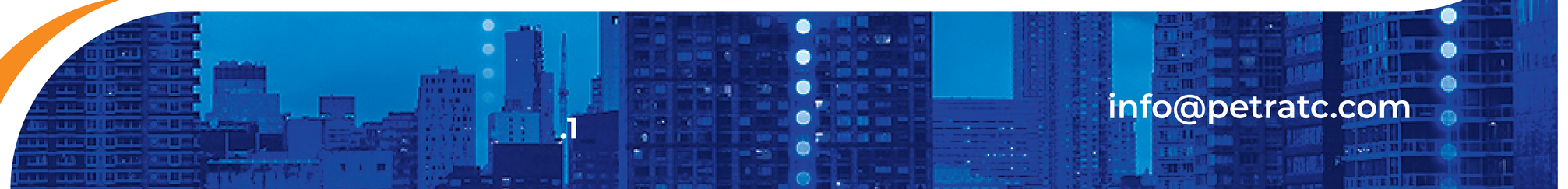
PETRA
EDGE

IoT Gateway Brochure



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Petra Edge
Iot Gateway

The Petra Iot Edge Gateway is an open-source solution that allows you to integrate devices connected to legacy and third-party systems with any cloud system using push/pull to adapt to any legacy or modern cloud architecture compatible with both Azure Iot Hub and AWS Iot core.

The Petra Iot platform for data collection, processing, visualization, and device management is a complete solution allowing clients to connect to any device through the support of the extensive list of Gateway legacy and wide range of standards including Modbus, OPC UA, MQTT and many others.

Overview
Hardware Features:

- Rockchip RK3568 Application Processor based on Up to
- 1.8GHz Quad ARM Cortex-A55 Cores
- Supports NPU Acceleration for AI-driven Applications
- 4GB LPDDR4, 32GB eMMC, Micro SD Card Slot
- 2x USB 3.0, 3x USB 2.0, 2x CAN, RS232, 2x RS485
- 2x Gigabit Ethernet, Wi-Fi/BT, PCIe Slot for 4G Module
- Supports Mini-DP and HDMI for High-resolution Displays
- Supports Linux and Debian OS
- Rugged and Fanless Enclosure Design

Applications:

- ESP Applications
- GasLift Applications
- Natural Flow
- Rod Pump Applications
- Dynamometer card-based pump-

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Off Control Facilities

Features:

.01 Robust and Efficient

A single Edge instance is capable of handling up to 10 devices, depending on the use-case and the capabilities of the deployed hardware.

.02 Durable

The Edge system collects all messages and events in a persistent layer. Selected messages can be transferred to the server, as per necessity.

.03 Customizable

Enhancing functionality is effortless with our rule engine, alongside the ability to customize widgets and dashboards to your preference.

.04 Low Latency

With local data processing capabilities, Petra Edge minimizes latency, enabling real-time data analysis and decision-making. This is particularly beneficial for applications requiring immediate response, such as industrial automation.

.05 Scalable

Distribute your computational tasks and data analysis across thousands of Edge instances for superior scalability.

.06 Real-Time Insights and Local Alarms

Gain immediate access to critical data and insights, allowing for informed decision-making and timely responses to emerging challenges. Respond instantly to critical situations on-site, even without connectivity to the server.

