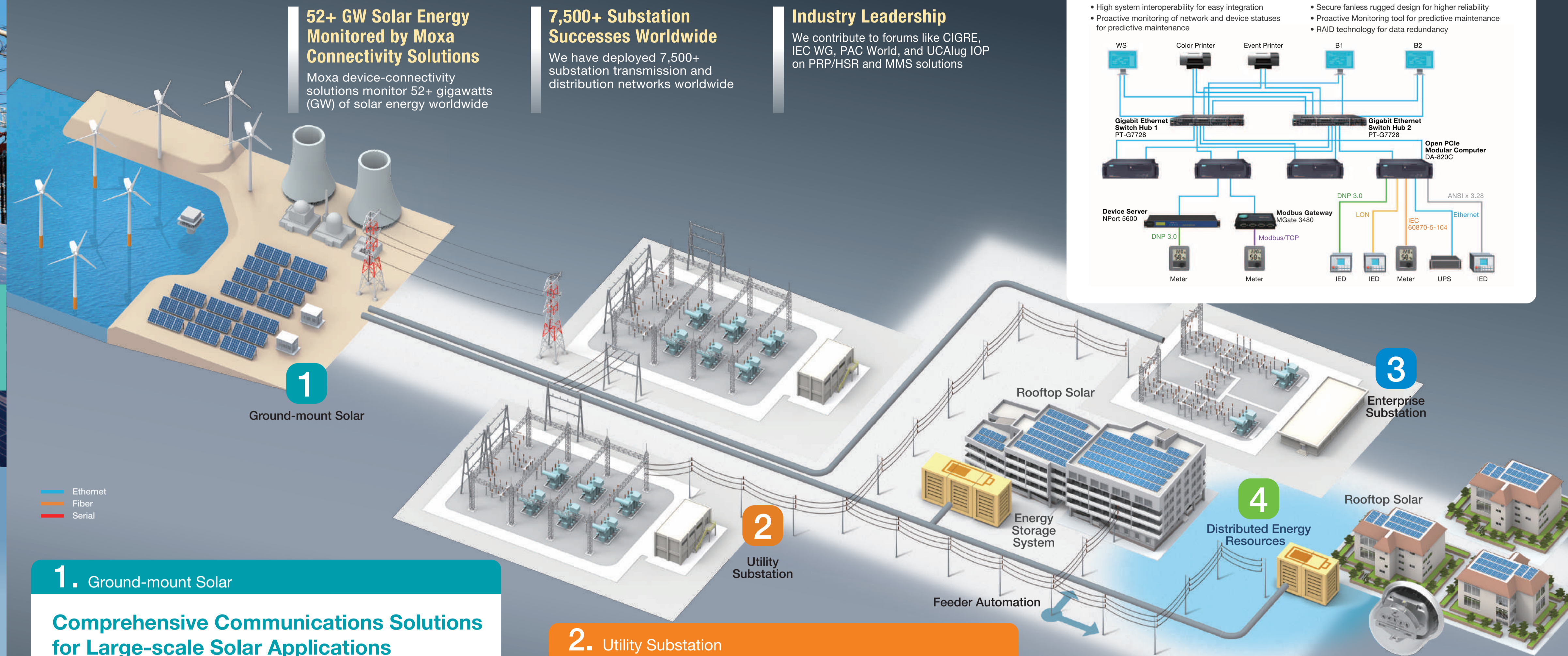


Empower Solar Energy and Substations with Industrial Communication and Computing Solutions



Ensure System Integration, Interoperability, and Availability in Solar Energy and Substation Applications

Moxa provides industry standards based communication and computing solutions, which allow you to easily manage distributed field devices and seamlessly integrate them with services and applications from SCADA systems and operator stations.



52+ GW Solar Energy Monitored by Moxa Connectivity Solutions

Moxa device-connectivity solutions monitor 52+ gigawatts (GW) of solar energy worldwide

7,500+ Substation Successes Worldwide

We have deployed 7,500+ substation transmission and distribution networks worldwide

Industry Leadership

We contribute to forums like CIGRE, IEC WG, PAC World, and UCAIlog on PRP/HSR and MMS solutions

