422）	two（RS232/485/422）
Standard	3.3V TTL		RS232:DB9 pin typeRS485/RS422: 5.08mm bliding post	
Baud Rate	2400~230400bps			
Protection	\		Static: 8KV contact discharge, 15KV air discharge, surge: different 2KV, common 4KV	
Data Bit	5,6,7,8		8	
Stop Bit	1,2			
Parity Bit	None，Even，Odd，Space，Mark			
Flow Control	No flow control,hardware RTS/CTS,software Xon/Xoff			
WiFi Interface Parameter				
Standard	802.11 b/g/n			
Network Mode	STA/AP/STA+AP			
Maxium Connections	Max. 32 STA			
Transmit Power	802.11b: +20 dBm (Max.) 802.11g: +18 dBm (Max.) 802.11n: +15 dBm (Max.)			
Receive Sensitivity	802.11b: -89 dBm (@11Mbps, CCK) 802.11g: -81dBm (@54Mbps, OFDM) 802.11n: -71dBm (@HT20, MCS7)			
Encrytion	WPAPSK、WPA2PSK、WEP			
Antenna	External IPEX connector		SMA(male)	
Frequency Band	2.412GHz-2.484GHz			
Network Tech Parameter				
Work Mode	TCP Server、TCP Client、UDP, HTTP, Telnetd			
IP Acquire Method	DHCP or Static IP, AutoIP			
DNS	Support			
Simple Transparent Transmission	Support			
HTTP	Support			
Modbus	Support			
Webpage	Standard or Customized			
Malfunction Alarm	Syslog/SMTP			
Configure Method	Webpage,Cli,XML,Telnet,IOTManager			
Customized Registered Package	Support			
Customized Heartbeat Package	Support			
Industrial Control Cloud				
IOT Service	Support			
Virtual Data Tunnel	Support			

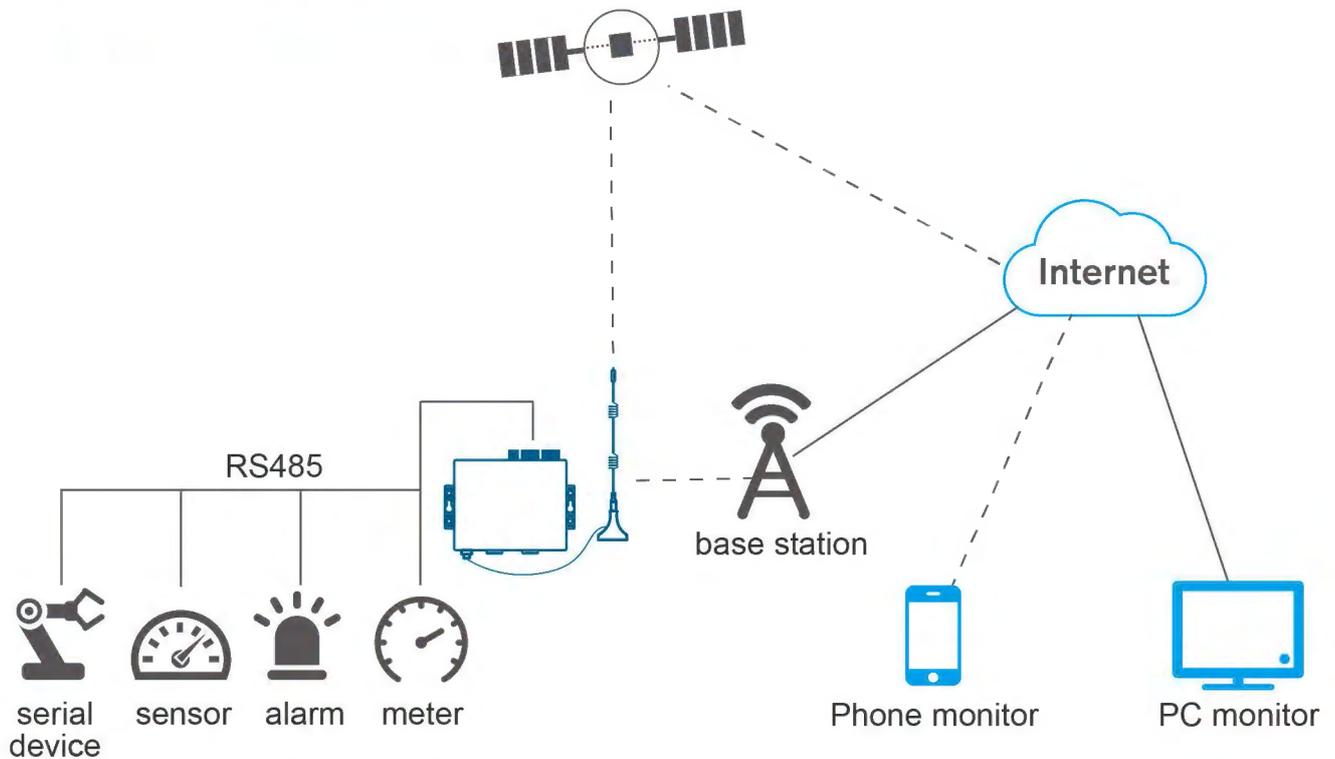| 产品	Wport-W10	Wport-W20	HF2211	HF2221
Special Function				
Virtual Serial Port	Windows XP/Vista/7/8/10(32bit\64bit)、Win Server 2003/2008/2012			
Firmware Update	Webpage,IOTManager,IOTService			
Parameter Import Export	Support			
SDK Supplied	Reserved			
Mechanical Property				
Protection Level	\		IP-30	
Size(mm)	45*32*8		95*65*25	108*146*25
Environment Parameter				
Work Temp	-45~85℃			
Storage Environment	-45～85°C，5～95% RH（no condensation）			
Power Parameter				
Input Voltage	3.3VDC		5～36VDC/9～50VDC	
Interface Type	2.54mm pin type		5.5*2.1mm socket and 5.08 binding post	
Protection	\		inversely connect	
Work Current	~200mA			~300mA
Power Consumption	<500mW		<700W	
Other				
Certification	3C/FCC/CE/TELEC/SRRC/RoHS			

Cellular Series

Products contain GPRS module, 4G module, NB-IOT module, serial to GPRS server, multiple serial to 4G server, NB-IOT serial server

HF2111

HF-G200

HF2421

HF-G400

HF-N200

HF2611

Typical Application

RS485

serial device

sensor

alarm

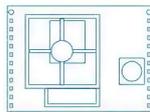meter

base station

Internet

Phone monitor

PC monitor

HF–G200

Product Property

Modular design: double pin type, convenient
Serial port: one 3.3V TTL
Wireless standard: GSM/GPRS
Frequency band: 850/900/1800/1900MHz
Socket: three sockets for data transmission
Power: 5~18VDC
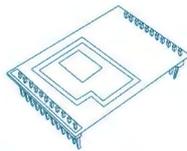Lanuch time(2S), GPRS registered time(15~30S)

HF–G400

Product Property

Modular design: Mini-PCIE
Serial port: one 3.3V TTL
Performance: WiFi and two Ethernet ports
Socket: five sockets for data transmission
Power: 5VDC
Lanuch time(10S), GPRS registered time(20~30S)

HF–N200

Product Property

Modular design: double pin type, convenient
Serial port: one 3.3V TTL
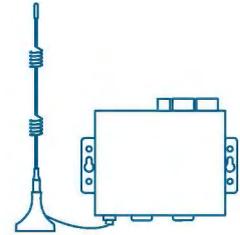Socket: two sockets for data transmission
Power: 5VDC

HF2111

Product Property

Wireless standard: GSM/GPRS
Socket: three sockets for data transmission
Support LBS basement location
Power: 5~36VDC/9~60VDC
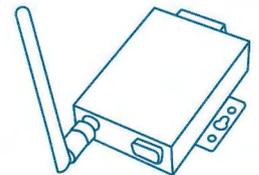Lanuch time(2S), GPRS registered time(15~30S)
Hardware protect design

HF2421

Product Property

Serial port: two RS232/RS485/RS422 combinations
Ethernet port: two 10/100 Base-T MDI/MDIX
                automatical interface
WiFi: IEEE802.11 b/g/n stardard
I/O: DI(2), AI(2), DO(2)
Socket: five sockets for data transmission
Power: 5~36VDC/9~60VDC

HF2611

Product Property

Serial port: one 3.3V TTL
Socket: two sockets for data transmission
Power: 3.3~18VDC
          (battary supply only in low-power mode)

Product Features

Work Temperture: -40~85℃
Work Humidity: 5~95%RH

Support Modbus

Support Various Network Protocols

Support Message Configure Parameter

Support SDK

Flexible Operation

Hardware Protection Design

Product	HF–G200	HF2111	HF–G400 HF–N200 HF2421 HF2611 Under Testing...
Serial Interface			
Serial Number	1(RS232/485/422)	1(RS232/485/422)	
Standard	3.3V TTL	RS232:DB9 pin type RS485/RS422: 5.08mm bliding post	
Baud Rate	2400~460800bps		
Protection	\	Static: 8KV contact discharge, 15KV air discharge, surge: different 2KV, common 4KV	
Data Bit	5,6,7,8		
Stop Bit	1,2		
Parity Bit	None, Even, Odd, Space, Mark		
Flow Control	No flow control,hardware RTS/CTS,software Xon/Xoff		
Cellular Parameter			
Standard	GSM/GPRS		
Frequency Band	850/ 900/1800/1900MHz		
Protocol	TCP/UDP		
Maximum Connections	3		
Transmit Power	GSM850/GSM900: Class 4(2W) DCS1800/PCS1900: Class 1(1W)		
Antenna	SMA(Female, 50Ω)		
SIM Card	1.8V/3V		
Multi-Slot Class	GPRS Class 12		
Terminal Device Class	Class B		
Coding Method	CS1, CS2, CS3, CS4		
Network Tech Parameter			
Work Mode	TCP Client UDP Unicast		
IP Acquire Method	AutoIP		
DNS	Support		
Simple Transparent Transmission	Support		
HTTP	non-support		
Modbus	Support		
Webpage	Standard or Customized		
Malfunction Alarm	Syslog/SMTP/SMS		
Configure Method	AT, IOTSerialTool		
Customized Registered Package	Support		
Customized Heartbeat Package	Support		
Industrial Control Cloud			
IOT Service	non-support		
Vritual Data Tunnel	non-support		
Special Function			
Virtual Serial Port	\		
Firmware Update	serial port, IOTSerialTool		
Parameter Import Export	non-support		
SDK Supplied	Support		
Mechanical Property			
Protection Level	\	IP-30	
Size(mm)	45*32*8	95*65*25	
Environment Parameter			
Work Temp	-45~85℃		
Storage Environment	-45 ~ 85°C, 5 ~ 95% RH (no condensation)		
Power Parameter			
Input Voltage	5~18VDC	5～36VDC/9～50VDC	
Interface Type	2.54mm pin type	5.5*2.1mm socket and 5.08binding post	
Protection	inversely connect	adapter isolated	
Work Current	~400mA		
Power Consumption	<2mW		
Other			
Certification	3C/FCC/CE/TELEC/SRRC/RoHS		

