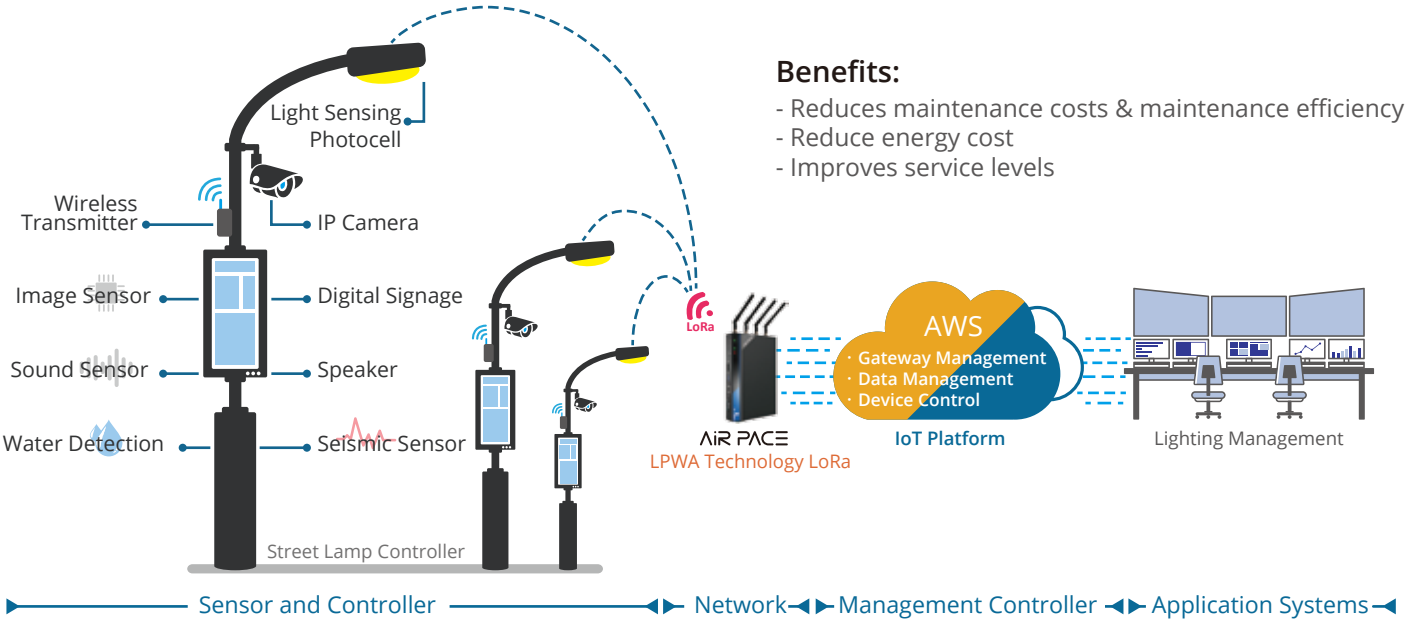
EtherWAN

Connecting Everywhere

– Simply, Securely and Reliably –

Smart Streetlamp System

Streetlamps represent a large portion of a city's allocated energy budget. For some energy grids, it is estimated that a smart grid Internet of Things (IoT) solution utilizing sensors, gateways and LED bulbs would provide large financial returns as well as valuable data. Leveraging EtherWAN's LoRa-based gateway – AiR PACE is the most cost effective way to Build up or densify an existing LoRaWAN™ network. EtherWAN has partnered with SoftChef AWS SaaS to provide a smart streetlamp solution that is designed to meet the growing needs of LoRaWAN service providers and customers who are looking to scale the deployment of LoRa sensors for street lighting, utility metering, or an increase in data traffic from video and audio edge services.

