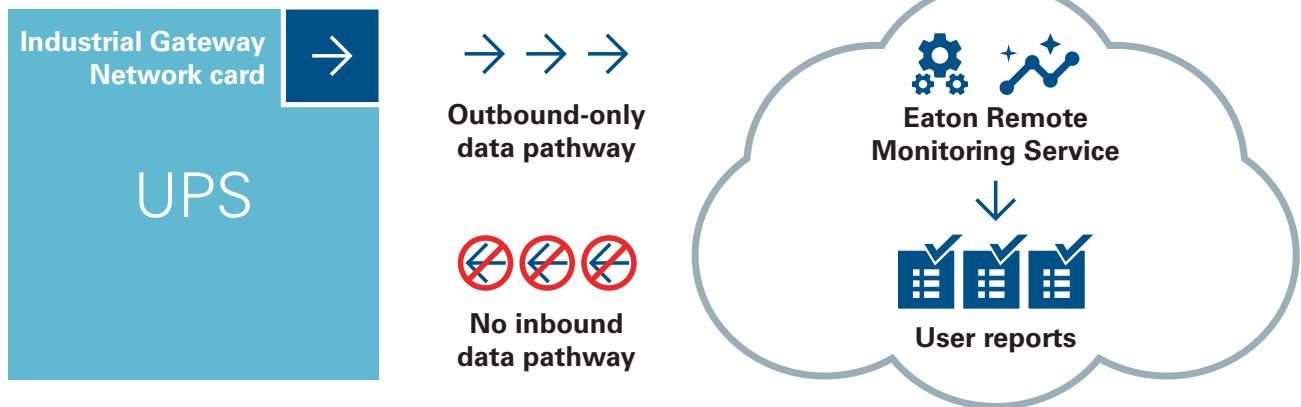


Eaton Remote Monitoring Service

Cybersecurity and connectivity overview

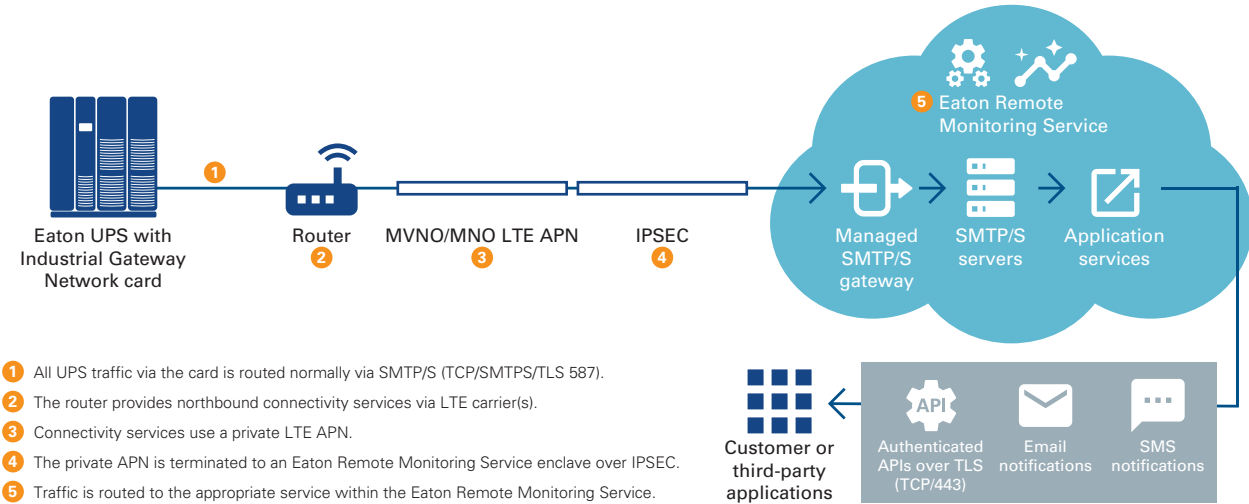
Eaton's cloud-based [Remote Monitoring Service](#) (also known as PredictPulse™) is part of our Brightlayer™ Data Centers suite. Our Remote Monitoring Service is built around outbound-only data communication without remote-control capability or inbound data. Outbound data is routed through secure network components and pathways, including Eaton's Industrial Gateway Network card, the first UPS network card certified to meet both UL 2900-1 and IEC 62443-4-2 cybersecurity standards.



Our Remote Monitoring Service offers two primary options for connectivity: a secure LTE wireless or wired network. Both employ cybersecure outbound-only communications, but they differ in their connectivity architecture, as shown on the following pages. If you'd like to discuss the product's connectivity architecture and cybersecurity in greater detail, contact your Eaton account representative or email predictpulseoperations@eaton.com.

Remote Monitoring Service LTE wireless connectivity

SMTP/S services include security assessment and scanning of all inbound messages, payload validation/verification and processing for application use.