Industrial Switch Non-management

HF9510–8PGE2GC

HF9505–4PFE1FE

HF9506–4PGE2GF

Under Testing Products

Non-management POE Switch

Type	HF9505-4PFE1FE	HF9506-4PGE2GF	HF9510-8PGE2GC
Standard	IEEE 802.3i IEEE 802.3u IEEE 802.3x		IEEE 802.3i IEEE 802.3u IEEE 802.3ab IEEE 802.3z
Port			
Number	5	6	8
10/100Base-T(X)Port,RJ45	4P+1	\	
10/100/1000Base-T(X)Port		4P	8P
1000Base-FX Fiber Optic		\	
1000Base-X Fiber Optic		\	
1000Base-X Port, SFP	\	2	
100/1000Base-XPort, SFP		\	
Gigabit Optical Multiplexing Port			
Distance	Twisted Paired(CAT5/CAT5e) multimode fiber: 850nm,2KM 1310nm, 2KM SMF:1310nm, 20/40/60KM		
POE	IEEE 802.3af: support 15.4W IEEE 802.3at: support 30W		
POE Pin	1，2：V-；3，6：V+		
Exchange Attribute			
Forward Speed	0.8Mpps	7.4Mpps	1.9Mpps
Switch Delay	<5us		
Transmit Method	Storage and Transfer		
Backplane Bandwidth	2.0G		
Buffer	1Mbits		
MAC Address Table	2K	8K	
Indicator Light			
Power	PWR		
RJ45	Link/ACT		
Fiber	\	Link/ACT	
Power			
Input Voltage	12~48VDC		
Interface Type	5Pin 3.81mm binding post		
Installation			
DIN Rail	yes		
Wall-mounted	yes		
Desktop	yes		
Mechanical Property			
Protection	IP-40		
Size(mm)	30*115*90	30*136*90	55*165*128
Work Temperature			
-10~60℃	\		
-40~70℃	\		
-40~85℃	yes		
Protection			
Power Overload	yes		
Power Inverse	yes		
Power Redundancy	yes		
Serial Isolation	yes		
Standard			
EMI			
	FCC CFR47 Part 15		
	CISPR(EN55022) class A		
EMS			
EN61000-4-2(ESD),Leve 4	±8KV（contact） ±15KV（air）		
EN61000-4-3(RS),Leve 3	10V/m（80MHz-2GHz）		
EN61000-4-4(EFT),Leve 4	Power Port：±4KV Data Port：±2KV		
EN61000-4-5(Surge),Leve 4	Power Port：±2KV/DM,±4KV/CM Data Port：±2KV		
EN61000-4-6(CS),Leve 3	3V（10KHz-150KHz） 10V（150KHz-80MHz）		
EN61000-4-16(CMC),Leve 5	30V（cont.），300V（1s）		
Mechanical Standard			
strike	IEC 60068-2-27		
free-fall	IEC 60068-2-32		
vibration	IEC 60068-2-6		
certification	3C\CE\FCC\RoHS		

Software Series
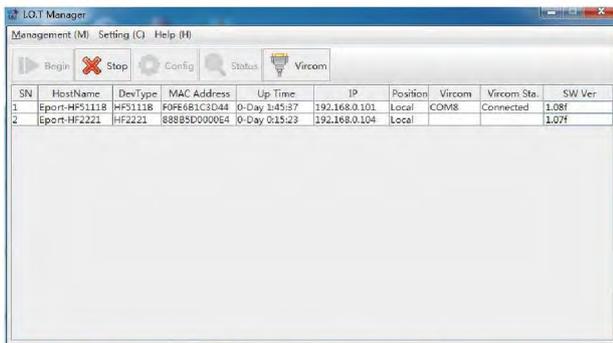
Software Introduction

IOT Management Software:
Search IOTWORKSHOP devices, check devices status, configure network parameter, configure serial parameter, configure transfer protocol, configure security protocol and virtual serial management.

IOT Service Software:
Internet version of IOT management. It is able to search and review the devices on the Internet and to configure its parameter.
Virtual Serial Function: Create, modify and delete virtual serial function. Build a TCP/UDP connection between PC and IOTWORKSHOP devices, and the devices become virtual COM of computers. The third-party application can communicate, achieve remote control and data transmission.

IOT Serial Port Tool:
Check IOTWORKSHOP GPRS products' working status and configure parameter.
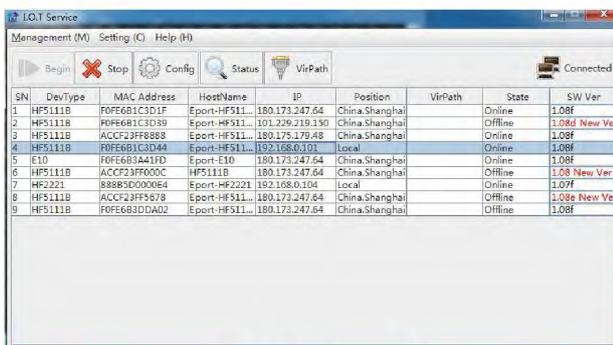
Software Interface

IOT Management Tool

Virtual COM

IOT Service Tool

IOT Serial Tool

Software Download

Visit website   www.iotworkshop.com>>Support>>Download Center>>Application

Industrial Control Cloud Introduction

Industrial control cloud combine years experience with Internet of Thing(IOT) and it is a cloud server system which is specialized in industrial control field. It concentrates on solving the drawback that only using 'DDNS' or 'Port Mapping ' to control remote devices in case of using traditional industrial control server.

In order to control remote industrial devices, Industrial control cloud adopts P2P technology to achieve LAN NAT Traversal. Besides, by virtual serial port and virtual network tunnel technology, it can build the data connection between managed devices and remote devices.
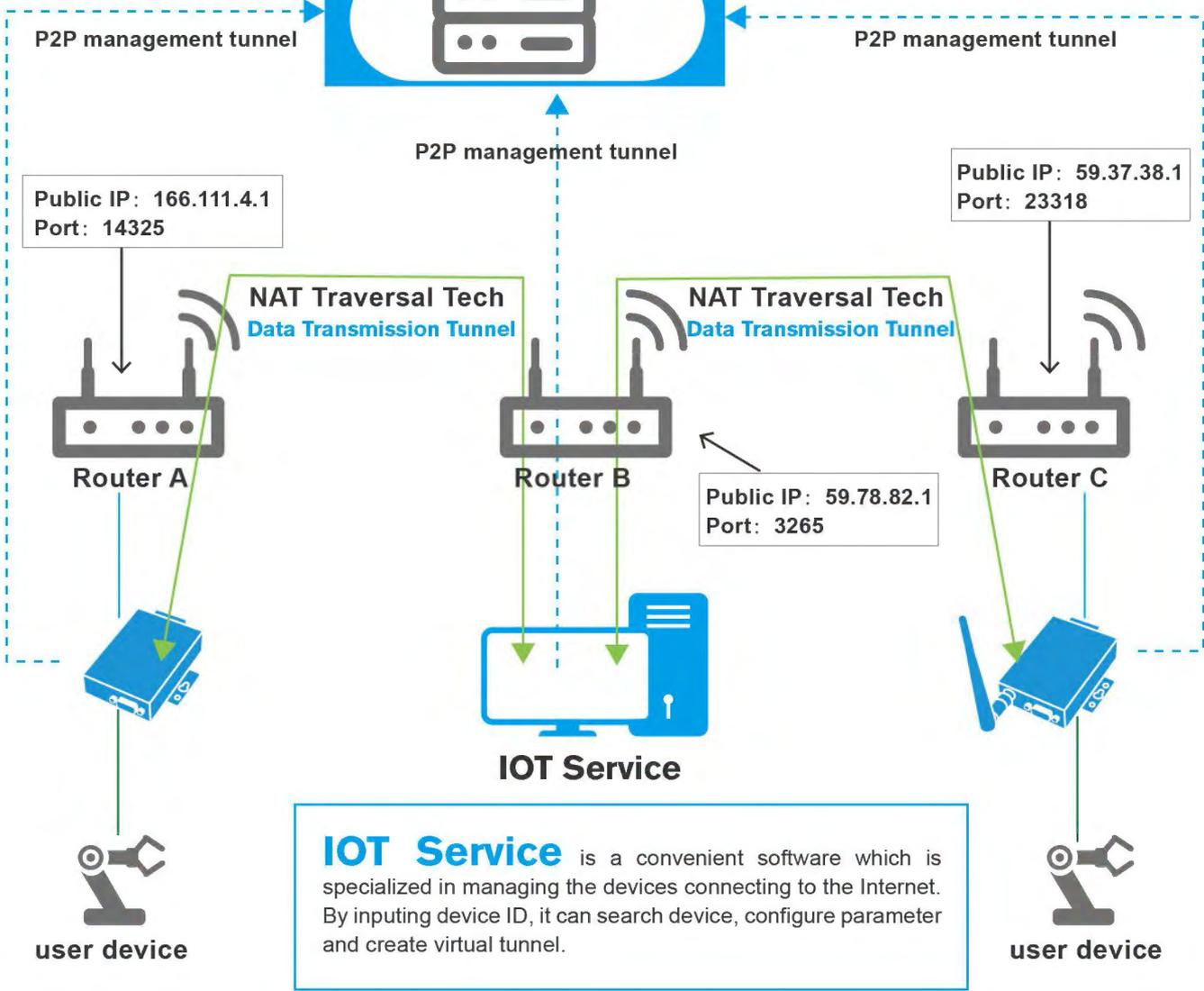
Features

▶ **Account/Device Management:**
Log in IOT Bridge by Web browser, and it can search IOT serial server status and configure alarm e-mail of device.

▶ **Configure Tunnel Management:**
Serial servers connected to the Internet can actively build P2P connection with IOT Bridge. IOT Service software can configure, modify the parameter of serial server by P2P tunnel which called configuration tunnel.

▶ **Data Transmission Tunnel:**
After NAT Traversal between two IOT device in two different network, the third-party software in the PC can connect directly with serial server(transparent transmisson tunnel). If IOT Service opens virtual function, thus the software can connect with user device directly by virtual com(called virtual tunnel).

▶ **Firmware Update:**
IOTWORKSHOP will upload the up-to-date firmware to IOTBridge regularly. IOTService will regularly search if there has new firmware in devices with user's userid. If reminds of new firmware, customer can decide to update or not.

▶ **Abnormal Alarm/ E-mail Remind:**
Any abnormal situation happens, IOTService will remind user failure situation by send/receive e-mail address filled in IOT Bridge.

▶ **Data Transmission Encryption:**
P2P configuring tunnel is a safe encrypted transmission method. NAT data transmission tunnel can be set if encrypted transmission. IOTWorkshop serial server can be configured with encryption method.

Cloud
Topology

IOT Bridge：
P2P management server
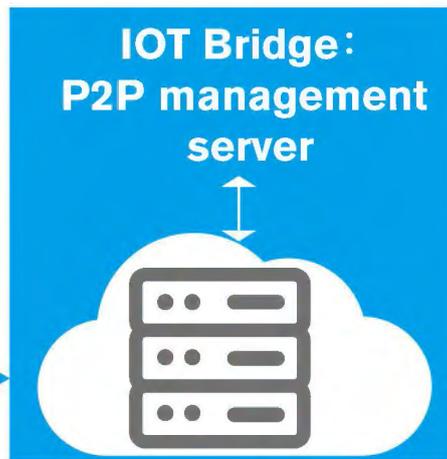
IOT Bridge calculate P2P analysing server + device search Web server. The function is to manage all the devices' network status and to provide customers with state search and request for account registration.