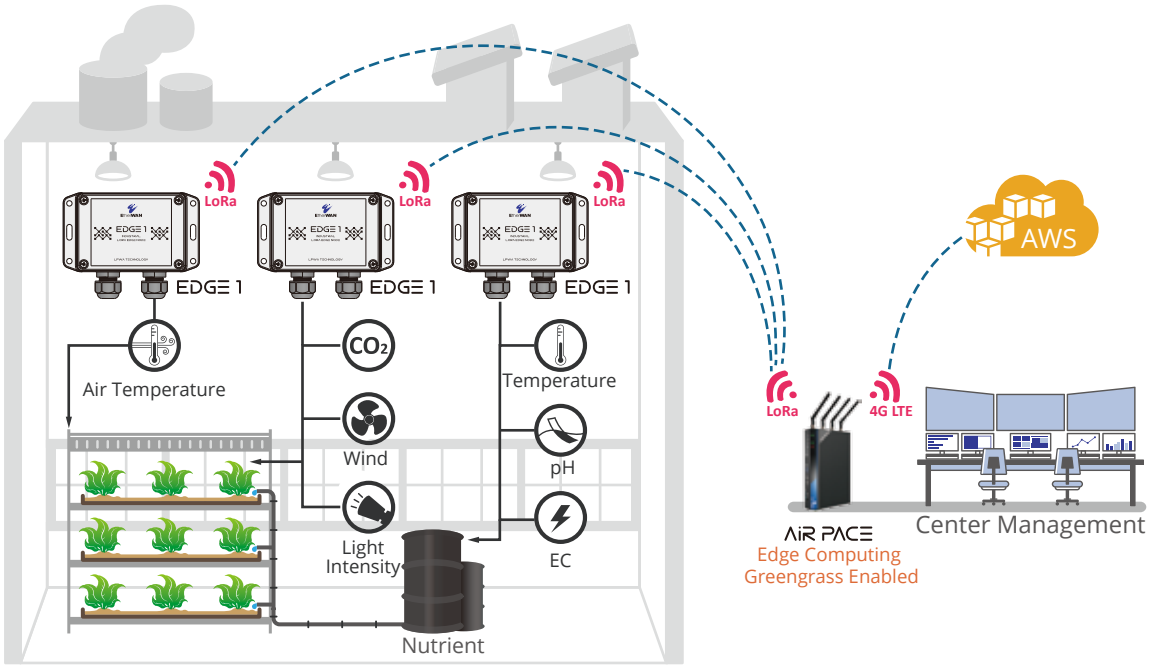


Benefits:

- Reduces maintenance costs & maintenance efficiency
- Reduce energy cost
- Improves service levels

Smart Agriculture - Vertical Farm

The Internet of Things (IoT) is transforming the agriculture industry, enabling farmers to better contend with the enormous challenges they face. New IoT applications are addressing these issues and increasing the quality, quantity, sustainability, and cost effectiveness of agricultural production. Leverage EtherWAN IoT solutions (LPWA Technology) to remotely monitor sensors that can detect environment status, crop growth and livestock feed levels, remotely manage and control smart connected harvesters and irrigation equipment, and utilize artificial intelligence based analytics to quickly analyze operational data.



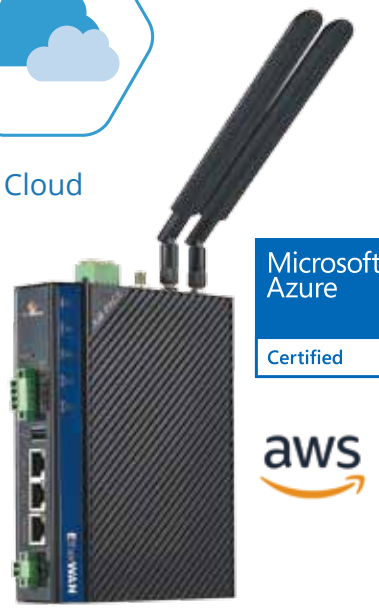
Rediscover Data From The Edge

EtherWAN aims to utilize IoT technologies to support the digital transformation of various industrial vertical markets. We provide comprehensive IoT connectivity products and solutions to provide advanced features such as edge computing capabilities, reduced cloud-end computing resources, data optimization, and model analysis on the edge.