▶▶▶ **DATA FLOW IS OUTBOUND-ONLY FROM DEVICE TO CLOUD** ▶▶▶

Network card

- UPS systems connect through an Eaton Industrial Gateway Network card. It provides high-security network services, certified to UL 2900-2-2 and IEC 62443-4-2, and collects environmental data through an Environmental Monitoring Probe (EMP).
- Multi-slot UPS systems can use separate cards for the Eaton Remote Monitoring Service and customer on-premise monitoring tools. Single-slot UPS systems do not support customer on-premise monitoring tools.
- On-premise monitoring connection protocols vary with customer implementation.

Data gathering

- UPS systems enabled for the Eaton Remote Monitoring Service form packets of telemetry, log and event data.
- Packets of information are provided to the Industrial Gateway Network card over an internal data bus.
- The card encapsulates the data packets into email messages and forwards them via SMTP/S to the Eaton Remote Monitoring Service, where they are validated and processed, and data is stored and presented.
- Event messages are sent per occurrence; telemetry and other messages are sent on a regular cadence or daily (depends on UPS).

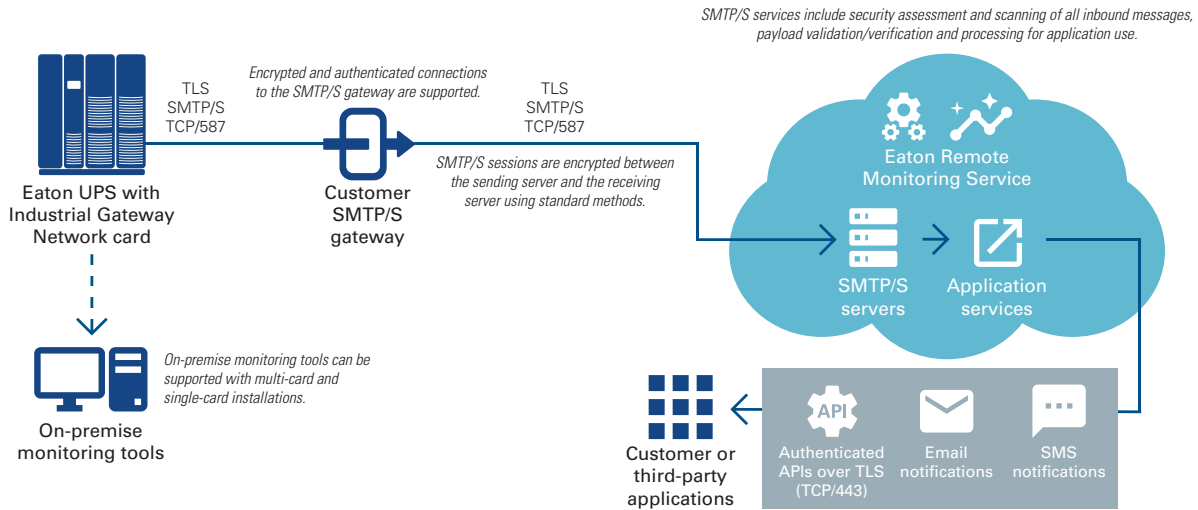
LTE router

- The LTE router provides several key services:
 - ♦ Managed connectivity using multi-carrier LTE.
 - ♦ Secure backhaul to the Eaton Remote Monitoring Service via Private APN and IPSEC.
 - ♦ Auto-provisioning and configuration of the Industrial Gateway Network card.
 - ♦ Traffic and security management.
- No local access to the router operating environment is possible.
- The router is fully locked and can only connect to the Eaton Remote Monitoring Service.
- The router is fully managed by Eaton.
- Eaton maintains the security, configuration and firmware of the router and the Industrial Gateway Network card.

Important notes and limitations

- UPS monitoring traffic is over SMTP/S – this is the same as an on-premise connection.
- Instead of the gateway SMTP/S server being customer-owned, the router sends all SMTP/S traffic to a Microsoft-managed SMTP/S server that provides messages to the Eaton Remote Monitoring Service.
- There is no ability to remotely manage the UPS.

Remote Monitoring Service wired connectivity



▶▶▶ DATA FLOW IS OUTBOUND-ONLY FROM DEVICE TO CLOUD ▶▶▶

Network card

- UPS systems connect through an Eaton Industrial Gateway Network card. It provides high-security network services, certified to UL 2900-2-2 and IEC 62443-4-2, and collects environmental data through an Environmental Monitoring Probe (EMP).
- Multi-slot UPS systems can use separate cards for the Eaton Remote Monitoring Service and customer on-premise monitoring tools. Single-slot UPS systems handle all connections through one card.
- On-premise monitoring connection protocols vary with customer implementation.

Data gathering

- UPS systems enabled for the Eaton Remote Monitoring Service form packets of telemetry, log and event data.
- Packets of information are provided to the Industrial Gateway Network card over an internal data bus.
- The card encapsulates the data packets into email messages and forwards them via SMTP/S to the Eaton Remote Monitoring Service, where they are validated and processed, and data is stored and presented.
- Event messages are sent per occurrence; telemetry and other messages are sent on a regular cadence or daily (depends on UPS).

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- There is no ability to remotely manage the UPS.

For more information, visit Eaton.com/RemoteMonitoringService or email predictpulseoperations@eaton.com.

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