P2P management tunnel

P2P management tunnel

P2P management tunnel

Public IP：59.37.38.1
Port：23318

Public IP：166.111.4.1
Port：14325

NAT Traversal Tech
Data Transmission Tunnel

NAT Traversal Tech
Data Transmission Tunnel

Router A

Router B

Router C

Public IP：59.78.82.1
Port：3265

IOT Service

IOT Service is a convenient software which is specialized in managing the devices connecting to the Internet. By inputing device ID, it can search device, configure parameter and create virtual tunnel.

user device

user device

Scenario

1. Virtual Tunnel: TCP/UDP after NAT Traversal can be recognized as a COM. Third-party can communicate with user devices with virtual com, which called virtual tunnel.
2. Transparent Transmission Tunnel: When TCP/UDP is experienced with NAT Traversal, IOTService will create a Socket port number. Third-party software can communicate with this Socket directly , which called virtual tunnel.
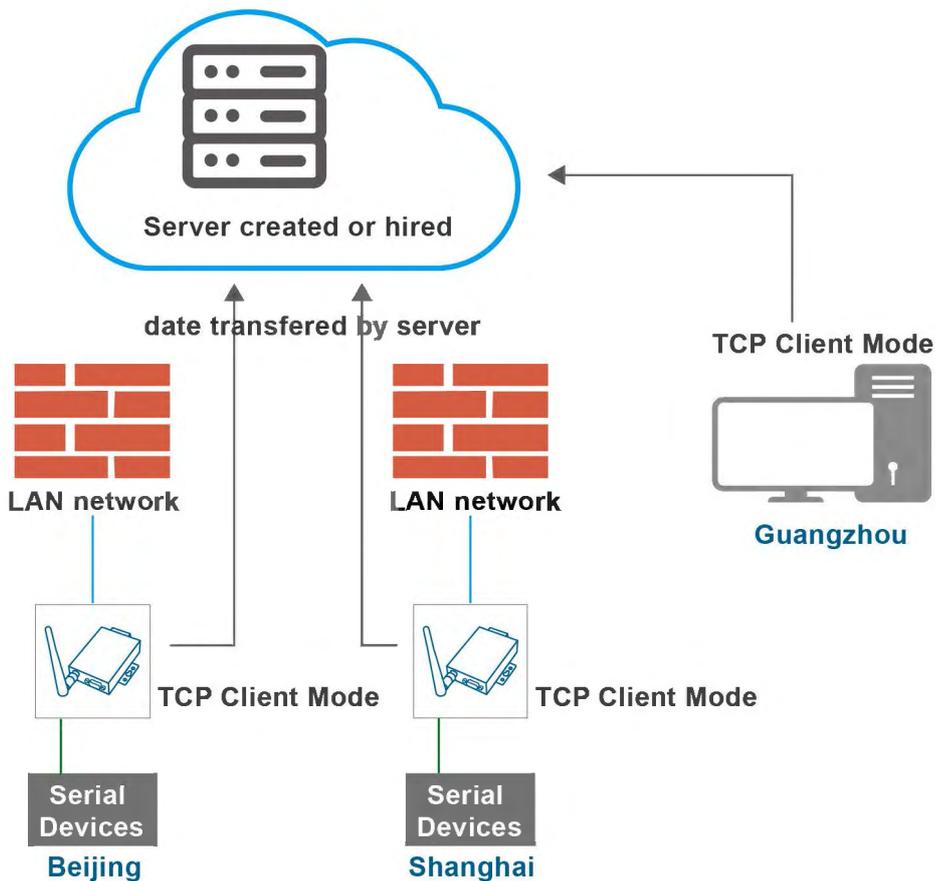
Traditional Method (1)

Advantages

1. No need to consider network situation, device can connect to the server everywhere.
2. Check its status anytime.
3. Actively push alarm information about abnormal devices.

Disadvantages

1. Data can only transfer by server, which has bad effect on transmission security.
2. Massive data transmission and multiple clients visit will contribute network bandwidth congestion.
3. It is expensive to create server or hire a server, and its following maintenance cost is huge.
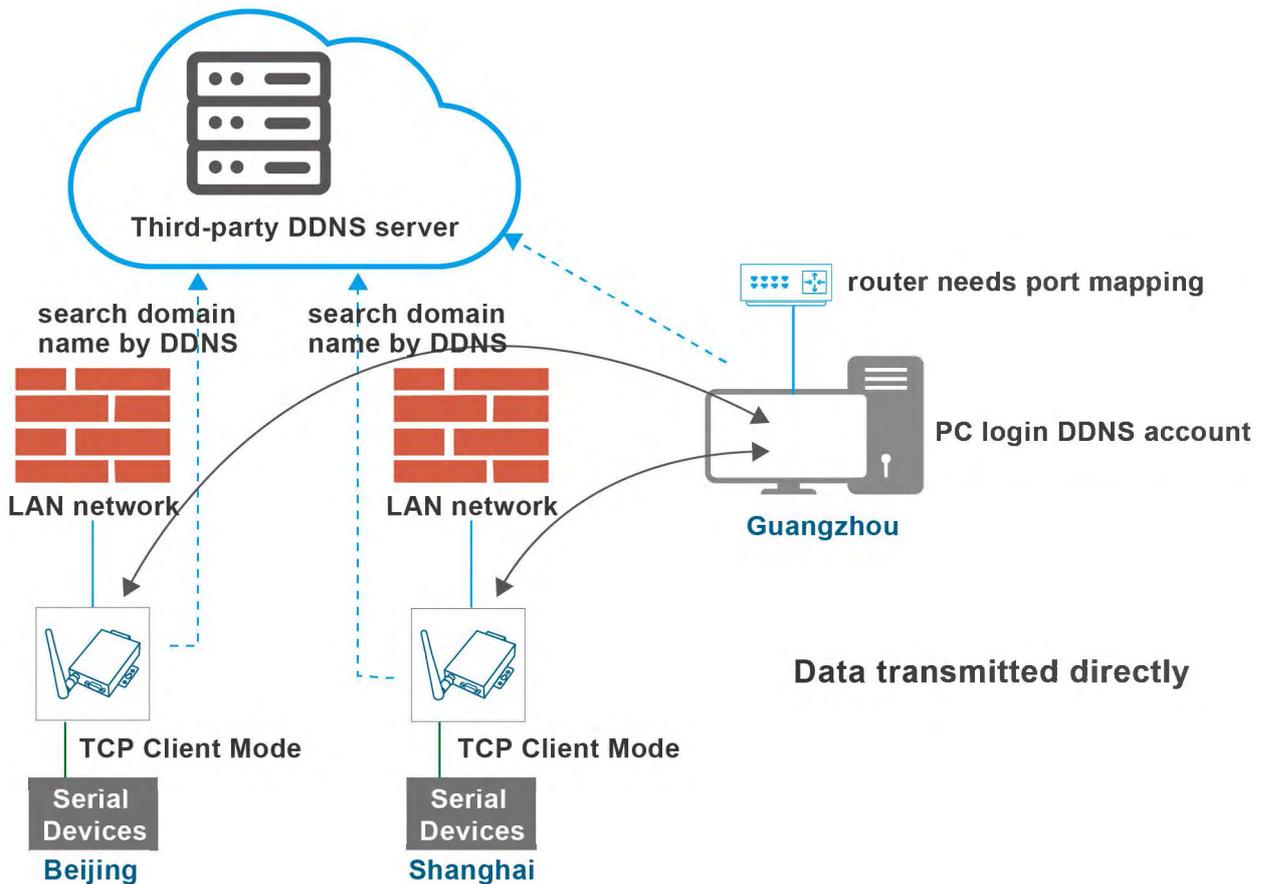4. With increasingly users, date storage will increase as well.

Server created or hired

date transfered by server

TCP Client Mode

LAN network

LAN network

Guangzhou

TCP Client Mode

TCP Client Mode

Serial Devices

Serial Devices

Beijing

Shanghai

Traditional Method (2)

Advantages

1. Data is safer because data is directly transmitted to PC.
2. PC is able to used to achieve device monitoring function with low cost in installation and maintanence.