3. Enterprise Substation

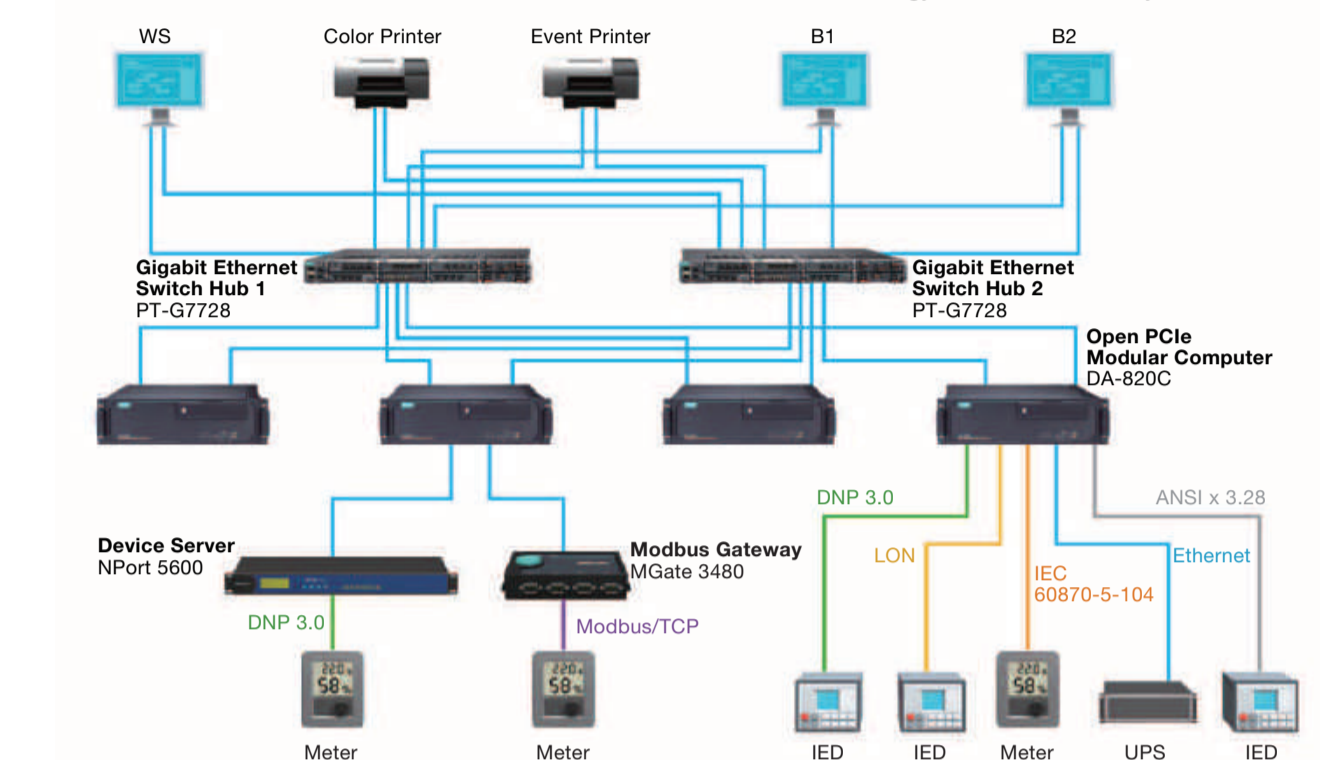
Reliable IEC 61850 Digitalization Solutions for Efficient Energy Utilization

Application Requirements

- Compliance with IEC 61850 standards for substation automation
- Support diverse communication protocols and interfaces to connect data to Ethernet networks
- High system interoperability for easy integration
- Proactive monitoring of network and device statuses for predictive maintenance

Moxa Solutions

- Comprehensive IEC 61850-compliant product portfolio
- Multi-protocol connectivity for a diverse set of end devices
- Secure fanless rugged design for higher reliability
- Proactive Monitoring tool for predictive maintenance
- RAID technology for data redundancy