Low-power wide-area technologies deliver best-in-class power savings. Reliable and agile connection with comprehensive data security ensures connective quality and stability.

IoT LPWA Solution

EDGE 1 EDGE 2



AiR PACE

Microsoft Azure Certified

aws qualified device Internet of things

Environment Monitoring Dashboard

Remote Control Interface

MQTT

- Gateway Management
- Data Management
- Device Control

Rugged Industrial Design

Secure Remote Access

Easy Management

Multiple I/O

EW50 EW200

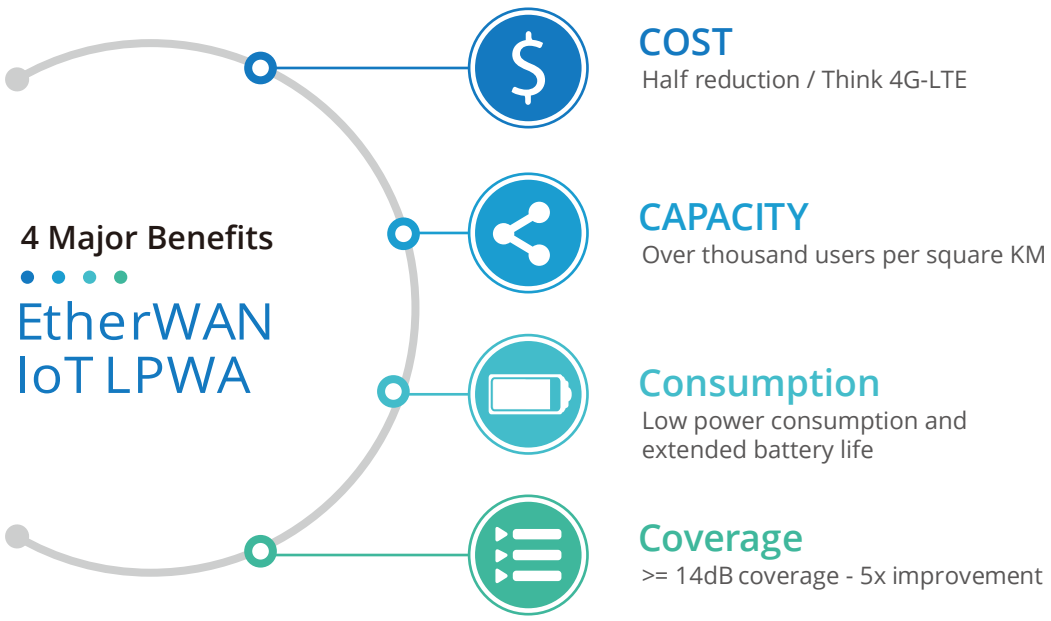
Microsoft Azure Certified

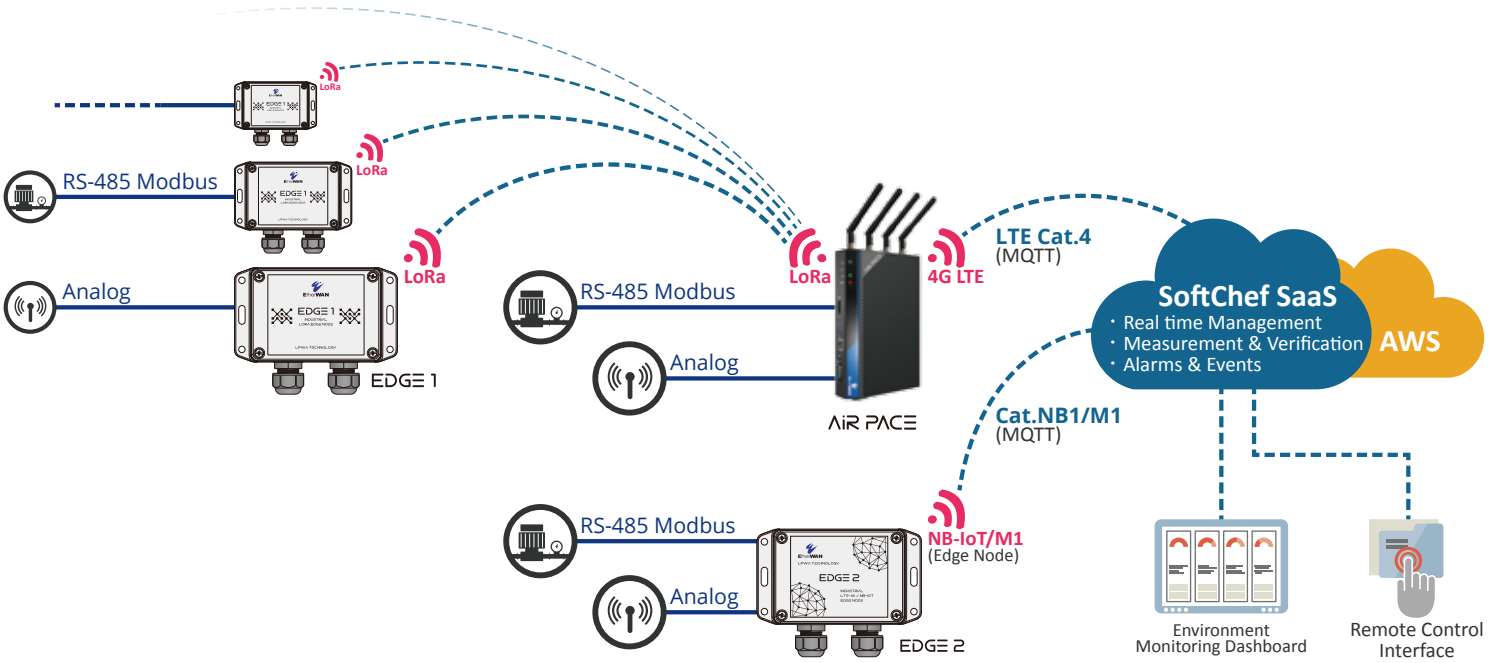
EtherWAN LPWA Technology

Specifically designed for the Internet of Things (IoT), Low Power Wide Area (LPWA) wireless network technologies address the cost, power and coverage issues that have slowed the development of industrial, smart city and other IoT solutions. LPWA technologies include cellular based LTE-M and NB-IoT and LoRa, which helps lower IoT device costs by as much as 50 percent, improving the ROI of IoT solutions. LPWA devices also require much less power than other cellular technologies—up to 100 times less than broadband LTE.

EtherWAN provides comprehensive LPWA technology devices and delivers a new class of wireless technology specially designed for low data IoT applications.