Disadvantages

1. Device works as TCP Client and PC is TCP Server. Even though inverse is ok, it is unpractical for real operation.
2. TCP Server side must register and should keep DDNS account alive anytime.
3. Need port mapping at TCP Server side in the router. But some routers don't provide authority.
4. Generally use DDNS server from third-party company. Paid version is reliable and stable, but it has various editions for a proper choice.
5. Limited to third-party company, once DDNS has some problems, it cannot be fixed immediately.
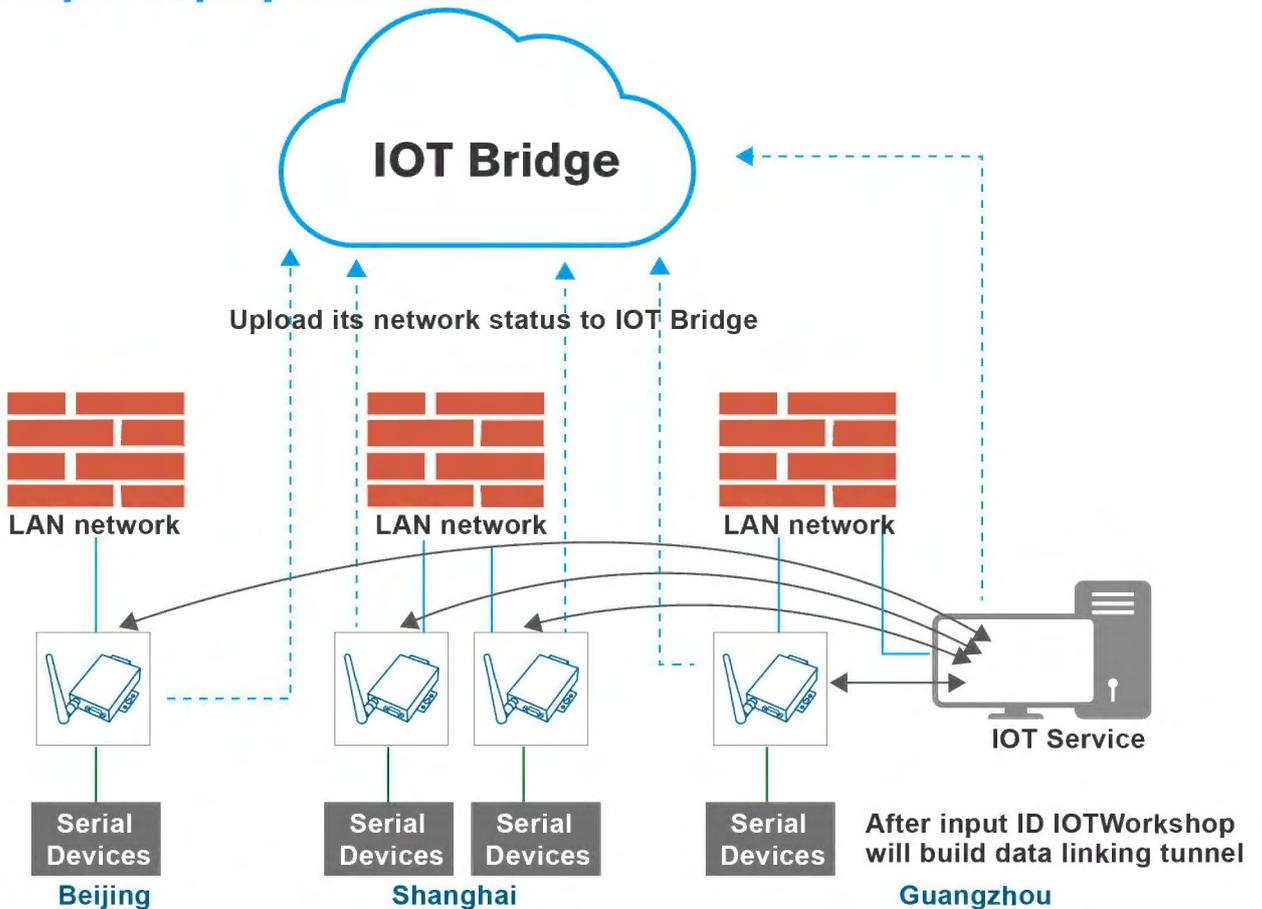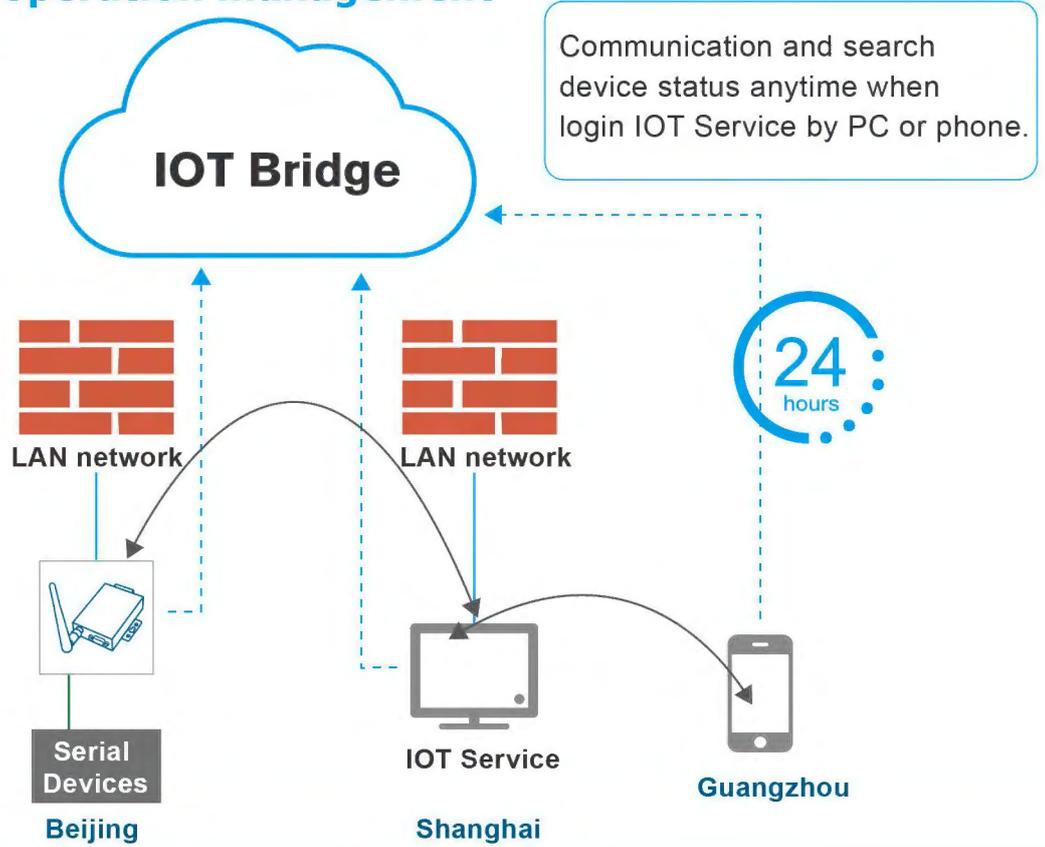6. Cannot provide alarm when device is offline or broken.

Third-party DDNS server

router needs port mapping

search domain name by DDNS   search domain name by DDNS

PC login DDNS account

LAN network   **LAN network**

Guangzhou

Data transmitted directly

TCP Client Mode   **TCP Client Mode**

Serial Devices   Serial Devices

Beijing   **Shanghai**

Industrial Control Cloud Advantages

Means the string and pattern stand for

← → Data transmission tunnel

←---- Login Tunnel

——— Eternet Connection

——— Serial connection

Network firewall

IOTWorkshop Network device

1. Advantage
Simple Deployment

IOT Bridge

Upload its network status to IOT Bridge

LAN network

LAN network

LAN network

Serial Devices

Serial Devices

Serial Devices

Serial Devices

IOT Service

After input ID IOTWorkshop will build data linking tunnel

Beijing

Shanghai

Guangzhou

2. Advantage
Convenient operation management

IOT Bridge

Communication and search device status anytime when login IOT Service by PC or phone.

LAN network

LAN network

24 hours

Serial Devices

IOT Service

Beijing

Shanghai

Guangzhou

3. Advantage
Safe System

Device are working under enterprise firewall aswell as IOT Service.
Data is transmitted directly from device to IOT Service.
As a result, data network security is higher.

Virus

LAN network

LAN network

Safe Transmission Data

Safe Transmission Data

Serial Devices

IOT Service

Beijing

Shanghai
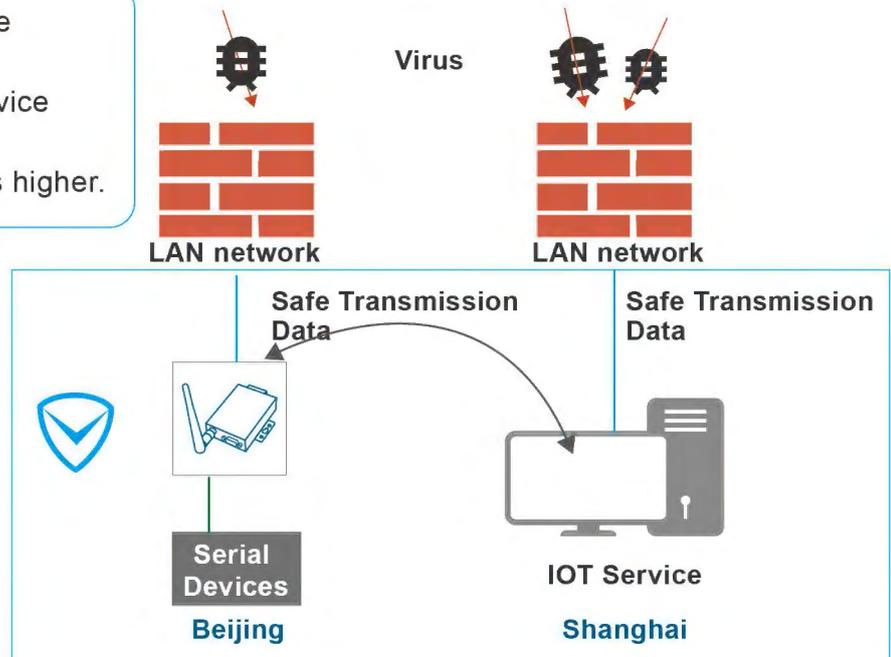
4. Advantage
Low cost of setuo and maintenance

Various choices

IOT Service has various choices, Comman PC can complete monitoring function with low cost of setup and maintenance afterwards.
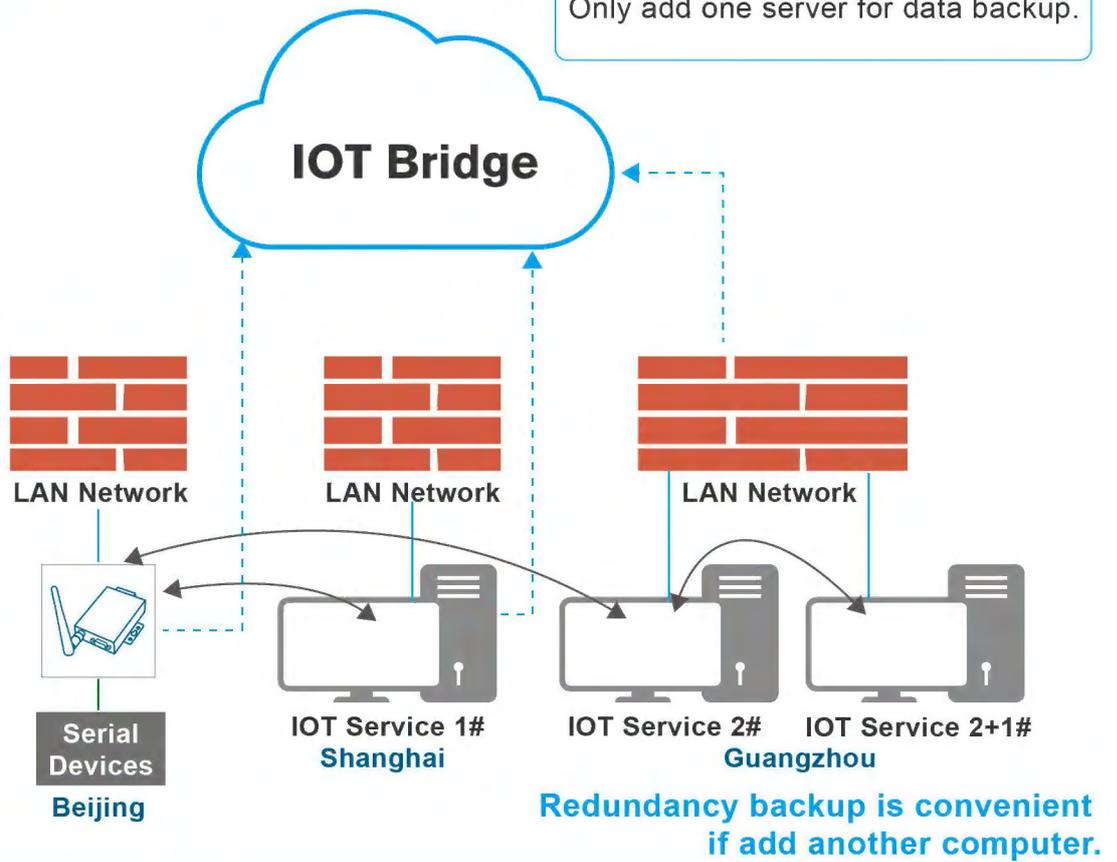
Large Server