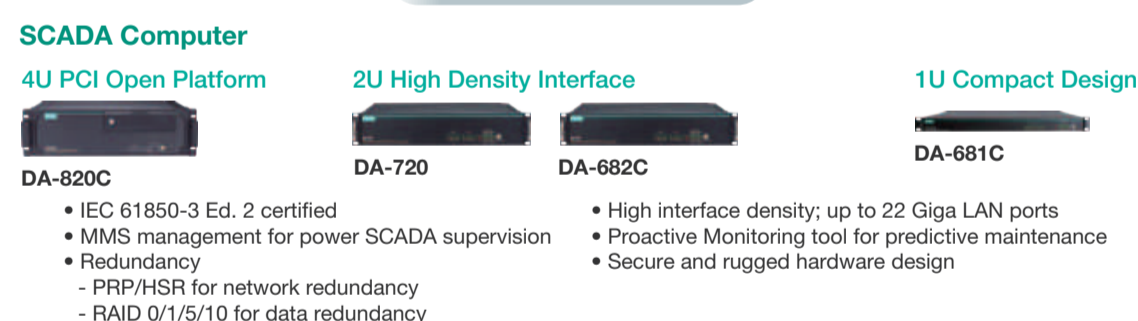


Recommended Products

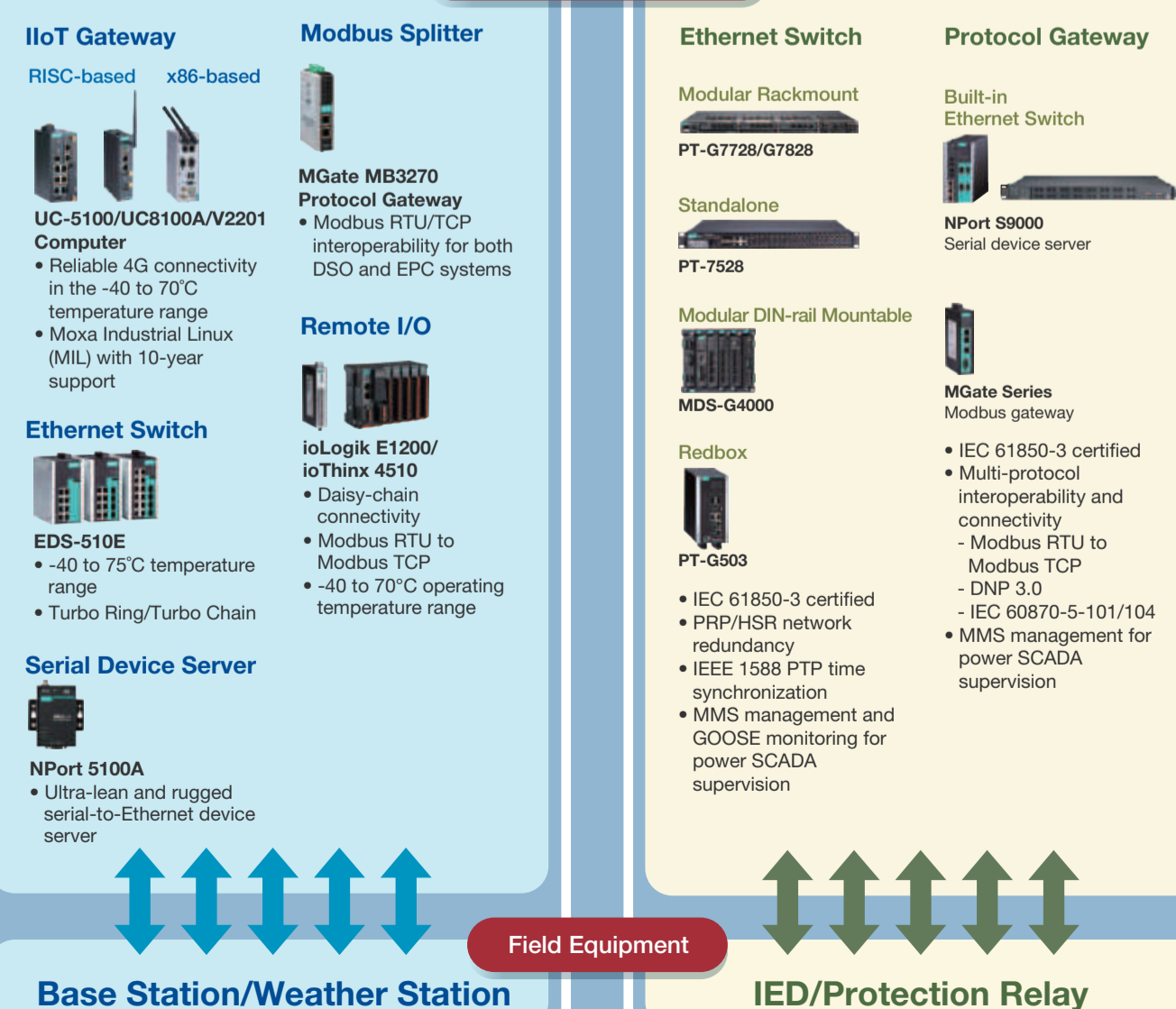
Distributed Energy Resources

IEC 61850 Substation

Management System



Communication Layer



1. Ground-mount Solar

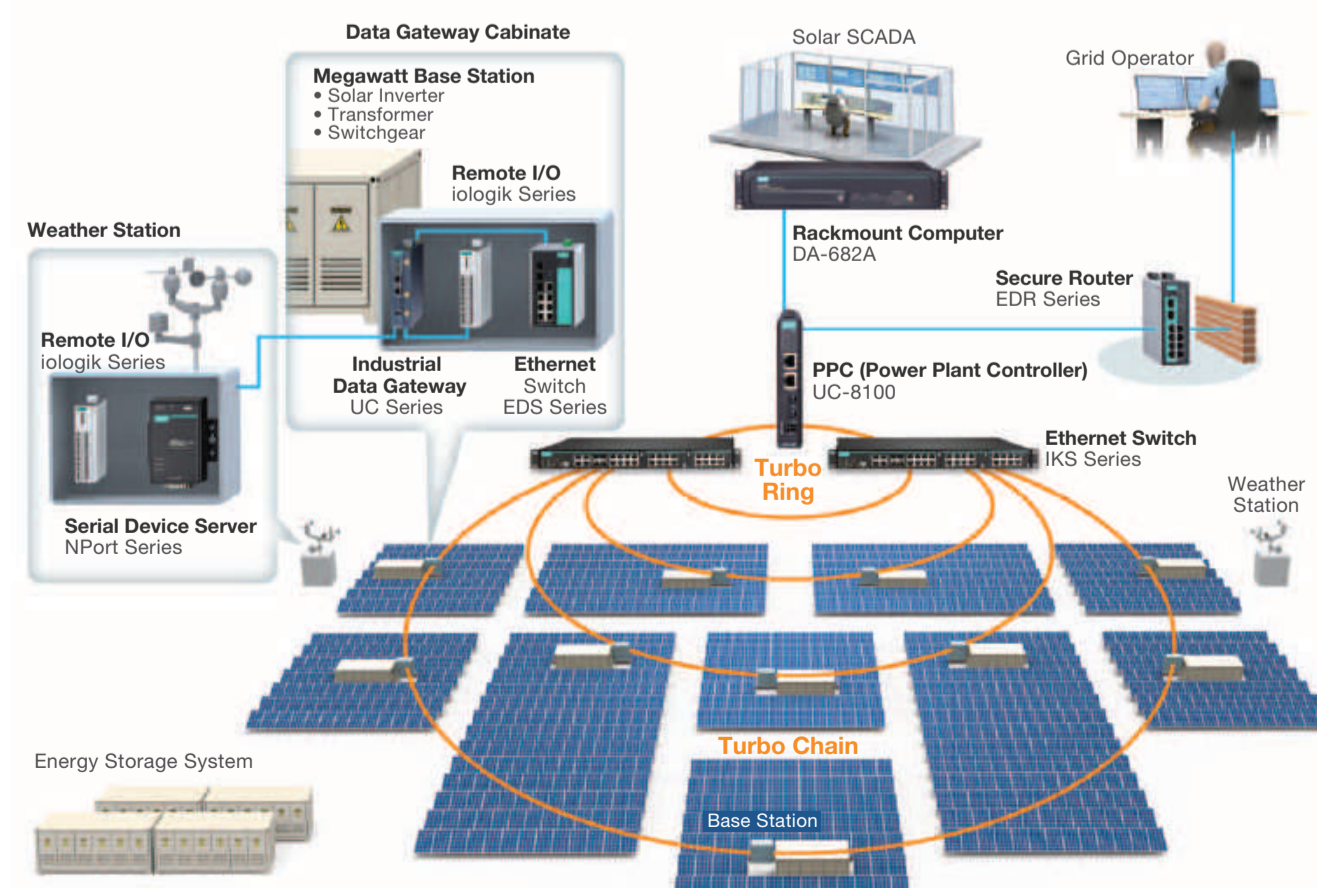
Comprehensive Communications Solutions for Large-scale Solar Applications

Application Requirements

- Require a power plant controller (PPC) to elicit fast response times to grid control commands
- Prevent data loss in the centralized platform that monitors and controls energy generation
- Operate in extreme temperatures to deliver accurate and timely data
- Support network infrastructure redundancy for continuous in-plant data acquisition
- Support diverse communication interfaces for data connectivity

Moxa Solutions

- Reliable computer with millisecond-level response time for use as a PPC and data gateway
- Patented Turbo Ring and Turbo Chain technologies to ensure network availability
- Ruggedized fanless hardware design to ensure system stability
- Support operations in -40 to 75°C range for deployment in harsh outdoor environments
- Support a variety of communication interfaces