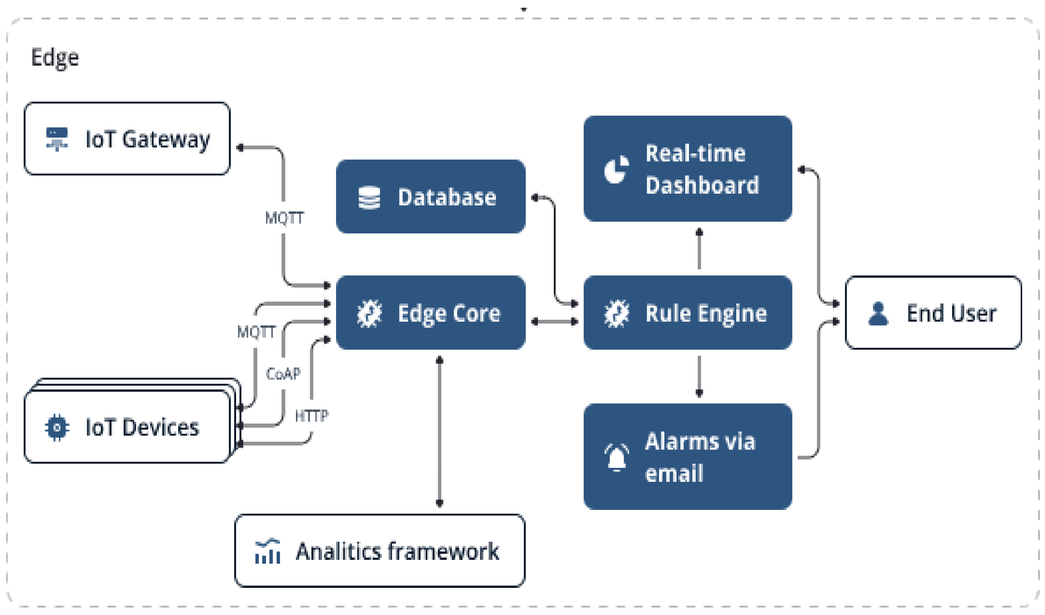
.07 Rule Engine

Process incoming device data with flexible rule chains based on entity attributes or message content. Forward data to external systems or trigger alarms using custom logic. Configure complex notification chains on alarms. Enrich server-side functionality or manipulate your devices with highly customizable rules. Define your application logic with drag-n-drop rule chain designer.

Provides a rich set of features elated to time-series data

System Software:

- Collect data from devices using various protocols and integrations.
- Store time series data in SQL (PostgreSQL) or NoSQL (Cassandra or Timescale) databases.
- Query the latest time series data values or all data within the specified time range with flexible aggregation.
- Subscribe to data updates using WebSockets for visualization or real-time analytics.