Server

LAN Network

IOT Service

PC

Laptop
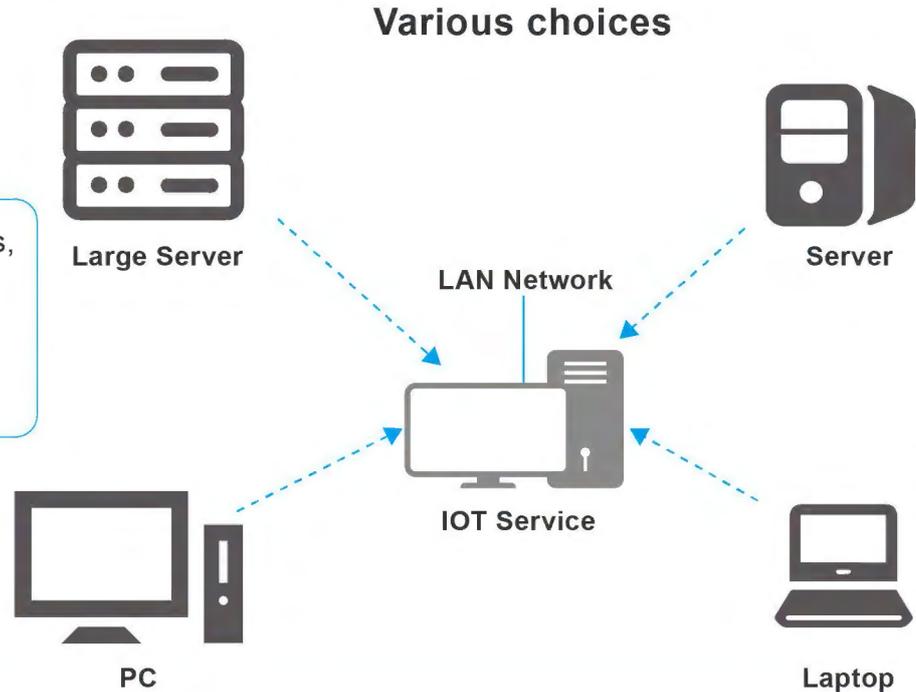
5. Advantage
Distributed Server Structure

IOT Bridge

In distributed server structure, it is able to setup multiple IOT Service distributed in different places.
No need to consider the capacity of single server and bandwidth limitation.

LAN Network

LAN Network

LAN Network

Serial Devices

IOT Service 1#
Shanghai

IOT Service 2#
Guangzhou

Beijing
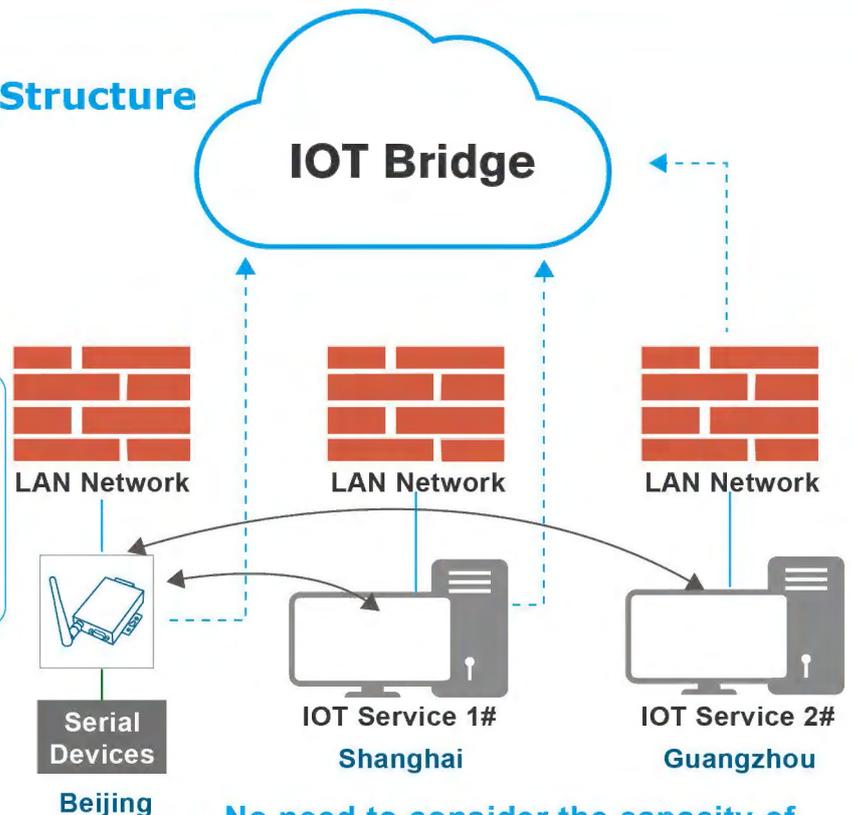
No need to consider the capacity of single server and bandwidth limitation.

6. Advantage
Data Redundancy Backup

Only add one server for data backup.

IOT Bridge

LAN Network

LAN Network

LAN Network

Serial Devices

Beijing

IOT Service 1#
Shanghai

IOT Service 2#
Guangzhou

IOT Service 2+1#
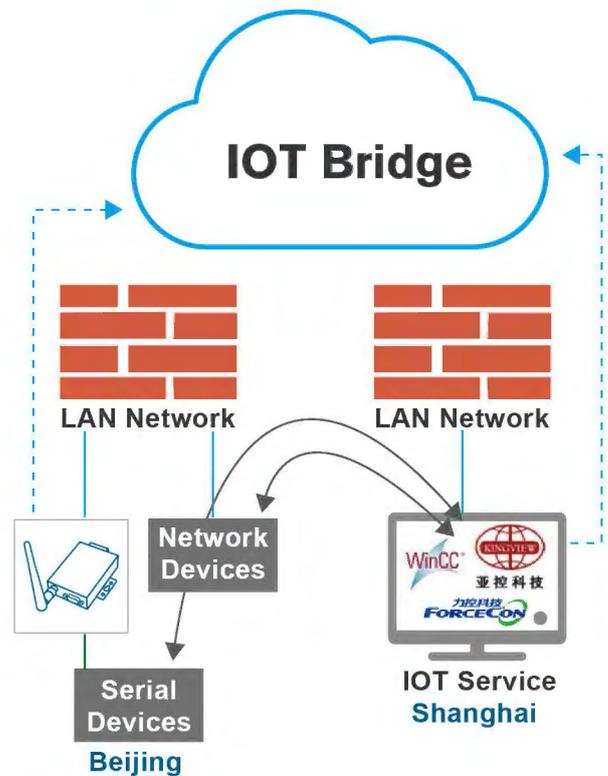
Redundancy backup is convenient if add another computer.

7. Advantage
Support a variety of configuration software

IOT Service supports common third-party configuration:

Kingview
Forcecon
MCGS
WinCC

Confguration software can connect with remote devices by virtual serial port, TCP or Modbus TCP.

IOT Bridge

LAN Network

LAN Network

Serial Devices

Beijing

Network Devices

WinCC KINGVIEW 亚控科技
力控科技 FORCECON

IOT Service
Shanghai

8. Advantage
Devices in LAN network can connect to the Internet

Other devices in the same LAN network with IOTWorkshop equipments can also monitor and transmit data by IOT Service.

IOT Bridge

LAN Network

LAN Network

Network Devices

Beijing

IOT Service

Shanghai

IOT Bridge

LAN Network

LAN Network

WiFi

Ethernet

Network Devices

Beijing

IOT Service

Shanghai
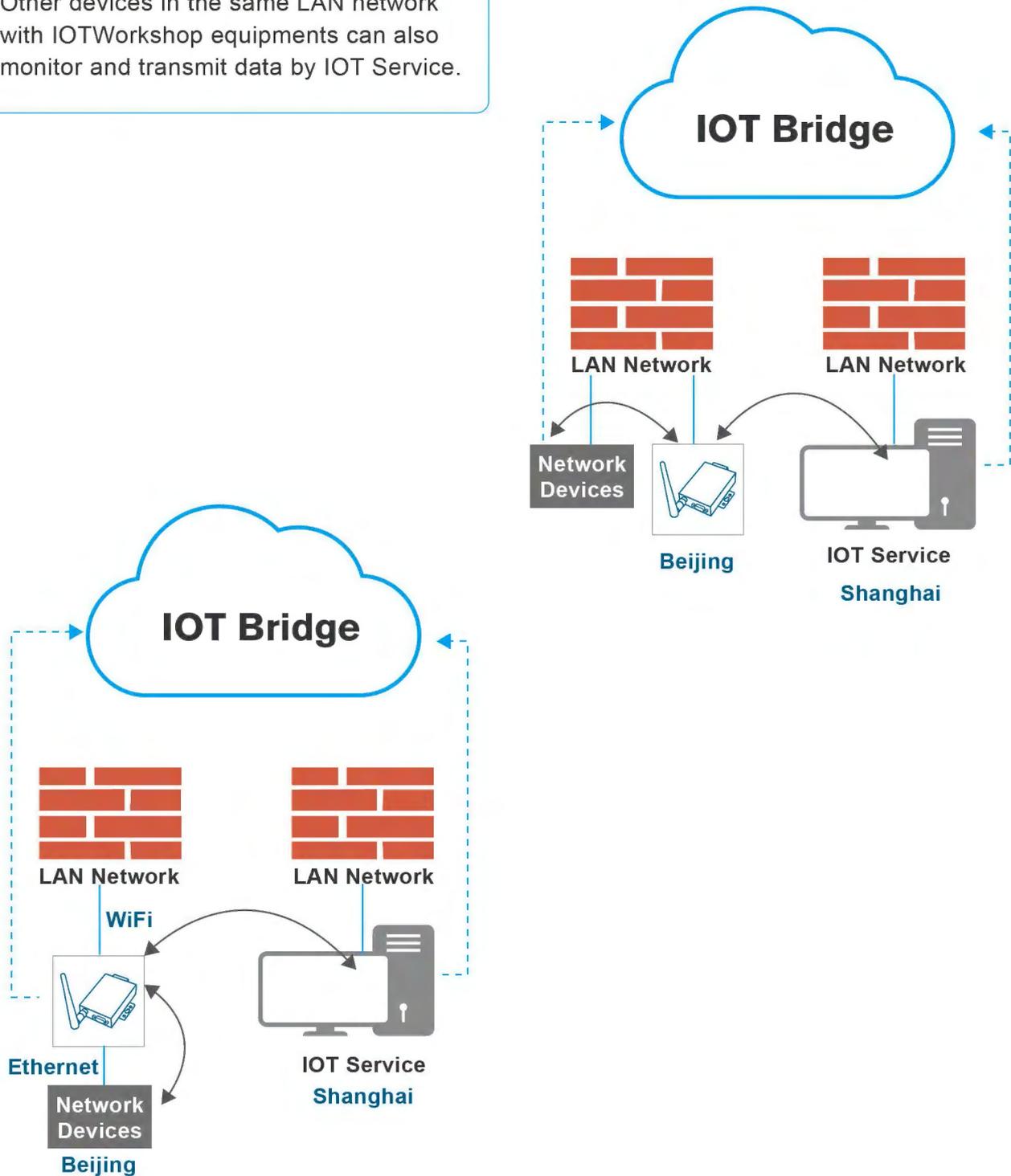
9. Advantage Real-time Map

Distrubtion map function can zoom in and out rate of map to search the devices in some fields dynamically. In domestic, Baidu Map statistics will be used. Otherwise, it is Google.