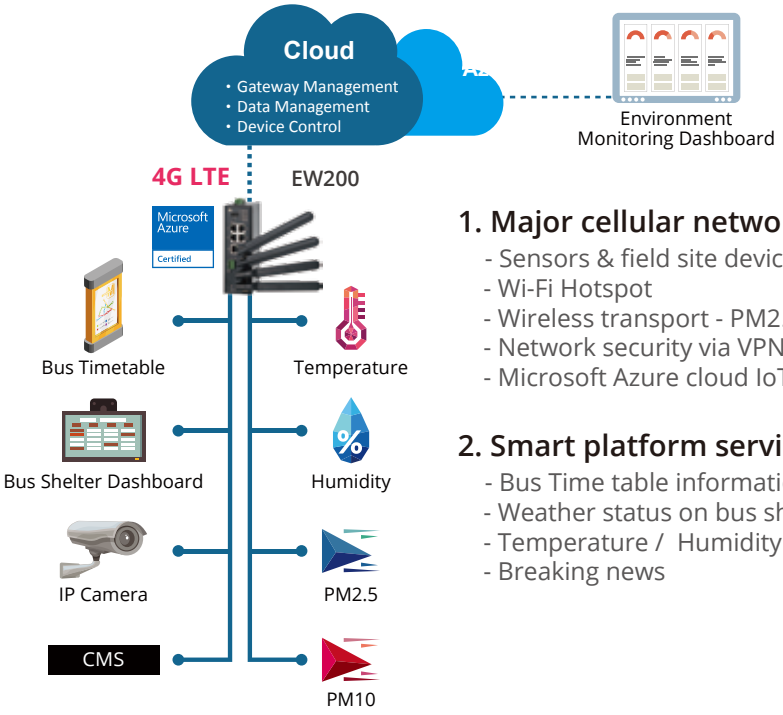
- Simply connected with simply smart -





Smart Bus Shelters

Cities are investing to become more efficient, while providing a better environment for citizens. IoT is a key aspect of this new trend. Bus shelters commonly used by commuters, and Integrating IoT with digital signage in bus shelters enhances communication. EtherWAN's EW200 cellular gateway plays a major role in connectivity.



1. Major cellular network connectivity

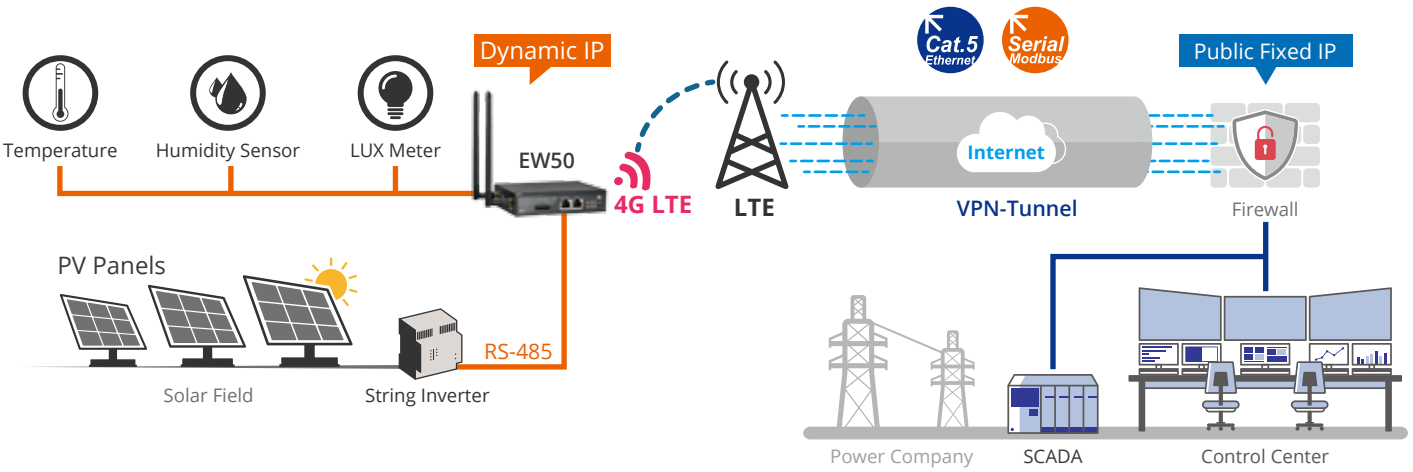
- Sensors & field site device connectivity
- Wi-Fi Hotspot
- Wireless transport - PM2.5 & PM10 data transmission
- Network security via VPN & Firewall
- Microsoft Azure cloud IoT platform connectivity

2. Smart platform service provides all accessible info for citizens

- Bus Time table information
- Weather status on bus shelter area information
- Temperature / Humidity / - PM2.5 / PM10 detection data display
- Breaking news

Solar Power Plant Monitoring & Control System

Information transmission is critical in the energy field. Any minor error may cause serious consequences. EtherWAN delivers an advanced LTE solution to monitor and manage equipment remotely in the entire energy field to prevent any abnormal operating condition. EtherWAN's EW50, an industrial Cellular gateway, is installed next to SCADA equipment as a data acquisition device and protocol converter. EW50 can support SCADA equipment directly from its serial port and diminish the need for a connected switch between two devices. Meanwhile, EW50 supports series communication with MODBUS over the TCP protocol and can deliver field monitoring data to control center without interruption, allowing the field manager to make crucial decisions and operate more efficiently to meet specific application needs.



