Unified Connectivity for Multi-floor Data Center Infrastructure Management

Modern data centers are complex, multi-floor architectures that require a centralized DCIM brain to collect and process data from thousands of endpoints to orchestrate cooling, power, and facility environment monitoring. The main challenge is aggregating this data from disparate protocols across this diverse environment, which is often riddled with physical obstacles such as high EMI in power cabinets to cooling systems requiring high-frequency updates to prevent thermal runaway. To maintain the expected 99.995% uptime baseline, the data center requires a communication fabric that can aggregate cross-protocol data and deliver real-time analysis without latency or packet loss.

System Requirements

- **Infrastructure-wide Resilience:** Fail-safe network backbone for managing critical infrastructure spanning multiple floors and ability to maintain signal integrity in the presence of high-voltage equipment and heavy electrical loads.
- **Seamless Multi-system Integration:** The ability to collect and convert data from various southbound serial and fieldbus devices for integrating power, cooling, and safety systems.
- **Massive Data Acquisition:** The system must be capable of collecting and processing vast volumes of telemetry from a diverse array of power meters, thermal sensors, and leak detectors simultaneously.

Why Moxa

- **Comprehensive and Pre-validated Portfolio:** Moxa offers a one-stop ecosystem of industrial Ethernet switches and protocol gateways to create a unified communication stack, ensuring that every component from the edge to the core is pre-validated for interoperability.
- **IEC 61850-3 EMI-hardened Reliability:** Our IEC 61850-3 certified PT-G7828 Series Ethernet switches are specifically engineered to operate with unfaltering stability in zones with high EMI. These protections ensure localized electrical faults do not disrupt the flow of critical monitoring data, maintaining the integrity of the DCIM's source of truth.
- **High-performance Data Acquisition via Active Polling:** The MGate MB3660 Series gateways utilize a specialized active polling mechanism that prevents delays by autonomously requesting data from downstream Modbus devices and caching it locally, providing the DCIM with instant telemetry insights.