IOT Bridge

Web

Web
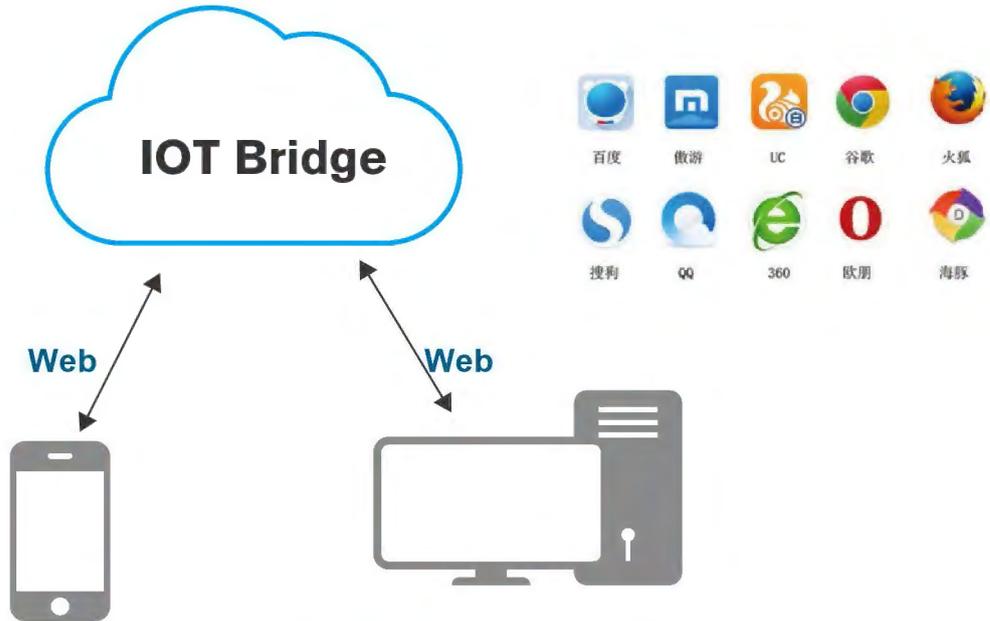
Device Distribution Map

Details

10. Advantage
IOT Bridge Dual-Server Sturcture

Devices in the same LAN network with IOTWorkshop devices can monitor and transmit data by IOTService.

Dual-server Redundancy Backup+Partition Rapid Processing

China

USA

IOT Bridge

real-time update/backup

IOT Bridge

LAN Network

LAN Network

LAN Network

LAN Network

Serial Devices

IOT Service

IOT Service

Serial Devices

Domestic

Domestic

Abroad

Abroad
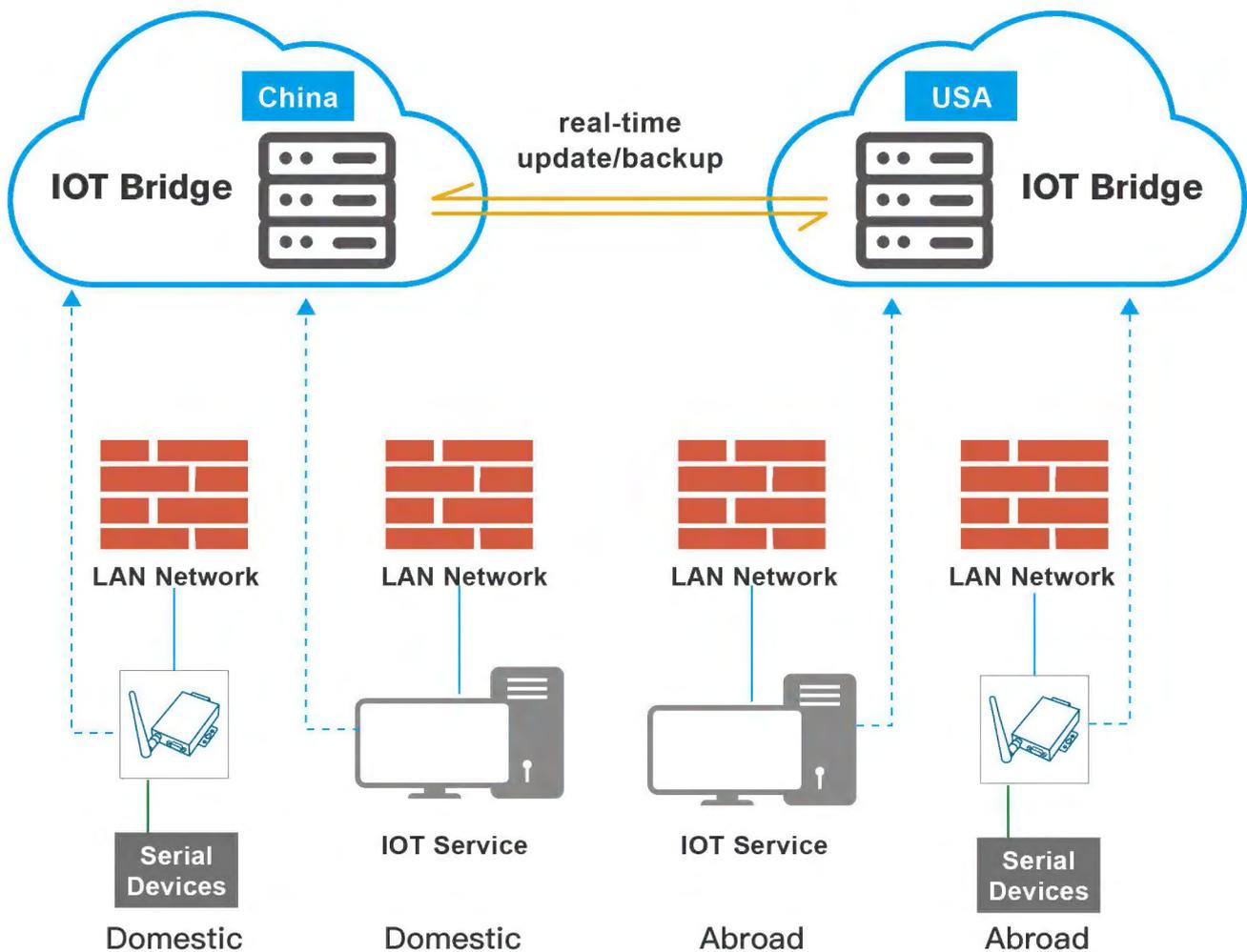
Chinese mainland employs China server while other places are USA server.

11. **Advantage**
Safe Encrypted Transmission Data

P2P login channel from IOTWorkshop and IOTBridge adopt ecryptedtransmission.

Data transmission between IOTWorkshop network devices and third-party softwares executing in IOTService can adopt encrypted way or not.

IOT Bridge

Encrypt   Decrypt

Plaintext   Plaintext   Plaintext   Plaintext

LAN Network   **LAN Network**

Decrypt

Encrypt   **Encrypt/No**   Ecrypt   Decrypt

Encryption Selectable   IOT Service

Serial Devices
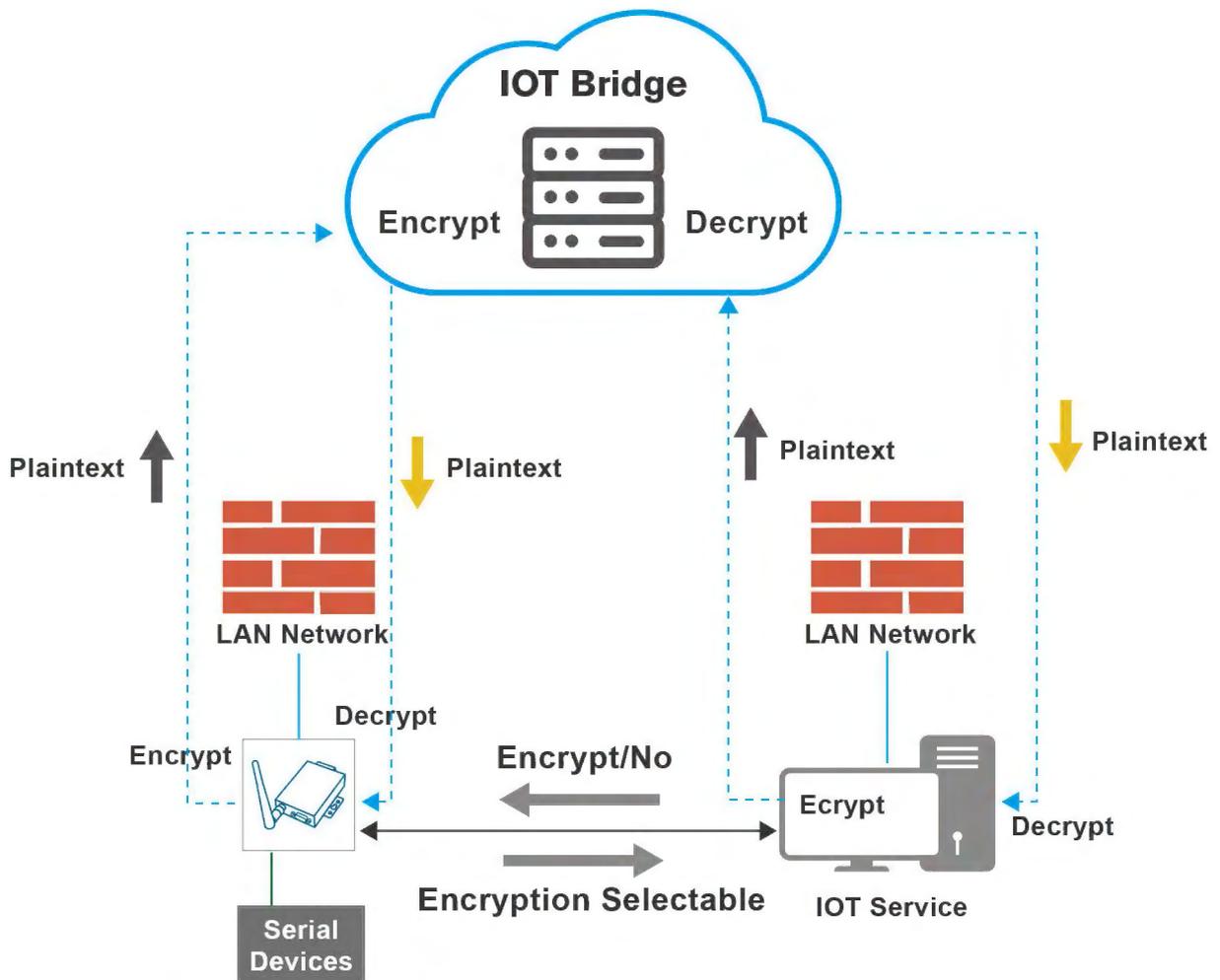
Feature

SNMP

Simple network management protocol SNMP, user can manage IOTWorkshop products by this protocol. And by loading MIB library, it is able to monitor if there is any managemented situation which connect to IOTWorkshop serial service.
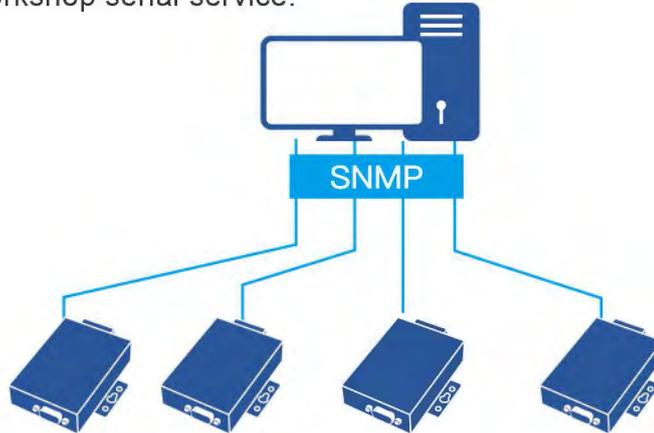
IPv6