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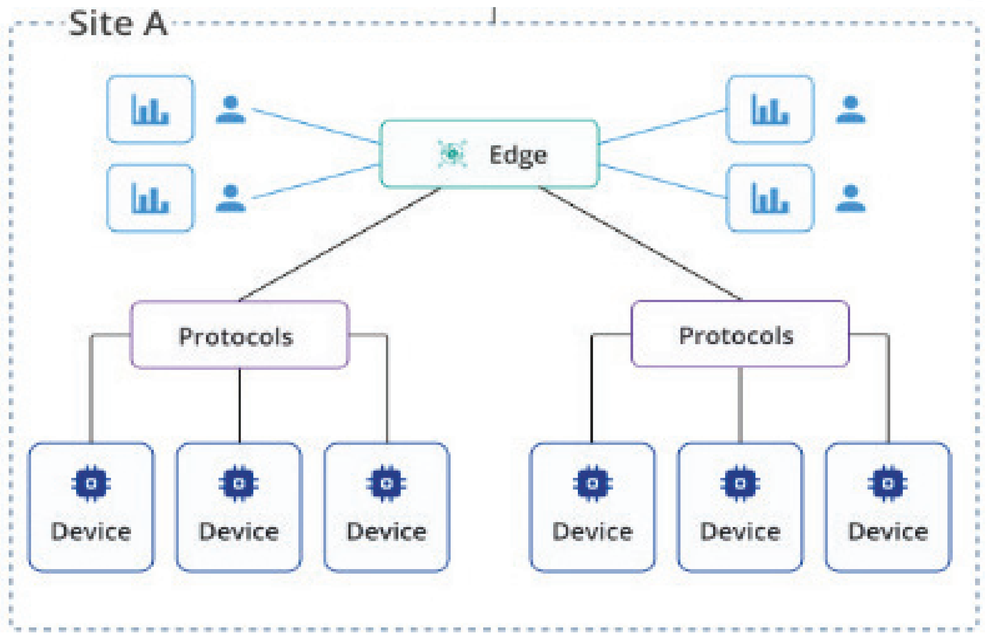
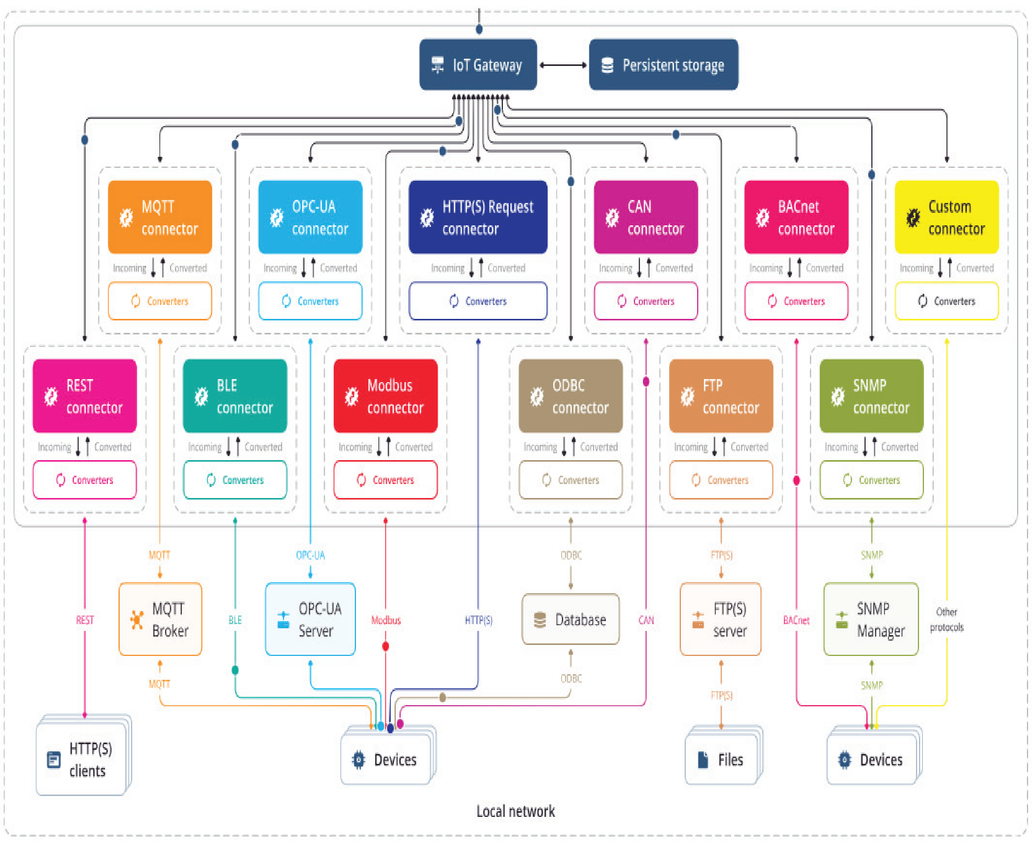
- Visualize time series data using configurable and highly customizable widgets and dashboards.
- Filter and analyze data using flexible Rule Engine.
- Generate alarms based on collected data.
- Forward data to external systems using External Rule Nodes (e.g. Kafka or RabbitMQ Rule Nodes).
- Petra Edge is a robust software product designed to leverage edge computing.
- With Petra Edge, data analysis and management is brought to the edge where data generation happens. It synchronizes effortlessly with Edge Cloud, whether it's Cloud or an on-premise installation, according to your business requirements.
- Petra Edge is designed for a single tenant and/or single customer. Sharing Edge between multiple tenants or customers is not feasible, and devices from different tenants or customers cannot be connected to a single Edge Instance. In such cases, multiple Edge instances need to be provisioned for each tenant or customer.



The EDGE Gateway supports the following industrial communications protocols:

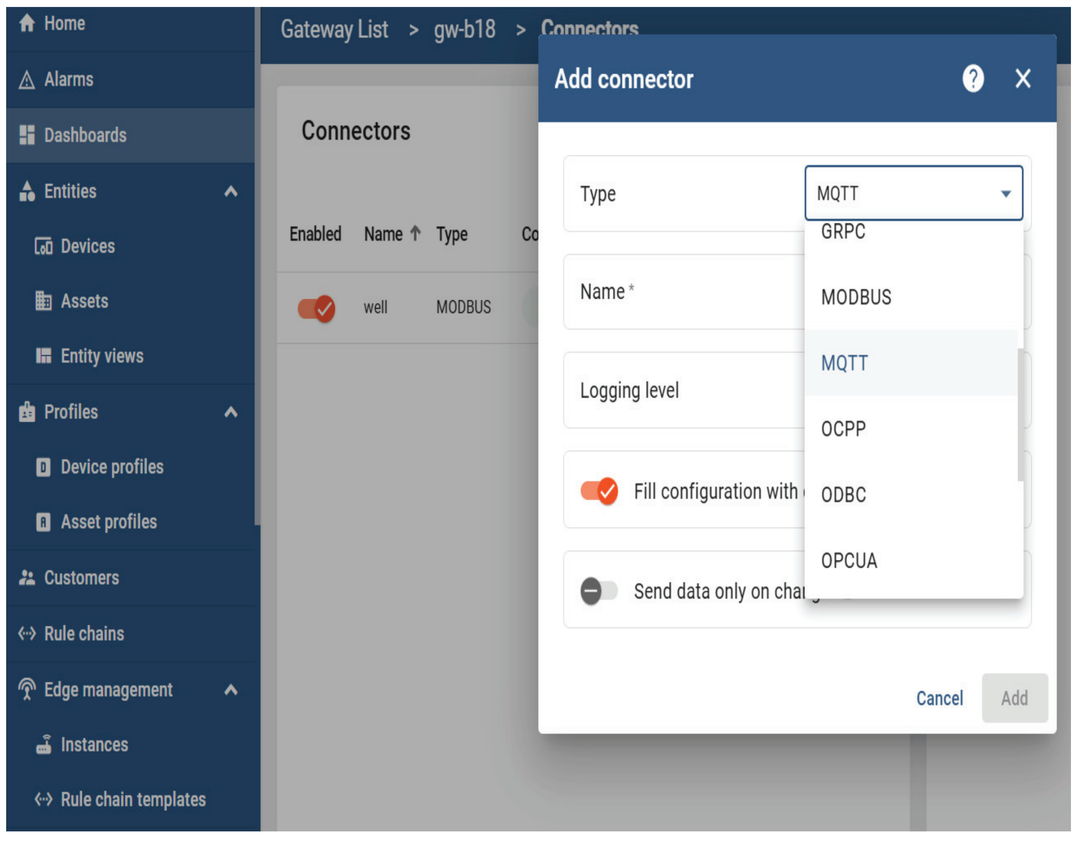
Protocol Support:

- MQTT connector to control, configure and collect data from Iot devices that are connected to external MQTT brokers using existing protocols.
- OPC-UA connector to collect data from Iot devices that are connected to OPC-UA servers.
- Modbus connector to collect data from Iot devices that are connected through Modbus protocol.
- BLE connector to collect data from Iot devices that are connected using Bluetooth Low Energy.
- Request connector to collect data from Iot devices that have HTTP(S) API endpoints.
- CAN connector to collect data from Iot devices that are connected through CAN protocol.
- BACnet connector to collect data from Iot devices that are connected through BACnet protocol.
- ODBC connector to collect data from ODBC databases.



Protocol Support:

- REST connector to create endpoints and collect data from incoming HTTP requests.
- SNMP connector to collect data from SNMP managers.
- FTP connector to collect data from FTP server.
- Socket connector to collect data from Iot devices that are connected through TCP/UDP protocol.
- XMPP connector to collect data from Iot devices that are connected through XMPP protocol.
- OCPP connector to communicate between Charge Point and Central System.
- KNX connector to collect data from Iot devices that are connected through KNX protocol.
- Custom connector to collect data from Iot devices that are connected by different protocols. (You can create your own connector for the required protocol).
- Persistence of collected data to guarantee data delivery in case of network or hardware failures.
- Automatic reconnect to the Server cluster.
- Simple yet powerful mapping of incoming data and messages to unified format.



Connectivity:

- CAT6 4G LTE-A 2 Ethernet Port Router with Peak Data Speeds:
- DL 300 Mbps / UL 50 Mbp
- Fully customizable platform that works as a standard or failover unit and the firmware can be updated over-the-air
- Change carriers? No problem! With Dual-SIM routers, the system will automatically failover to select which SIM to source as the primary.
- Equipped with the option to upgrade to 5G when applicable, equating to lower costs in owning and operating data connectivity over time.
- Satellite Option. Compatible with Static or Dynamic IP.
- Fully tested and operated with Starlink

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Advanced
Optional Modules

- OPC Server
- NOC
- AGA3, AGA8
- Wireless Gateway
- Production
  - -Wet Gas
  - -Well Test
  - -Master Valve Logic
  - -Bottom Hole Pressure Calculation
- Flow Rate Engine (Oil, Water, Gas, Liquid)

Operating Temperature

- -40°C to +85˚C (-40 ˚F to + 185˚F)
- Humidity Range 5-90% non-condensing

Enclosure

- Material: 0.090” thick aluminum Instrument Housing
- Finish: Optional White Epoxy, Suitable for offshore use
- Gasket: Neoprene
- Locking Mechanism

POWER:

- 12 VDC +20% battery charger on board; Low voltage cutoff at 10.8 VDC

Available as a Panel with Battery backup or as a standalone unit

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