2. Utility Substation

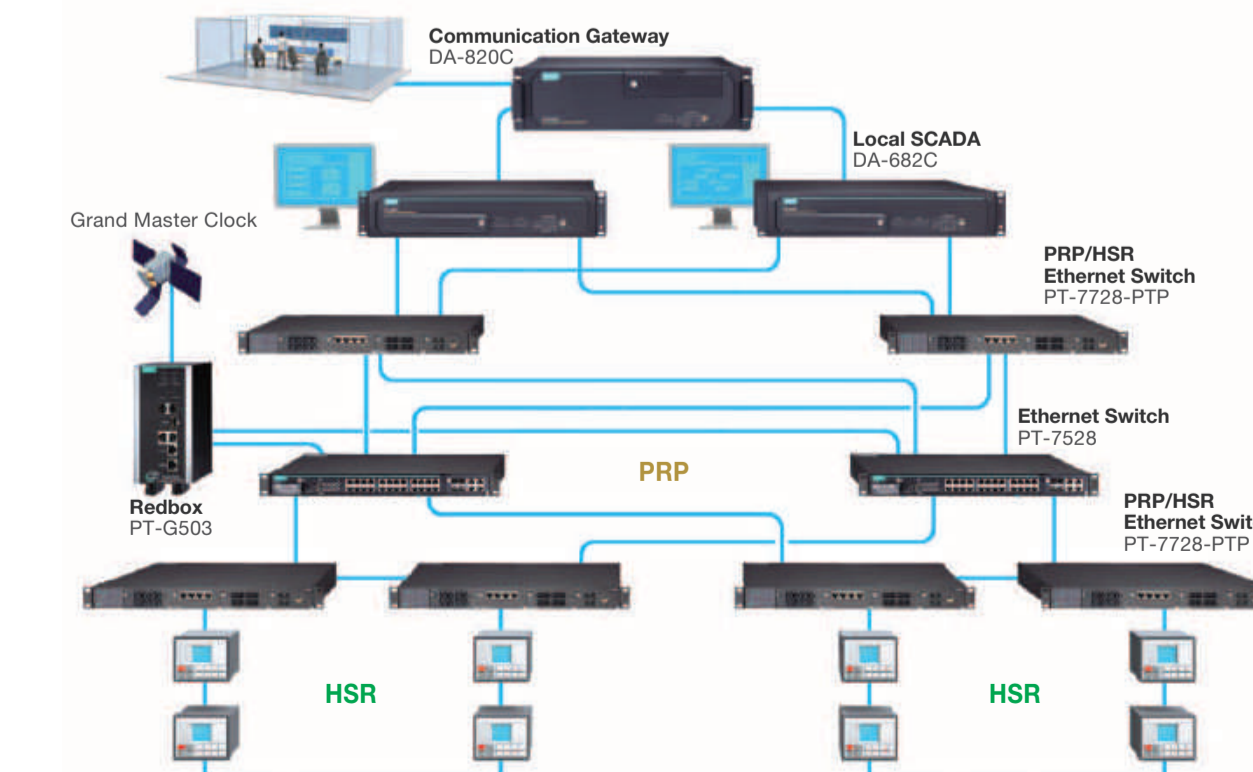
Domain Expertise in IEC 61850 Network Redundancy and SCADA Computing Solutions

Application Requirements

- IEC 61850, IEEE 1588, and PRP/HSR compliant solutions
- One power SCADA platform to monitor both control devices and redundant networks
- Fast network failover for seamless communication
- Proactive monitoring of network and device statuses for predictive maintenance

Moxa Solutions

- World's first integrated MMS-based centralized management and GOOSE monitoring solution for PSCADA supervision
- RSTP Grouping technology for easy integration of RSTP devices into PRP/HSR networks
- PRP/HSR redundancy and precise time synchronization using a single rackmount switch
- Support a variety of communication interfaces



4. Distributed Energy Resources

Intelligent Energy IoT Connectivity for DERs and Virtual Power Plants

Application Requirements

- Leverage IIoT connectivity in virtual power plants (VPPs) to aggregate data from various DERs
- Acquire large volumes of data in real time and send the data to the cloud for processing and storage
- Operate reliably in extreme temperatures
- Support high system interoperability for easy integration

Moxa Solutions

- Rugged systems that provide reliable 4G connectivity in -40 to 70°C operating environments
- Intelligent Modbus gateway for interoperability with both DSO grid operators and DER owners
- RESTful APIs to remotely configure, monitor, and control devices
- Store and forward data during intermittent connectivity using the DER control box
- Robust over-the-air (OTA) software upgrades