It can subsitute new Internet protocol, which is used ti solve limited resource of network address and to improve the security of network communication.
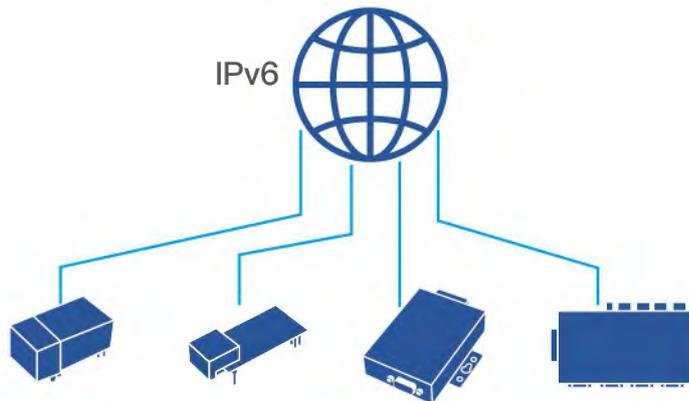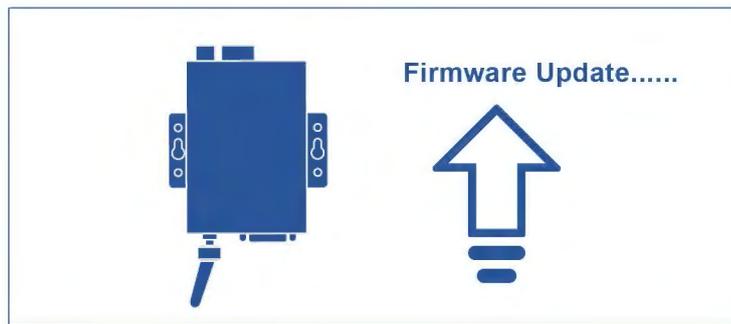

Open SDK

Products like embedded industrial computer has packaged SDK interface for users to do secondary development to achieve data colllection, data analysis, protocol conversion, logical processing,data uploading ect.
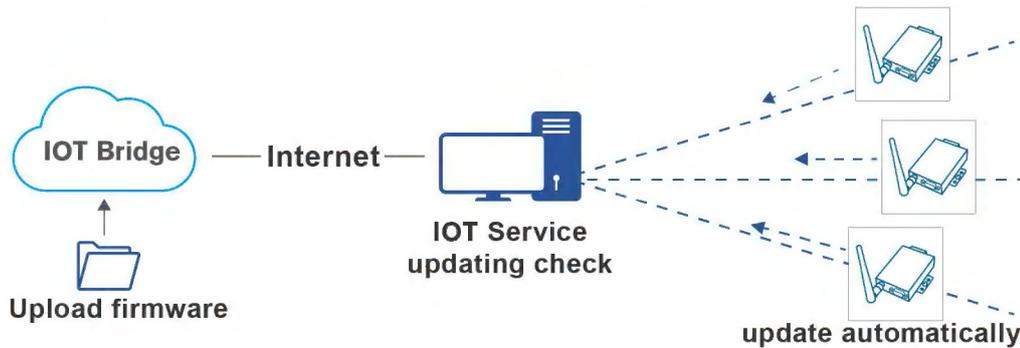
Firmware Update

It is no need to update to every device on the spot. By IOTManager or Web to update the device with in the same LAN network.


Firmware Update Remotely

By uploading firmware on the Internet, industrial products can be updated automatically.
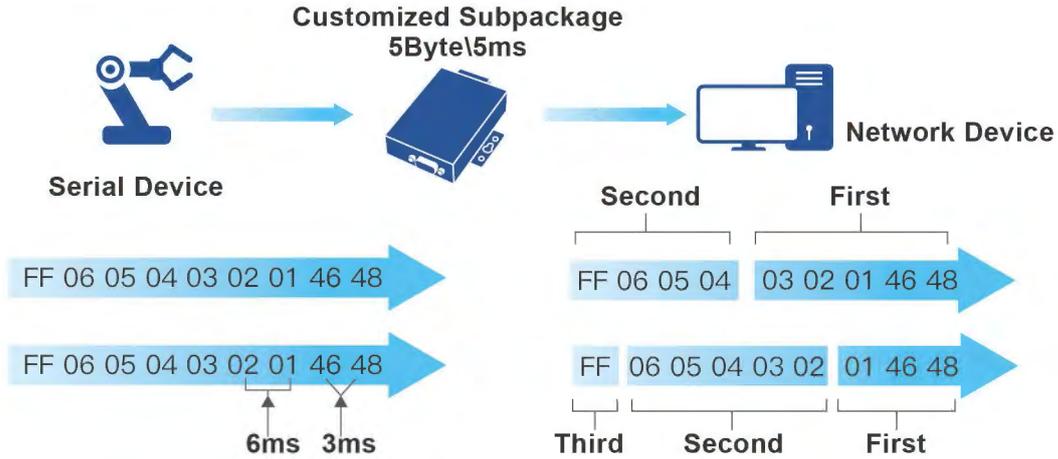

Customized Registration Mechanism

Afte build TCP connection between device and server, device will automatically sed a content-customized package which can be used as unique ID. Server can identify this package and store the follow-up data into the same database, User can customize the content or sending method of registered package.
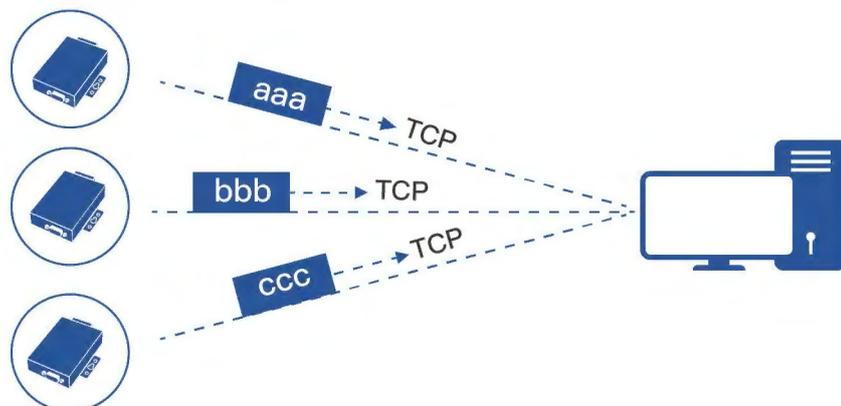
Customizd Subpackage Function

User can customize the subpackage rules of header and tail, length and time ect.

Customized Subpackage 5Byte\5ms

Serial Device

Network Device

FF 06 05 04 03 02 01 46 48

Second | First

FF 06 05 04 | 03 02 01 46 48

FF 06 05 04 03 02 01 46 48

6ms 3ms

FF | 06 05 04 03 02 | 01 46 48

Third | Second | First

Customized Webpage

Product has bulid-in server, user can modify parameter, update firmware, free edit page, exchange logo and develop web control by Web Socket.

Modify Parameter

Modify the setting parameter, work mode and communication protocol

Firmware Update

Web update product fimware

Web control

Click web controls to download customized serial packages

Web Server SDK Development

More convenient SDK for free webpage editing
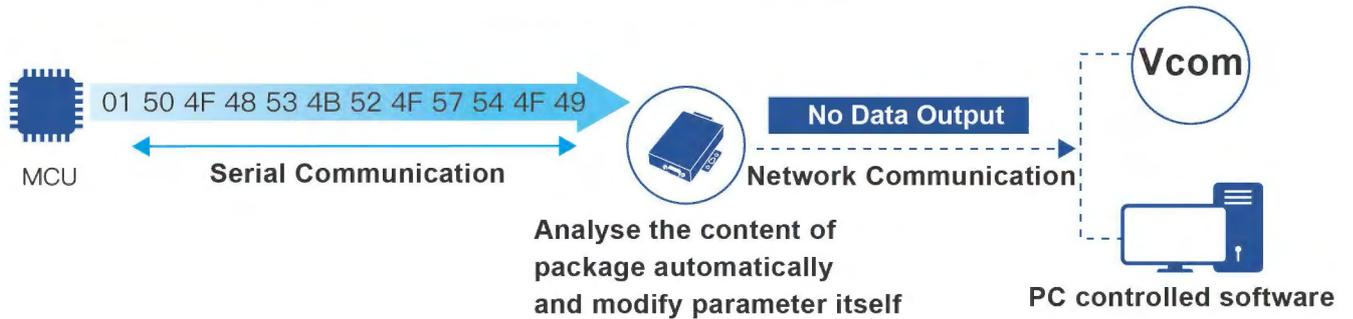
Support OEM

Exchange build-in logo freely

Customized Data Heartbeat

User can customize the content and sending time interval of a heartbeat package .After sending package and reaching the time interval, device will send heartbeat package automatically.It can be used to maintain the TCP link between devices and server, or to do some other application by customized heartbeat package.

Data content: 00 FF
Sending time: 10s

FF 00   FF 00   FF 02 01 46 48

10s
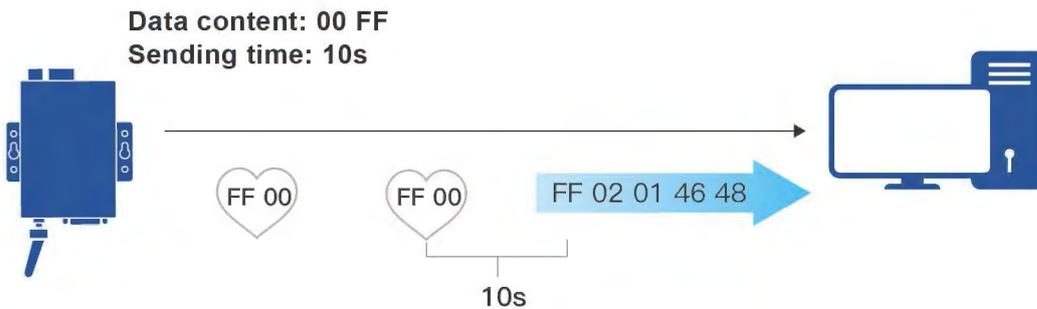
Quick Serial Command Configuration

Serial devices send a string of package which is based on the IOTWorkshop rules to IOTWorkshop device. It can quickly configure all the parameters at once.


01 50 4F 48 53 4B 52 4F 57 54 4F 49

MCU

Serial Communication

Analyse the content of package automatically and modify parameter itself

No Data Output

Network Communication

Vcom

PC controlled software

Package Filer

User can configure the 'lable' of package. In a sting of data, the valid data only comply with the 'lable' rule of header and tail of the package. When the data is valid, and then it can be transmitted. Besides, other parts will be abandoned. As a result, device achieve data filter funtion.