	AiR PACE	EW200	EW50
Interface			
I/O	2-channel digital input DI 2-channel digitial output DO 2-channel analog input AI	Input: One (1) digital/analog Output: One (1) digital (open-collector)	6-pin panel socket (Not currently supported) ADAM Ethernet connected I/O modules
Ethernet Port	2*10/100 /1000Mbit/s Ethernet LAN Ports 1*10/100/1000 Mbps WAN Port (PoE PD optional)	5*10/100 /1000Mbit/s Ethernet LAN Ports	2 *10/100/1000 Mbits/s Fast Ethernet LAN Ports
USB	1 x USB 2.0 Port	1 x USB 2.0 Port	1 x USB 2.0 Port
SIM Card Slot	2 x MicroSIM push-push slots	2 x MicroSIM push-push slots	2 x SIM card
MicroSD	1 x Micro SD p	N/A	1 x Micro SD slot
Industrial Serial Port	1 x RS-232/RS-485	1 x RS-232/RS-485	2 x RS-232/RS-485
Wireless interface	4G LTE / LoRa Module (*Optional) - LoRa LAN • 8 – Channel LoRA Module	4G LTE & 802.11ac/b/g/n 2T2R (5GHz/2.4GHz selectable)	4G LTE
GPS	satellite positioning GPS: SMA x 1	N/A	N/A
Power Supply			
Input Voltage	Input Voltage: 9~36V VDC	Input Voltage: 12-48 VDC	Input Voltage: 9~36V VDC
PoE Operation	IEEE802.3at compliant Powered Device (PD)	N/A	N/A
Ambient Temperature and Humidity			
Working Temperature	-30~70°C	-30~70°C	-30~70°C
Ambient Humidity	10~95% (non-condensing)	10~95% (non-condensing)	10~95% (non-condensing)

		EtherWAN Edge1 Industrail LoRa Edge Node	EtherWAN Edge2 Industrail LTE-M/NB-IoT Edge Node
Wireless		**LoRa**	**LTE Cat. NB1 & Cat. M1**
Wireless Interface	Function	For low power, low data rate IoT edge node	For low power, low data rate IoT edge node
	IEEE Standard	IEEE 802.15.4g LoRa Modulation	LTE Cat. NB1 & Cat. M1
	Frequency Band	863-870 MHz (EU) / 902-928MHz (US)	B1/ B2/ B3/ B4/ B5/ B8 /B12/ B13/ B17/ B18/ B19/ B20/ B25/ B26/ B28/ B66
	GNSS	N/A	N/A
Network	Configuration	RS-232	RS-232
	Protocol	Modbus RTU/ASCII (Master), MQTT	Modbus RTU/ASCII (Master), MQTT
Analog / Sensor Input	Channel	3-ch	3-ch
	Input Type	Voltage, Analog	Voltage, Analog
	Input Range	0-10V, 4-20mA	0-10V, 4-20mA
Digital Input/ Output	Channel	2-Ch DI (supports Pulse, Dry Contact) /	2-Ch DI (supports Pulse, Dry Contact) /
Serial Port	Port Number	1-port RS-485 for Modbus RTU/ASCII 1-port RS-232 for device configuration	1-port RS-485 for Modbus RTU/ASCII 1-port RS-232 for device configuration
Power Input	Battery Power	4000mAh 3.6V Li-SOCL2 battery	4000mAh 3.6V Li-SOCL2 battery
	External Power	5V~12VDC	5V~12VDC