**Package Filter
Heafer: 01
Tail: 05**

Serial Device

Network Device

FF 06 05 04 03 02 01 46 48

05 04 03 02 01
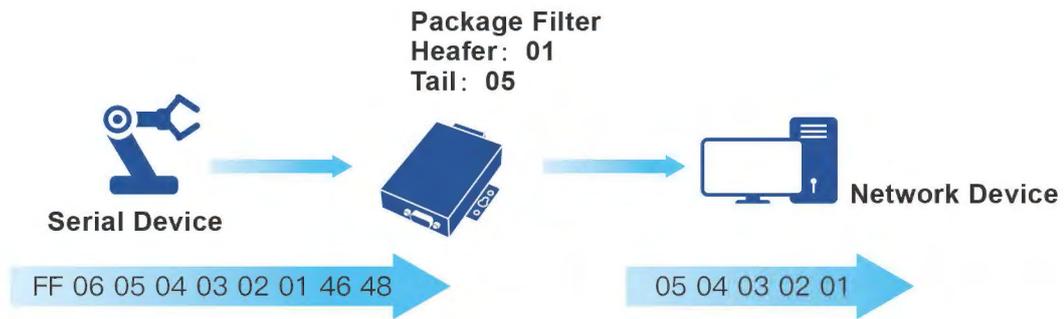
Five Sockets

Product support 5 network link and it can be one of following modes(TCP Server,TCP Client, UDP Server, UDP Client). Product can be used to multiple server backup for data transmission and remote exception diagnosis.
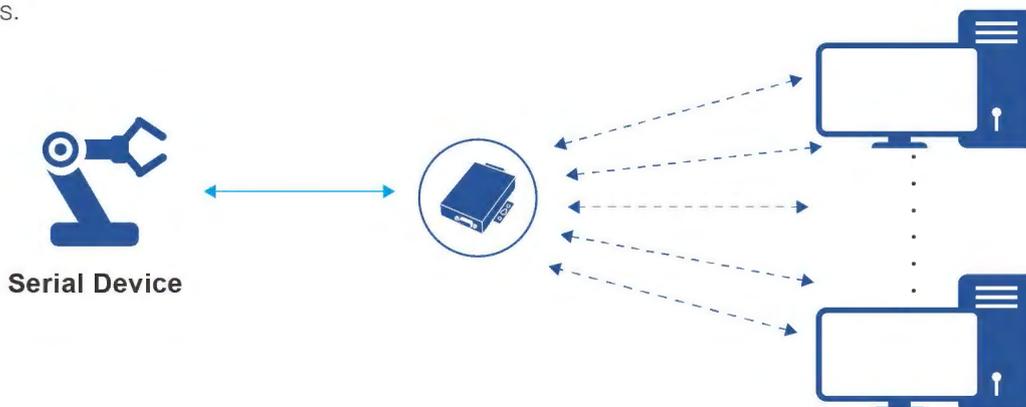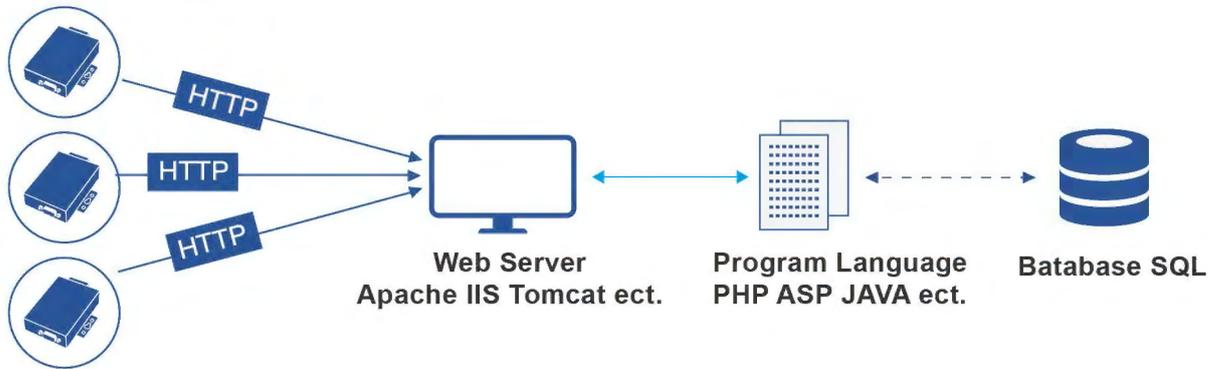

Serial Device

Embedded Web Server

Support user to use HTTP+Json to control serial device and show serial real-time data by web directly.

Web Control - - - - - → **HTTP+JSON** ← → **Serial Connection**

Configure build-in webpage

Serial Device

Http Client

It is no need to do TCP Server development to received serial packages because device will directly send to web server by HTTP protocol. By PHP, ASP, it can achieve data storage,which is useful to B/S structure.

HTTP

HTTP

HTTP

**Web Server
Apache IIS Tomcat ect.**

**Program Language
PHP ASP JAVA ect.**

Batabase SQL

Modbus TCP Protocol

It supports mutual transformation between Modbus RTU and Modbus TCP, which is suitable for PLC with Modbus RTU protocol connected with configuration software.

← **Modbus RTU** → ← **Modbus TCP** →

Serial Device
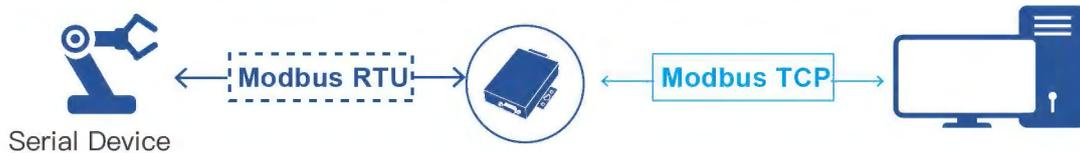
KeepAlive

TCP link is default and heartbeat package from bottom layer can maintain stability of TCP connection. As a result, it can effectively avoid invaild link caused by abnormal disconnection. User can modify the sending time of KeepAlive.

TCP Connection

Customized KeepAlive Time
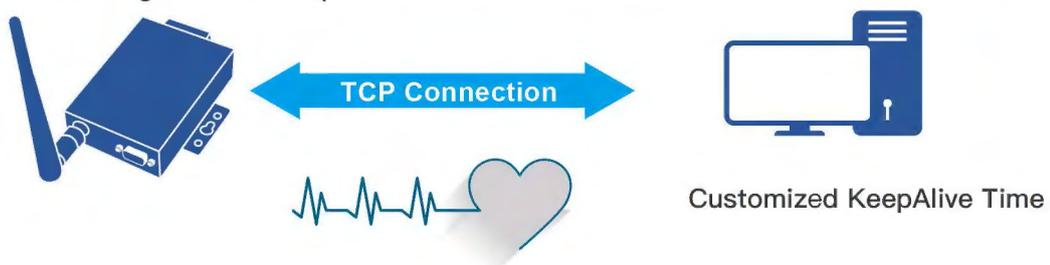
Parameter Import/Export

IOTManager can modify configuration parameter of device in batch after read its configuration parameter.
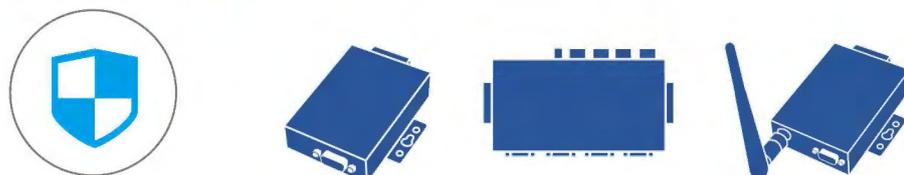
can be copied to U disk

Message Configure Paramter

Users can send message to device to set parameter by M2M message platform or phone number.

Internet

Message configure woring parameter
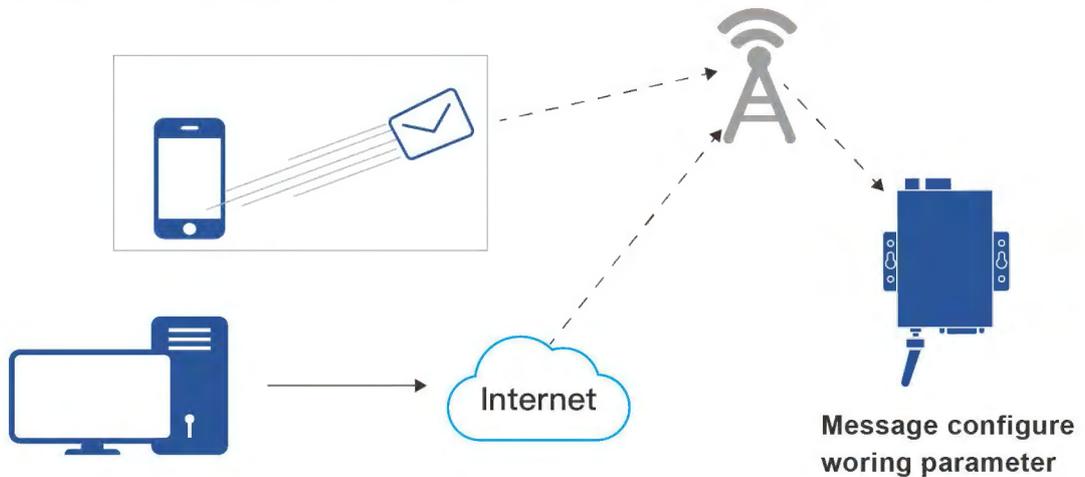
Hardware Protection

Test Program	ESD Static Discharge		EFT Electrial Fast Transient Bursts		
	Contact Discharge	Air Discharge	Anti-surge (Common Mode) (8/20uS)	Anti-surge (Differential Mode) (8/20uS)	Pulse Group
RS232	±8KV	±15KV	±4KV		
RS485	±8KV	±15KV	±4KV	±2KV	1.5KV
RS422	±8KV	±15KV	±4KV	±2KV	1.5KV
RJ45 Interface	±8KV	±15KV	±4KV	±2KV	1.5KV
Power Interface	±8KV	±15KV			

Application

3D Printer

Medical Instruments

Cold Chain Cold Storge

Wireless Data Collection

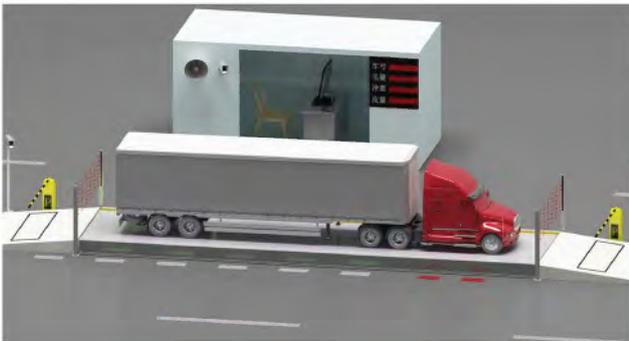**Teching Instruments**

**Smart Control and
Smart Home**

Handheld Device

Smart Wearing Equipment

Industrial Weighing

Smart Parking

Smart Transportation

Smart Charging Station

物联工场
IOTWORKSHOP

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Shanghai,China

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400-189-3108/18616078755/021-31291158-8082

Email
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Support: support@iotworkshop.com
Service: service@iotworkshop.com
Business: business@iotworkshop.com

IOTWORKSHOP WeChat